



Preparedness of Speech Language Pathologists and Occupational Therapists to Treat Pediatric Feeding Disorder: A Cross-Sectional Survey

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Abstract

Background Pediatric feeding disorder (PFD) is increasingly common and is often treated by speech language pathologists (SLPs) and occupational therapists (OTs) in the community setting. However, the preparedness of these disciplines to effectively address PFD is relatively unknown.

Methods A national (US), online survey was disseminated to providers who assess and treat PFD. For the present analysis, the responses of SLPs ($N=418$) and OTs ($N=195$) related to their clinical background, educational background, post-graduate training, and self-rated clinical effectiveness were statistically analyzed and compared across the two disciplines.

Results Both SLPs and OTs report feeling underprepared to work with PFD clients immediately following their academic training, but time spent in post-graduate training and years of clinical practice both significantly ($p < 0.0001$) increased feelings of effectiveness in assessing and treating PFD. Most SLPs and OTs pursued self-directed learning activities to increase competence, with the most common activities being article review, podcasts, and peer case review, although SLPs were significantly more likely to use podcasts ($p < 0.0001$) and peer review ($p = 0.0004$) than OTs. The most common barriers for providers were financial, time, travel, and institutional support barriers.

Conclusions While PFD is a key practice area of both SLPs and OTs, both provider groups feel unprepared and under-supported in providing competent care to these patients upon graduation. Future research and policy should support advancements in training for current SLPs and OTs related to PFD and address current barriers to a specialized educational pathway.

Keywords Preparedness · Training · Continuing Education · Effectiveness · Pediatric Feeding Disorder · Professional Competence · Occupational Therapists · Speech Language Pathologists

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Introduction

Pediatric Feeding Disorder (PFD), or “impaired oral intake that is not age-appropriate, and is associated with medical, nutritional, feeding skills, and/or psychosocial dysfunction” is a significant childhood disorder, affecting one in 37 children under the age of five in the United States [1, 2]. Deficits in feeding skills, including oral and pharyngeal dysphagia, may occur due to impaired neural control, structural deficits, neurodevelopmental disorders or delays, or developmental delays [3, 4]. PFD may lead to medical and nutritional complications such as reoccurring pneumonia and weight faltering [3]. PFD also negatively impacts child social participation (e.g., events involving food) and family functioning (e.g., high caregiver stress) [5, 6]. High prevalence combined with these wide-ranging impacts, highlight the importance of early identification and timely access to treatment. Therefore, appropriate assessment and treatment of PFD is critical, as impairments in any domain can have profound effects on a child’s functional capability to engage in mealtimes and to consume a diverse diet needed for optimal growth and neurodevelopment [7, 8].

Given that PFD can span medical, nutritional, feeding skill, and psychosocial domains, a multidisciplinary approach to assess and treat children with PFD is recommended, particularly in severe cases [9, 10]. These multidisciplinary teams may include physicians, dietitians, speech language pathologists (SLPs), occupational therapists (OTs), psychologists, social workers, and/or applied behavior analysts. Existing research supporting the efficacy of multidisciplinary care models comes from intensive settings (e.g., academic medical centers) [11]. This level of care is not available in most communities and less is known regarding the treatment landscape in community settings [12]. Available evidence suggests SLPs and OTs represent the front-line providers frequently called upon to assess and treat PFD in community settings [12]. The training and educational pathway for these providers to evaluate and treat children with PFD has not been described or well researched.

The Role and Training of SLPs and OTs in PFD

There are an estimated 147,470 SLPs and 127,830 OTs working in the United States [13, 14]. Both SLPs and OTs are currently master’s or doctoral level clinicians who treat a wide range of feeding, eating, and swallowing disorders across the lifespan, including PFD and dysphagia. Accordingly, the professional organizations associated with SLPs (the American Speech Language Hearing Association; ASHA) and OTs (the American Occupational Therapy Association; AOTA) have stated scope of practice and practice

guidelines for feeding, eating, and swallowing. Within their scopes of practice, SLPs and OTs can each independently conduct comprehensive assessments, diagnose feeding and swallowing disorders, and provide specialized interventions such as positioning changes, diet modification, oral motor exercises, sensory stimulation, and feeding strategies [15, 16]. Both professions also treat PFD in a variety of settings including the neonatal intensive care unit, outpatient, early intervention, and school settings.

Educational standards aimed at preparing OTs and SLPs to assess and treat feeding and swallowing disorders describe what students should know in relation to these disorders. The Accreditation Council for Occupational Therapy Education sets standards for OT academic programs and requires OT students to participate in academic coursework that covers topics such as anatomy, physiology, neurology, pathology, human behavior, and development across the lifespan that should prepare them to treat feeding, eating, and swallowing [16, 17]. For SLPs, the Council on Academic Accreditation states similar relevant knowledge and skill standards such as biological, neurological, psychological, and developmental bases of swallowing, normal and abnormal development, assessment, and intervention across the lifespan [18]. Additionally, an ASHA position statement on graduate training for dysphagia recommends lecture topics including development and maturation of suckling, sucking, swallowing, and chewing at the prenatal, neonatal, infant, toddler, and young child ages [19]. Both professionals also have the opportunity for post-graduate certification. AOTA offered OTs specialty certifications in feeding, eating, and swallowing in recognition of advanced practice skills, currently folded into a certification in pediatrics, and SLPs can pursue a board certification in swallowing from the American Board of Swallowing and Swallowing Disorders to supplement their academic coursework, although this is not PFD-specific. While the professional and accrediting bodies for both SLPs and OTs have set standards that students should meet upon graduation to prepare them to assess and treat feeding and swallowing, these standards are broad and may not adequately address preparation for treating the PFD population specifically.

SLPs and OTs: Gaps in Current Training

Despite explicit standards, graduate level training may not be fulfilling the needs of clinicians or the stated guidance from their respective professional organizations. For example, a 2016 study reported that only 21% of 100 surveyed SLP master’s programs offered a pediatric dysphagia course, this was corroborated by a 2019 survey indicating only 14.2% of SLPs reported taking a course in pediatric dysphagia [20, 21]. The gaps in graduate level training appear to impact the

confidence of clinicians treating pediatric clients. Zimmerman (2016) reported 64.5% of SLPs who did not complete a pediatric dysphagia course felt unprepared to work with infants and children with dysphagia. Similarly, Wilson et al. (2019) reported half of their SLP sample ($N=134$) found their academic coursework inadequate in preparing them to assess and treat pediatric dysphagia; Knollhoff (2022) reported 60% of their SLP sample did not feel prepared to treat feeding and swallowing after graduate school. In contrast, prior work has suggested that SLPs are confident or somewhat confident providing services related to written language disorders, autism, articulation/phonology, and language [22–24]. Similar data are not yet available for OT programs. Together, provisional evidence suggests a notable gap in graduate training specific to feeding and swallowing for SLPs, with limited comparable information available for OT.

The lack of specific, and updated, competencies, for clinician education around feeding and swallowing may be contributing to the educational gap. Competencies describe what SLPs and OTs should be able to do or apply clinically in order to competently practice in a designated area. It is important to note that PFD is a relatively new diagnosis; a position statement defining the diagnosis was published in 2019 [2]. Despite recommendations for pediatric centered lectures in dysphagia management and updated standards for academic criteria, competencies for PFD have yet to be published or well defined by either discipline [19]. For example, the ASHA position statement on graduate level training for dysphagia has not been updated since 2006, despite the new consensus definition coinciding with increased awareness and an uptick in research regarding PFD [19]. This suggests an opportunity to identify where competencies for graduate students can be updated to better reflect the current landscape of SLPs and OTs role in assessing and treating PFD.

In addition to the need for updated graduate level competencies, there is currently no clear pathway for clinicians to achieve the expertise, or competencies, necessary to confidently assess and treat PFD. As stated above, graduate level academic training may be insufficient to prepare clinicians to treat PFD immediately following graduation. In addition, not all organizations have fully updated their clinician competencies to reflect the new PFD diagnosis. For example, while AOTA's statement regarding specialized knowledge and skills in feeding, eating, and swallowing for OT practice outlines the roles and considerations, it is not specific to PFD [16]. Further, while SLPs can pursue a board certification specific to swallowing and swallowing disorders to supplement their academic coursework, less than 1% of SLPs in the United States were board certified as of 2020 [25, 26]. Clinicians report a desire for advanced training in

PFD to better meet the needs of their clients; however, the path toward achieving proficiency is not well defined [27].

Improving the educational infrastructure requires first understanding the current training landscape for SLPs and OTs. This includes important questions regarding how clinicians currently achieve competency to assess and treat PFD, information which could be used to inform efforts toward improved standards and consistent competencies. To document the educational journeys and needs of SLPs and OTs related to PFD, the current analysis examined data from a nationwide survey of clinicians across practice settings and addressed the following aims:

1. Describe the education and training of SLPs and OTs as it relates to assessment and treatment of PFD.
2. Determine the relationship between PFD education and training and clinicians' feelings of effectiveness in clinical practice.

Method

Study Design

This analysis included SLPs and OTs who had participated in a larger international, cross-sectional online questionnaire survey of multidisciplinary providers from all four domains assessing and treating PFD [12]. Feeding skill providers (SLPs and OTs) were chosen as they reflected the most common providers of PFD services in the community, representing 48.9% and 25.4% of survey respondents respectively. The survey was distributed through the Feeding Matters network; Feeding Matters is a 501c3 non-profit organization with a mission to unite families, healthcare professionals, and the broader community to improve the system of care for children with PFD. Participation in the listserv is voluntary and free to the public. Recruitment included emails through the Feeding Matters listserv, discipline specific listservs (e.g., Pediatric Nutrition Practice Group; American Speech Language and Hearing Association), and individual outreach. Responses were collected from January 2022 to March 2022. The survey study was determined to be exempt by the institutional review board at Emory University School of Medicine where the study was conducted.

Survey Questionnaire

Survey questions were developed by reviewing prior feeding provider surveys, a scoping review of PFD research [28], and recent studies regarding feeding intervention and

professional preparation [29–32]. A multidisciplinary expert panel representing the four PFD domains (medicine, nutrition, feeding skill, psychosocial) reviewed and reached consensus on final item selection through an iterative process [33]. The survey was also field tested with a group of 9 outside practitioners representing all four domains and subsequently revised before deployment. The final survey consisted of 66 items; the current analysis assessed a subset of these items (17 items, Appendix A) to address the aims of describing the education and training journeys of SLPs and OTs. Specifically, items included in this analysis focused on provider background (e.g., discipline; years in practice), practice setting (e.g., hospital; private practice), educational background (e.g., highest degree, board certification, preparedness after graduation), post-graduate training (e.g., conference attendance, self-directed learning), and self-rated clinical effectiveness. Two open-ended items about education and training were also included. Additionally, we inserted some attention check items to ensure data quality [34].

The survey was deployed through Survey Monkey, an online survey software tool that allows for responses to be collected through a secure platform. Respondent information is securely stored in two SOC 2 accredited data centers that adhere to security and technical best practices. Collected data are transmitted over a secure HTTPS (hypertext transfer protocol secure) connection and user logins are protected via TLS (transport layer security). Data at rest are encrypted and adheres to industry standard encryption algorithms and strength regardless of if at rest or in motion. We also applied a systematic process for IP checking and scrubbing the data. Confirmation of valid survey responses that included time (> 5 min), response to security questions, consent to participate, and identification of discipline (3 or more considered invalid).

Participants

Inclusion criteria for the original survey included (1) working with pediatric patients, and (2) having a caseload (at least partly) dedicated to assessing and/or treating PFD. For this secondary data analysis additional inclusion criteria were (1) identifying as a SLP or OT and (2) practicing in the United States. Only respondents practicing in the United States were included as education as training varies significantly internationally. Respondents who completed the entire survey received a \$25 gift card.

Data Analysis

Descriptive statistics included mean \pm SD or N (%) as appropriate with the data type. Comparisons between SLP

and OT descriptive statistics were examined using the chi-square test for independence. The distribution of the self-rated clinician effectiveness response involved a 0 to 10 scale and evaluation of this data determined dichotomization of this variable at the 75th percentile of the response distribution. Thus, a dichotomous feeding effectiveness variable was derived using a cut-off of ≥ 8 or < 8 . A dichotomous outcome was chosen primarily to facilitate an applied and practical interpretation of the findings using a distribution-based cutoff of strong self-rated feeding effectiveness versus others. Three multivariate logistic regression models were then employed. Model 1 included both OT's and SLP's in the same model with independent variables: education level, practice setting, years in practice, engagement in self-directed learning opportunities, engagement in employer compensated learning opportunities, and estimated hours per year engaged in post-graduate training. The variable, 'estimated hours per year engaged in post-graduate training' was created by summing the hours each participant reported participating in: feeding specific conferences, discipline specific conferences, pediatric conferences, board certification, and feeding specific workshops/trainings. Logistic regression Models 2 and 3 included the same independent variables, but were specific to OT and SLP profession, respectively. It was determined a priori that all the above independent variables would be forced into all three logistic regression models. Eleven SLP respondents indicated an education level less than a bachelor's degree (versus 0 for OTs). Thus, to allow for uniform comparisons between the professions these respondents were removed from the logistic regression models. Statistical significance was determined at $p < 0.05$. All analyses were conducted using SAS version 9.4 (SAS Institute, Cary, NC).

Open-ended responses to the questions, 'Is there anything you would like to share about your training for treating feeding disorders?' and 'Is there anything else that you would like us to know about education or treatment of pediatric feeding disorder?' were loaded into Atlas.Ti [35] for qualitative coding. There were 212 responses to the first question (anything else to share), of these 42 were "no" or "N/A" leaving 170 codable responses. There were 318 responses to the second question (education or treatment), all of these were responses to the question asked. The first author used a thematic analysis by doing inductive coding to analyze responses [36]. Specifically, data were first reviewed in their entirety, then responses to each question were coded in order of response to identify. Codes and their quotations were compared across questions to develop initial themes, which were reviewed with two of the authors to develop final themes.

Results

Demographics

Out of a pool of 673 total US respondents, a total of 613 SLPs and OTs completed the survey (SLP $n=418$; OT $n=195$). Clinicians were mostly female (99.3% SLP, 97.9% OT), White (86.9% SLP, 85.9% OT), and employed full-time (71.3% SLP, 65.1% OT). There were significant differences between the SLP and OT groups on some demographic variables. OTs were more likely to be younger than 35 years ($p=0.007$) but also have more years of practice ($p=0.0003$). Additionally, there were differences in practice setting, with OT more likely to work in multidisciplinary feeding clinics and less likely to work in inpatient hospital, school, and community health center settings (see Table 1).

Academic and Post Graduate Training

Clinicians were asked about their educational background, as well as post-graduate training in feeding/swallowing they had pursued (see Table 2). The majority of SLPs and OTs had a master's degree, however significantly more OTs reported that their highest degree was a bachelor's degree compared to SLPs ($p=0.0001$). A higher proportion of SLPs (96.9%) compared to OTs (93.8%) reported participation in self-directed learning activities ($p=0.03$). A minority of SLPs and OTs reported having a national board certification in feeding/swallowing. Notably, 9.8% of SLPs and 13.9% of OTs reported that such a certification was not available for their discipline. Most SLPs and OTs had attended feeding specific conferences and feeding specific workshops/trainings.

Both SLPs and OTs reported similar feelings of unpreparedness to assess and treat PFD after their graduate training (see Table 2). Nearly a quarter of clinicians did not

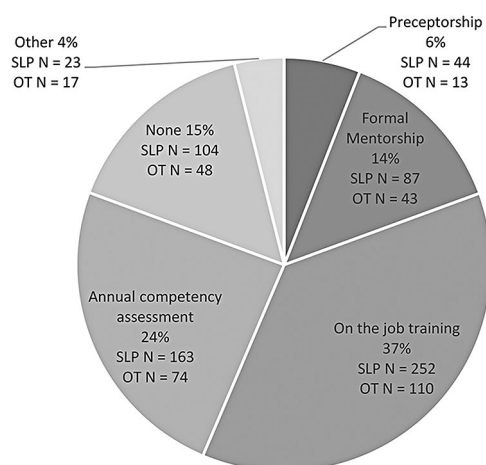
Table 1 Participant Demographics Compared Across SLPs and OTs

Characteristic	SLP ($n=418$)	OT ($n=195$)	<i>p</i> -value
Age, N (%)			0.007*
Under 35 years	249 (59.0)	137 (70.3)	
Over 35 years	169 (41.0)	58 (29.7)	
Gender Identity, N (%)			0.22
Female	414 (99.3)	191(97.9)	
Male	3(0.7)	4 (2.1)	
Race/Ethnicity, N (%)			0.46
Asian or Asian American	10 (2.5)	10 (5.2)	
Black or African American	7 (1.8)	2 (1.1)	
White/Caucasian	356 (86.9)	164 (85.9)	
Hispanic	20 (5.0)	6 (3.1)	
Two or more ethnicities	9 (2.3)	6 (3.1)	
Other	6 (1.5)	3(1.6)	
Years of Practice, N (%)			0.0003*
Five or fewer	99 (24.1)	37 (19.0)	
6 to 15	184 (44.5)	64 (32.8)	
16 or more	135 (31.5)	94 (48.2)	
Employment Status, N (%)			0.30
Full time	297 (71.3)	127 (65.1)	
Part time	94 (22.4)	48 (24.6)	
PRN or Contractor	24 (5.7)	17 (8.7)	
On Leave	3 (0.7)	3 (1.5)	
Practice Setting, N (%)			0.02*
Hospital Inpatient	58 (13.8)	16 (8.2)	
Hospital Outpatient	89 (21.4)	47 (24.1)	
Multidisciplinary Feeding Clinic	32 (7.4)	20 (10.3)	
Private Practice	96 (23.3)	48 (24.6)	
Early Intervention or Home Health	72 (17.2)	46 (23.6)	
School	15 (3.7)	1 (0.5)	
Community Health Center/Developmental Center	19 (4.7)	5 (2.6)	
Academia - University	10 (2.0)	0 (0.0)	
Other	27 (6.7)	12 (6.2)	

*significant at $p < 0.05$

Table 2 – Academic and Post-Graduate Training Compared Across SLPs and OTs

Training Variable		SLP (n=418)	OT (n=195)	p-value
Highest Degree Earned, N (%)				<0.0001*
	Bachelor's	36 (8.6)	53 (27.2)	
	Master's	353 (84.4)	121 (62.1)	
	Doctorate or Higher	18 (4.4)	21 (10.8)	
	Other (Associates, Certificate)	11 (2.6)	0 (0.0)	
Clinician Effectiveness Scale (1–10)	Mean ± SD	7.3 ± 1.7	7.2 ± 1.6	0.34
Preparedness after Graduation (1–10)	Mean ± SD	2.9 ± 1.9	2.3 ± 1.9	0.001*
Hours of Post Graduate Education	Mean ± SD	45.4 ± 34.5	42.1 ± 29.9	0.02*
Participation in Employer Directed Learning Activities	Yes	314 (75.1)	147 (75.4)	0.96
	No	104 (24.9)	48 (24.6)	
Participation in Self-Directed Learning Activities	Yes	405 (96.9)	183 (93.8)	0.03*
	No	13 (3.1)	12 (6.2)	
Reported Feeding/Swallowing National Board Certification, N (%)	Yes	22 (5.3)	14 (7.2)	0.19
	No	355 (84.9)	154 (79.0)	
	Not Available for Discipline	41 (9.8)	27 (13.9)	
Feeding Specific Conferences, N (%)	Yes	322 (77.0)	147 (75.4)	0.68
	No	96 (23.0)	48 (24.6)	
Feeding Specific Workshops/Trainings, N (%)	Yes	372 (89.0)	180 (92.3)	0.20
	No	46 (11.0)	15 (7.7)	

*significant at $p < 0.05$ **Fig. 1** Employer directed competency participation among SLPs and OTs

participate in any employer directed training for assessment and treatment of PFD. Those who did participate in these activities most commonly reported on the job training and annual competency assessment, with similar rates for

participation among both SLPs and OTs (Figs. 1, 2 and 3). In contrast, the majority of clinicians participated in self-directed learning activities to increase their clinical competency related to PFD. The most common activities for both groups included article review, podcasts, and peer case review. SLPs were significantly more likely to use podcasts and peer case review than OTs. Barriers to participating in training were also assessed. The most common barriers for the SLP and OT groups were financial, time, travel, and institutional support barriers. There were no significant differences between groups.

Effectiveness

A logistic regression was performed to determine the effects of education level, practice setting, estimated hours per year engaged in post-graduate training, years of practice, participation in employer directed competency training, and participation in self-directed learning activities on the likelihood of feeling 'effective' in clinical feeding work. The model was statistically significant, $X^2(13, N = 602) = 89.76$,

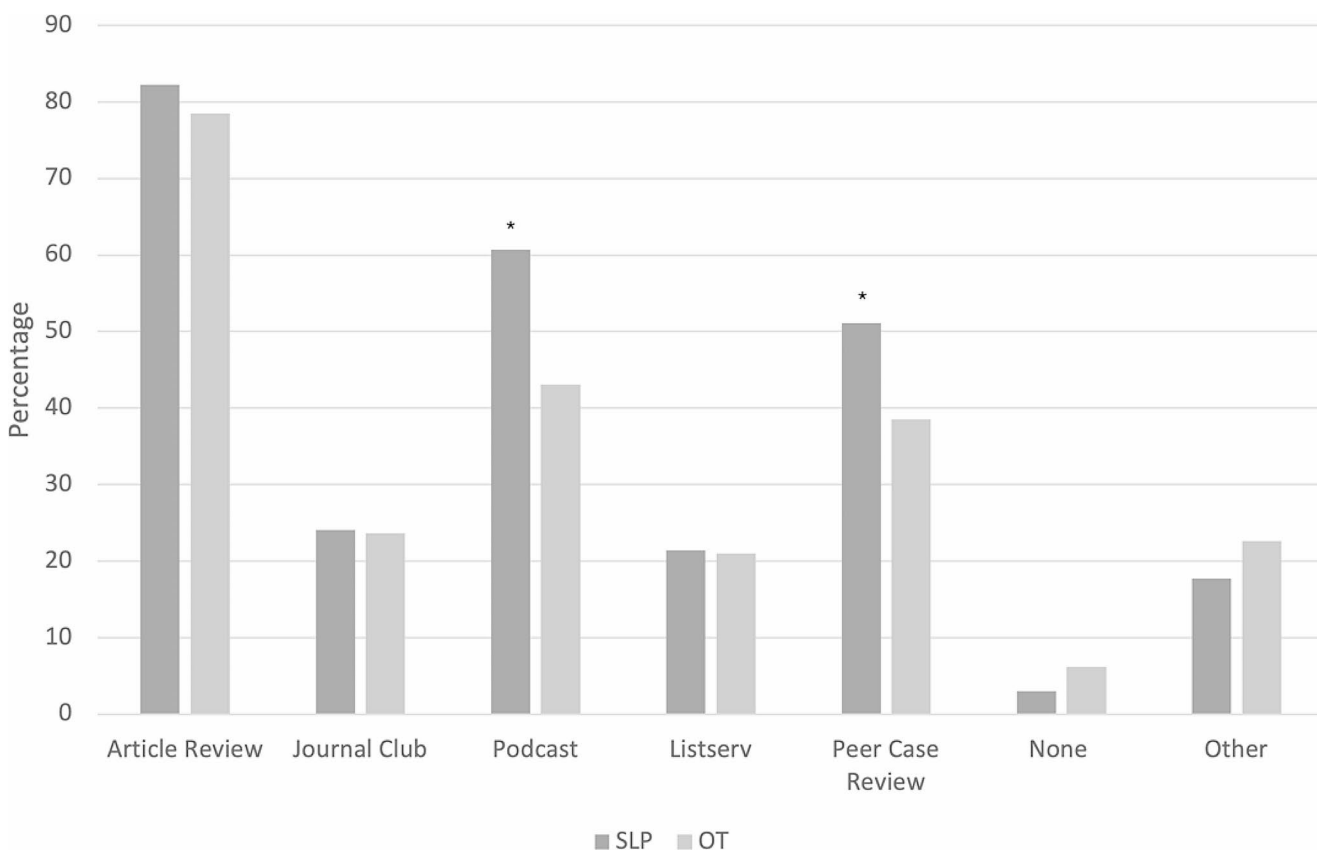


Fig. 2 Self Directed Learning Activities as Compared Between SLPs and OTs. *Note.* *indicates statistically significant difference between groups ($p < 0.05$). SLP (N): Article Review (345); Journal Club (100);

Podcast (255); Listserv (89); Peer Case Review (213); None (12); Other (74). OT (N): Article Review (153); Journal Club (46); Podcast (84); Listserv (41); Peer Case Review (75); None (12); Other (44)

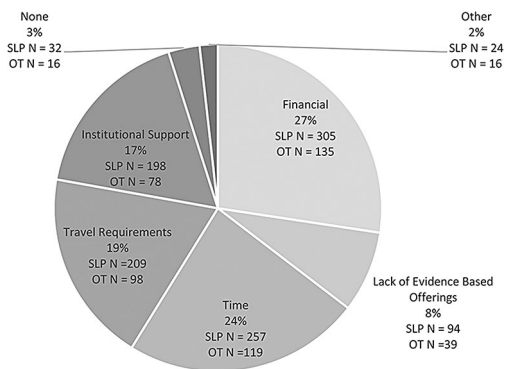


Fig. 3 Barriers to Training among SLPs and OTs

$p < 0.0001$. More hours spent annually in post-graduate training and more years of practice were predictive of clinician perceived effectiveness (inclusive of both SLPs and OTs). For each additional hour of annual training, there was 1.02 times increase in the likelihood of feeling effective (OR = 1.02., 95%CI [1.01, 1.02]). The group with the most years of practice (16 or more years) were four times more likely to feel effective than those with the least years of practice (five or fewer years) (OR = 4.16., 95%CI [2.51, 6.92]). The group with the most years of practice were about

two times more likely to feel effective than clinicians with 6–15 years of practice (OR = 1.80., 95%CI [1.12, 2.89]). Education level (bachelors, masters, or doctorate), practice setting, participating in employer directed competency training, and participating in self-directed learning activities were not predictive of effectiveness. A separate model was run including SLPs with other education levels, and the parameter estimates and their interpretation did not substantively change.

When OTs were examined independent of SLPs, only hours spent in annual training remained significantly predictive of perceived effectiveness. For every additional hour of training, there was a 1.02 increase in the likelihood of feeling effective (OR = 1.02., 95%CI [1.00, 1.03]). Years of practice did not predict perceived effectiveness among OTs.

Among SLPs, hours spent in training annually and years of practice were both significantly predictive of perceived effectiveness. SLPs with the greatest years of practice were six times more likely to feel effective than those with the fewest years of practice (OR = 6.05., 95%CI [3.20, 11.42]), and two times more likely to feel effective than those with 6–15 years of practice (OR = 2.14., 95%CI [1.22, 3.75]). For every additional hour of training, there was a 1.02 increase

in the likelihood of feeling effective (OR = 1.02., 95%CI [1.01, 1.02]).

Qualitative Responses

Inductive coding revealed major themes in academic training and continuing education.

Academic Training

Clinicians frequently mentioned their academic training within two categories: the formal coursework they participated in and the clinical placement experiences they did or did not have related to PFD.

Coursework Clinicians overwhelmingly reported a need for training on PFD during graduate school, and a lack thereof. This was described by one respondent, “We are so under-educated! I wish pediatric feeding was a course taught in graduate SLP programs. It seems that this is only the case for programs that have a professor with a special interest in this area.” While feeding and swallowing are required in both SLP and OT programs, both SLPs and OTs reported their feeding/swallowing course curricula primarily focused on the adult population. For example, one participant said, “Most of my training in school was adult focused. We covered pediatric feeding only briefly within our Dysphagia course.” Therefore, when a pediatric focused dysphagia course was offered, it was noted to be a strength of the academic program. As one participant stated, “I learned a lot from the pioneer professors I studied with as an undergraduate and graduate ... student.”

Clinical Placements While academic coursework did not always fill the need for training in PFD, clinical placements during graduate school did offer an opportunity for pediatric feeding and swallowing training. This was described by one participant, “[I] completed a clinical rotation under a trained feeding therapist as a supervisor, otherwise [I] would not have been prepared to provide feeding intervention upon graduating from my academic institution.” When clinicians were able to receive training through clinical rotations, they reported an increase in their confidence assessing and treating PFD. However, being able to participate in a clinical experience involving patients with PFD was relatively uncommon during graduate school. Clinicians reported that they needed to specifically seek out or request a clinical placement that involved PFD in order to receive that training. This experience was described, “I was able to advocate for myself to have an extra externship in a small children’s hospital where I worked very closely with all different feed-

ing disorder cases ... and I owe that placement HUGE credit for my interest and drive in this field.”

Additionally, even when clinicians sought out clinical experiences with PFD during graduate school, they were often hard to find. Respondents used phrases like “lucked out” and “happened to” when describing getting clinical placements with PFD clients. Clinical placements with PFD clients were described as an asset and clinicians considered themselves lucky to happen to receive a placement that involved training on PFD, as they were often difficult to find. Not all clinicians who desired that experience were able to find it, as described by one participant, “I wish I had been given the opportunity to shadow someone established in more intensive pediatric feeding therapy once I was in grad school or beyond. It is so hard to find a pediatric externship when in grad school, especially as my class was very pressured into school placements.”

Continuing Education

Clinicians reported pursuing continuing education courses to fill the gap left by their academic training. They noted several methods of continuing education, including continuing education courses, on the job training, and mentorship. It is notable that clinicians commonly reported they needed to self-initiate their training in PFD.

Continuing Education Courses Clinicians reported nearly all of their training in PFD had come from continuing education courses. They felt continuing education courses were necessary for feeling effective in assessing and treating PFD. However, the ability to attend PFD trainings was limited by time and funding. This was exemplified by one response, “I would absolutely love to be better trained and more equipped for pediatric feeding interventions. It’s usually money that gets in the way. And time.” Similarly, multiple respondents described a desire for more low-cost or free training opportunities. As one respondent succinctly stated, “We need MORE opportunities for free, evidence-based feeding classes.” Therefore, while clinicians found continuing education trainings effective, their ability to complete trainings was limited by their available resources.

On the Job Training & Mentorship With clinicians facing time and money barriers to continuing education, an efficient way to gain assessment and treatment skills was through on the job training and mentorship from clinicians at their workplace. As one participant described, “Most of my training regarding treatment of pediatric feeding disorders happened on the job.” Mentorship from a more senior

clinician was seen as a valuable method of training. One participant owed mentorship they received to their ability to find their current job in PFD, “I was able to volunteer and shadow a feeding therapist for 2 years, 1x/week. It’s because of that therapist I now have my current position.” Despite an overwhelming desire for mentorship, there were notable barriers. One reported barrier was time. For clinicians looking to move into pediatric feeding and swallowing, having time to shadow an experienced clinician was incompatible with working a full-time job. One participant described this experience in the following manner, “I have run into situations where I have applied to very feeding intensive outpatient settings these past two years and been told that they are choosing an applicant with “more infant feeding skills” and then recommended I find someone to shadow, however being employed full time, that is next to impossible.”

Another barrier was finding clinicians with experience in PFD to provide mentorship. As one participant reported, “More clinical mentorship is needed both for new grads and therapists in the field who do not feel confident in working with feeding. There is a huge need for more experienced SLP’s or OT’s with feeding backgrounds.” While on the job training was efficient, and mentorship ideal, finding experienced clinicians to provide this training, and workplaces that would support it, was challenging, particularly for clinicians new to PFD.

Discussion

Overall, both SLPs and OTs who responded to this survey felt underprepared to work with PFD clients immediately following their academic training, indicating an urgent unmet educational need. Survey responses suggest most training currently occurs following graduation and appears largely self-directed and self-funded. While continuing education training was reported to increase confidence in SLPs’ and OTs’ clinical abilities, there were barriers to attendance. Therefore, on the job training and mentorship were pursued. Additionally, while specialty certification is available for both disciplines, it was seldom pursued, and awareness of its availability was low in this sample. Together, these findings point to opportunities for building capacity in establishing an educational specialty pathway that supports clinicians’ desire for comprehensive training.

It is well documented that SLPs feel underprepared to assess and treat PFD after graduating from their academic institution [20, 21, 27]. This study adds to the literature by documenting that OTs feel similarly underprepared when they embark on their clinical careers. Currently, both SLP and OT curriculums are required to include pediatric feeding

related content in some capacity [16, 18, 19]. However, the education provided appears to be insufficient, inconsistent, and inequitable in preparing SLPs and OTs for clinical careers working with children with PFD as compared to other areas, despite the fact that SLPs are seeing these patients, as reflected in a 2021 ASHA SLP Health Care Survey, which reported that 20% of SLPs working in pediatric health care settings see clients with swallowing and feeding diagnoses [22, 37]. While there is not comparable research available on the number of OTs who see PFD clients, feeding and swallowing is a key area of OT practice and an identified occupational performance activity [16]. Admittedly, there may be barriers to academic institutions’ abilities to provide academic PFD training. One barrier may be the time available in the curriculum given other required topics or conditions. Programs may prioritize other conditions because they believe those conditions are more common, or that an SLP or OT may be more likely to see patients with other conditions than PFD. However, PFD prevalence is higher than other well-known childhood conditions such as autism, with 1 in 37 children under the age of 5 affected each year [1]. Therefore, the cohort of clinical providers to assesses and treat PFD is woefully underprepared as a whole to meet this need, ultimately affecting the patients and families themselves. The availability of qualified clinicians or academics to instruct students on PFD remains unclear, raising important questions where there are enough professionals with expertise in PFD to train the next generation of SLPs and OTs seeking to specialize in this area. Together, this suggests an opportunity to build capacity to support a more robust educational pathway for graduate and post-graduate training in PFD.

The limited number of skilled (e.g., high level of competency) SLPs and OTs treating PFD not only affects students’ academic training but also limits access to clinical placement or mentorship opportunities, leaving students to advocate for themselves or “luck” into their own specialty pathway. Specifically, respondents to the present survey noted a lack of clinical placement opportunities during their graduate school experiences. Because of the limited opportunities, SLPs and OTs expressed that they had to self-advocate for these kinds of opportunities. When PFD-focused clinical placement opportunities were available, they were seen as highly advantageous and effective at increasing clinician skill and confidence in assessing and treating PFD. Therefore, increasing access to clinical experiences related to PFD during graduate school may help fill some of the gaps in formal academic training.

Post-graduation, clinicians noted multiple methods for increasing their competency related to PFD to overcome their academic undertraining. Related to their employer, clinicians participated in on-the-job training and mentorship.

They also pursued independent learning activities. The most common self-directed activities among both SLPs and OTs were article review, podcasts, and peer case review. SLPs were significantly more likely to use podcasts and peer case review as a self-directed method for increasing the PFD competency than OTs. This finding may reflect the overall high percentage of OTs who focused on article review, or this finding may illuminate a higher number of SLP-directed PFD podcasts available, the available content and the evidence base behind this content across disciplines deserves further research. Another opportunity for advanced training is in board certification. While board certification was not significantly related to clinician effectiveness, a minority of SLPs and OTs endorsed having pursued board certification, possibly because board certification may not translate to clinician benefits (e.g., increased salary) or differences in caseload (i.e., it is not required to see PFD clients). Alternatively, a lack of awareness of opportunities for formal advanced training may exist; 9.8% of SLPs and 13.9% of OTs reported that board certification was not available for their discipline, despite its current or recent availability. While board certification in swallowing may not adequately address PFD on its own, awareness of these opportunities, as well as coordinated benefits from employers, could help fill the gap in post-graduate training.

It is also important to note that there are barriers to pursuing additional training. The most common overall barriers were financial (endorsed by 72% of SLPs and OTs), time (endorsed by 61.5% of SLPs and OTs), and travel requirements (endorsed by 50% of SLPs and OTs) which likely reflect the financial and time impacts of travel. These barriers were also reflected in the open-ended responses. For example, clinicians expressed that it was challenging to be working and find time to participate in continuing education or shadow an experienced feeding clinician. Younger clinicians discussed the difficulty of paying for continuing education courses when navigating graduate school debt. Together these barriers have several impacts and contribute to the ongoing undertraining. One, these barriers prohibit practicing clinicians from entering the area of PFD if they were not trained during their graduate education. Second, these barriers likely impact the diversity of the SLPs and OTs working in PFD. Specifically, prior research has demonstrated that financial and access barriers to graduate level education in OT and SLP impact the diversity of the field [38–40]. Training in PFD requires additional time, financial, and travel burdens placed on the individual clinician because it is not sufficiently covered in graduate education. Whether and how much employers should be expected to train clinicians to assess and treat these clients deserves future study. Unfortunately, in the face of time, financial, and travel barriers, the present study suggests that clinicians

interested in assessing and treating PFD bootstrap training through on-the-job training and continuing education as they are able to afford and make time for it.

In a novel finding, the present study investigated what factors increased clinicians' self-assessment of their own effectiveness treating PFD. First, greater hours of training increased feelings of effectiveness. In fact, for each additional hour of training, there was 1.02 times increase in the likelihood of feeling effective. This finding is consistent with other survey studies on school-based SLPs working with pediatric dysphagia. For example, Neubauer & Singleton (2023) found that greater continuing education participation was associated with greater confidence treating PFD among school based SLPs. However, O'Donoghue et al. (2008) reported a significant correlation between participation in continuing education and self-reported confidence treating dysphagia in the school setting only when the continuing education participation was recent (i.e., within the last 2 years) [41]. Future research may explore a minimum number of training hours needed to feel effective in order to direct future training efforts. This research may be expanded to further investigate how feelings of effectiveness relate to increased competency and use of evidence-based practices, as well as family perception of the effectiveness of treatment. Second, years of practice also increased feelings of effectiveness, but only among SLPs. This finding is also consistent with findings on school based SLPs [42]. The difference between SLPs and OTs in this regard may reflect practice patterns, such as how long clinicians in each discipline stay in a particular treatment arena or differences in workplace support to pursue skill advancement. More research is needed to fully elucidate the relationship between years of practice and effectiveness among OTs.

Future Directions

The present research sets the stage for numerous future directions in both research and policy to enhance current educational offerings and post-graduate pathways as well as to build a future pipeline for more qualified professionals. There is an enduring call for improvements in graduate education for SLPs and OTs to better prepare them to work with clients with PFD after graduation [43]. This survey confirms this call by finding that SLPs and OTs feel unprepared and undertrained to work with this population immediately following their academic training. A lack of basic, required training on PFD likely limits the availability of skilled providers to provide services and mentorship, and may limit the diversity of clinicians working in PFD due to the barriers to continuing education, which is currently required because of the academic undertraining. Therefore, graduate training standards should be updated to reflect the new PFD

diagnosis and require programs to give students the opportunity to acquire basic skills in assessing and treating PFD.

To fill the gap left by academic training, clinicians reported on additional avenues for clinical preparation around PFD. Both on the job training and mentorship were cited in the quantitative and qualitative findings. However, there are no established methods or competencies for on-the-job training or mentorship for PFD, which may limit the quality and availability of such training. For example, individual mentors or specific job sites may have training materials and methods, but these are not standardized across institutions. Future research may explore different training and mentorship practices across disciplines and practice settings. In addition, while mentorship was highly regarded, both during graduate school and in clinical practice, experienced and available mentors were challenging to find. This may reflect the limited advanced practitioners in PFD, as they likely have high caseloads and frequent mentorship requests. Formal mechanisms for mentorship may help reconcile this need. For example, better awareness of advanced certification programs with established mentorship requirements could improve clinicians' abilities to find and effectively access advanced mentors. Another opportunity may be the development of multidisciplinary specialty electives open to clinicians, or communities of practice facilitated by academic institutions, that can assist clinicians in building mentoring networks as well as facilitate innovation in education. Overall, while clinicians used and appreciated on the job training and mentorship, more formal avenues for these opportunities could make them more widely available and ensure their quality.

Continuing education courses are a common way to fulfill gaps in training and in this sample, greater hours of post-graduate training were associated greater clinician self-reported effectiveness. However, there are major barriers to participating in these courses, including the high cost and time taken out of work or personal time to attend. The transition to more online trainings during COVID-19 helped some clinicians access trainings that may not otherwise be accessible due to travel and time barriers. While online trainings have been demonstrated to largely be as effective as in-person training, a research study specific to PFD could confirm their effectiveness in this domain [44]. Quality of courses also likely vary, and live opportunities may not be available in all communities (e.g., rural), suggesting additional area for future inquiry and development (respectively). Another opportunity for increasing access to continuing education is improving the availability of low-cost continuing education offerings and/or increasing employer support for training, as financial constraints are a major barrier. Continuing education can be an effective way to increase skills, however there are barriers in terms of access that must be addressed

to increase the diversity and availability of trained clinicians in PFD. Finally, there were many commonalities between SLP and OT respondents as it related to the current lack of a specialty educational pathway for PFD. Therefore, identifying opportunities for cross-discipline competency development could help better prepare the primary feeding skill domain professionals as whole.

Limitations

There are several limitations to this research that should be acknowledged. First, the study relied on nonprobability convenience sampling and it is possible that responses may not be representative of full body of SLPs and OTs working in PFD. Additionally, survey findings are limited by the participants' recall and reporting. This sample was limited in its racial, ethnic, and gender diversity. Specifically, findings suggest a relative homogenous workforce (i.e., white females), which is largely reflective of the general demographics of SLPs and OTs [26, 45]. The represents an important current limitation in the field given the significant influence of cultural factors on food choice, feeding, and mealtimes. Future research may purposively sample diverse clinicians within the fields of SLP and OT to determine if they have different training experiences so that these are reflected in the literature. There were differences in the age, years of practice, and practice setting of the OT and SLP groups in our sample which may explain some of our significant findings, although these variables were included in statistical models. Finally, a single researcher coded the qualitative responses, while these were reviewed by other researchers additional qualitative rigor would add to the overall quality of the study. Overall, this survey study provides an important overview of training gaps and opportunities for SLPs and OTs as they relate to PFD.

Conclusion

When it comes to assessing and treating PFD, SLPs and OTs desire improved academic and clinical training experiences during and after graduate education. Yet, there is not a well-defined specialty educational pathway. Increased hours of training was associated with increased clinician feelings of effectiveness, which suggests providing PFD-specific training may be a worthwhile investment. Findings, however, also suggest potential barriers to receiving additional training, with most opportunities described as self-directed and self-funded. In this survey, clinicians reported experiencing time and financial constraints to pursuing additional training. Increased awareness of and support for advanced training opportunities, including mentorship, certification, and

continuing education, may help fill the gap in the availability of clinicians who are able to serve the growing population of infants and children with PFD. While PFD is a key practice area of both SLPs and OTs, both providers indicated feeling unprepared and under supported in providing competent care to these patients, suggesting an urgent need to build capacity for a specialty educational pathway and a pipeline of future qualified clinicians.

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Data Availability The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request. Data are located in controlled access data storage at Feeding Matters.

References

- Kovacic K, Rein LE, Szabo A, Kommareddy S, Bhagavatula P, Goday PS. Pediatric feeding disorder: a nationwide prevalence study. *J Pediatr*. Sep. 2020. <https://doi.org/10.1016/j.jpeds.2020.07.047>.
- Goday PS, et al. Pediatric feeding disorder: Consensus definition and conceptual framework. *J Pediatr Gastroenterol Nutr*. 2019;68(1):124–9. <https://doi.org/10.1097/MPG.0000000000002188>.
- Dodrill P, Gosa MM. Pediatric dysphagia: physiology, assessment, and management. *Ann Nutr Metab*. 2015;66:24–31. <https://doi.org/10.1159/000381372>.
- Dodrill P. Feeding problems and oropharyngeal dysphagia in children. *J Gastroenterol Hepatol*. 2014;3(5):1055–60. <https://doi.org/10.6051/j.issn.2224-3992.2014.03.408-5>.
- Garro A, Thurman SK, Kerwin ME, Ducette JP. Parent/Caregiver Stress During Pediatric Hospitalization for Chronic Feeding Problems. *Journal of Pediatric Nursing: Nursing Care of Children and Families*, vol. 20, no. 4, pp. 268–275, Jul. 2005, <https://doi.org/10.1016/j.pedn.2005.02.015>.
- Simione M, et al. Family-centered outcomes that matter most to parents: a pediatric feeding disorders qualitative study. *J Pediatr Gastroenterol Nutr*. 2020;270–5. <https://doi.org/10.1097/MPG.0000000000002741>.
- Rommel N, De Meyer AM, Feenstra L, Veereman-Wauters G. The complexity of feeding problems in 700 infants and young children presenting to a tertiary care institution. *J Pediatr Gastroenterol Nutr*. 2003;37(1):75–84. <https://doi.org/10.1097/00005176-200307000-00014>.
- Manikam R, Perman JA. Pediatric feeding disorders. *J Clin Gastroenterol*. 2000;30(1):34–46. <https://doi.org/10.1097/00004836-200001000-00007>.
- Cerezo CS, Lobato DJ, Pinkos B, Leleiko NS. Diagnosis and treatment of Pediatric Feeding and swallowing disorders: the Team Approach. *ICAN: Infant Child*. 2011;3(6):321–3. <https://doi.org/10.1177/1941406411420141>. & Adolescent Nutrition
- Miller CK, Burklow KA, Santoro K, Kirby E, Mason D, Rudolph CD. An Interdisciplinary Team Approach to the Management of Pediatric Feeding and Swallowing Disorders., *Children's Health Care*, vol. 30, no. 3, p. 201, 2001, [Online]. Available: <https://libproxy.lib.unc.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9284222&site=ehost-live&scope=site>
- Sharp WG, Volkert VM, Scahlil L, McCracken CE, McElhanon B. A systematic review and Meta-analysis of intensive multidisciplinary intervention for Pediatric Feeding disorders: how standard is the Standard of Care? *J Pediatr*. Feb. 2017;181(e4):116–24. <https://doi.org/10.1016/j.jpeds.2016.10.002>.
- Sharp WG, Estrem HH, Romeo C, Pederson J, Proctor KB, Gillespie S, Du C, Marshall J, Raol N. Assessing the US treatment landscape for paediatric feeding disorder: a survey of multidisciplinary providers. *Child Care Health Dev*. Jan 2023;50(1):e13198. <https://doi.org/10.1111/cch.13198>.
- Occupational Employment and United States Bureau of Labor Statistics, Wages M. 2021: Speech-Language Pathologists, Mar. 2022. Accessed: Mar. 25, 2023. [Online]. Available: <https://www.bls.gov/oes/current/oes291127.htm>.
- Occupational Employment and United States Bureau of Labor Statistics, Wages M. 2021: Occupational Therapists, Mar. 2022. Accessed: Mar. 25, 2023. [Online]. Available: <https://www.bls.gov/oes/current/oes291122.htm>.
- American Speech-Language-Hearing Association. Pediatric feeding and swallowing (Practice Portal).
- The Practice of Occupational Therapy in Feeding, Eating, and Swallowing, *The American Journal of Occupational Therapy*, vol. 71, no. Supplement 2, pp. 7112410015p1-7112410015p13. Nov. 2017, <https://doi.org/10.5014/ajot.2017.716S04>.
- Bendixen RM, Kreider CM. Review of Occupational Therapy Research in the practice area of children and youth. *Am J Occup Therapy*. May 2011;65(3):351–9. <https://doi.org/10.5014/ajot.2011.000976>.
- Council on Academic Accreditation. Standards for accreditation of graduate education programs in audiology and speech-language pathology. Jan. 2023.
- American Speech-Language-Hearing Association. Graduate curriculum on swallowing and swallowing disorders (adult and pediatric dysphagia), 2007.
- Zimmerman E. Pediatric dysphagia: a rise in preterm infants and a need for more formal training for speech-language pathologists. *Int J Gynecol Obstet Neonatal Care*. 2016;1–8. <https://doi.org/10.15379/2408-9761.2016.03.01.03>.
- Wilson Jennifer J, Simmons Amanda K, McCarthy Jillian H. Pediatric dysphagia: Survey results describing speech-language pathologists' education and experience. *Perspect ASHA Spec Interest Groups*. Feb. 2020;5(1):236–45. https://doi.org/10.1044/2019_PERSP-19-00016.
- Kelly EM, Clinical Preparation and Practices of School Speech-Language Pathologists With People Who Stutter. Jul., *Academic and Lang Speech Hear Serv Sch*, vol. 28, no. 3, pp. 195–212, 1997, <https://doi.org/10.1044/0161-1461.2803.195>.
- Plumb AM, Plexico LW. Autism Spectrum disorders: experience, training, and confidence levels of School-Based Speech-Language pathologists. *Lang Speech Hear Serv Sch*. Jan. 2013;44(1):89–104. [https://doi.org/10.1044/0161-1461\(2012/11-0105\)](https://doi.org/10.1044/0161-1461(2012/11-0105)).
- Blood GW, Mamett C, Gordon R, Blood IM. Written Language Disorders: Speech-Language Pathologists' Training, Knowledge, and Confidence, *Lang Speech Hear Serv Sch*, vol. 41, no. 4, pp. 416–428, Oct. 2010, [https://doi.org/10.1044/0161-1461\(2009/09-0032\)](https://doi.org/10.1044/0161-1461(2009/09-0032)).
- Gosa MM. February 2020 news brief, Easy to Digest.
- American Speech-Language-Hearing Association. 2021 Member & Affiliate Profile, 2021.
- Knollhoff SM. Pediatric dysphagia: a look into the training received during graduate speech-language pathology programs to support this population. *Lang Speech Hear Serv Sch*. Jan. 2023;1–11. https://doi.org/10.1044/2022_LSHSS-22-00114.

28. Estrem HH, Park J, Thoyre S, McComish C, McGlothen-Bell K. Mapping the gaps: A scoping review of research on pediatric feeding disorder. *Clin Nutr ESPEN*, vol. 48, pp. 45–55, Apr. 2022, <https://doi.org/10.1016/j.clnesp.2021.12.028>.
29. Parr J et al. Mar., Parent-delivered interventions used at home to improve eating, drinking and swallowing in children with neurodisability: the FEEDS mixed-methods study, *Health Technol Assess (Rockv)*, vol. 25, no. 22, pp. 1–208, 2021, <https://doi.org/10.3310/hta25220>.
30. Coelho JS, Norris ML, Tsai SCE, Wu YJ, Lam P. Health professionals' familiarity and experience with providing clinical care for pediatric avoidant/restrictive food intake disorder. *International Journal of Eating Disorders*, vol. 54, no. 4, pp. 587–594, Apr. 2021, <https://doi.org/10.1002/eat.23438>.
31. Taylor H et al. Jun., Children with neurodisability and feeding difficulties: a UK survey of parent-delivered interventions, *BMJ Paediatr Open*, vol. 5, no. 1, p. e001095, 2021, <https://doi.org/10.1136/bmjpo-2021-001095>.
32. Simone M, et al. Examining health conditions, impairments, and quality of life for pediatric feeding disorders. *Dysphagia*. 2022;38:220–6. <https://doi.org/10.1007/s00455-022-10455-z>.
33. DeVellis R. Scale development: theory and applications. Volume 26. Sage; 2012.
34. Newman A, Bavik YL, Mount M, Shao B. Data Collection via Online Platforms: Challenges and Recommendations for Future Research, *Applied Psychology*, vol. 70, no. 3, pp. 1380–1402, Jul. 2021, <https://doi.org/10.1111/apps.12302>.
35. ATLAS.ti 8 Mac.
36. Terry G, Hayfield N, Clarke V, Braun V. Thematic analysis. in *The SAGE handbook of qualitative research in psychology*. 2nd ed. Sage; 2017. pp. 17–37.
37. Association AS-L-H. ASHA 2021 SLP Health Care Survey: Caseload characteristics, 2021.
38. Easton C, Verdon S, Brown L, Wilson L. Building diversity in the speech-language pathology workforce through a blended online master of Speech Pathology. *Int J Speech Lang Pathol*. May 2022;24(3):307–19. <https://doi.org/10.1080/17549507.2022.2055145>.
39. Colaianni D, Tovar G, Wilson D, Zapanta H. Factors influencing the diversity of occupational therapy students. *J Occup Therapy Educ*. Jan. 2022;6(1). <https://doi.org/10.26681/jote.2022.060102>.
40. Guiberson M, Vigil D. Speech-language pathology graduate admissions: implications to diversify the workforce. *Commun Disord Q*. May 2021;42(3):145–55. <https://doi.org/10.1177/1525740120961049>.
41. O'Donoghue CR, Dean-Claytor A. Training and self-reported confidence for dysphagia management among speech-language pathologists in the schools, *Lang Speech Hear Serv Sch*, vol. 39, no. 2, pp. 192–198, Apr. 2008, [https://doi.org/10.1044/0161-1461\(2008/019\)](https://doi.org/10.1044/0161-1461(2008/019)).
42. Neubauer NP, Singleton NC. What plays a role in perceived confidence for managing pediatric feeding disorders in the public school, *Lang Speech Hear Serv Sch*, pp. 1–17, Mar. 2023, https://doi.org/10.1044/2023_LSHSS-22-00074.
43. Rabaey PA, Barlow K, Jama H, Lehr V. Investigation of Assessment Tools in the Area of Pediatric Feeding Evaluation: A Mixed-Methods Study, *The American Journal of Occupational Therapy*, vol. 77, no. 4, Jul. 2023, <https://doi.org/10.5014/ajot.2023.050040>.
44. Sinclair PM, Kable A, Levett-Jones T, Booth D. The effectiveness of internet-based e-learning on clinician behaviour and patient outcomes: a systematic review. *Int J Nurs Stud*. May 2016;57:70–81. <https://doi.org/10.1016/j.ijnurstu.2016.01.011>.
45. Banks TM. Leading the OT Profession Toward Diversity, Equity, and Inclusion: Let's Talk Academia, *The American Journal of Occupational Therapy*, vol. 76, no. Supplement 1, pp. 7610505071p1-7610505071p1, Jul. 2022, <https://doi.org/10.5014/ajot.2022.76S1-PO71>.

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