Research Round-up
August 2022

Reference: Walton, K., A. I. Daniel, Q. Mahood, S. Vaz, N. Law, S. L. Unger, and D. L. O'Connor. 2022. 'Eating Behaviors, Caregiver Feeding Interactions, and Dietary Patterns of Children Born Preterm: A Systematic Review and Meta-Analysis', Adv Nutr, 13: 875-912.

url: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9156386/pdf/nmac017.pdf

Welcome to the August 2022 Research Round-up. This month we will look at an article entitled "Eating Behaviors, Caregiver Feeding Interactions, and Dietary Patterns of Children Born Preterm: A Systematic Review and Meta-Analysis." This article was published in 2022 in Advances in Nutrition. I picked this because I know many of us follow infants post-discharge. And we have talked extensively about the statistics that about 40% of infants born preterm have some feeding or growth problems in the first 4 years. So, I wanted to know more. Click on the URL above to go to the full text. Remember to download the handouts “Critical Review of the Literature” and the Research Roundups definitions file if you need information on any of the abbreviations used. We will go through this article to better understand what was done and what we can draw from this study.

Title: The title accurately describes the study. Remember a systematic review and meta-analysis is considered the highest level of evidence.

Abstract: The abstract summarizes the study in a narrative format.

Background or Introduction: We once again start with looking at the references, with <2012, or published ≥ 2012 as our separation window. Here the authors did not set a period for search articles. They ran the first search in 2020 and repeated it in September of 2021. So, they were more likely to have more articles published in the years prior to 2012. However, most of the data on this subject have been published in more recent years. For the entire article, there are 91 references; of these, 35 references were published prior to 2012 and 56 published in 2012 or later. In the background section, of the 12 articles cited, only four were published prior to 2012.

The authors begin with a statement about the challenges preterm infants face eating and growing after discharge and describe two previous reviews of these problems. They highlight that no one has compared preterm infants to term infants when looking at growth and feeding problems, and the mealtime behaviors of preterm infants compared to term peers. The authors then discuss the influence of parenting practices and experiences through the early years and wonder whether the challenges preterm infants experience are like those of term infants. The aims of this study were to describe oromotor skills, eating behaviors, food parenting practices and dietary patterns of preterm infants during the 6–12-month time and the 1–7-year time. The aim also was to determine whether these challenges are different from those experienced by term infants and their parents.

Study Population: This review included 67 studies that met the criteria set by the authors. The authors also provide their keywords. There were 57 datasets in total; 10 studies looked at different outcomes on the same

dataset. The authors then explain how many studies covered the different age ranges, and/or the different study outcomes.

Methodology: The study design was a systematic review and meta-analysis of numerous studies. They used the PRISMA reporting checklist, which is the standard for systematic reviews, and share their protocol registration information. The search is available within a supplement. The authors describe each of the categories of interest: oromotor skills, eating behaviors, food parenting, and dietary patterns, and offer examples for each. Two reviewers extracted data from eligible studies. The data created several tables. Again, this is one thing I love about well-done reviews. You can get a particularly good idea of what we know about a topic by looking at these tables. They have information about the year and country, study setting and design, sample size and child age, gestational age and weight at birth, sex, relationship of caregiver to child, and results related to the 4 areas of interest. They have a lovely figure explaining their search and search results, Figure 1.

Statistical Analysis: The authors describe their statistical analysis. Here they took the data from the included studies and then pooled the data by analyzing the results of the independent studies as a group. They had multiple ways of looking at risk of bias and certainty of evidence assessment, which they describe fully.

Outcomes/Results: There were a total of 11728 preterm infants. They have an extensive Table 2 detailing each of the 55 articles/47 unique studies used to look at oromotor eating skills and eating behaviors. In Figures 2-7, they describe the prevalence and risk of oromotor difficulties/eating behaviors from the studies included for this outcome. The figures combine the results to determine overall, pooled prevalence and/or risk. They have a similar summary of food parenting articles in Table 3; Table 4 summarizes dietary information.

Oromotor eating skills and eating behaviors

Twenty-two articles explored oromotor challenges. Infants (under 12 months of age) struggled with coordinating s/s/b patterns, lip, and jaw movements, coughing with purees, and difficulties self-feeding. Children over 12 months struggled with food loss/dribbling, coughing, or gagging. Between 6 months to 7 years of life have oromotor problems; 43% of preterm infants aged 6-12 months of age had oromotor challenges, with 25% of children older than 12 months and under 7 years of life challenged. Compared with term babies, preterm infants were 2.86 times more likely to have oromotor difficulties.

Eating behavior challenges were explored with eight articles. Eighteen percent of preterm infants exhibited challenges such as picky eating, food refusal, tantrums during meals. Preterm infants were 1.5 times more likely to have these behaviors compared to term infants. There were 12 studies that combined oromotor and eating behavior outcomes. For these, 28% of preterm infants had challenges (34% infants 6-12 months: 26% older group). Preterm infants were 1.7 times more likely to have some challenging eating behaviors.

Food parenting

Nineteen articles reported on parenting practices. Mothers were the parent of interest in 68% of the articles. Mothers of preterm infants had significant concerns about their child's eating, as well as having negative emotions and using coercive feeding practices. Nutrition research shows us that coercive practices do not work, and often make things worse. These factors were more common in mothers of preterm infants compared to mothers of term infants.

Dietary patterns

Twenty-four articles were included. Results showed infants and children born preterm were not meeting nutritional recommendations and dietary patterns were poor, compared to term infants.

Risk of bias and certainty of evidence assessment

Risk of bias was high – in part because much of the data have been collected in infants coming into follow-up clinics. Evidence is considered extremely low quality.

Discussion/Conclusions: The authors begin by reiterating the results of their study. They point out that The Academy of Pediatrics identify infants with medical comorbidities as being at risk for feeding problems. But in fact, preterm infants in general have an increased prevalence of feeding problems; they suggest NICU follow-up clinics begin assessing feeding and dietary patterns. The authors point out that differences in prevalence rates across studies may be due to different definitions used and recommend standardizing definitions. They also discuss how other differences between their findings and others may be reconciled. They describe the strengths of their study over previous reviews, and their limitations.

Does this fit with your experience: Absolutely! I love the attention on outcomes, and on the need to look at outcomes post-discharge. We need to improve early identification and early intervention services related to feeding and eating skills.

Other: I did not see a report of conflicts of interest to disclose. The data, code book and analytic code is available upon request. They describe the responsibilities of all the authors as well.