Systematic Review of Interventions Used in or Relevant to Occupational Therapy for Children With Feeding Difficulties Ages Birth–5 Years

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MeSH TERMS
- evidence-based practice
- feeding and eating disorders of childhood
- feeding behavior
- occupational therapy
- treatment outcome

Research articles on the effectiveness of feeding interventions for infants and young children were identified, appraised, and synthesized. Thirty-four studies met the inclusion criteria and were reviewed. Three broad intervention themes regarding feeding approaches were identified on the basis of their theoretical orientations. These three feeding approaches were (1) behavioral interventions, (2) parent-directed and educational interventions, and (3) physiological interventions. Synthesis of the evidence suggested that various feeding approaches may result in positive outcomes in the areas of feeding performance, feeding interaction, and feeding competence of parents and children. This synthesis of empirical evidence supporting interventions for feeding problems provides a foundation for future research to define the types of outcomes that can be expected for children with different diagnoses or functional impairments and to develop best practice guidelines.

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As many as 50% of infants and young children are estimated to have feeding problems (Rommel, De Meyer, Feenstra, & Veereman-Wauters, 2003). Common feeding difficulties include eating too little or too much, delay or difficulty in learning the mechanics of eating, restricted food preferences, delay in self-feeding, objectionable mealtime behaviors, and bizarre food habits (Chatoor, 2002; Satter, 1990). Of infants <1 yr old, 1%–2% experience severe feeding problems, which may include refusal to eat or vomiting and poor weight gain (Dahl & Sundelin, 1986). Of these infants, 70% continue to have feeding problems 4 and 6 yr later (Dahl, Rydell, & Sundelin, 1994; Dahl & Sundelin, 1992). Feeding disorders have also been linked to deficits in cognitive development (Reif, Beler, Villa, & Spirer, 1995), behavioral problems, and eating disorders.

Occupational therapy practitioners often provide interventions for feeding-related issues in infants and young children. With young children with feeding-related problems, occupational therapy practitioners often focus on enhancing feeding performance by applying techniques to improve the mechanics of feeding or by suggesting strategies to their primary caregivers to promote feeding interaction and improve children's mealtime behaviors. To improve mechanics of feeding, occupational therapy practitioners often work directly with children on the following goals:

1. Establishing a developmental sequence of self-feeding skills; for example, teaching a child to hold a spoon, scoop food, or bring a spoon to mouth as prerequisite feeding skills
2. Improving acceptance of a wide variety of foods and textures; for example, using various sensorimotor-based feeding strategies or behavioral modification

methods to improve feeding behaviors of children who have restricted food preferences or food aversion
3. Improving oral–motor skills, for example, sucking, chewing, propelling, and swallowing food effectively, efficiently, and safely (Kerwin, 1999).

In addition, occupational therapy practitioners focus on promoting effective interaction with caregivers and the environment by working with parents or primary caregivers. Because feeding is a dyadic process between parents or primary caregivers and children, working with parents or primary caregivers will promote improvement in children's mealtime behaviors and feeding competence (Pridham et al., 2005).

This critical appraisal of the research literature synthesizes the evidence on interventions that occupational therapy practitioners can use in working with both children who have feeding problems and their families. This information can be used to guide occupational therapy practitioners in their selection of appropriate and effective interventions for infants and children with feeding difficulties.

Method

Research Design

This systematic review of the research literature was initiated and supported by the American Occupational Therapy Association (AOTA) as part of the Evidence-Based Practice Project. The review was carried out by identifying articles in two phases followed by a comprehensive review. The goal was to retrieve reports of research investigating the effectiveness of feeding interventions, relevant to or using occupational therapy, in the population ages birth–5 yr. Detailed information regarding the methodology for the entire literature review can be found in the article "Method for the Systematic Reviews on Occupational Therapy and Early Intervention and Early Childhood Services" in this issue (Arbesman, Lieberman, & Berlanstein, 2013).

Research Question

The following research question guided the selection of research studies for the review and the interpretation of the findings: What is the evidence for the effectiveness of interventions used in occupational therapy to improve feeding, eating, and swallowing for children from birth to age 5?

Procedures

In the first phase of the research, articles were identified by searching Medline, CINAHL, PsycInfo, ERIC, the Campbell Collaboration, and OTseeker. Hand searching of bibliographies and journals was performed as needed. The systematic review question and search terms were developed by the authors, AOTA staff, and the project consultant and were reviewed by an advisory group of occupational therapy practitioners, researchers, and educators. The search terms were used first individually and then in combination. A medical librarian with experience in systematic reviews completed the searches. The project consultant completed the initial review of titles and abstracts. We completed the final review of titles and abstracts.

Criteria for inclusion in this review were the following: (1) the reported intervention could be performed by occupational therapists in various settings; (2) articles were original scientific reports of studies of children from birth to age 5 yr with a developmental delay, disability, or condition that affects development; (3) articles were focused on evaluating the effects of the interventions in an effort to improve feeding and feeding-related performance; (4) at least one of the outcome measures was related to feeding behaviors (i.e., sucking, breast or bottle feeding, mealtime behavior, food intake); (5) studies were categorized as Level I, II, or III evidence or as Level IV evidence in areas without higher level evidence; (6) articles were published in English-language peer-reviewed journals; and (7) articles were published after 1990. The inclusion criteria were established by the authors, AOTA staff, and the project consultant on the basis of the focus of the study and to ensure that all related articles would be included.

The authors, AOTA staff, and the project consultant reviewed each article to identify the type of intervention and its relevance to occupational therapy. Reference lists of all identified articles were searched for additional articles that were missed in the keyword search. We performed a comprehensive review to seek evidence about the effectiveness of the identified intervention. In addition, sample size and sample characteristics of the retrieved studies were reviewed to determine whether they represented the target population. To ensure credibility of the data analysis in the reviewed articles, we studied each article individually and compared our draft findings. When agreement was reached, we developed and proposed major themes on the basis of the contents of retrieved articles and subsequently organized and compiled evidence tables on the basis of the results of the comprehensive review. Sample articles are presented in Supplemental Table 1 (available online at http://ajot.aotapress.net; navigate to this article, and click on "Supplemental Materials"), and a full evidence table is also available online as Supplemental Table 2. The tables and the articles included for systematic review were finalized after discussion among the authors, AOTA staff, and the project consultant to ensure accuracy of the descriptions of the studies and categorization of the themes.

Results

Seventy-one articles were included in the final review, and 34 studies met the inclusion criteria. The results were organized according to the feeding intervention approaches widely represented in the literature; specifically, we identified three broad feeding intervention themes on the basis of their theoretical orientations: (1) behavioral interventions, (2) parent-directed and educational interventions, and (3) physiological interventions.

Behavioral Interventions

Behavioral interventions were defined as treatment strategies based on operant learning principles. Treatment strategies include but are not limited to differential attention (Kerwin, 1999), positive reinforcement (Ahearn, Kerwin, Eicher, Shantz, & Swearingin, 1996; Byars et al., 2003; Kerwin, 1999), physical guidance (Ahearn et al., 1996; Kerwin, 1999; Williams, Riegel, Gibbons, & Field, 2007), extinction or flooding (Benoit, Wang, & Zlotkin, 2000; Byars et al., 2003; Schädler, Suss-Burghart, Toschke, von Voss, & von Kries, 2007; Williams et al., 2007), and shaping (Byars et al., 2003). *Differential attention* was defined as giving positive attention to appropriate feeding behavior and ignoring inappropriate behavior. An example of the application of positive reinforcement is the use of verbal praise or brief access to a preferred toy or activity immediately after achieving a targeted feeding behavior (i.e., self-feeding, food acceptance; Kerwin, 1999). An example of extinction is when the therapist keeps the spoon at the child's lips (without the use of force) until the mouthful is accepted (Ahearn et al., 1996; Benoit et al., 2000). Because removing a spoon after refusal reinforces food refusal behaviors, nonremoval of the spoon is an extinction procedure (Benoit et al., 2000). *Physical guidance* refers to providing manual assistance with the appropriate feeding response after the occurrence of an incorrect response or after 40–60 s of no response (Kerwin, 1999).

Seven studies were categorized as research on behavioral interventions. Two Level I articles, 4 Level III articles, and 1 Level IV article were reviewed (Benoit et al., 2000; Byars et al., 2003; Greer, Gulotta, Masler, & Laud, 2008; Kerwin, 1999; Laud, Girolami, Boscoe, & Gulotta, 2009; Wilder, Normand, & Atwell, 2005; Williams et al., 2007).

Behavioral intervention strategies in the reviewed articles included positive and negative reinforcement, shaping, physical guidance, discrimination, fading, and escape extinction (Kerwin, 1999). The evidence from a review of Level I–III articles suggests that behavioral interventions are effective for children with a variety of feeding problems (Benoit et al., 2000; Byars et al., 2003; Greer et al., 2008; Kerwin, 1999; Laud et al., 2009; Williams et al., 2007). The evidence supports that behavioral interventions can improve acceptance of a variety of foods (Laud et al., 2009), mealtime behaviors (Greer et al., 2008; Kerwin, 1999; Laud et al., 2009), weight gain (Benoit et al., 2000; Byars et al., 2003; Greer et al., 2008), caloric intake (Benoit et al., 2000; Byars et al., 2003; Greer et al., 2008; Kerwin, 1999; Williams et al., 2007), and self-feeding skills (Kerwin, 1999). In addition, 2 Level III studies found that behavioral interventions were effective in decreasing caregivers' stress (Greer et al., 2008; Laud et al., 2009).

In a systematic review (Level I evidence), Kerwin (1999) reported that positive reinforcement of appropriate feeding responses and ignoring or guiding inappropriate responses—for example, not removing the spoon for refusal and swallow induction training (as differential attention)—were effective interventions for children with severe feeding problems. Level I and Level III evidence supported the effectiveness of behavioral therapy in eliminating enteral feeding in children with resistance to oral feeding (Benoit et al., 2000; Byars et al., 2003).

Behavioral interventions have been reported to be effective for children with different diagnoses and across many settings. Participants included children dependent on tube feeding in inpatient or outpatient settings (Benoit et al., 2000; Byars et al., 2003; Greer et al., 2008; Williams et al., 2007); children with mental retardation across inpatient settings, residential and nonresidential schools, and institutions (Kerwin, 1999); children with Rett syndrome in an inpatient setting (Kerwin, 1999); children with autism spectrum disorder in an inpatient setting (Kerwin, 1999; Laud et al., 2009); and children with complex medical problems in an inpatient setting (Kerwin, 1999). Wilder et al. (2005) reported in their single-subject study conducted in an outpatient setting that a noncontingent reinforcement treatment was effective in decreasing self-injury behaviors and increased bite acceptance in a 3½-year-old child with autism, gastroesophageal reflux, and food allergies who exhibited food refusal. No studies in this review reported effective behavioral interventions delivered in home settings.

Parent-Directed and Educational Interventions

Feeding is often considered a dyadic process between a child and his or her caregiver, especially for younger children. Intervention strategies developed under this theoretical orientation often address children's feeding problems by providing primary caregivers with information and recommendations regarding how to facilitate appropriate feeding behaviors. Studies conducted under this theoretical

orientation were reviewed in the category of parent-directed or educational interventions.

Six studies addressed parent-directed and educational interventions. Four Level I studies (Black, Dubowitz, Hutcheson, Berenson-Howard, & Starr, 1995; Garcia Coll et al., 1996; Pinelli, Atkinson, & Saigal, 2001; Pridham et al., 2005) and 2 Level III studies (Chatoor, Hirsch, & Persinger, 1997; Fraser, Wallis, & St. John, 2004) were included in this category.

Evidence from the reviewed articles suggested that parent-directed and educational interventions for children with feeding problems are moderately to strongly effective in improving children's physical growth and development, increasing the feeding competence of children and their primary caretakers, and improving parent–child interaction. Synthesis of these studies does not result in consensus on which form of delivering parent-directed intervention is preferred.

The research evidence supports a parent-directed and educational approach over regular care when delivered alone or in combination with regular care. Black et al. (1995) reported in their Level I study that combining family-focused intervention with regular care is more efficient than administering regular care alone with respect to improving growth, development, and interactive competence in children with nonorganic failure to thrive.

In addition, moderate to strong evidence has shown that parent-directed and educational interventions are effective in improving mother–infant interactions in a variety of populations (Black et al., 1995; Chatoor et al., 1997; Garcia Coll et al., 1996; Pridham et al., 2005). Pridham et al. (2005) demonstrated that an individualized relationship-based intervention (guided participation) is more effective than standard care in supporting feeding competency development for mothers and their premature infants. In their study, feeding competency included infant feeding skills as well as maternal and infant interaction.

Other researchers have reported that an individualized behavioral feeding intervention was effective in promoting physical growth and parent–infant interaction (Black et al., 1995; Chatoor et al., 1997; Garcia Coll et al., 1996). Black et al. (1995) demonstrated that 1 yr of combined clinic and home visits, compared with clinic visits only, was effective in improving physical growth and parent–infant interaction in children with nonorganic failure to thrive. In a short-term intervention to promote physical growth for full-term infants with intrauterine growth retardation, Garcia Coll et al. (1996) reported moderate effects when using education and demonstration and providing feedback on mother–infant feeding interaction. In addition, Chatoor et al. (1997) reported that a parent-centered intervention was effective for parents who had infants with infantile anorexia. The psychotherapeutic intervention for parents was effective in improving feeding interaction and infants' internal regulation of eating.

No consensus exists to support any preferred forms of delivery for a parent-directed and educational intervention. In a Level I study, Pinelli and colleagues (2001) reported no significant difference in duration of breastfeeding between the supplementary structured breastfeeding counseling group and the conventional hospital breastfeeding support group. The counseling included weekly personal contact in the hospital and frequent contact after discharge for infants with birth weight <1,500 g through the infants' 1st yr or until breastfeeding was discontinued. The conventional hospital breastfeeding support group had standard support confined to the period of hospitalization in the neonatal intensive care unit. Other evidence demonstrated that parent education programs that teach parenting strategies can be effective in improving children's problems with eating and mealtime behavior (Fraser et al., 2004).

Physiological Interventions

Feeding can be viewed as a complex developmental skill that requires the integration of breathing, sucking, and swallowing in the context of overall motor stability and incoming sensory stimuli. Many studies have focused on increasing understanding of the effects of early physiological development on the complex task of coordinated feeding. In our review, interventions that concentrated on improving children's biological development, including physical and sensory functions to support infant feeding, were categorized as physiological interventions.

Twenty-one studies were categorized as research on physiology-based interventions. Twelve Level I studies (Bier et al., 1996; Boiron, Da Nobrega, Roux, Henrot, & Saliba, 2007; Bragelien, Rokke, & Markestad, 2007; Fucile, Gisel, & Lau, 2002, 2005; Hake-Brooks & Anderson, 2008; Moore, Anderson, & Bergman, 2007; Pinelli & Symington, 2005; Reid, 2004; Rocha, Moreira, Pimenta, Ramos, & Lucena, 2007; Simpson, Schanler, & Lau, 2002; White-Traut et al., 2002), 3 Level II studies (Barlow, Finan, Lee, & Chu, 2008; Gaebler & Hanzlik, 1996; Poore, Zimmerman, Barlow, Wang, & Gu, 2008), 4 Level III studies (Einarsson-Backes, Deitz, Price, Glass, & Hays, 1994; Jadcherla et al., 2009; Lamm, De Felice, & Cargan, 2005; Munakata et al., 2008), and 2 Level IV studies (Gisel et al., 2003; Larnert & Ekberg, 1995) were reviewed.

Feeding is multifaceted. Studies in the category of physiology-based interventions can be further divided into three subcategories on the basis of their targeted behaviors.

Subcategories include (1) studies targeting preparatory behaviors such as physiological stability for oral feeding (studies investigating the effects of skin-to-skin contact (SSC), nonnutritive sucking [NNS], or oral desensitization were included in this subcategory); (2) studies targeting the acquisition of feeding skills, including sucking and swallowing; and (3) studies targeting environmental support of feeding, including positioning and feeding devices.

Preparatory Behaviors. As supported by moderate to strong evidence, early SSC between mothers and their infants has positive effects on infants' physiological profiles, breastfeeding, and breastfeeding duration (Bier et al., 1996; Hake-Brooks & Anderson, 2008; Moore et al., 2007). Moreover, adverse effects associated with SSC have not been reported.

One systematic review (Pinelli & Symington, 2005) provided strong evidence that an NNS intervention significantly decreases the length of hospital stay for preterm infants. NNS also decreases the time infants need to transition from tube to oral or nipple feeding. No evidence has supported the effects of NNS on weight gain, physiological parameters (heart rate, oxygen saturation, vagal tone), or gastric emptying. The findings regarding the effects of NNS on other clinical variables such as feeding performance, intestinal transit time, and behavioral state during tube feedings and before bottle feeding, as well as during and after, are inconclusive. None of the studies reported negative outcomes.

Feeding Skills. Oral stimulation strategies have been used to promote the onset of oral feeding or to improve oral feeding performance (Einarsson-Backes et al., 1994; Fucile et al., 2002, 2005; Gaebler & Hanzlik, 1996). Strong Level I evidence supports that early introduction of oral feeding shortens the transition time from tube to total oral feeding in preterm infants (Simpson et al., 2002). Studies have also demonstrated that sensorimotor–oral stimulation associated with NNS can improve the oral feeding performance of preterm newborns and can lead to a decreased length of stay (Boiron et al., 2007; Rocha et al., 2007). Olfactory stimulation using black pepper oil showed beneficial effects on oral intake and swallowing movements in some pediatric patients with neurological disorders receiving long-term enteral nutrition (Munakata et al., 2008). In addition, 1 Level III article provided support that a tactile stimulus to the posterior tongue and sequential tactile stimuli to varied locations on the lingual surface induce independent swallowing in pediatric patients with lingual dysphagia (Lamm et al., 2005). However, no significant benefit on weaning from tube feeding to oral feeding, or on length of hospital stay, was found when therapists applied sucking stimulation under the infant's jaw or on his or her chest area on the basis of specific Vojta's techniques of initiating reflex activity of striate and smooth muscle (Bragelien et al., 2007).

Environmental Support. Strong to moderate evidence supports the positive effects of therapeutic techniques on feeding performance of infants and young children with feeding problems. Therapeutic techniques supported by the research include positioning (Gisel et al., 2003; Jadcherla et al., 2009; Larnert & Ekberg, 1995; Reif et al., 1995); sensory stimulation (Munakata et al., 2008; White-Traut et al., 2002); oral stimulation (Barlow et al., 2008; Boiron et al., 2007; Einarsson-Backes et al., 1994; Fucile et al., 2005; Gaebler & Hanzlik, 1996; Lamm et al., 2005; Pinelli & Symington, 2005; Poore et al., 2008; Rocha et al., 2007); oral support (Boiron et al., 2007; Einarsson-Backes et al., 1994); pacing (Jadcherla et al., 2009); and manipulation of feeding methods, including modified equipment (such as slow-flow nipple or a squeezable bottle; Jadcherla et al., 2009; Reid, 2004) or feeding schedule (Jadcherla et al., 2009; Simpson et al., 2002).

Positioning techniques to improve feeding in different populations were examined in several studies, including among infants with nonorganic failure to thrive (Reif et al., 1995), preterm infants (Jadcherla et al., 2009), and children with cerebral palsy (Gisel et al., 2003; Larnert & Ekberg, 1995). Using videofluoroscopy techniques to examine swallow functions in children with cerebral palsy, some researchers further demonstrated that flexed neck and reclined trunk positioning minimize or eliminate aspiration (Gisel et al., 2003; Larnert & Ekberg, 1995). In addition, strong evidence demonstrated that the use of feeding equipment in combination (i.e., squeezable bottle with NUK nipple, cross-cut nipple with rigid bottle) has positive effects on weight gain in infants with cleft palate (Reid, 2004).

Discussion

Synthesis of the evidence suggests that various feeding approaches may result in positive outcomes for the feeding performance, feeding interaction, and feeding competence of parents and children. Feeding interventions can be conducted by trained therapists or by parents who are trained and supervised by therapists. Children can be treated in their homes or in inpatient or outpatient units. The skill level of the person performing the feeding, the feeding environment, and the types of target behaviors all need to be considered when selecting the appropriate approach.

Implications for Occupational Therapy Practice

Using the evidence presented in this review, clinicians may appreciate the merits of different approaches, understand which approach is most effective for certain target behaviors,

and ascertain optimal settings for service delivery. For example, our review supports that behavioral interventions are effective in improving children's appetite, acceptance of food (Laud et al., 2009), oral intake (Benoit et al., 2000; Byars et al., 2003; Greer et al., 2008; Kerwin, 1999), and mealtime behaviors (Greer et al., 2008; Kerwin, 1999; Laud et al., 2009). Parent-directed and educational interventions are reported to be an effective approach when the therapeutic goals are to improve maternal support, parenting skills, mother–child interaction (Black et al., 1995; Garcia Coll et al., 1996; Pridham et al., 2005), or the feeding competency of children and mothers (Pridham et al., 2005). Finally, physiological interventions are commonly used with preterm infants (Barlow et al., 2008; Boiron et al., 2007; Einarsson-Backes et al., 1994; Fucile et al., 2002, 2005; Gaebler & Hanzlik, 1996; Jadcherla et al., 2009; Pinelli & Symington, 2005; Poore et al., 2008; Rocha et al., 2007; Simpson et al., 2002; White-Traut et al., 2002), children with neuromuscular impairments (i.e., cerebral palsy, dysphagia; Gisel et al., 2003; Jadcherla et al., 2009; Lamm et al., 2005; Larnert & Ekberg, 1995; Munakata et al., 2008), or children with oral structure abnormalities (i.e., cleft palate; Reid, 2004) to improve feeding performance. In terms of service delivery settings, the interdisciplinary behavioral interventions were concluded to be effective when conducted in inpatient and outpatient settings (Benoit et al., 2000; Byars et al., 2003; Kerwin, 1999).

From the results, we see that a range of interventions for children with feeding difficulties are often used in combination. Garcia Coll and her colleagues (1996) conducted a behavioral feeding intervention with mothers of intrauterine growth–retarded infants. They combined both parent-directed and educational interventions and behavioral intervention by using operant learning principles of behavioral therapy such as positive reinforcement and shaping to facilitate parents' optimal responses during feeding and indirectly worked on children's feeding performance. Laud et al. (2009) and Williams et al. (2007) combined behavioral therapy with oral–motor therapy to improve food intake in children with various degrees of feeding disorders and children with autism spectrum disorder. Greer et al. (2008) combined all three approaches in their investigation of the effectiveness of an interdisciplinary feeding program. Readers should attend to the details of intervention protocols when interpreting the results of reviewed studies or attempting to replicate reported intervention methods.

Implications for Research

The results of this review cannot, and should not, be generalized to all children with feeding problems; more studies are needed to replicate and extend the interventions across different populations. Occupational therapy researchers need to perform more studies with rigorous designs that directly examine the effectiveness of specific techniques with specific populations. Future research efforts should focus on conducting research in children's homes or natural settings to reflect the effectiveness of early intervention in those settings. For instance, most of the behavioral interventions in this review were conducted in the inpatient or outpatient setting with the efforts of multidisciplinary teams. As providers of early intervention, it is in occupational therapists' interests to find out whether behavioral interventions using applied behavior analysis are effective in the home setting. Researchers should also investigate how best to incorporate parents or caregivers into treatment implementation and ascertain what training procedures or techniques are best for ensuring continued use after treatment has ended.

Limitations

This review raised three general concerns regarding the studies focusing on feeding intervention. First, we noted small sample sizes and limited sample representation in the studies included in the review. The average *n* for the total sample was 45, but the large standard deviation of 37 showed that the distribution of the sample size was skewed. Sample sizes in 10 of the 30 reviewed articles (excluding 4 systematic reviews) were <30. When small samples are used, power is substantially reduced (Portney & Watkins, 2000), and further justification is needed. None of the studies with small sample size ($N < 30$) provided evidence that they were powered sufficiently to demonstrate effects. The small sample sizes and representation of these studies limit their generalizability.

Second, limitations related to methods among the reviewed studies included lack of randomization, lack of sufficient detail in procedures, no identification of the most effective time frame or duration of intervention, lack of long-term follow-up, lack of comparison groups, and lack of specific treatment protocols. Without a description of the treatment protocol or detailed procedures, replicating the treatment and confirming the effectiveness of the reported intervention is difficult for clinicians and researchers. Our results echo those of Kerwin's (1999) systematic review of behavior therapy that the reviewed studies provided little detail regarding when parents were introduced into the feeding sessions, how parents were trained, how (or if) they were instructed to fade the use of procedures, and their perspective on these procedures.

Third, several of the reviewed studies that have particular relevance to occupational therapists (i.e., that described specific techniques used in specific populations) had only

Level III and Level IV evidence. The lack of objective outcome measures or rigorous study designs in Level III and Level IV studies may limit their generalizability.

Conclusion

In this review, we appraised an array of feeding intervention studies for infants and young children. A review of the evidence indicated that certain feeding approaches result in positive outcomes in the areas of feeding performance, feeding interaction, and feeding competence of parents and children. However, generalization is limited because of the samples' lack of representativeness and insufficient descriptions of the interventions and the research methods. Clinicians who use this information for clinical and research purposes should limit its application to similar settings and patient populations. The evidence synthesized here regarding the approaches used in the treatment of feeding problems provides a foundation for future research focused on developing protocols, examining the outcomes of specific interventions, and defining which populations benefit from specific interventions. ▲

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