

Development and Evaluation of *SENSE-ational Mealtimes*: a book for families with mealtime difficulties

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Abstract

Many families with young children experience mealtime difficulties whereby the child eats a limited range of foods and/or refuses new food. Clinical interventions typically include behaviour training, enhancement of parenting skills and nutrition education. Clinical experience and a review of the literature across several domains suggested interventions that optimise reflective functioning and understandings about sensory preferences at mealtimes are needed for both mild and complex mealtime difficulties. This paper describes the development of the *SENSE-ational Mealtimes* book for families with mealtime difficulties and reports findings of the initial evaluation.

A questionnaire was used to assess change in the frequency of difficult mealtimes, level of concern, understandings, feelings and goals of mothers two months after the book was distributed in a community setting. Mothers also provided feedback regarding helpfulness of the book, needs of families and recommendations.

There was a statistically significant improvement in all aspects, namely frequency of mealtime difficulties, level of concern, understandings, feelings and goals. The subjective data indicated that the concepts instrumental in enhancing most mothers' understandings were how sensory preferences and past experiences of all members of the family impact on mealtime interactions.

Initial evaluation suggests that wide-spread access to the *SENSE-ational Mealtimes* book could be an inexpensive approach to reduce the costs of adverse effects of mealtime difficulties on the emotional well-being of families and dietary intake of children. Mothers unanimously recommended the *SENSE-ational Mealtimes* book for both targeted prevention of and early intervention with mealtime difficulties in families.

Keywords

picky/fussy eating; food refusal; feeding problems; intervention; relationships

Introduction

The importance of dietary intake during childhood has gained attention due to an increased prevalence of overweight and obesity in all age groups, inadequate intakes of essential nutrients and a link with chronic disease (CSIRO 2008; Fremeaux *et al.* 2011). The task of ensuring optimum nutrition and growth throughout childhood is challenging due to multiple physiological, psychological, ecological, economic, political, social and cultural processes that influence food choice and consumption (Moore *et al.* 2010). Problems with any stage of nourishing an infant or a child learning to eat can cause additional difficulties, challenges and concerns within families (Franklin and Rodger 2003).

Traditionally, the terms used to describe the broad spectrum of etiologies and presentations of mealtime difficulties included food refusal, feeding problems and picky/fussy eating (Bernard-Bonnin 2006; Chatoor 1998; Dovey *et al.* 2008; Williams *et al.* 2010). Several recent studies support use of the more inclusive term ‘mealtime difficulties’ in recognition of the interrelationships between child, caregiver and family (Renzaho *et al.* 2010; Sharp *et al.* 2010; Stapleton *et al.* 2012; Williams *et al.* 2010). In addition to having a negative impact on the dietary intake of children of all ages (Jacobi *et al.* 2008), mealtime difficulties compromise the emotional well-being of families (Greer *et al.* 2007).

Prevalence rates indicate mealtime difficulties are common in childhood, occurring in 20% to 50% of typically developing children (Carruth *et al.* 2004; Wright *et al.* 2007) and in up to 85% of children with developmental disabilities or chronic disease (Manikam and Perman 2000). Mealtime difficulties have been reported to be equally prevalent in preadolescent children as in children of younger ages without noticeable differences between boys and girls (Jacobi *et al.* 2008). Ten to 20% of families have prolonged and/or complex mealtime difficulties that can lead to malnutrition and the need for supplemental tube feeding (Jacobi *et al.* 2008; Manikam and Perman 2000). As survival rates of children with significant developmental disabilities increase, such as with extreme prematurity, the prevalence of mealtime difficulties is expected to rise (Fischer and Silverman 2007).

The need for effective, low cost community interventions that prevent and minimise mealtime difficulties is supported by reviews of research investigating food refusal in children (Dovey *et al.* 2008; Williams *et al.* 2010) and the high costs associated with centre-based interventions (McGrath Davis *et al.* 2010).

Clinical experience and a review of the literature suggested that an effective community-based intervention for families with varying mealtime difficulties would need to draw on several domains due to the complex interplay between factors that often co-occur (Rudolph 1994). Particular constructs that current interventions for mealtime difficulties do not appear to address in detail, but which our clinical experience and the literature suggested are crucial for families included reflective functioning and sensory preferences.

Reflective functioning

The reflective functioning construct was introduced by Fonagy *et al.* (1991) and refers to the essential human capacity to understand behaviour in light of underlying mental states. In brief, when caregivers use an understanding of their and their child’s mental states (i.e. feelings, thoughts, emotions, intentions, desires and beliefs) they are able to connect and respond to their child’s mind and make sense of and anticipate their child’s actions, rather than react to their behaviour (Fonagy *et al.* 1991; Siegal and Hartzell 2003; Slade 2002 and 2005). An attuned initial response by a caregiver enables a child to feel understood and connected and more able to achieve an internal sense of balance (Perry 1995; Siegal and Hartzell 2003).

In the context of difficult mealtimes, the literature suggests an intervention that enhances mindfulness, empathy, compassion and interpersonal sensitivity is likely to foster caregivers' ability to attune and respond to their child in a reliable and sensitive manner (Fonargy *et al.* 1991; Siegal and Hartzell 2003; Slade 2002 and 2005). Consequently, mealtime difficulties are likely to be prevented or minimised when caregivers make sense of their thoughts and feelings related to their own childhood experiences, mealtime expectations, culture and traditions and are also enabled to empathise with and make sense of their child's thoughts, emotional memories, feelings and unique preferences (Siegal 2006; Siegal and Hartzell 2003; Slade 2002 and 2005).

Sensory preferences

Sensitivity thresholds to sensory information throughout the day are known to be influenced by an individual's genes and experiences (Perry 1995; Dunn 2001 and 2008). Acknowledgment of the complexity of sensations that accompany a mealtime (i.e. the smells, sights, sounds, movements, feel, temperature, textures and tastes) provides insight regarding the unwillingness of some children to touch or taste new food (Dovey *et al.* 2008; Dunn 2001 and 2008; Nadon *et al.* 2011; Toomey and Ross 2009).

Bothersome or overwhelming sensory experiences may negatively influence some children's feelings about a food or mealtimes, which may then adversely affect their mealtime interactions (Chatoor 2002; Smith *et al.* 2005). Alternatively, an intervention that enhances caregivers' understandings about their and their child's mealtime sensory preferences, and that enables caregivers to emotionally engage with their child during difficult mealtimes, is likely to help them make meaning of their and their child's feelings and internal experiences, so that neither become overwhelmed or shut down (Slade 2005).

A comprehensive written resource has the potential to be a low-cost intervention option for all types of mealtime difficulties. In the absence of a written resource to guide families through the constructs of reflective functioning and sensory preferences with respect to mealtime difficulties, we developed the SENSE-ational Mealtimes book.

Development of the SENSE-ational Mealtimes book

SENSE-ational Mealtimes was written by an occupational therapist (GG) and dietitian (DS) in response to interest expressed by families and colleagues who were aware of our unique sensitive caregiving-based approach to a wide range of mealtime difficulties. *SENSE-ational Mealtimes* includes concepts we developed in our clinical practice based on our varied experiences across numerous domains. The book differs markedly from other written resources for mealtime difficulties (CSIRO 2008; Di Prima and Cichero 2009; Ernsperger and Stegen-Hanson 2004) in the application of constructs related to sensitive caregiving, particularly reflective functioning and sensory preferences. In summary, *SENSE-ational Mealtimes*:

- explores mealtimes in the context of family relationships and caregiver-child interactions, including attachment theory
- aims to enhance caregivers' reflective functioning capacity in order to enable caregivers to empathise and attune to the unique experiences, feelings, cues and needs of their child
- facilitates caregivers' discovery of how both their and their child's past and present stress, pain, trauma, interactions, expectations, culture and traditions impact on their and their child's mealtime feelings and experiences

- explains that emotional memories and sensations associated with early traumatic or stressful mealtimes may be ‘rewritten’ through the provision of repetitive, emotionally safe, pleasurable experiences that positively influence future interactions and behaviours
- explores how genes and experiences influence a caregiver’s and child’s unique sensory preferences for what they avoid, are bothered by, are distracted by, tolerate, love, seek and enjoy at mealtimes
- provides extensive mealtime considerations and sensory information in order to enable caregivers to understand, identify and label what they and their child prefer less or more of with regard to smell, sound, colour, shape, movement, types of touch, temperature, texture, taste, utensils, routines, family interactions and surroundings at mealtimes
- fosters caregivers’ ability to empathise with and co-regulate their child’s positive and negative emotions at mealtimes (eg. joy, delight, distress, frustration, anger, distraction, etc.) through exploration and labelling of feelings associated with the sensations they each detect, avoid, are bothered by, are distracted by, tolerate, seek and love
- guides caregivers to problem-solve and identify unique, possible options to meet their and their family’s individual sensory preferences for mealtimes
- guides caregivers to develop individualised, safe, ‘just right’, interactive, pleasurable mealtime challenges at their child’s pace that stretch the range of nutritious food explored, tasted, accepted and enjoyed
- purposefully avoids providing specific strategies for mealtime difficulties as such an approach does not nurture sensitive care-giving, help caregivers attune to their child’s unique needs or acknowledge the caregiver’s unique understanding of their child and family, and
- suggests caregivers seek additional problem-solving support and therapeutic interventions from clinicians with appropriate expertise if their mealtime experiences, thoughts and feelings are overwhelming or if their family’s sensory preferences and interactions are complex.

The purpose of this paper is to report findings of the initial evaluation of the *SENSE-ational Mealtimes* book.

Methods

The participants

Community-based caregivers of infants and children who expressed interest in obtaining a written resource for families with difficult mealtimes or attended the *SENSE-ational Mealtimes* book launch were invited to participate in a study to assess the needs of families in the community (which is described elsewhere, Stapleton *et al.* 2012) and provide structured feedback about the book. This convenience sample was possible due to a series of early childhood workshops being offered to the general community by Local Information Network Karratha (LINK) in the remote Pilbara region of Western Australia.

Informed written consent was obtained from participants prior to inclusion in the study in accordance with the approval of the Human Research Ethics Committee of Curtin University, Perth, Western Australia.

The written invitation to participate in the study and the self-administered needs questionnaire were provided on the same day, 20 minutes prior to the book launch celebration. Access to the resource was not contingent on consent to participate in the study.

General demographic information was collected, including country of origin, in order to account for the possibility of wide-spread cultural backgrounds having an influence on mealtime difficulties.

Two months after obtaining the *SENSE-ational Mealtimes* book, telephone contact was made with 43 of the 44 participants who had consented to the needs assessment (Stapleton *et al.* 2012) and initial evaluation of the book. Eleven mothers with difficult mealtimes declined the invitation to participate in the evaluation process. They indicated they had not had time or had not felt the need to read the book. The most common reasons volunteered for being too busy to read the book were caring for ill children, moving house or on holiday. Two mothers did not think the book would help them address their child's specific problem of a strong gag reflex.

Of the remaining 32 participants involved in the evaluation process only the results of the 23 mothers with difficult mealtimes and four mothers wanting to prevent difficult mealtimes are reported. The answers to open-ended questions provided by the five female child service providers are not included as the themes were similar to those expressed by the mothers.

Most of the mothers (17 out of 27) had a child who was one to two years of age. All the mothers were living with a partner. Most of the mothers (24 out of 27) and their partners were born in Australia and their ancestry was mostly Australian and European. Two mothers had recently emigrated with their family from India or South Africa.

The Questionnaire

Initial evaluation of the book was limited to the use of a questionnaire (see Appendix) due to the short time frame and budget that LINK had determined prior to collaborating with the authors. The questionnaire was administered as a telephone interview in order to enhance the response rate and contained 19 items, half of which were the closed-ended questions used in the needs assessment (Stapleton *et al.* 2012). The closed-ended questions guided participants to re-rate the frequency of difficult mealtimes, level of concern, understandings about difficult mealtimes, feelings experienced during difficult mealtimes and the ability of their child or family to achieve the goal they had set and their level of satisfaction or concern with this level of ability. Level of concern and scores for the goals were assessed using a 10-point scale. Understandings and feelings were assessed using a five-point scale from never to always.

The remaining process evaluation questions were open-ended. Most of the open-ended questions explored how the book helped families, what participants liked about the book, possible improvements and recommendations to other parents regarding difficult mealtimes. Three questions explored what type of support families with difficult mealtimes require in addition to the book. The volunteered responses to each question were grouped and tallied according to similar theme categories. Percentages are not reported for the open-ended question response categories as assigning percentages would suggest participants were given the opportunity to comment on each category in turn.

The telephone interview was conducted two months after obtaining a copy of the written resource and took participants 15-20 minutes to complete. Reliability for the interview process was optimised by ensuring the telephone interviewer (DS) adhered strictly to a scripted explanation about the interview process and the questions as written (see Appendix).

Content validity was established by submitting the draft questionnaire for review by colleagues with a wide range of expertise with mealtime difficulties, such as occupational therapists, speech pathologists and nutrition researchers. This validation process indicated

that, with a few minor alterations, the questionnaire was suitable for assessing difficult mealtimes in families and the participants' views about the book.

The Statistical Package for Social Sciences (version 18, 2010, SPSS Inc, Chicago, Ill) was used to determine descriptive statistics for the responses to the closed-ended questions and for comparison of the baseline and post-intervention data using the Wilcoxon-signed Rank Test for two related samples. Change in the scores was considered significant when $p < 0.05$.

Results

Mothers with difficult mealtimes

Descriptive statistics for the closed-ended questions in the pre- and post-questionnaires of the 23 mothers with difficult mealtimes are shown in Table 1. The change in mothers' ranked scores from pre- to post-intervention was statistically significantly different for all aspects assessed ($n=23$, $p \leq 0.05$), indicating improvement in frequency of difficult mealtimes, level of concern, understandings, feelings and goals.

The data indicated that two months after reading the *SENSE-ational Mealtimes* book, difficult mealtimes were experienced less often, from a mean frequency of once per day to once per week ($p < 0.000$); level of concern about difficult mealtimes improved, such that mothers were moderately unconcerned post-intervention ($p < 0.000$); parental understandings about difficult mealtimes increased from a mean of sometimes to nearly always ($p < 0.05$); positive feelings were experienced more often during difficult mealtimes from a mean of sometimes to nearly always ($p < 0.05$); negative feelings were experienced less often during difficult mealtimes from a mean of sometimes to almost never ($p < 0.05$); children were more able to meet their caregiver's goal for improved dietary intake ($p < 0.000$) and mothers were more satisfied/less concerned about their child's ability to meet their goal for improved dietary intake ($p < 0.000$).

Most of the mothers' goals were related to acceptance of food commonly presented at the evening meal, namely for their child to try new food at dinner, to eat the same meal as the family, to eat vegetables, to eat meat and for family mealtimes at the table to be harmonious. Other common goals were for their child to increase the range of foods eaten and to eat more healthy foods and a nutritious diet.

How the SENSE-ational Mealtimes book helped families

All mothers found the book to be helpful, with 20 of the 23 mothers with difficult mealtimes volunteering that the book was either moderately or very helpful. Level of helpfulness was higher for the 18 mothers who had read more than half or all the book and for those who had been experiencing difficult mealtimes most frequently (i.e. every day). Themes that arose from the data regarding the way in which the *SENSE-ational Mealtimes* book helped families were as follows. The book:

- enhanced understandings about how sensory preferences and past experiences of all members of the family impact on food preferences and mealtime behaviours and interactions
- provided insight regarding how all the senses (i.e. hearing, smelling, seeing, moving, touching, tasting, feeling and temperature) influence mealtime experiences
- explained how one meal could easily be modified by using the more/less and mealtime variations tables to accommodate the mealtime preferences of each member of a family
- provided numerous possibilities for how to make mealtimes successful and less stressful

- showed how to meet the nutritional needs of a young child throughout the day with short, small meals and nutritious snacks
- explored appropriate expectations about the evening meal
- enhanced confidence to read a child's cues while repeatedly offering a range of new foods with similar properties to their child's sensory preferences
- encouraged continual positive modelling
- highlighted the importance of pleasurable 'messy' exploration of new food.

Following are volunteered statements that describe how *SENSE-ational Mealtimes* helped families progress with mealtimes.

'The book helps you understand your own and your child's sensory preferences, so now I'm less harsh on my son and don't push him to try and to like new foods' (mother of a 1 year old).

'I don't hide food anymore, so he can trust me. I tell him what each of the foods are, especially when I prepare them a different way (mother of a 2 year old).

'I'm not used to evaluating my motherhood. Usually I just do the things that need doing, like putting food on the table, but now I think about it and it's helped my family. I consider the environment, the smell, the sight, the texture and everything else while getting ready' (mother of a 3 year old).

'The *SENSE-ational Mealtimes* book made me think differently about food, mealtimes and my children. I realised my child prefers lots of flavour and more variety. Rather than tell me what my child should be eating, the book helped me understand why she might like certain foods and not others. I discovered how to increase the number of foods she eats by basing what I offer on her sensory preferences' (mother a 1 year old).

'The book broadened my way of thinking about mealtimes. I don't see his refusal as naughty, so I don't yell and growl at him anymore. Instead, I consider his preferences while I'm preparing food for him' (mother of a 1 year old).

Liked

Mothers volunteered what they liked about the book was that it normalised difficult mealtimes, made them feel less alone, affirmed their thoughts that 'there is no one right way' and 'it is OK not to eat everything' and assured them that most children who eat only small amounts develop normally. Mothers indicated that the colourfulness of the book drew them to refer to it continually, that its plain language and bullet point format was easy to read and the glossed pages were durable in a wet kitchen. Mothers also indicated they liked knowing that professionals had written the book as this assured them that the content and concepts were credible.

Disliked/suggested changes

Most mothers volunteered there was nothing they disliked about the book. A few mothers indicated they did not like filling in the reflection boxes with one of these mothers countering this comment by saying, 'The boxes are important for getting parents to consider important issues affecting their family's mealtime experiences'. One mother commented that the glossed paper was difficult to write on. Some mothers indicated that the book contained so much information that it was a bit overwhelming, but countered this with a request not to omit anything.

Three mothers suggested the book should be bigger, less busy and the font larger. One mother suggested the colour coding, the 'just-right' challenge concept and how to explore the more/less preferences needed more detailed explanations. A few mothers thought it would be helpful to include recipes, an age-related guide for how much of each food group children should be eating, more blank tables for exploring the sensory preferences of the whole family and more mealtime variation tables, namely for cottage pie, lasagne, curry, vegetarian meals and vegetable preparation.

Further support for mealtime difficulties

Most mothers (16 out of 23) volunteered they did not need further support with their difficult mealtimes. However, these same mothers indicated that families with moderate to severe difficult mealtimes would need additional support and specific help through groups, e-mail, phone contact or an appointment with clinicians with expertise in the concepts contained within the *SENSE-ational Mealtimes* book. One parent explained that 'Meeting with a clinician would be helpful in order to make my thoughts clear, to work out where and how to start, to identify relevant sections of the book and to sustain my motivation to support my child'.

Recommendations to parents

All mothers indicated they would recommend the *SENSE-ational Mealtimes* book to other parents of children who have difficult mealtimes, with many volunteering they had already loaned their book to their friends. Mothers indicated that other parents would find the book helpful, insightful, useful for preventing problems and reducing stress and was full of refreshing ideas. One mother indicated that '*SENSE-ational Mealtimes* is one of the most fantastic parent books I have ever read'.

Mothers wanting to prevent difficult mealtimes

All four mothers who accessed *SENSE-ational Mealtimes* in order to be equipped with information and skills to prevent mealtime difficulties volunteered that the book was very helpful. They indicated they now understood why some families have difficult mealtimes, what processes are involved in a child's acceptance of food, that they could trust their child to eat enough even if it appeared to be much less than their peers and that delighting in their child's seemingly slow exploration at mealtimes was better than rushing him/her and worrying. All four mothers indicated they were not concerned about their child's mealtimes after reading *SENSE-ational Mealtimes*.

Discussion

This initial evaluation indicated the *SENSE-ational Mealtimes* book was significantly helpful for all families, particularly those with daily mealtime difficulties and a high level of concern. Of particular interest is the finding that the book addressed all the mealtime concerns of families with mild difficulties and those wanting to prevent difficulties. Mothers suggested families with moderate to complex difficulties and older children would need additional support either before or after accessing the book.

The quantitative data (Table 1) indicated significant improvement from reading the book in all aspects assessed, namely:

- reduced frequency of difficult mealtimes
- enhanced caregiver understandings and feelings about difficult mealtimes

- less caregiver concern about difficult mealtimes, and
- more ability to meet mealtime goals.

The *SENSE-ational Mealtimes* book appears to have successfully supported caregivers in helping their child achieve goals, such as to taste and/or consume key nutritious food typically offered at the evening meal, such as vegetables and meat. This is a meaningful outcome, given caregivers previously indicated that some of these children usually refused new food and would tantrum, gag or become anxious at mealtimes (Stapleton *et al.* 2012).

The subjective data indicated the concept in *SENSE-ational Mealtimes* that was instrumental in enabling children to successfully try new food was how sensory preferences and past experiences of all members of the family impact on mealtime behaviours and interactions. Mothers indicated the book provided them with insight regarding how all the senses (i.e. olfactory, auditory, visual, tactile, gustatory, proprioceptive and vestibular) influence mealtime experiences. Of particular interest is the finding that the book enabled all mothers who read at least half the book to discover, explore and stretch their child's sensory preferences. These outcomes were anticipated as the book comprehensively explored how an individual's sensory thresholds influence what they notice and how they respond during daily activities, including mealtimes.

The volunteered statements in the results section described how the book helped families. Most importantly, the volunteered statements illustrated how caregivers' enhanced understandings about the effects of sensory preferences on mealtime experiences nurtured their reflective functioning capacity (i.e. the ability of the mother to hold in mind or attune to the thoughts, feelings, desires, beliefs, experiences and intentions of her child, herself and her relationship with her child (Siegal and Hartzell 2003; Slade 2002 and 2005)):

Research in reflective functioning indicates that as caregivers reflect and hold their and their child's mental state in mind, their feelings, emotions, attitudes, actions, interactions and relationships are positively influenced (Douglas 2002; Fonargy *et al.* 1991; Lieberman *et al.* 2005; Siegal and Hartzell 2003; Slade 2002 and 2005). Thus, it was not surprising that another significant outcome from reading the *SENSE-ational Mealtimes* book was improvement in caregivers' feelings during difficult mealtimes (Table 1). Several volunteered statements by mothers also illustrated the positive effect of the book on caregivers' feelings and emotional well-being, such as the book '...normalised (my) mealtime difficulties', '...made me feel less alone', '...affirmed my thoughts' and '...is non-threatening and non-judgemental'.

The ability of *SENSE-ational Mealtimes* to improve the feeling states of caregivers is an important outcome as ongoing positive engagement and positive interactions throughout problematic mealtimes are likely to further nurture sensitive, attuned and empathic caregiving, confidence, co-regulation of emotions and arousal, non-escalation of food refusal and typical child development (Chatoor *et al.* 1998; Craig *et al.* 2003; Degangi *et al.* 2000; Dovey *et al.* 2008; Fischer and Silverman 2007; Franklin and Rodger 2003; McDermott *et al.* 2008; Perry 2012; Siegal and Hartzell 2003; Silberstein *et al.* 2009; Slade 2002). Through mirror neurons in the brain, it is possible for children to experience the positive feelings generated by their reflective caregiver, such that they feel safe and able to enjoy exploring 'just right' differences in the sensory properties of their mealtimes (Douglas 2002; Siegal and Hartzell 2003).

It should be noted that the reliability of the responses in this study may have been limited by factors related to study design, such as the pre-questionnaire being self-administered and the post-questionnaire being administered by telephone interview, investigator bias and socially

desirable responses. The effect of investigator bias was minimised during the telephone interview by adhering to the scripted questionnaire and recording responses verbatim (see Appendix); and the effect of socially desirable responses was minimised by ensuring the interviewer was unknown to the participants.

Further assessment using randomisation and a control group is needed to address the possibility of group bias. Without a control group it is not possible to conclude that the improvement in outcomes observed was due to the affect of the *SENSE-ational Mealtimes* book. The outcomes could have been due to natural improvement with time, participant expectations or other interventions.

Conclusion

This research indicated the *SENSE-ational Mealtimes* book has potential for both targeted prevention and early intervention of mealtime difficulties and may be suitable for universal implementation in early childhood community settings. The quantitative results showed a statistically significant improvement in all aspects assessed, namely frequency of mealtime difficulties, level of concern, understandings, feelings and goals. The improvement in mealtime goals suggested that the book enabled caregivers to support children who are usually reluctant to eat a variety of fresh produce to be successful in trying, consuming and enjoying such food. The book's potential to nurture sensitive stretching of sensory preferences could possibly support a diverse range children with inadequate intakes of nutritious food to develop a tolerance, eventual liking and possible love of food typically excluded, such as vegetables, fruit and meat.

The process evaluation indicated all mothers found *SENSE-ational Mealtimes* to be helpful and recommended it to other parents of children who have difficult mealtimes. They described the book as 'insightful', 'useful for preventing problems and reducing stress', 'full of refreshing ideas' and 'one of the most fantastic parent books I've read'. The unanimous recommendation of *SENSE-ational Mealtimes* suggests wide-spread use of the book could be an inexpensive approach to improving the health of children and quality of life of families. Further rigorous research is recommended to assess the possibility that the book provides more effective support for families with difficult mealtimes than current written resources, family health care support and targeted intervention programs. The significant, low cost success of the *SENSE-ational Mealtimes* intervention in this community study also supports the need for further research to assess the effect of the book on complex mealtime difficulties and obesity prevention and management.

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Table 1. Effect of the *SENSE-ational Mealtimes* book on caregivers' scores for frequency of difficult mealtimes, level of concern, understandings, frequency of positive and negative feelings and goals (n=23)

	Mean difference pre to post intervention	Std Dev	Minimum difference pre to post intervention	Maximum difference pre to post intervention	P value ⁴
Frequency of difficult mealtimes (days per week) ¹	1.61	1.56	-1	4	.000
Level of concern about difficult mealtimes ²	2.17	1.87	-1	6	.000
Understand why have difficult mealtimes ³	-0.43	0.79	-2	1	.019
Understand what to do about difficult mealtimes ³	-0.83	0.65	-3	0	.000
Understand how to help child with difficult mealtimes ³	-0.65	0.83	-3	1	.002
Understand how to shape mealtimes so harmonious for family ³	-0.78	0.74	-3	0	.000
Frequency of feeling confidence ³	0.65	0.98	-1	2	.007
Frequency of feeling acceptance ³	0.52	0.85	-1	2	.011
Frequency of feeling anxiety ³	-0.70	1.15	-3	2	.013
Frequency of feeling anger ³	-1.09	1.08	-4	1	.000
Frequency of feeling defeat ³	-1.13	1.32	-4	1	.001
Frequency of feeling frustration ³	-0.87	0.81	-3	0	.000
Frequency of feeling confusion ³	-0.87	1.14	-4	1	.002
Frequency of feeling worry ³	-0.61	0.94	-4	1	.003
Frequency of feeling distress ³	-0.78	1.13	-4	1	.004
Frequency of feeling annoyance ³	-0.48	0.85	-3	1	.013
Ability of child to perform the goal ²	2.41	2.11	0	7.5	.000
Caregiver's level of concern/satisfaction with child's ability to perform the goal ²	2.66	2.29	0	8	.000

¹ 1=more than once a day; 2=once a day; 3=a few times a week; 4=once a week; 5=a few times a fortnight or less

² 10 point scale: 1=very concerned or not able; 10=not concerned or very able

³ 5 point scale from never to always

⁴ Statistical significance from Wilcoxon-signed Rank Test for two related samples

APPENDIX: Post-intervention questionnaire, including script and guidelines for the interviewer

Thank you for completing this telephone interview. I need to say only what is written on the questionnaire. I can not say anything different. Could you make sure you have the *SENSE-ational Mealtimes* book, paper & a pen with you now. (Pause until respondent has collected items) Some questions may sound similar. They may help you think of another answer. It's ok to say 'pass' or 'don't know' when asked a question. Feel free to refer to the book during the interview. Let's start. (Interviewer: Read out loud & write all answers verbatim)

1. In what way have you used the *SENSE-ational Mealtimes* book? For example, not used, read, thought about, developed, stretched, etc (Interviewer: Do NOT read out the text next to the boxes. More than one box can be ticked)
- not used
 - read less than half the book
 - read more than half the book
 - read all the book
 - thought about how the concepts apply to my family
 - developed some 'just-right' challenges
 - observed stretching of the range of food my child/ren will accept
 - observed an increase in the range of food my child/ren will accept and enjoy
 - other, please specify _____

Please explain how you used the book and what happened _____

2. What did you like about the *SENSE-ational Mealtimes* book? _____
- _____

3. What did you not like about the *SENSE-ational Mealtimes* book? _____
- _____

4. Was the *SENSE-ational Mealtimes* book helpful? (Interviewer: please circle one) Yes-go to q5 No-go to q7

5. How helpful has the *SENSE-ational Mealtimes* book been? Was it a little, somewhat, moderately or very helpful? (Interviewer: please circle one number in the row below)

A little helpful	Somewhat helpful	Moderately helpful	Very helpful	Not applicable
1	2	3	4	5

6. How has the *SENSE-ational Mealtimes* book helped you? _____
- _____
- _____

7. What changes to the *SENSE-ational Mealtimes* book do you suggest/ What would make it better? _____
- _____
- _____

8. What sections of the *SENSE-ational Mealtimes* book did not make sense or were difficult to understand? _____
- _____
- _____

9. In your opinion, does the *SENSE-ational Mealtimes* book provide enough support for families with difficult mealtimes? (Interviewer: please circle one) Yes No Don't know. Please explain.
- _____
- _____

10. In your opinion, do families need specific help with their difficult mealtimes eg. a service of some kind? (Interviewer: please circle one) Yes No Don't know. Please explain
- _____
- _____

11. What help or support would you like now with your family's difficult mealtimes?

12. Over the past two months since you received the book, how often did your family experience difficult mealtimes? Which of the following best fits your situation? (Interviewer: read out the categories and tick one box only)

- more than once a day
- once a day
- a few times a week
- once a week
- a few times a fortnight or less

13. Over the past 2 months since you received the book, how concerned have you been about your family's difficult mealtimes by using a number between 1 and 10? 1=very concerned and 10=not concerned. (Interviewer: please circle one number in the row only. If the respondent indicates a range, circle between the two numbers)

1	2	3	4	5	6	7	8	9	10
very concerned									not concerned

14. Please use your pen to write down the following words on the piece of paper: always, nearly always, sometimes, almost never, never. After I read each of the following statements, tell me which of these words best describes your current understanding about your family's difficult mealtimes. (Interviewer: circle one number in each row)

	Always	Nearly always	Sometimes	Almost never	Never
I understand why we have mealtime difficulties	1	2	3	4	5
I understand what to do about our mealtime difficulties	1	2	3	4	5
I understand how I can help my child or children with mealtime difficulties	1	2	3	4	5
I understand how I can shape mealtimes so that they are harmonious for my whole family	1	2	3	4	5

15. During difficult mealtimes over the past two months, how often have you experienced the following feelings? (Interviewer: please circle one number in each row)

	Never	Almost Never	Sometimes	Nearly Always	Always
Confidence	1	2	3	4	5
Acceptance	1	2	3	4	5
Anxiety	1	2	3	4	5
Anger	1	2	3	4	5
Defeat	1	2	3	4	5
Frustration	1	2	3	4	5
Confusion	1	2	3	4	5
Worry	1	2	3	4	5
Distress	1	2	3	4	5
Annoyance	1	2	3	4	5
Other (specify)	1	2	3	4	5

Next I will ask you to re-rate the mealtime goals you wrote before you received the book. Your 1st goal was.....(Interviewer: read out loud the goal the respondent wrote on their self-administered needs assessment questionnaire)

16. **Goal 1:** _____

Is this a short-term goal, ie 2 months or less, or a long-term goal, ie 3 months or more? (Interviewer: circle either short-term or long-term)

Please rate using a number between 1 and 10 (Interviewer: please circle one number in each row below)

a) How able you are/your child is to achieve your goal at this point in time

1	2	3	4	5	6	7	8	9	10
finds it difficult unable to do									no difficulties completely meeting goal

b) How satisfied you are at this level of achievement at this point in time

1	2	3	4	5	6	7	8	9	10
not satisfied very concerned									very satisfied not concerned

Your 2nd goal was.....(Interviewer: read out loud the goal the respondent wrote on their self-administered needs assessment questionnaire)

17. **Goal 2:** _____

Is this a short-term goal, ie 2 months or less, or a long-term goal, ie 3 months or more? (Interviewer: circle either short-term or long-term)

Please rate using a number between 1 and 10 (Interviewer: please circle one number in each row below)

a) How able you are/your child is to achieve your goal at this point in time

1	2	3	4	5	6	7	8	9	10
finds it difficult unable to do									no difficulties completely meeting goal

b) How satisfied you are at this level of achievement at this point in time

1	2	3	4	5	6	7	8	9	10
not satisfied very concerned									very satisfied not concerned

18. Would you recommend the *SENSE-ational Mealtimes* book to other parents of children who have difficult mealtimes? (Interviewer: please circle one) Yes No Don't know. Please explain _____

19. What advice would you give parents in the same situation as you with regard to mealtimes or who are about to become parents? _____

Thank you so much for completing this questionnaire. We value your input.