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How do parents of adolescent patients with anorexia nervosa interact with their child at mealtimes? A study of parental strategies used in the family meal session of Family-Based Treatment.

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Abstract

Objective: To examine the range and frequency of parental mealtime strategies used during the family meal session of Family Based Treatment (FBT) for adolescent anorexia nervosa, and to explore the relationships between parental mealtime strategies, mealtime emotional tone and parental 'success' at encouraging adolescent food consumption. **Method:** Participants were 21 families with a child aged between 12 and 18 years receiving FBT for adolescent anorexia nervosa. Video recordings of the family meal session (FBT session two) were coded using the Family Mealtime Coding System adapted in this study for use with adolescents (FMCS-A) to identify frequency of parental strategies, emotional tone of the meal (measured by adolescent positive and negative vocalisations) and frequency of prompted mouthfuls consumed by the adolescent (measured by the number of mouthfuls consumed by the adolescent immediately following parental interactions). **Results:** A range of parental mealtime strategies were in use. Those used repeatedly included direct eating prompts, non-direct eating prompts, physical prompts, and providing information or food-related choices. Several parental mealtime strategies (direct and non-direct eating prompts) were found to be consistently associated with the tone of adolescents' vocalisations and the number of mouthfuls consumed in response to a parental prompt. **Discussion:** Despite associations with negativity from the adolescent, the use of food-related prompts (both verbal and physical) seems to be associated with increased eating. This indicates the potentially important role of parental control of eating. Following replication, these findings might provide a focus for therapists when supporting and coaching parents during the family meal session.

Keywords: Anorexia nervosa; Adolescent and family-based-treatment; Family meal; Parental feeding strategies; Mealtime interactions; Mothers; Fathers; Prompts to eat

How do parents of adolescent patients with anorexia nervosa interact with their child at mealtimes? A study of parental strategies used in the family meal session of Family-Based Treatment.

Family-Based Treatment (FBT) is the current treatment of choice for adolescent anorexia nervosa (AN) (1-3). Within FBT the family play a central role. Specifically, parents take responsibility for weight restoration in the early stages of treatment (4,5). In this context, family mealtimes provide an opportunity for weight normalisation and re-nourishment.

A common anorexic behaviour is food refusal (6), which can manifest as rejecting and complaining about food. The goal of *FBT session two* is for parents to facilitate their child eating one more mouthful than he/she is prepared to (4,5). However, the types of strategies parents use during this time to encourage food consumption have not been documented. It is likely that parents use tactics such as encouragement or pressure to eat, in an attempt to combat their offspring's food refusal and encourage consumption of one more mouthful. Such feeding strategies are commonly used by parents of younger children both with and without feeding problems (7-9). It has been suggested that an adolescent with AN may regress in their developmental stage of eating and hence should be viewed as a younger child who requires assistance from their parents (10). Consequently, parents of adolescents with AN may utilise similar feeding practices to those exhibited by parents of young children, particularly parents of children who exhibit food refusal (e.g., coercive strategies (11,12)).

The atmosphere during mealtimes with AN patients has previously been described as emotionally intense, with arguments reportedly occurring during the "fight for control" at the dinner table (13,14). This atmosphere might impact on the strategies that parents use during the mealtime and on the general emotional tone of the mealtime environment (i.e. the degree of positivity or negativity expressed by the adolescent). In addition, the emotional

atmosphere of a meal has been associated with young children's eating behaviours, with a more positive mealtime atmosphere (less negative parental statements) associated with higher levels of food consumption (15). Therefore, the level of 'success' parents' encounter regarding encouraging their adolescent child with anorexia nervosa to consume food may also be influenced by the emotional tone of the mealtime.

In summary, while research has highlighted the use of food-related practices among parents of younger children to encourage or limit food consumption (8), little is known about mealtime strategies used by parents within the context of adolescent AN. In addition, little is known about how adolescents respond to the mealtime strategies in use by their parents (i.e. whether adolescents with AN do indeed respond to the parental mealtime interventions by consuming food). Therefore, this study had four aims. First, to identify those mealtime strategies used by both mothers and fathers during the family meal session of FBT. Based on findings from studies with younger, yet similar groups (9), it was expected that a wide range of mealtime practices would be used during the session to encourage food consumption, with parents using a high level of direct and non-direct eating prompts and physical prompts. Second, to explore the relationships between parental mealtime strategies and the emotional tone of the mealtime (positive or negative), as indicated by the tone of the adolescent's comments (both specifically related to food and globally). It was predicted that the increased use of direct and non-direct eating prompts would be significantly related to higher levels of adolescents' negative comments, and lower levels of adolescents' positive comments. Third, to explore the relationships between parental mealtime strategies and parental 'success' in encouraging eating, as measured by the number of prompted mouthfuls (mouthfuls consumed by adolescents immediately following interactions with the parent). It was hypothesised that increased use of parental mealtime strategies would be associated with more prompted mouthfuls. The final aim of this study was to examine the relationship between parental 'success' regarding encouraging adolescent food consumption (the number of prompted mouthfuls consumed) and the emotional tone of the mealtime (as

measured by the total number of positive or negative mealtime comments made by the adolescents). It was hypothesized that adolescents' mealtime positivity would be associated with more prompted mouthfuls consumed.

METHOD

Participants

Twenty nine families of adolescents receiving FBT for adolescent anorexia nervosa participated in this study. Participants were a random subset of a larger sample (N = 82) recruited as part of an on-going randomized controlled inpatient and outpatient treatment trial of adolescent anorexia nervosa (16). The trial recruited participants from 266 consecutive eating disorder admissions to two specialist pediatric medical units between June 2007 and February 2010. Participants were eligible if they were aged between 12 and 18 years, with a DSM-IV diagnosis of AN of less than 3 years duration, were medically unstable at admission and were not receiving other psychotherapy while engaged in FBT. Video recordings of families participating in the second session of treatment (the family meal) were utilised. Of the 29 recorded sessions, eight were excluded due to the use of a translator during the session or the use of a paradoxical intervention by the therapist[1]. This left a final sample of 21 recordings of patients (1 male and 20 female) and their families. Of these families, 13 (62%) were intact (mother and father together) at the time of recruitment to the RCT. At session two, adolescents were aged between 12.9 and 18.2 years (mean 15.14; SD = 1.50). Adolescents had a mean percentage of ideal body weight at admission of 79.80 (SD 6.31). Fifteen participants had received a diagnosis of AN restricting subtype (71.4%) and six participants were diagnosed as AN binge-purge subtype

[1] A paradoxical intervention within session two of FBT is used when the patient appears to eat well during the session. To avoid parents missing an opportunity for empowerment within the session, the therapist may ask the adolescent to resist their parents' attempts to encourage them to eat. The resulting effect is that the adolescent will comply with either the wishes of the therapist, and not eat, or the wishes of their parents and continue to eat (4,5). As this technique may change the parental strategies and adolescent comments occurring during the family meal session it was decided to exclude these sessions from all analyses.

(28.6%). The majority of the participants were Caucasian (86%). All participants had received inpatient treatment for their eating disorder before undergoing FBT as part of the trial. Two participants had more than one previous inpatient admission, and one participant had also received FBT previously. The average duration of participants' (first) inpatient treatment was 28 days (SD 10.88) and the average duration of illness at admission was 9.81 months (SD 8.38).

Measures and procedure

FBT session two format

Patients were weighed and measured by the family therapist before the start of the treatment session. At the end of the first FBT session, parents had been asked to bring a meal for their child, to the next session, that they felt met the nutritional requirements needed to assist with recovery (4,5). During session two, the family eat a meal together in a therapy room. The session usually begins with the therapist asking questions to assess how anorexia has influenced food and eating for the family, before coaching the parents to encourage their child to eat. The goal of the session is for the parents to challenge the behaviours and cognitions associated with the anorexia by encouraging the adolescent to eat one more mouthful than he/she otherwise would. Strategies to encourage food consumption are not directly provided for parents, instead the therapist encourages parents to use their parental expertise and develop strategies they feel will work with their child. Strategies that align with the core tenets of treatment are encouraged and reinforced by the therapist (e.g., united parental decision making, externalising the illness, and setting up a sibling support system for the patient).

One video camera was set up in the therapy room (either on a tri-pod or attached to the wall) to record the duration of the session for each family and was positioned to be unobtrusive, yet to include all family members within shot.

Coding procedure

Coding of the mealtime started when any food was served to the adolescent, or the adolescent started serving themselves (e.g., unwrapping their food), or if someone verbally prompted the adolescent to start eating. Coding finished when all the food was finished (even if there was drink left), or the parents stated that the meal was finished, even if uneaten food remained. There were two meals, however, where the focus of the meal was a high calorie drink, and so for both of these meals, coding continued until the drink was finished. Meal duration timings and coding were temporarily stopped if the adolescent finished the food in front of them and then restarted if additional food was subsequently given to them. The total meal duration was calculated based on the sum of the duration of any separate eating occasions. Coding and meal duration timing only took place when the adolescent had food in front of them.

Family Mealtime Coding System – Adolescents (FMCS-A)

The FMCS-A was devised for this study to assess the interactions which occur between each parent and the adolescent whilst food is present. It is an adapted version of the Family Mealtime Coding System (FMCS) (7), which was developed to objectively assess the parental feeding practices in use with young children. To account for the developmental differences between young children and adolescents, items additional to those in the FMCS were included within the FMCS-A, based on previous research (8,18) and initial viewing of a subset (n=5) of the recordings.

The FMCS-A assesses the range and frequency of mealtime strategies exhibited by parents, as described below. Variables are coded separately for mothers and fathers. Further details of the coding scheme are available from the authors.

Direct eating prompts: Vocalisations aimed at directly prompting or pressuring the adolescent to eat (e.g., “You’ve got to eat all your eggs” or “Pick it up and eat it”).

Non-direct eating prompts: Vocalisations which are encouraging or suggestive regarding eating (e.g. “Keep going” or “Why don’t you eat some more pasta?”).

Physical prompts: Physical movement to prompt or encourage eating or drinking (e.g., pushing a plate of food towards the adolescent).

Restriction: Any method, either verbal or physical, which restricts the adolescent from consuming food or drink (e.g., “No more biscuits now” or “That’s enough juice”).

Positive incentives: Vocalisations describing positive activities which can be achieved through conducting a behaviour or achieving a goal (e.g., “If you eat that sandwich you can see your friends later” or “If you put weight on you can start dancing again”).

Negative incentives: Vocalisations describing the removal of an activity or the negative consequence related to conducting certain ‘negative’ behaviours, not conducting the desired behaviour or achieving a goal (e.g., “If you throw your sandwich on the floor you will eat two” or “If you lose weight you won’t be able to go on holiday”).

Autonomous comments: Offering food-related choices to the adolescent (e.g., “Do you want another one?” or “Which one do you want?”).

Informative provision: Providing informative comments about eating and the reasons to eat (e.g., “Your body needs the calcium” or “This will make your bones strong”).

In addition to assessing parental mealtime strategies, the FMCS-A also coded adolescent positive and negative vocalisations during the meal, as a measure of mealtime emotional tone. This included: (1) vocalisations made by adolescents that related to food served during the meal and (2) all vocalisations made by adolescents during the mealtime (including both food and non-food related vocalisations). The tone of each comment was coded as either positive or negative. Where this was not possible, the comment was coded as neutral and excluded from subsequent analyses. All comments made by the adolescent were coded. Comment categories are described below:

Adolescent positive food-based comments: Positive comments about the food served and generic comments or responses related to this mealtime said by the adolescent with a positive tone. For example, “This tastes nice” or “I like this yoghurt”.

Adolescent negative food-based comments: Negative comments about the food served including: complaints, expressions of disgust/dislike, oppositional/argumentative comments, food refusal; and, generic comments or responses related to the mealtime said with a negative tone. For example, “I’m not having it” or “It tastes disgusting”.

Adolescent global positive comments: Total positive comments (both food and non-food-related) spoken by the adolescent during the mealtime. For example, “I liked the chicken we had last night” or “I enjoyed our shopping trip”.

Adolescent global negative comments: Total negative comments (both food and non-food-related) spoken by the adolescent during the mealtime. For example, “Dinner last night was horrible” or “I hate swimming”.

Lastly, prompted mouthfuls by the adolescent were also coded, which include mouthfuls consumed immediately following an interaction with a parent (i.e. the adolescent was not eating, or appeared resistant to eating, before a parental comment was made which resulted in a behaviour change and the adolescent eating a mouthful).

A second, independent rater coded 33% (n=7) of the videos. Inter-rater reliability was very good for all but four variables ($r > .647$, $p < .03$). Where minor discrepancies in the coding were identified (these often equated to just a single instance of a behaviour being coded differently by the two coders and were not felt to adversely impact the study results or interpretation), these were subsequently discussed between the coders, the details on the coding instruction sheet were modified accordingly, and the relevant mealtime videos were re-coded.

Data analysis

The frequencies of parental strategies and adolescent comments throughout the meal duration were summed to give total scores. The proportion of parents who repeatedly (characterised as ≥5) used any mealtime strategy during the family meal was also reported. Mothers' and fathers' mealtime strategies were coded separately given evidence that they use different feeding practices with their adolescents (17).

As the data were not normally distributed, non-parametric tests were conducted. First, one-tailed Spearman's rho correlations were used to examine the relationships of parental mealtime strategies with adolescent food-based and global comments (positive and negative). Second, one-tailed Spearman's rho correlations were conducted to examine the relationships between parental mealtime strategies, mealtime emotion tone and prompted mouthfuls. A significance level of $p \leq 0.05$ was adopted.

RESULTS

Characteristics of the family meal

The meal section of the total session had an average duration of 33 minutes (SD = 17; range = 7 to 68). During the majority of family meal sessions, two parents were present (n = 15), with the remaining sessions attended by one parent (n = 6). For two of the families where just one parent was present an additional adult was present (e.g., a grandmother), although comments made by the additional adult were not included in any analyses to enable a focus on parent-child interactions and to limit the focus onto only those adults assuming a parental role. Siblings were present during 16 family meals but comments made by siblings were not coded as part of this study. Food types presented during the family meal varied, with the majority being snacks for morning or afternoon tea (n = 13), followed in frequency by lunch (n = 7) and breakfast (n = 1). Sixteen of the 21 families (76.2%) attempted to facilitate the adolescent eating more food than they otherwise would have. Of

those 16 families, 15 were successful in encouraging the adolescent to eat the additional amount.

Parental mealtime strategy frequency

As shown in Table 1, a wide range of mealtime strategies were used by both mothers and fathers during the family meal session.

---TABLE 1 ABOUT HERE---

The practice used by most mothers (i.e. used at least once) was physical prompts, followed by direct eating prompts. The practice used by most fathers was direct eating prompts, followed by autonomous comments. Directly prompting eating was the practice used most frequently by mothers and fathers. As would be expected, restriction (verbal or physical) was rarely used by either mothers or fathers.

Adolescent vocalisations

The mean score for adolescent positive food-based comments was 0.05 (range = 0 to 1; SD = 0.22) and for negative food-based comments was 25.9 (range = 0 to 139; SD = 39.1). For total comments spoken by the adolescent during the meal, the mean score for positive global comments was 1.19 (range = 0 to 8; SD = 2.34) and 28.9 (range = 0 to 150; SD = 41.0) for negative global comments.

Links between parental strategies and adolescent vocalisation tone

As only a proportion of the mealtime strategies were found to occur repeatedly within the family meal session, further analyses are focused on these. The relationships between parental mealtime strategies and adolescent positive and negative comments (both specifically related to food and globally) are shown in Table 2.

---TABLE 2 ABOUT HERE---

As shown in Table 2, no parental strategies were significantly correlated with positive adolescent food-based comments, while all strategies, except physical prompts

and autonomous comments from fathers, were significantly correlated both with negative food-based comments and negative global comments. Furthermore, all parental strategies, except information provision and autonomous comments from fathers, showed significant negative correlations with adolescent global positive comments.

Parental mealtime strategies and adolescent prompted mouthfuls

The relationships between parental mealtime strategies and the number of mouthfuls consumed by adolescents immediately following a verbal or non-verbal interaction by their parent are shown in Table 3.

---TABLE 3 ABOUT HERE---

Significant positive associations were found between adolescent prompted mouthfuls and mothers' and fathers' direct eating prompts, mothers' and fathers' non-direct eating prompts, mothers' physical prompts and fathers' information provision, suggesting that these food-related prompts were associated with improved eating. However, no significant associations were found between adolescent prompted mouthfuls and fathers' physical prompts, mothers' information provision and mothers' or fathers' autonomous comments.

Adolescent prompted mouthfuls and adolescent total mealtime vocalisations

One-tailed Spearman's rho correlations were conducted to examine the relationship between adolescent prompted mouthfuls and adolescent mealtime tone (based on global positive or negative comments). A significant negative association was found between adolescent prompted mouthfuls and adolescent global positivity ($rho = -0.54$, $p = .006$). Furthermore, a significant positive association was found between adolescent prompted mouthfuls and adolescent global negativity ($rho = 0.68$, $p < .001$).

DISCUSSION

The first aim of this study was to identify the mealtime strategies used by parents during the family meal session of FBT. A range of parental strategies were used, including

the frequent use of direct eating prompts, non-direct eating prompts, physical prompts, autonomous comments and information provision. The goal of the family meal session of FBT is for parents to encourage their child to eat one more mouthful than the child wants to (4,5), hence it is not surprising that the majority of strategies frequently used by parents were behavioural food prompts related to this task, such as direct prompts for the adolescent to eat. Similarly, it is unsurprising that limited incidences of parental restriction were observed. This aligns with family mealtime observations of younger children without feeding or eating problems, where the primary focus of the parent is to get their child to eat (7,8) with restriction being more commonly seen in non-mealtime contexts.

Variation was also observed within the levels of mealtime practices used by parents, with a small proportion of parents not using any parental feeding practices during the family meal session. The strategy used by most of the mothers at least once was physical prompts whereas most of the fathers used direct prompts at least once. Direct eating prompts was the practice that was used most frequently by both mothers and fathers. Incentives were not used regularly by parents, perhaps indicating that parents did not find these strategies particularly useful for encouraging their child to eat.

The second aim of this study was to explore the relationships between parental mealtime strategies and the mealtime emotional tone (as measured by the positive and negative vocalisations of the adolescent). In general, increased use of strategies was associated with a more negative emotional mealtime tone, providing support for the study hypothesis. It would seem logical that attempts to encourage food consumption, a behaviour which contrasts the restrictive nature of AN (19), are met with, or occur in response to food refusal from the adolescent. Such encouragement is likely to cause psychological distress due to the food-related fears characteristic of these patients (20) and thereby generate a more negative emotional tone.

The third aim of this study was to explore the relationships between parental mealtime strategies and parental 'success' in encouraging adolescent food consumption. The finding that the use of more food related prompts (verbal/non-verbal) was associated with higher levels of parental 'success' provides partial support for the study hypothesis. Food related prompts were more successful at promoting food intake than providing information about the food or offering food-related choices to the adolescent. This suggests that 'success' is linked to more direct eating-related prompts, rather than less direct food-related discussions. To date, only one study has examined the behaviours of parents and adolescents during the family meal session within FBT (21). The current study fails to provide support for the findings of Darcy and colleagues (21), who suggested that behaviours associated with pressure to eat or parental control of eating (e.g., presenting food) may be less effective for overall recovery as a higher frequency of such parental strategies was found among a group of adolescents who failed to respond early to FBT (21). It is important to note that while both the current and the previous (21) studies looked at session two of FBT, both were looking at very different outcomes. While Darcy and colleagues (21) looked at the impact of parental behaviours on weight gain at session four, the current study looked at the immediate response to parental interventions in the family meal session in the form of mouthfuls of food consumed. As Darcy and colleagues (21) highlighted in their discussion, the need for increased parental behaviours to encourage eating during session two of FBT may be a reflection of increased symptom severity and this, rather than the parental behaviours, impacts weight gain at session four. Additionally Darcy and colleagues (21) classified verbal interactions as critical or non-critical by looking at their tone rather than their content whereas the current study did the opposite and focused on content of parental interactions, so it is difficult to compare outcomes. Bringing these two findings together it may be that the ideal is for parents to verbally prompt eating in a non-critical and warm way.

The final aim was to examine the relationship between parental 'success' and the emotional tone of the mealtime. The findings of the current study highlight a higher level of prompted mouthfuls consumed by the adolescent was associated with a more negative emotional mealtime tone, which fails to provide support for the study hypothesis. These findings are in contrast to eating research in younger children, which highlighted associations between increased intake and positive mealtime atmosphere (15), but likely reflect the more negative mealtime interactions commonly seen during the family meal session of FBT and the negative emotions that are linked with the adolescents' perceiving pressure to eat more food. The purpose of this session is to tackle the child's reluctance to eat directly, hence, in comparison to other protocols (15) generalised positive discussions are likely to be fewer, given the increased focus of both the parent and child on the requirement of the child to eat.

It is interesting that a behavioural focus on eating (i.e., verbal and physical prompting) was associated with parental success as opposed to other strategies such as offering choices to the adolescent or consequences. This indicates that parents' implementing a direct focus on food may be central to eating behaviour and supports the emphasis on behavioural change rather than insight which is central to FBT. This is of particular importance as parental control was found to be the strongest predictor of weight gain among adolescents receiving FBT (22), further suggesting it is a valuable tool for recovery. Furthermore, within the context of AN, if parents are using strategies to encourage food consumption and experiencing some success in getting their child to eat as a result of their interactions, these strategies are likely to be met by the force of their child's anorexia leading to a strong negative response. On the other hand, it is plausible that parental confidence will grow following any successful interactions, which might begin to reduce their anxiety and increase warmth and encouragement within family communications around food. Any increase in child eating, as a result of such encouragement, does rely upon

parental leadership and control during this time to help challenge the anorexia and to enable change to occur.

A strength of the current study is the depth in which parental strategies to encourage food consumption are examined, using a novel coding system based on child feeding literature and expanded for use with adolescents within the therapeutic family meal session. The limitations of this study are that the sample size is small. Furthermore, the study is based on video recordings of FBT from one eating disorder service, and hence caution should be taken in generalising the findings. Siblings were excluded from our analysis, which means that some of the interactions are not fully captured. Additionally, this research is of a cross sectional nature and hence further research is needed to examine the effectiveness of parental mealtime strategies on adolescent eating behaviours.

It is important to recognise that this is not a naturalistic study and therefore external validity is compromised: the strategies observed within the family meal session are likely to be strongly shaped by the therapist's involvement via parental coaching. Furthermore, it is also worth acknowledging that the category "direct-eating prompts" includes prompts spoken by parents in a calm, firm tone through to more critical and hostile comments. Further research into the nature of such comments is recommended, though it should be noted that therapeutic coaching aims to eliminate hostility within the session. Finally, it should be acknowledged that, although the participants all met diagnostic criteria, the likelihood is that these recently discharged patients may have been especially motivated to lose the weight they had gained whilst in hospital.

While FBT is commonly used in the treatment of AN, further research is needed to understand how to make FBT work effectively for more adolescents. Increasing research on the family meal session, a session which can provide an opportunity to empower parents, can help to examine mechanisms of change which could benefit the adolescent's recovery.

Currently, little is known about the specific strategies that therapists should support parents to use during this session, or if the same therapeutic techniques are in use across different services, and future research into the most appropriate strategies is recommended.

Additionally, further research is needed on the longer term effects of parents using certain strategies to encourage food consumption during the family meal session, such as overall treatment outcome., More work is also required to look at the collaboration between parents when they are both present, to explore whether they use the same or different strategies, and to examine the implications of this and of parents' support or contradiction of each other in terms of the adolescent and their recovery. Similarly, little is known about the different outcomes related to parental use of critical and non-critical eating prompts. This is particularly relevant as a core principle of FBT is low levels of parental criticism, and one which has been shown to predict weight gain among adolescents receiving FBT (22). Low levels of parental criticism during the family meal session have also been associated with early response to FBT (21).

Although this research helps to increase knowledge about the strategies in use during the therapeutic family meal session, little is known about parental mealtime strategies within the home. Further research is needed to see if parents use these same strategies in the home setting, and how effective these strategies are in relation to food consumption outside of the confines of a therapeutic environment.

The findings of this research suggest that the use of food related prompts (verbal and physical) may be associated with improved eating despite being associated with negative comments (both general and food-specific) made by the adolescent and a negative emotional tone at meal times. This suggests that it is likely to be useful for parents to use and persist with such direct practices, despite them being met with negativity from their adolescent child. It is important for parents not to be discouraged by their child's negativity

during meal times and understand that this is related to the illness rather than the inappropriateness of their interactions in helping their child to eat.

This research provides an initial guideline of the kinds of behaviours therapists may like to support and coach parents in during the family meal session. Furthermore, the findings from the current study highlight that if parents are using these strategies, there is a need to persist with them. Further work is needed to explore how interactions during session of FBT might be related to longer-term outcomes for the adolescent.

References

1. American Psychiatric Association. Treatment of patients with eating disorders (3rd ed.); 2012. Available online at: http://psychiatryonline.org/content.aspx?bookid=28&sectionid=1671334#138717. Retrieved 8th May 2013. DOI: 10.1176/appi.books.9780890423363.138660
2. Loeb KL, Le Grange D. Family-based treatment for adolescent eating disorders: Current status, new applications and future directions. Int J Child Adolesc Health 2009;1:243-254.
3. NICE. National Collaborating Centre for Mental Health. National Clinical Practice Guideline: Eating Disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa, and related eating disorders. London, UK: National Institute for Clinical Excellence; 2004
4. Lock J, Le Grange D, Agras WS, Dare C. Treatment manual for anorexia nervosa: A family-based approach. New York: The Guildford Press; 2001.
5. Lock J, Le Grange D. Treatment manual for anorexia nervosa: A family-based approach (2nd ed.). New York: Guildford Press; 2012.
6. Beumont PJV, George GCW, Smar DE. 'Dieters' and 'vomiters and purgers' in anorexia nervosa. Psych Med 1976;6:617-622.
7. Haycraft E, Blissett J. Maternal and paternal controlling feeding practices: Reliability and relationships with BMI. Obesity 2008;16(7):1552-1558.
8. Orrell-Valente JK, Hill LG, Brechwald WA, Dodge KA, Pettit GS, Bates JE. "Just three more bites": An observational analysis of parents' socialization of children's eating at mealtime. Appetite 2007;48(1):37-45.
9. Williams KE, Hendy H, Knecht S. Parent feeding practices and child variables associated with childhood feeding problems. J Dev Phys Disabil. 2008;20(3):231-242.
10. Krautter TH, Lock J. Treatment of adolescent anorexia nervosa using manualized family-based treatment. Clinical Case Studies 2004;3:107-123.

11. Saunders MR, Patel RK, Le Grice B, Shepard RW. Children with persistent feeding difficulties: An observational analysis of the feeding interactions of problem and non-problem eaters. Health Psychol 2003;12(1):64-73.
12. Martin CI, Dovey TM, Coulthard H, Southall AM. Maternal stress and problem-solving skills in a sample of children with nonorganic feeding disorders. Infant Ment Health J. 2013;34(3):202-210.
13. Jaffa T, Honig P, Farmer S, Dilley J. Family meals in the treatment of adolescent anorexia nervosa. Eur Eat Disord Rev. 2002;10:199–207.
14. Schmidt U, Treasure J. Anorexia nervosa: Valued and visible. A cognitive-interpersonal maintenance model and its implications for research and practice. Brit J Clin Psych. 2006;45:343-66.
15. Koivisto U-K, Fellenius J, Sjödén P-O. Relations between parental mealtime practices and children's food intake. Appetite 1994;22:245-258.
16. Madden S, Miskovic-Wheatley J, Wallis A, Kohn M, Lock J, Le Grange D, Jo B, Clarke S, Rhodes P, Hay P, Touyz S (2014). A randomised controlled trial of inpatient treatment for anorexia nervosa in medically unstable adolescents. Psych Med*,* in press.
17. Loth KA, MacLehose RF, Fulkerson JA, Crow S, Neumark-Sztainer D. Food-related parenting practices and adolescent weight status: A population-based study. Pediatrics 2013;131(5):e1443-e1450.
18. Hendy HM, Williams KE, Camise TS, Eckman N, Hedemann A. The parent mealtime action scale (PMAS). Development and association with children's diet and weight. Appetite 2009;52(2):328-339.
19. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing; 2013.
20. Ellison Z, Foong J, Howard R, Bullmore E, Williams S, Treasure J. Functional anatomy of calorie fear in anorexia nervosa. Lancet 1998;352:1192.

21. Darcy AM, Bryson SW, Agras S, Fitzpatrick KK, Le Grange D, Lock J. Do in-vivo behaviors predict early response in family-based treatment for anorexia nervosa? Behav Res Ther. 2013;51(11):762-766.
22. Ellison R, Rhodes P, Madden S, Miskovic J, Wallis A, Baillie A, et al. Do the components for manualized family-based treatment for anorexia nervosa predict weight gain? International Journal of Eating Disorders 2012;45(4):609-614.

Table 1: Frequency of mealtime strategies used at all or repeatedly (≥5) during the family meal session of FBT by mothers (n=21) and fathers (n=15)

	Any Frequency (%)	Repeated Frequency (%)	Mean (SD)	Range
Mealtime strategies				
Direct eating prompts				
Mother	66.7	47.6	18.5 (30.6)	0 – 131
Father	66.7	33.3	14.0 (29.9)	0 – 105
Physical prompts				
Mother	71.4	42.9	9.43 (13.8)	0 – 43
Father	33.3	13.3	4.53 (10.6)	0 – 32
Non-direct eating prompts				
Mother	42.9	23.8	2.57 (4.20)	0 – 14
Father	33.3	13.3	1.20 (2.31)	0 – 7
Autonomous comments				
Mother	47.6	19.0	2.29 (3.62)	0 – 12
Father	40.0	6.7	0.93 (1.49)	0 – 5
Incentives – Positive				
Mother	23.8	0	0.67 (1.32)	0 – 4
Father	13.3	0	0.13 (0.35)	0 – 1
Incentives – Negative				
Mother	23.8	0	0.33 (0.66)	0 – 2
Father	26.7	0	0.33 (0.62)	0 – 2
Information Provision				
Mother	28.6	14.3	1.95 (4.70)	0 – 19
Father	13.3	6.7	0.53 (1.60)	0 – 6
Restriction – Verbal				
Mother	14.3	0	0.14 (0.36)	0 – 1
Father	6.7	0	0.13 (0.52)	0 – 2
Restriction – Physical				
Mother	0.0	0	0.00 (0.00)	0
Father	13.3	0	0.20 (0.56)	0 – 2

Repeated frequency = observed ≥ 5 times during mealtime

Table 2: One-tailed Spearman's rho correlations examining the relationships among repeated use of mealtime strategies for both mothers (n=21) and fathers (n=15) with food-based comments (positive and negative) and global comments (positive and negative) made by adolescents (n=21).

Parental mealtime strategies		**Adolescent food-based comments**		**Adolescent global comments**	
		Positive	**Negative**	**Positive**	**Negative**
Direct eating prompts	Mothers	-0.26	0.79***	-0.65***	0.77***
	Fathers	.[a]	0.87***	-0.49*	0.88***
Non-direct eating prompts	Mothers	-0.18	0.58**	-0.43*	0.58**
	Fathers	.[a]	0.69**	-0.48*	0.67**
Physical prompts	Mothers	-0.28	0.54**	-0.62**	0.49*
	Fathers	.[a]	0.38	-0.48*	0.31
Information provision	Mothers	-0.14	0.50**	-0.43*	0.47*
	Fathers	.[a]	0.59*	-0.27	0.59*
Autonomous comments	Mothers	-0.20	0.47*	-0.53**	0.39*
	Fathers	.[a]	0.21	-0.38	0.08

***p≤0.001, **p≤0.01, *p≤0.05.

[a] No positive mealtime comments were made by adolescents during mealtimes when fathers were present.

Table 3: One-tailed Spearman's rho correlations examining the relationships among repeated use of mealtime strategies for both mothers (n=21) and fathers (n=15) and prompted mouthfuls consumed by the adolescent (n=21).

Parental mealtime strategies		**Adolescent prompted mouthfuls**
Direct eating prompts	Mothers	0.79***
	Fathers	0.92***
Non-direct eating prompts	Mothers	0.60**
	Fathers	0.82***
Physical prompts	Mothers	0.57**
	Fathers	0.28
Information provision	Mothers	0.36
	Fathers	0.55*
Autonomous comments	Mothers	0.36
	Fathers	0.25

***p≤0.001, **p≤0.01, *p≤0.05.

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