

What is “Usual Care” in Dysphagia Rehabilitation: A Survey of USA Dysphagia Practice Patterns

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Abstract The scope of dysphagia rehabilitation has been expanding. Therapeutic approaches have begun to move away from the use of behavioral compensations and maneuvers only, toward a greater emphasis on research-supported exercise-based therapies. Given the change in focus and demand for evidence-based practice, this study surveyed licensed speech language pathologists who treat dysphagic adults to ascertain the utilization of exercise-based techniques and supportive research in treatment decision-making. A web-based survey was created using Qualtrics online software. The survey consisted of 29 questions on demographics and treatment options for a deidentified patient in a video-supported fictional scenario. Initially, a field test was conducted by sending the survey to a sample population of 12 local speech pathologists working in adult dysphagia rehabilitation. Responses were collated and analyzed for item agreement and internal consistency. A blast e-mail containing a link to the modified survey was then sent out to members of the American Speech Language Hearing Association Special Interest Group 13. Participants were given 2 months to complete the survey. A total of 254 responses were analyzed using descriptive, correlative, and associative methods. Respondents were experienced speech-language pathologists (SLP) working in primarily acute and rehabilitation

settings and treating more than 50 dysphagic cases in a 6-month period. They reported treating dysphagic patients daily for an average of 30 min a session. Follow-up of treated patients was infrequent. Most respondents reported using self-developed assessment techniques, and as a group they recommended 47 different treatment techniques and more than 90 different treatment combinations for the same hypothetical patient case. The majority of respondents also described the common outcome of dysphagia treatment as returning a patient to a safe and functional oral diet, but not preinjury status. Results demonstrate a lack of uniformity in the treatment schemes and strategies used by SLP to treat dysphagic patients. The concept of “usual care practice” for dysphagia is not supported. Utilization of research-supported assessment techniques and exercise-based approaches was also sparse. These data clearly highlight ongoing challenges to professional education and growth in the area of dysphagia management.

Keywords Dysphagia · Survey · Treatment · Deglutition · Deglutition disorders

Introduction

Dysphagia (difficulty swallowing) affects around 15 million people in the US, with ~1 million additional people diagnosed annually. Of these, 25–45 % will receive some form of rehabilitation for swallowing difficulty by a speech-language pathologist (SLP) [1]. Rehabilitation for dysphagia traditionally includes the prescription of maneuvers and strategies to improve the safety of swallowing, along with the modification of food or fluids consumed to facilitate safer eating and more efficient swallowing [2–5]. Recently, the scope of dysphagia rehabilitation methods has been

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changing. Research has moved away from the use of behavioral compensations and maneuvers toward a greater emphasis on exercised-based therapy that emphasizes consistent, active muscle movement. Examples of these types of exercise-based therapy techniques include lingual resistance exercises [6], Expiratory Muscle Strength Training (EMST) [7], and the McNeill Dysphagia Therapy Program (MDTP) [8]. Data from new therapies such as these suggests a stronger emphasis on exercise yields positive results that are superior to older “management” techniques using compensations and maneuvers alone [8, 9]. Although there is evidence supporting these active exercise approaches, it is unclear how many practicing SLPs are utilizing these techniques. Given this recent change in treatment emphasis, it is important to determine if practicing SLPs are incorporating “best practice” into their treatment approaches.

Two previous surveys attempted to describe the clinical practice patterns of SLPs regarding dysphagia [10, 11]. These studies identified specific discrepancies between clinical methods and supportive research. One study found great variation in the assessment techniques used, specifically the underuse of videofluoroscopic protocols for assessing the severity of dysphagia [10]. Furthermore, SLP respondents in that study often reported testing for the presence of an involuntary cough, despite evidence suggesting that it is not a strong predictor of aspiration [10]. Another study also described wide disagreement about the clinical components that SLPs utilized to assess patients. They also reported large discrepancies in the proposed options that clinicians would recommend to further evaluate patients in four of the six hypothetical scenarios presented, regardless of experience or availability of assessment tools [11]. While valuable information was gathered by both studies, the study populations utilized by these investigators were limited in scope and neither survey contained actual clinical examples to prompt responses.

Evidence-based practice effectively combines clinical expertise, scientific research, and patient values to ensure that a client receives research-supported care that is tailored to his or her individual needs. The use of evidence-based and evidence-supported tools and techniques is advocated by American Speech Language and Hearing Association (ASHA), and is purported to be of importance within the medical literature. Despite this, its concurrence in dysphagia practice remains unclear. While evidence now exists regarding assessment approaches, there has been little research on defining “usual care” in dysphagia treatment. It is also unclear whether SLPs use current evidence within their usual practice or in the development of their therapy techniques. The previously published practice surveys reported equipoise in the use of evidence to support assessment. Further, those studies did not reflect the current paradigm change from compensatory management to exercise

intervention. Consequently, the purpose of this study was to survey licensed SLPs in the US to determine current practice patterns in treating dysphagic adults, and to ascertain the use of supportive research in clinical treatment decision-making using actual problem-based examples. Exercise-based interventions for the purposes of this investigation were defined as activities formulated in consideration of exercise principles (mechanical resistance, muscle adaptation, and strength training), designed to restore or improve musculo-skeletal performance for swallowing.

Methods

Participants

This study used a web-based survey method to target SLPs who treat adults with dysphagia in a variety of clinical settings throughout the US. The ASHA’s Special Interest Group 13 (SIG 13) was used as the sampling frame because it provided a representative study population of experienced dysphagia clinicians. As a function of this association, members of this interest group voluntarily gave their e-mail address. Thus, SIG-13 members were contacted via a blast e-mail which contained a link to the survey. Survey enrollment was voluntary and no incentives were offered to participants to enroll in the project. In total, 254 of 264 survey responses were analyzed for this study. The ten responses not included were those with >20 % incomplete items.

Survey Development and Field (Pilot) Testing

A pilot survey was initially created using Qualtrics online software (Qualtrics Labs Inc., Provo, UT). The initial survey consisted of 29 questions, including 13 demographic items (e.g., education, work history, and practice patterns) and 16 items related to the treatment of a de-identified patient in a video-supported, fictional scenario. A field test of the survey items was initially conducted by sending the survey to a sample population of 12 local speech pathologists. Responses from the field study were collated and analyzed for item agreement and internal consistency. Following collation, survey items were also reviewed for theoretic relevance, clinical significance, wording, and cohesiveness. Internal consistency analysis identified three questions requiring technical revision and two items with low interitem correlation ($r \leq 0.4$) requiring deletion or wording modifications. Cronbach’s α for the final scale was 94.23 %, indicating acceptable internal consistency. Following item evaluation, the survey was reformatted for distribution to the larger SIG 13 sample.

Responses to the survey were automatically recorded via Qualtrics survey software. Participants had access to the

survey for 1 month to facilitate a larger survey response pool. Surveys that were returned <80 % complete were not used in the final analysis. All survey responses were analyzed using frequency counts and χ^2 tests of association and/or correlation analysis.

Results

The surveys were completed between April 5, 2012 and April 13, 2012. In total, 254 responses were analyzed using descriptive, correlative, and associative methods. Mean time to complete the survey was 14 min (SD = 6.77).

Respondent Demographics

Of the 254 complete responses, 92 % of the clinicians reported having a Master's degree and 8 % a Doctorate. More than half of the clinicians reported >15 years of clinical experience treating dysphagia (Table 1). The majority of respondents worked in acute care hospital settings (47 %) and rehabilitation hospital settings (20 %) and more than half of the respondents had treated over 50 dysphagic patients within the last 6 months (Table 1).

Typical Assessment Patterns

Most respondents (60 %) reported that they routinely conduct a modified barium videofluoroscopic assessment prior to therapy; however, only 40 % routinely conduct a modified barium exam after therapy. Conducting a videofluoroscopic exam (VFE) following treatment for dysphagia was not associated with either education, years of experience, work facility, or workload. It was associated with how often a clinician treated a dysphagic patient. SLPs who treated dysphagic patients more than twice a week were less likely to perform VFE post therapy ($\chi^2 = 10.01$, $P < 0.04$). Most SLPs (55 %) reported using either self-developed assessment/outcome measures or facility-developed measures (44 %) as their measurement of choice. Moreover, 37 % reported using published peer-reviewed tools, and only 29 % reported that they used only published tools with statistically confirmed validity (Fig. 1). Clinicians who were more experienced (>10 years of experience with dysphagia) were more likely to self-develop tools and use facility-developed tools than to use tools with statistical validity ($\chi^2 = 4.76$, $P < 0.034$) compared to their less experienced colleagues.

Typical Treatment Patterns

According to respondents, the typical length of a therapy session for a dysphagic patient is 30 min (41 %), with

Table 1 Demographics of survey population ($n = 254$)

Variable	%	95 % CI
Education		
Masters	92	88–95
Doctorate	20	5–25
Years of experience		
<1 year	2	0.8–5
1–5 years	18	13–23
5–10 years	17	12–21
10–15 years	13	9–17
>15 years	51	45–57
Dysphagia experience		
<1 year	3	1–6
1–5 years	20	5–25
5–10 years	16	11–20
10–15 years	13	9–17
>15 years	49	43–55
Work environment		
Acute hospital	47	41–53
Rehab hospital	20	5–25
Private practice	2	0.8–5
Long-term care	5	3–8
Skilled nursing facility	15	11–19
Home health	2	0.8–5
University hospital	4	2–7

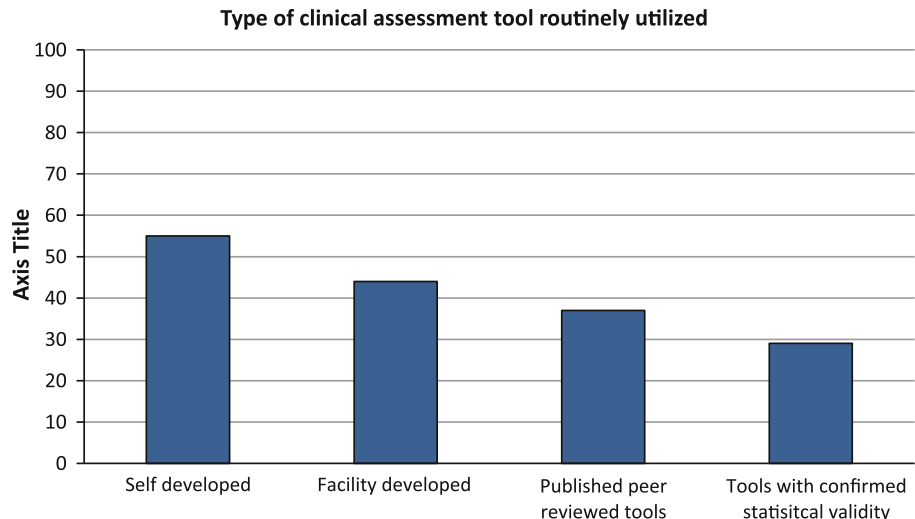
CI confidence interval

treatment provided daily (54 %). Most respondents reported that the therapy techniques used were most commonly derived from postgraduate CEU courses (92 %), techniques learned from colleagues (70 %), were self-developed (44 %), or from professional journal articles (20 %). Additionally, development of therapy techniques from self- and patient-informed sources were significantly associated with the use of “home-grown” assessment tools ($\chi^2 = 38.6$, $P < 0.01$). Furthermore, the overwhelming majority of respondents (96 %) reported that during a single therapy session, they routinely combine multiple (>4) therapy techniques to remediate dysphagic symptoms. This finding was not significantly associated with years of experience in dysphagia management, education level, workplace, workload, or baseline swallowing impairment of the patient.

Typical Therapy Outcomes

With respect to starting level for therapy, only 37 % of respondents reported that their patients typically presented as tube-dependent prior to treatment. This finding was most commonly associated with working in acute care centers ($\chi^2 = 73.1$, $P < 0.001$). The majority of respondents (49 %) reported that patients in their practice were

Fig. 1 Reported use of clinical assessment methods by survey respondents



typically able to tolerate a total oral diet of multiple consistencies but it required special preparation or compensation (FOIS level 5 or above) at the start of treatment. Following therapy, 48 % of respondents also reported the typical diet of their patients was a total oral diet with special preparation or compensation (FOIS level 5). Only 19 % of SLPs reported a return to a full oral diet without restriction as the typical outcome of dysphagia therapy. This outcome was significantly associated with a higher experience level (>15 years) of the SLP ($\chi^2 = 60.4$, $P < 0.001$). Overall, most clinicians (72 %) believed that their patients improved (more than 50 % of the time) as a result of the swallowing therapy they provided. Achieving an advanced oral diet was noted to be the most common metric of success in swallowing therapy (95 %). The primary reasons reported for failure to improve following swallowing therapy were premorbid disease progression (31 %) and cognitive impairment affecting therapeutic performance (32 %). Overall, SLP respondents reported that routine follow-up of patients after swallowing therapy is limited, with only 20 % reporting follow-up beyond 2 weeks. Lack of follow-up was most commonly associated with working in an acute or rehabilitation facility ($\chi^2 = 15.5$, $P < 0.03$). Routine follow-up of patients was not associated with years of SLP experience or the severity of the patient's swallowing impairment. Respondents also estimated that approximately 54 % of their patients returned to preinjury diet following swallowing treatment, while most (69 %) patients returned to a safe and functional oral diet but did not return to preinjury status.

Problem-Based Responses

To more accurately evaluate SLP decision-making and choice in therapeutic selection, a problem-based approach using a true but deidentified dysphagic case was utilized.

Survey respondents were provided with clinical and instrumental data (clinical information and a dynamic media presentation of a videofluoroscopic study with written results) relating to a severe (chronic, >2 years post onset), nonoral, brainstem-injured patient to review and respond to (see patient case example characteristics listed in Table 2). The respondents were required to provide information on questions relating to specific treatment decisions and therapy design.

After reviewing the dysphagic case, 91 % of respondents specified that they would commence swallowing therapy with the hypothetical patient. Choosing to treat the patient was associated with the workplace of the respondent ($\chi^2 = 15.5$, $P < 0.03$). It was not associated with education, workload, or years of dysphagia experience. SLPs working in rehabilitation or skilled nursing facilities overwhelmingly agreed to treat this individual (>95 %). SLP clinicians working in private practice or long-term care more often chose not to treat the patient (>40 %). In addition, more than half (52 %) of the respondents reported that they would start therapy using an oral bolus. The most common starting material reported was ice chips (43 %) or small sips of nectar (15 %) (Fig. 2). On average, clinicians recommended that the patient receive daily therapy sessions of 40 min for ~1 month.

In total, seven swallowing techniques were frequently recommended by clinicians (≥ 15 of the respondents), including neuromuscular electrical stimulation, Shaker exercise, hyolaryngeal elevation (Mendelsohn's), effortful swallow, oromotor exercises, tongue-based retraction, and the super supraglottic maneuver (Fig. 3). Again most clinicians (98 %) stated that they would combine multiple therapy techniques (>4) within a single therapy session for this subject.

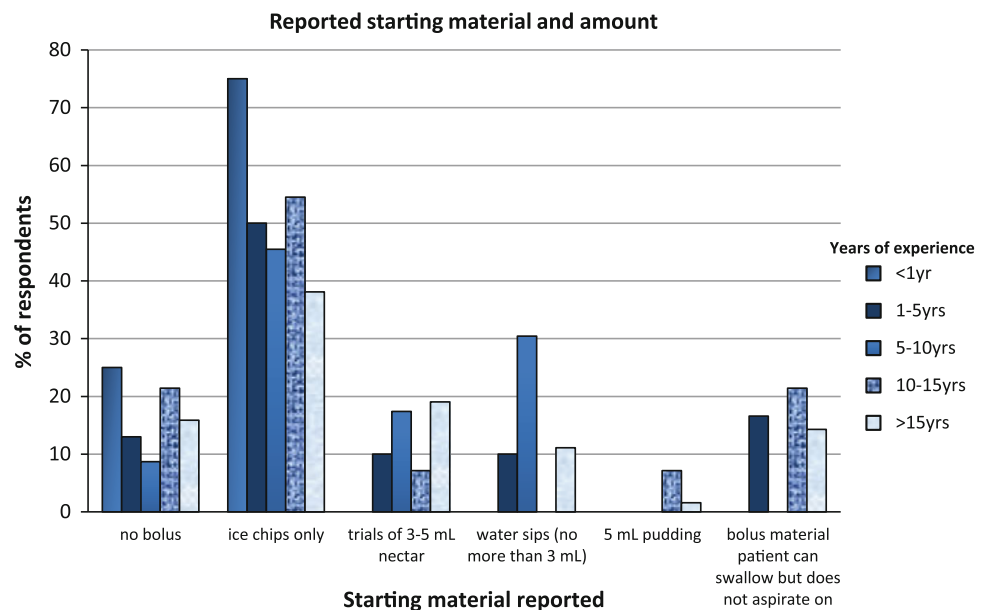
More than 47 different therapy techniques were recommended for this single patient. Of these, only 3.9 % of

Table 2 Case scenario example

Evaluation	Details provided
Clinical presentation	Patient presents NPO with PEG in situ. Significant left facial weakness is present but able to make strong lip seal. Left body weakness is present (>leg than arm). Patient is ambulatory with assistance. Expectoates copious saliva into tissues except at night time. No episode of pneumonia experienced for >6 months. Within past 2 years the patient has tasted food but not attempted to swallow it. Anxiety level about possibility of aspiration is high, but patient and family highly motivated to initiate oral feeding. Patient is currently not taking or attempting any consistent oral intake
Instrumental presentation	Endoscopy reveals paresis in left true vocal fold on adduction tasks and left pharyngeal musculature. Left vocal cord has been surgically medialized Videofluoroscopy reveals multiple partial swallow attempts with limited hyolaryngeal excursion. Aspiration is noted with 5 mL of thin liquids on two trials. 5 mL nectar contrast results in copious residue; however, some nectar contrast was noted to pass through cricopharyngeus region and into the esophagus. One trial of 5 mL paste bolus was presented. After multiple attempts to move the bolus, it remained in the hypopharynx and did not enter the esophagus. Post swallow residue increased with increased viscosity of materials swallowed. An aggressive, delayed, but reactive cough was noted. Patient clears pharyngeal residue upon completion of partial swallow attempts by spitting into a cup/tissues (videofluoroscopic assessment was provided for viewing)

Patient 21-year-old male with a brainstem injury (2 years post onset)

Fig. 2 Reported starting material by years of experience in treating dysphagia for the case-based example

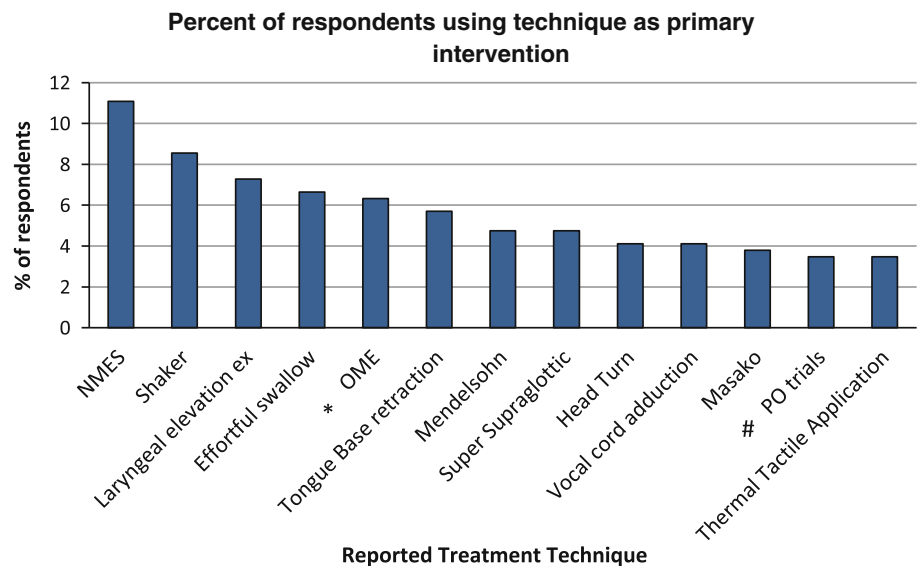


respondents indicated that they derived their treatment recommendations from a specific physiologic abnormality identified from the data provided. In total, 96 different combinations of therapy techniques were recommended to treat the hypothetical case, with no single combination exactly repeated across the sample of respondents. Additionally, more than 58 % of the techniques recommended did not match the patient's specific dysphagic symptoms, per the clinical/VFE report and the definitions of each technique from the supporting literature. Furthermore, >30 % of respondents reported that they would use therapy techniques that did not appear to correspond to additional swallowing techniques selected, as determined from the supporting literature [e.g., sensory-based treatments (thermal

tactile stimulation) in addition to pitch glides, expectoration therapy, and yawning].

In reviewing the range of therapy techniques proposed for use with the dysphagia case described, only 13 % (6/47) of techniques proposed were exercise-based intervention types. Across all respondents, 19 % reported using an exercise-based approach as their primary intervention method. When reviewing the combinations of therapeutic approaches prescribed, 54 % (52/96) of respondents specified the inclusion of at least one exercise-based intervention for the example dysphagia case. Prescribing an exercise-based therapeutic approach was not associated with either years of experience in dysphagia management, education level, workplace, or workload.

Fig. 3 Reported use of swallowing techniques for primary intervention in the case-based example. *OME, oromotor exercises; #PO trials, oral bolus trials



Discussion

This survey has identified great variability in the practice patterns of speech language pathologists currently treating dysphagic patients. In essence, there is no “usual care” practice. The use of evidence-driven measurement tools, exercise-based intervention types, and patient follow-up is limited. Similarly, as found with the problem-based case scenario, clinicians commonly use swallowing therapy techniques that do not directly correspond to a patient’s specific symptoms or physiologic abnormality as seen with videofluoroscopic data.

This study’s findings are consistent with those of surveys of dysphagia practice that revealed a high level of variation in clinical practice [10, 11]. Like other investigations, our study has revealed a lack of consistency in food textures chosen for use in therapy, and respondents did not show strong agreement in either the techniques used to treat patients or how they would proceed with therapy. In total, the clinicians in our survey reported over 90 different combinations of therapy techniques that they would use to treat a single patient case. Although surveys of dysphagia practice were conducted in 2003 and 2004, at the present time it appears that there has not been a significant improvement in the consistency of therapeutic approach for patients with dysphagia.

The findings of this survey underscore the lack of systematic methodology in the management of dysphagic cases. This lack of uniformity in treatment schemes and strategies reduces the ability of SLPs to maximize efficiency and improve the quality of outcomes. Similarly, follow-up of patients after treatment was also reportedly minimal. Given the proposed changes to health-care reimbursement that emphasizes an outcome-based model,

these findings compound issues of quality improvement. In combination with incomplete dissemination of evidence-based information into the field, this profile presents a significant challenge to professional growth in this area. Accepted and agreed upon procedures to reduce variability, improve training, simplify access to information, improve communication effectiveness, and retain and transfer knowledge are greatly needed.

The use of evidenced-based practice (EBP) supporting exercise-based dysphagia interventions in this survey was limited. Although it is accepted that EBP improves outcomes and reduces cost, its use has not been consistently accepted nor implemented in health care [12]. Recent surveys in the nursing and pharmaceutical literature identify significant barriers to the translation of EBP into clinical care. Such barriers are shortage of accurate and reliable scientific evidence, misconceptions of EBP translation by educators, lack of skills in searching and critically analyzing health literature, time needed to absorb and apply new skills, effort and costs involved in making resources available, influence of leadership skills, perceptions of and attitudes about new approaches, and a prevalence of a “this is the way we do it here” culture [13]. In addition, data show that the longer health-care professionals have been working in health care, the less interested they are in learning and applying EBP [13]. Similar barriers are also reflected in this swallowing survey.

Clearly barriers in EBP translation exist in dysphagia practice. As such, there is a need for widespread cultural change in health-care settings and perhaps a new direction in SLP education. Emerging research provides evidence of the strong influence of leadership at multiple levels on the translation of research evidence into practice and related organizational change [12]. If leaders do not role model

evidence-based decision-making, then they are not providing the tools, education, or resources for their clinicians to get the knowledge and skills needed to consistently implement EBP. Furthermore, while SLP leaders and educators often incorporate EBP as a basic tenet of their programs, they sometimes assume all SLP education itself is evidence-based. In fact, much of SLP education is based on a body of knowledge that is inferred and experiential, and on practice, not strong research. In order to meet the challenges of the changing health-care system, a range of modifications to promote EBP may be required. Examples of proposed approaches include providing stronger foundations of research in graduate education, the development of clinical change champions within clinical settings, or the promotion of educational outreach systems where contracted, skilled clinicians individually engage in health settings to provide information about the EBP, provide specific feedback, interpret current research data, and demonstrate cutting edge treatments [14].

This survey received responses from a large and representative population of SLPs working with dysphagic patients. All respondents were identified through the SIG-13 group by voluntarily providing their e-mail addresses. Although with a membership bias, this sample represents an experienced cohort of rehabilitation specialists from which to derive practice information. Moreover, the majority of clinicians had more than 15 years of clinical experience and worked in a variety of clinical settings, suggesting that our sampling frame is adequate to elucidate the breadth of current dysphagic practice in the US.

A specific strength of this study is the use of a case-based example that included both clinical and videofluoroscopic example data to stimulate real treatment decisions from respondents. Using media to provide case-based stimuli provides more complete information, expert modeling, and challenges to be solved by the participant in his or her own situation. This approach has been deemed valuable as it prompts active learning environments in which users explore scenarios, gather contextual information, access domain knowledge, and draw on expert experience to propose solutions, define contextual problems, and revise decision-making based on prompts and scaffolds [15]. Moreover, this approach has been shown to move beyond the more traditional models by allowing respondents to take control of and responsibility for their solutions through flexible, nonlinear access to information [15].

This study was limited in that only one case scenario was used. More clinical scenarios may have provided a more accurate account of the situation with SLPs since it is unknown if all of the respondents had experience with stroke/brainstem injuries. However, most SLPs had many years of experience working in facilities that treat similar cases. In addition, since this survey did not specifically

compare recent graduates to more experienced clinicians, it is unclear if the lack of use of exercise-based therapy is the result of incomplete teaching of this newer paradigm at the graduate level, or if it reflects incomplete dissemination of this information into the population of practicing SLPs. Results of this study may also have been affected by acquiescence, resulting in respondents reporting what they believe the survey is looking for, regardless of their actual practice patterns.

Conclusion

This study has identified great variability in the assessment and therapeutic approach of SLPs working with dysphagic patients. While this may reflect the heterogeneous nature of dysphagic populations, the reported adoption and integration of “evidence-based” approaches was sparse. Furthermore, it appears that while clinicians use a variety of techniques within a swallowing rehabilitation session, not all chosen techniques necessarily correspond to the specific disability of the patient. While the reasons underlying the choices of treatment are not completely clear from this survey, it is possible that specific treatment decisions and the design of swallowing intervention sessions may be driven by a clinician’s familiarity and comfort with particular techniques/approaches rather than the specific physiologic impairment profile of the patient. Further research on development of systematic approaches to therapy, dissemination of evidenced-based information to the wider SLP community, and studies detailing the mapping of EBP decision-making in dysphagia rehabilitation appear warranted.

Conflicts of interest All authors are free of professional areas of conflict of interest such as financial remuneration as employee, consultant, or subcontractor with companies.

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