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Article

Dysphagia Management: A Survey of School-Based Speech-Language Pathologists in Vermont

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Purpose: This study (a) gathered information about the kinds of dysphagia management services school-based speech-language pathologists (SLPs) provide, (b) examined the attitudes of SLPs related to dysphagia management, (c) compared the responses of SLPs on the basis of their experience working in a medical setting, and (d) investigated the relationship between SLPs' training and their confidence to provide dysphagia services.
Method: Fifty-two school-based SLPs practicing in Vermont responded to a survey designed to gather information on the variables of interest.
Results: Respondents reported a low incidence of students requiring dysphagia services and SLPs providing a wide range of dysphagia services. Results indicated variability in attitudes related to dysphagia management, but trends were also evident. Chief among them were SLPs' low levels of confidence to provide dysphagia services and the need for additional training in dysphagia management. SLPs who had experience in a medical setting reported greater confidence to evaluate and treat students with dysphagia compared to those without experience in a medical setting. Relationships between a variety of previous training experiences and confidence to treat dysphagia were also revealed.
Conclusion: This study expanded previous research in this area. Factors accounting for our results, limitations, directions for future research, and implications for practice are discussed.

Key Words: dysphagia, schools, survey

As a result of the growing diversity of public school populations, the role of the school-based speech-language pathologist (SLP) has expanded to include not only the provision of traditional language and articulation intervention, but also the provision of dysphagia management services (Power-deFur, 2000). Although dysphagia has been considered to be within an SLP's scope of practice for decades, historically, dysphagia management (which in this study will encompass consultation, evaluation, and treatment) has been provided primarily by SLPs practicing in medical settings. Estimates are variable with regard to the percentage of school-based SLPs who have children with dysphagia on their current caseloads. These estimates range from 12%–13% (American Speech-Language-Hearing Association [ASHA], 2004a) to 21% (O'Donoghue & Dean-Claytor, 2008) and 35% (Owre, 2006), with differences likely being a reflection of methodological variation (e.g., sampling, precise wording of questions).

Despite the lack of consensus regarding the percentage of school-based SLPs serving children with dysphagia, it is clear that school-based SLPs will continue to experience an increase in the number of students with dysphagia on their caseloads (Arvedson, 2000; Bailey, Stoner, Angell, & Fetzer, 2008; O'Donoghue & Dean-Claytor, 2008; Owre, 2006). One factor contributing to this increase involves legislative initiatives. Under the Education for All Handicapped Children Act (1975), all children with disabilities are entitled to receive individualized educational programs (IEP) tailored to their specific needs. Under the reauthorization of this Act, as the Individuals with Disabilities Education Improvement Act (2004), qualification for dysphagia management is now possible under the "other health impairment" classification, as dysphagia can negatively affect overall health so as to limit students' ability to participate in and gain full access to their educational program in the least restrictive environment (Lefton-Greif & Arvedson, 2008; O'Donoghue & Dean-Claytor, 2008). Another factor contributing to the increase of students requiring dysphagia services involves advancements in medical technology, which have resulted in increased survival rates for infants with neurodevelopmental

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disorders (Lefton-Greif & Arvedson, 2008; O'Donoghue & Dean-Claytor, 2008). This, in turn, contributes to increased enrollment of medically fragile children (including those with severe disabilities and chronic medical conditions) in public schools (Power-deFur, 2000; Power-deFur & Alley, 2008; Whitmire, 2000).

Current Dysphagia Management Practices in Schools

ASHA (2007a) provides specific guidelines for SLPs regarding the provision of swallowing and feeding services in schools. These guidelines include the following:

- Students must be safe while eating in school, which involves providing appropriate personnel, food, and procedures to minimize risks for choking and aspiration during oral feeding.
- Students must be adequately nourished and hydrated so that they can attend to and fully access the school curriculum.
- Students must be healthy (e.g., free from aspiration pneumonia or other illnesses related to malnutrition or dehydration) in order to maximize their attendance at school.
- Students must develop skills for eating efficiently during meals and snack times so that they can complete these activities with their peers safely.

Very limited information is available in terms of the type of dysphagia management that is currently being provided in schools. Owre (2006) surveyed 187 ASHA members of Divisions 13 (swallowing and swallowing disorders) and 16 (school-based issues) in 41 states to determine the most common kinds of dysphagia service delivery. The top 10 types of SLP involvement were (in order of occurrence) evaluation and provision of "hands-on" therapy (42%), provision of in-service to school staff regarding dysphagia and safe feeding (39%), obtaining medical information from the child's physician (37%), indentifying and referring to medical personnel (35%), collaborating with other professionals (30%), managing dysphagia interventions independently (26%), coordinating with medical SLP and school team to evaluate dysphagia and plan intervention in schools (26%), obtaining medical clearance from a physician for dysphagia intervention (25%), establishing accommodations and precautions only and ensuring follow-through as a consultant (25%), and implementation of established district-wide dysphagia program and procedures (14%). These data indicate that dysphagia management in schools is carried out on a variety of levels "ranging from aggressive treatment to no intervention at all" (Owre, 2001, p. 13).

The SLP's Role in Dysphagia Management and Factors That Complicate Management in Schools

Although the ASHA Scope of Practice in Speech-Language Pathology states that the provision of dysphagia management services is within the SLP's scope of practice (ASHA, 2007b), the ASHA Code of Ethics (ASHA, 2010a) states that "individuals shall engage in only those aspects of the professions that are within the scope of their professional practice and competence, considering their level of education, training, and experience" (p. 3). For those SLPs with minimal training and experience in dysphagia management, additional training is required to achieve competency in this area and to meet the growing demand for dysphagia services in schools.

Potential roles of SLPs as they relate to dysphagia management in schools include identification, evaluation, and treatment of dysphagia and related feeding disorders as well as provision of direct and indirect services, consultative services, case management, collaboration, and referral as needed (Arvedson & Homer, 2006; ASHA, 2007a, 2010b). More specifically, these services include (but are not limited to) consulting with individuals such as classroom teachers, student health aides, and parents/guardians; observing the student during lunch and/or snack; working directly with the student during lunch; holding staff meetings with primary dysphagia team members; monitoring implementation of the student's swallowing and/or feeding plan; and working directly with the student during speech/language treatment sessions to incorporate dysphagia goals and objectives (ASHA, 2007a).

Owre (2001) reported anecdotally that there is confusion and uncertainty over whether dysphagia management is within the scope of the school-based SLP's practice and whether its provision within the school setting is necessary and appropriate. In line with this observation, Bailey et al. (2008) conducted a qualitative study using a focus group composed of 33 school-based SLPs who reported a number of concerns surrounding the provision of dysphagia management in schools. Specifically, many SLPs expressed opposition to dysphagia management in schools as well as the opinion that dysphagia management should only be provided in medical settings, which may be a response to the restrictions of a school setting for providing adequate care. In fact, Bailey et al. (2008) reported that:

> The dominant theme from the focus groups was the perception of an underlying dichotomy between medical and educational service delivery models. The participants returned continually to a comparison of what they either knew or had experienced of a medical service delivery model as opposed to an educational service delivery model. It was this basic dichotomy that dominated their initial responses. (p. 445)

Bailey et al. (2008) also found that concerns surrounding student health and safety were indicated, including concerns about the possibility of choking or aspirating as a result of dysphagia intervention. Indeed, several researchers have pointed to concern over the lack of school district procedures, protocols, and guidelines for dysphagia management (Bailey et al., 2008; Homer, 2003, 2008; Homer, Bickerton, Hill, Parham, & Taylor, 2000; Owre, 2001, 2006) and a more general lack of administrative support for dysphagia management (Bailey et al., 2008).

Concern over lack of training and preparation for dysphagia management has also been reported (Bailey et al., 2008; Owre, 2001; Whitmire, 2000), as has the need for more course offerings and training in school-based dysphagia management (Bailey et al., 2008; Owre, 2006). This problem may be compounded by the finding that SLPs have expressed uncertainty over where and how to begin seeking dysphagia training (Owre, 2001).

A lack of confidence among school-based SLPs in the ability to provide dysphagia services to students on their caseloads has also been addressed by research. O'Donoghue and Dean-Claytor (2008) surveyed 222 SLPs representing Virginia and its contiguous states to assess relationships between SLPs' training and their self-reported confidence to provide dysphagia management services. Several key findings were reported. In particular, the authors found that the majority of SLPs surveyed (76%) rated their confidence to provide dysphagia management services as *low* (i.e., 1 or 2 on a 4-point scale). In addition, more recent graduates reported more confidence compared to those who graduated earlier. This may reflect an effect of quality or amount of training, or simply recency of training.

O'Donoghue and Dean-Claytor (2008) also reported a moderate *inverse* relationship between the number of continuing education units (CEUs) acquired in dysphagia and SLPs' self-reported confidence ($r = -.48$). This was interpreted as reflecting the fact that the acquisition of CEUs may have alerted the SLPs to the limitations of their own understandings. Interestingly, when the variable was adjusted to include recency of dysphagia CEUs (i.e., within the past 2 years), a moderate *positive* relationship of similar size emerged ($r = .45$), leading the authors to conclude that "currency of CEU experience appears to be an important factor relative to self-confidence ratings" (p. 195). This was consistent with O'Donoghue and Dean-Claytor's observation of a weak but significant correlation ($r = .28$, $p < .001$) between year of graduation and SLPs' self-reported confidence to treat dysphagia. The authors indicated that earlier graduates reported more confidence to treat dysphagia than did more recent graduates due to the absence of formal dysphagia course work or the time since that course work was completed. Of serious concern, O'Donoghue and Dean-Claytor also found that 15% of the respondents who rated their confidence as *high* (i.e., 3 or 4 on a 4-point scale) had limited or no course work in dysphagia, did not work in a team, and had earned no CEUs in dysphagia. These SLPs also reported having had no experience treating children with swallowing disorders.

Summary and Purpose

School-based SLPs are experiencing an increase in the number of children with dysphagia on their caseloads. Very limited information is available concerning the types of dysphagia management services currently provided in schools. Although dysphagia has been considered within the scope of the SLP's practice for decades, there may be confusion and uncertainty over whether dysphagia management is appropriate in a school setting. Indeed, opposition to dysphagia management and the factors that complicate dysphagia management in schools have been documented. These include, but are not limited to, lack of administrative support, lack of adequate training and preparation, and lack of confidence to provide services. These attitudes and concerns may be influenced by the current and previous employment experience of school-based SLPs, particularly when it involves work in a medical setting. There is also a question as to whether the type and extent of SLP training in dysphagia is related to an SLP's confidence to provide dysphagia services.

We addressed the following research questions:

- What kinds of dysphagia management services are being provided by school-based SLPs?
- What are the attitudes, perceptions, and concerns of school-based SLPs regarding the provision of dysphagia management services in schools?
- Do the attitudes, perceptions, and concerns of school-based SLPs vary as a function of whether they have an employment history that includes work in a medical setting?
- What is the nature of the relationship between SLPs' training (variably defined) and their confidence to treat dysphagia in schools?

To answer these questions, we surveyed a sample of school-based SLPs working in the state of Vermont. To allow for some tentative comparisons to earlier findings, we often borrowed or adapted the content of our survey from previous works (discussed below). However, the content of our survey is more comprehensive than previous ones in that it includes a variety of dimensions not previously considered in combination. This allowed us to investigate some additional relationships between SLPs' attitudes and training experiences, and these are elaborated on in subsequent paragraphs.

METHOD

Participants

Participants were 52 master's-level, licensed, ASHA-certified SLPs (50 females, 2 males) in the state of Vermont who had been practicing in the field for a mean of 18 years ($SD = 10.08$). Participants reported that they had completed their speech-language pathology training in eight states across the eastern half of the United States, with 67.3% receiving this training in Vermont. All participants currently worked in a school setting, although some worked in both school and nonschool settings (see Table 1). Inclusion of SLPs who had previous or current experience in a medical setting was important in order to make comparisons on this basis. A total of 24 participants (46.2%) reported working as

Table 1. Current employment settings reported by participants.

Setting	*Frequency*	*Percentage*
Public school	49	94.2
Private practice	10	19.2
Alternative school	4	7.7
Hospital or clinic	3	5.8
Private school	3	5.8
Rehabilitation center or clinic	3	5.8
Other (1 independent school, 1 nursing home)	2	3.8

Note. Values do not sum to one because although all participants worked in a school, some noted additional work settings.

an SLP in a medically based setting at some point in their career, and seven of those were currently working in both a school and medical setting.

Materials

The dysphagia management in schools survey. The content of this survey was borrowed or adapted from the work of O'Donoghue and Dean-Claytor (2008) and Owre (2006), but it also included several dimensions reflecting the qualitative observations of Bailey et al. (2008) and the anecdotal reports of Owre (2001, 2006). Items 1–22 of the survey solicited relevant demographic information and information about the SLP's training in dysphagia, employment setting, and methods for providing dysphagia management in the school. An additional 16 items (items A–P) explored SLPs' attitudes and perceptions related to dysphagia management in schools.

Cover letter. A cover letter explaining the purpose of the survey accompanied all surveys. Respondents were asked to return the survey in approximately 2 weeks. The cover letter and survey are provided as Appendix A and B.

Procedure

All procedures involved in this study were approved by the Institutional Review Board of the University of Vermont before initiation of data collection. This study employed a cross-sectional survey design using a list of all licensed and ASHA-certified SLPs currently practicing in the state of Vermont. This list was obtained from ASHA the previous year. The list did not include non ASHA–certified SLPs practicing in the state, nor did it provide information about SLPs' work setting. As a result, a number of surveys were sent to SLPs who did not work in a school setting (and these individuals were advised to disregard the survey; see cover letter). The cover letter was included with the surveys, and postage-paid envelopes were provided for participants to return the surveys by the due date indicated in the cover letter.

RESULTS

Of the 258 surveys mailed to potential participants, 52 were completed and returned, resulting in a 20% response rate. Although this response rate appears to be somewhat less than expected for surveys in general, it is important to recall that our list did not identify non school–based SLPs, who were asked to disregard our request. Missing data were rare (less than 1%) and were dealt with by using pair-wise deletion (i.e., they were omitted from analyses).

Descriptive Analyses

The number of graduate courses in dysphagia completed by participants (Item 7) ranged from 0 to 2 ($M = .5$, $SD = 0.5$), the number of practicum hours completed (Item 8) ranged from 0 to 90 ($M = 6.98$, $SD = 16.84$), and the total number of CEUs in dysphagia completed (Item 9) ranged from 0 to 40 ($M = 2.63$, $SD = 6.91$). The nature of the CEU training (Item 10) that respondents reported participating in were as follows: conferences ($n = 10$, 19.2%), seminars ($n = 8$, 15.4%), graduate-level courses ($n = 6$, 11.5%), peer-reviewed journals ($n = 3$, 5.8%), Internet ($n = 2$, 3.8%), and ASHA convention short courses ($n = 2$, 3.8%). Other than through training to acquire CEUs, a large majority of respondents ($n = 46$, 89%) reported learning about evidence-based practice for dysphagia management (Item 11) through a variety of avenues: consultation with colleagues ($n = 27$, 51.9%), Internet searches ($n = 24$, 46.2%), ASHA publications ($n = 23$, 44.2%), ASHA Web site ($n = 21$, 40.4%), peer-reviewed journals ($n = 13$, 25%), and other (i.e., dysphagia listserv, texts, conferences; $n = 5$, 9.6%).

A minority of respondents ($n = 19$, 36.5%) reported that their districts provided support for dysphagia training (Item 12). Of those who reported support, SLPs noted that it came predominantly in the form of funding for conferences ($n = 17$, 89%), although district in-service training ($n = 1$) and district consultation with medically based SLP ($n = 1$) were also reported.

The number of children who attended the schools in which the respondents worked and who currently required assistance for feeding (Item 13) ranged from 0 to 4 ($M = .90$, $SD = 1.07$). For Item 14 ("Of those children fed, how many are currently on the school SLP's caseload?"), reports ranged from 0 to 3 ($M = 1.08$, $SD = 0.98$). For Item 15 ("How many of these children on the school SLP's current caseload have IEP goals that address swallowing and/or feeding?"), reports ranged from 0 to 3 ($M = .45$, $SD = 0.76$). For Item 16 ("If these children are not currently on the school SLP's caseload, approximately how many have received interventions from

an SLP at the school in the past?"), reports ranged similarly from 0 to 3 ($M = 0.65$, $SD = 1.14$). The number of students with swallowing or feeding disorders evaluated/treated over the course of the SLP's career (Item 17) ranged from 0 to 30 ($M = 2.82$, $SD = 5.17$).

Item 18 asked respondents to report the nature of their involvement when working with children with dysphagia in schools. To facilitate comparisons to earlier estimates, this item was constructed using the same language reported by Owre (2006). Frequency and percentage data for each category within this item are presented in Table 2.

All but one participant (96.2%) reported that the school in which he or she worked did not have a dysphagia team (Item 19). Among SLPs reporting children on caseloads requiring dysphagia management services ($n = 38$), 22 (58%) reported that the SLP treats those children, whereas 16 (42%) reported that the SLP does not treat them (Item 20). Item 21 asked "If the SLP does not treat the children in your school who have dysphagia, who does?" Occupational therapists were identified most frequently ($n = 19$, 36.5%), followed by individual aides ($n = 8$, 15.4%) and "other" (e.g., medically based SLP, school medical personnel, school nurse, feeding team, special educator; $n = 8$, 15.4%).

Items A–P asked about SLPs' attitudes and perceptions surrounding several dimensions of dysphagia management in schools. Descriptive data for these items are presented in Table 3.

Table 2. Frequency and percentage of occurrence of current types of dysphagia management services reported.

Type of service	*Frequency*	*%*
Evaluation and provision of "hands-on" therapy	8	15.4
Provision of in-service to school staff regarding dysphagia and safe feeding	4	7.7
Obtaining medical information from the child's physician	7	13.4
Identifying and referring to medical personnel (e.g., medically based SLP)	8	15.4
Collaborating with other professionals (e.g., OT, PT, and/or school nurse) in the dysphagia management process	9	17.3
Managing dysphagia interventions independently	2	3.8
Coordinating with medical SLP and school team to evaluate and plan intervention	7	13.5
Obtaining medical clearance from a physician for dysphagia intervention	4	7.7
Establishing accommodations and precautions only and ensuring follow-through as a consult	8	15.4
Implementation of established district-wide dysphagia program and procedures	1	1.9

Note. Values do not sum to one because some participants noted more than one type of service.

Inferential Analyses

All inferential analyses adopted an alpha level of .05. To further explore Bailey et al.'s (2008) observation that school-based SLPs perceived an underlying dichotomy between medical and educational service delivery models, data for items A–P were submitted to 16 independent-samples t tests. Not surprisingly, results indicated that SLPs who had current or previous employment in a medical setting reported significantly more confidence to evaluate dysphagia (Item O; $M = 2.75$, $SD = 1.01$) than those who had not previously worked in a medical setting ($M = 1.52$, $SD = .75$), $t(50) = 4.76$, $p < .01$. Similarly, SLPs who had worked in a medical setting reported significantly more confidence to treat dysphagia (Item P; $M = 2.95$, $SD = .95$) than those who had not ($M = 1.82$, $SD = 1.00$), $t(50) = 3.93$, $p < .01$. No other comparisons on the basis of experience in a medical setting were significant.

To determine whether these findings may have been influenced by current employment in a medical setting, these analyses were repeated without considering the seven participants who reported concomitant work in a medical setting. An identical pattern of effects was observed such that SLPs with *only previous* employment in a medical setting reported more confidence to evaluate dysphagia (item O; $M = 2.66$, $SD = 1.06$) than those with no previous employment in a medical setting ($M = 1.51$, $SD = .75$), $t(43) = 4.37$, $p < .01$. Likewise, SLPs with *only previous* employment in a medical setting reported significantly more confidence to treat dysphagia (Item P; $M = 2.85$, $SD = 1.01$) than those without previous employment in a medical setting ($M = 1.82$, $SD = 1.00$), $t(43) = 3.46$, $p < .01$. Thus, whether experience working in a medical setting was current (i.e., at the time of the survey) or previous (i.e., at some point in the past) did not affect the original results observed.

In order to facilitate comparisons to the O'Donoghue and Dean-Claytor (2008) findings, data for Item P ("I feel confident in my ability to provide dysphagia treatment to children with swallowing and/or feeding disorders") were submitted to five Pearson product–moment correlations to explore links to previous training experiences. Results revealed significant relationships between an SLP's confidence to treat students with dysphagia and the number of practicum hours obtained ($r = .31$, $p < .05$), the total number of CEUs obtained ($r = .42$, $p < .01$), the number of CEUs obtained in the past 2 years ($r = .38$, $p < .01$), the number of students currently requiring dysphagia management in the school ($r = .43$, $p < .01$), and the number of students currently on the SLP's caseload who required dysphagia services ($r = .44$, $p < .01$).

We also examined the previous finding that more recent graduation was associated with increased confidence to treat students with dysphagia. Unlike O'Donoghue and Dean-Claytor (2008), we found no relationship in the current sample

Table 3. Descriptive data for items A–P, tapping SLPs' attitudes and perceptions of dysphagia management in schools.

Item	M	SD	*Strongly disagree* n %	*Disagree* n %	*Neutral* n %	*Agree* n %	*Strongly Agree* n %
A. It is an SLP's responsibility to provide dysphagia intervention to children with swallowing and/or feeding disorders in the school setting.	3.39	.86	2 3.8%	4 7.7%	18 34.6%	23 44.2%	2 3.8%
B. It is within an SLP's scope of practice to provide treatment to children with swallowing and/or feeding problems in the school setting.	3.58	.97	2 3.8%	5 9.6%	11 21.2%	26 50.0%	6 11.5%
C. It is an SLP's responsibility to complete whatever dysphagia training is necessary to achieve competency in dysphagia intervention in the school setting.	3.69	1.10	3 5.8%	4 7.7%	11 21.2%	21 40.4%	12 23.1%
D. The provision of dysphagia intervention is educationally relevant.	3.22	.88	3 5.8%	5 9.6%	22 42.3%	20 38.5%	1 1.9%
E. My school's administrators and colleagues believe that dysphagia intervention has educational relevance.	2.85	.77	3 5.8%	9 17.3%	28 53.8%	8 15.4%	0 0%
F. Despite the low incidence of students with dysphagia on school-based SLP caseloads, additional training in dysphagia is necessary.	3.76	.99	2 3.8%	3 5.8%	11 21.2%	24 46.2%	11 21.2%
G. Dysphagia management should be provided by medically based SLPs only.	2.96	.99	1 1.9%	18 34.6%	17 32.7%	10 19.2%	4 7.7%
H. Restrictions of a school setting pose barriers to the provision of dysphagia intervention in schools.	3.94	.93	0 0%	5 9.6%	8 15.4%	22 42.3%	15 28.8%
I. Logistical and scheduling concerns pose barriers to the provision of dysphagia intervention in schools.	3.53	1.16	1 1.9%	12 23.1%	9 17.3%	17 32.7%	12 23.1%
J. The risk of the student choking would be grounds to avoid dysphagia intervention in the school setting.	3.00	1.10	2 3.8%	17 32.7%	15 28.8%	9 17.3%	6 11.5%
K. I am interested in increasing my knowledge in the area of dysphagia intervention.	3.35	1.15	4 7.7%	8 15.4%	12 23.1%	29 38.5%	7 13.5%
L. I am unsure of where or how to seek additional training in dysphagia management.	2.24	.92	9 17.3%	27 51.9%	7 13.5%	7 13.5%	0 0%
M. My school's administrators and colleagues provide a high level of support in my efforts to provide dysphagia intervention.	2.94	.76	2 3.8%	8 15.4%	29 55.8%	7 13.5%	1 1.9%
N. In my school district, dysphagia intervention procedures, protocols, and guidelines are in place to assist SLPs working in the schools.	1.69	.87	24 46.2%	19 36.5%	4 7.7%	1 1.9%	1 1.9%
O. I feel confident in my ability to provide dysphagia evaluation to children with swallowing and/or feeding disorders.	2.12	1.15	18 34.6%	18 34.6%	6 11.5%	6 11.5%	2 3.8%
P. I feel confident in my ability to provide dysphagia treatment to children with swallowing and/or feeding disorders.	2.40	1.20	15 28.8%	14 26.9%	11 21.2%	9 17.3%	2 3.8%

between SLPs' number of years since graduation and their confidence to treat students with dysphagia ($p = .54$). On the other hand, more recent graduation was associated with more disagreement with the statement that dysphagia intervention should be provided only by medically based SLPs (Item G; $r = 35$, $p < .01$) and more agreement with the statement that dysphagia intervention in the school setting is within the SLP's scope of practice (item B; $r = .28$, $p < .05$).

DISCUSSION

Given the rising number of students in schools who require dysphagia management, the first purpose of this study was to examine the current types of dysphagia management services provided by school-based SLPs. As inspection of Table 2 indicates, respondents in this sample rated "collaborating with other professionals (e.g., occupational therapist, physical therapist and/or nurse) in the dysphagia management process" most frequently (17.3%). This was followed by "evaluation and provision of 'hands-on' therapy" (15.4%), "identifying and referring to medical personnel" (15.4%), and "establishing accommodations and precautions only and ensuring follow-through as a consult" (15.4%). By contrast, "provision of in-service to school staff regarding dysphagia and safe feeding" (7.7%), "obtaining medical clearance" (7.7%), "managing dysphagia interventions independently" (3.8%), and "implementation of established district-wide dysphagia

program and procedures" (1.9%) were rated as relatively infrequent.

Although the present data reconfirm that a variety of services are provided in schools, these data are quite dissimilar to the estimates cited in Owre's (2006) introduction. Specifically, the two data sets differ dramatically with regard to the relative rank of items (with the singular exception that both studies found "implementation of established district-wide dysphagia program and procedures" ranked last). Furthermore, in our study, the percentage for every category of service provision was considerably less compared to those reported by Owre.

The potential reasons for the disparity in the results are many and varied. Although we took care to ensure that the wording of each item was the same as Owre's (2006), our survey design and overall content were different. In addition, our survey was directed toward ASHA-certified SLPs working in the state of Vermont, whereas Owre solicited ASHA members of Divisions 13 (swallowing and swallowing disorders) and 16 (school-based issues) across several states. It is also possible that in a predominantly rural state like Vermont, our estimates reflect (in part) the reported low incidence levels of children with dysphagia on SLPs' caseloads. However, our estimates of 0–3 children on current caseloads is consistent with the low volume of caseloads described elsewhere (e.g., O'Donoghue & Dean-Claytor, 2008, report 1–3). Finally, several changes involving education reform, legal mandates, and evolving professional practices have occurred over the last decade, which undoubtedly influenced the findings of research in this area. For these reasons, future research using a larger and more representative population is needed to determine the kinds of dysphagia services being provided by school-based SLPs. How and whether variation is related to differences in region and caseload makeup remains an important question. It has implications for meeting the growing demands placed on school-based SLPs to provide dysphagia management services in a profession where the scope of practice is expanding (ASHA, 2010b).

The second purpose of this study was to examine a variety of dimensions surrounding the attitudes, perceptions, and concerns of SLPs regarding the provision of dysphagia management services in schools. It is noteworthy that examination of Table 3 indicates variation on all of the dimensions assessed; this is consistent with Owre's (2001) contention that there are discrepancies in opinion and confusion and uncertainty regarding the provision of dysphagia management services in schools. On the other hand, inspection of the mean response for each item (see Table 3) reveals some trends as well. For example, SLPs in our sample tended to agree that it is the SLP's responsibility to provide dysphagia services in schools (Item A), that it is within the SLP's scope of practice to do so (Item B), that it is the SLP's responsibility to obtain adequate training in dysphagia (Item C), and that dysphagia intervention is educationally relevant (Item D).

Respondents also tended to agree that additional training in dysphagia management is needed (Item F), and they expressed interest in increasing their knowledge in this area (Item K). In a related vein, SLPs in this study tended to indicate that they knew how to go about seeking additional training in dysphagia (Item L). Indeed, the descriptive data examining the variety of sources that SLPs used to access information about dysphagia management suggests that, at some point in their career, SLPs perceived the need for additional information on dysphagia management and had established some strategies for meeting that need.

Participants in this study strongly agreed that restrictions of the school setting posed barriers to dysphagia intervention (Item H), and responses reflected concern over logistical and scheduling issues (Item I). This seemed consistent with the findings that, as a group, SLPs tended to disagree with the statement that the school believed in the educational relevance of dysphagia management (Item E) and the statement that district procedures, protocols, and guidelines were in place to support dysphagia management (Item N). SLPs in this study also expressed low levels of confidence to evaluate (Item O) and treat (Item P) children with dysphagia (discussed more fully below).

The third purpose of this study was to explore Bailey et al.s' (2008) observation of "the perception of an underlying dichotomy between medical and educational service delivery models" among school-based SLPs (p. 445). Correlational analyses revealed that SLPs who had previously worked in a medical setting reported significantly more confidence to evaluate and treat dysphagia compared to those who had not previously worked in a medical setting. Although this was not surprising, we did not find differences on any other dimension assessed. Some of these null results are intuitive as the dimensions seem independent of previous experience (e.g., responsibility to complete necessary training, school district provides procedures and guidelines for dysphagia intervention). This does not mean that experience in a medical setting does not inform these attitudes and perceptions, and clearly, SLPs understand and can articulate the dichotomy between medical and educational service models as described in Bailey et al. But confidence to evaluate and treat children with dysphagia withstanding, SLPs with and without previous (and concurrent) experience in a medical setting did not differentially endorse the attitudes and perceptions surveyed in this study. This may speak to broad commonalities between the two groups in terms of their shared experiences, knowledge, and characteristics of their current employment setting.

The low levels of confidence to evaluate and treat children with dysphagia observed in this study are consistent with previous anecdotal (Owre, 2001), qualitative (Bailey et al., 2008), and survey (O'Donoghue & Dean-Claytor, 2008) reports. To address the fourth purpose of this study, we explored the nature of the relationship between SLPs' training and their confidence to treat students with dysphagia.

Our findings differed from those reported by O'Donoghue and Dean-Claytor (2008). Recall that O'Donoghue and Dean-Claytor reported a moderate *inverse* relationship between the number of CEUs SLPs acquired in dysphagia and their self-reported confidence; this was interpreted as reflecting the fact that the acquisition of CEUs may have alerted the SLPs to gaps in their knowledge. O'Donoghue and Dean-Claytor also found an interesting *positive* relationship between the number of CEUs SLPs completed in the last 2 years and their confidence to treat students with dysphagia, leading the authors to conclude that "currency of CEU experience appears to be an important factor relative to self-confidence ratings" (p. 195). Unlike O'Donoghue and Dean-Claytor, we found *only* moderate positive relationships between SLPs' confidence to treat students with dysphagia and (a) the number of practicum hours obtained, (b) the number of total CEUs in dysphagia, (c) the number of CEUs in dysphagia in the past 2 years, and (d) the number of students currently requiring dysphagia services in the school. Our findings suggest that more training and experience with dysphagia (in a variety of forms) is associated with more confidence to treat students with dysphagia. Data from the present sample revealed no effect of recency of training (in any form) on confidence. Variables that may account for the differences in our results are discussed in the following paragraphs.

What we did find with regard to recency of formal training (operationalized by the year of graduation) was that more recent training predicted more disagreement with the notion that dysphagia management should be provided only in a medically based setting as well as more agreement with the notion that dysphagia intervention was within the school-based SLP's scope of practice. Although the reason for this pattern of results is unclear, it is possible that the content of training among more recent graduates (or the fact that the training is simply more recent) contributed to these findings. It could also be that less experienced SLPs have not yet encountered the range of potential challenges articulated in the literature, and it may be that these attitudes change as a function of experience over time.

Our findings differed from those of O'Donoghue and Dean-Claytor (2008) in another important way. O'Donoghue and Dean-Claytor rightfully expressed concern over the finding that approximately 15% of their respondents who indicated high confidence (i.e., rated 3 or 4 on a 4-point scale) to treat students with dysphagia "had limited or no course work in dysphagia, did not work in a team, and had no continued education or experiences treating children with swallowing disorders" (p. 196). In the present study, approximately 20% of respondents reported high confidence (i.e., rated 4 or 5 on a 5-point scale) to treat students with dysphagia, and all of these respondents indicated adequate or extensive training and experience in dysphagia (i.e., formal course work, CEUs, practicum hours, and experience in a medical setting, and typically a combination of all four). Thus, the present results from a relatively small and unique sample lead us to conclude that SLPs with high confidence to treat students with dysphagia had rather extensive training and experience in managing students with dysphagia.

The differences in the findings of O'Donoghue and Dean-Claytor (2008) and the present study may be due to sampling and procedural issues. In particular, the characteristics of the samples differed, as did the nature of the response arrangements of the scales used. With regard to the latter, the current study included a *neutral* response that was not included in the O'Donoghue and Dean-Claytor study. This is important considering that 21% of the participants selected "3" (i.e., *neutral*) relative to their confidence rating. The statistical impact of these scaling differences is uncertain but merits further investigation. Despite the fact that the O'Donoghue and Dean-Claytor study is a relatively recent one, changes in education and evolving roles and responsibilities of SLPs (described more fully in subsequent paragraphs) may also be at work.

In any event, the low levels of reported confidence and the small average number of graduate practicum hours and CEUs obtained in dysphagia are problematic in and of themselves. The present findings suggest that many SLPs feel they are not adequately prepared to provide dysphagia management services. This is troubling in light of the fact that (a) the number of medically fragile children with swallowing disorders on SLPs' caseloads is rising and (b) SLPs are often regarded as the preferred providers for dysphagia services. Indeed, "the overall knowledge and skills obtained by SLPs in their professional training provides an exemplary and essential foundation for successful evaluation and treatment of dysphagia" (ASHA, 2006, p. 1). For SLPs seeking additional training or information related to dysphagia management, ASHA has developed several supports and resources. These include policy documents (e.g., ASHA, 2007b, 2010b), technical reports (e.g., ASHA, 2004b), a specialty interest division for swallowing and swallowing disorders, and continuing education programs (e.g., self-study, conferences; ASHA, 2006).

Of course, several limitations of the present study warrant consideration. In particular, our sample was relatively small for a survey; larger, more diverse samples are needed to enhance the generalizability of our findings. In addition, our response rate (20%) was relatively low in comparison to most survey research. We expect this is due, in part, to our list, which did not identify the employment settings of potential respondents; without additional information, a precise estimate of the true response rate (i.e., among only those for whom the survey was applicable) is not possible. In a related vein, this study did not include SLPs working in Vermont who were *not* ASHA certified. Although we are not concerned with how this variable might affect our comparisons to the previous research cited in this article (which likewise included only ASHA-certified SLPs), the present results cannot be generalized to non ASHA–certified SLPs, who

may have provided very different perspectives not captured in this study. This is an important consideration for future research given that ASHA-certified SLPs have access to ASHA-based resources, as well as the fact that a requirement for certification is continuing education.

Clearly, additional research is needed to clarify and expand on the present results. In particular, there is a need for a nationally representative survey of school-based SLPs (ASHA- and non ASHA–certified) to solicit information about their attitudes, perceptions, and concerns involving dysphagia management in schools. Questions about the nature and recency of SLPs' training in dysphagia and their confidence to evaluate and treat dysphagia should also be addressed. These issues gain importance in light of recent developments in the field. As noted above, many changes in education have occurred over the last decade that directly affect school-based SLPs. These include educational reform, legal mandates, and evolving professional practices. Indeed, school-based SLPs are "at a crossroads where [they] seek to contribute significantly to the well-being and success of children and adolescents in schools as ever-increasing demands are placed on them with an expanded scope of practice" (ASHA, 2010b, p. 4).

The results of this study have several implications for training and practice. Although ASHA-accredited, master's-level graduate programs are designed to provide entry-level competencies in all aspects of the profession, the provision of dysphagia services may require special consideration given the potential serious consequences of lack of adequate preparation for students, schools, and the clinicians themselves. Clearly, a high level of skill in dysphagia management is recognized for SLPs working in health care settings; however, competency is similarly required by SLPs working with students with a variety of neurological and respiratory conditions who exhibit dysphagia. Despite the relatively low incidence of children on caseloads requiring dysphagia management, the incidence is growing, and it behooves each district to ensure that at least one SLP has received the necessary continuing education to provide appropriate services (Power-deFur, 2000).

The school-based SLP can also participate in the process to ensure adequate preparation and support to provide appropriate services to children with dysphagia. Often times, school-based SLPs will need to collaborate with medical teams to be effective while ensuring the safety of students (ASHA, 2010b; Lefton-Greif & Arvedson, 2008). SLPs are encouraged to communicate with administrators about the need for additional training, sources of training, and the potential risks and benefits to the school district (Power-deFur, 2000). Further, when SLPs are assigned students who require dysphagia management, they should consider negotiating their caseload and workload to meet the student's need (ASHA, 2010b). "To do any less is unethical and leaves the district vulnerable if a student suffers harm due to the lack of appropriately qualified clinicians" (Power-deFur, 2000, p. 78).

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APPENDIX A. DYSPHAGIA MANAGEMENT IN SCHOOLS SURVEY COVER LETTER

Hello, my name is Kate Graves[1] and I am a graduate student in speech-language pathology at the University of Vermont.

The demand for the provision of dysphagia management services (consultation, evaluation and treatment) by school-based SLPs has increased. However, very little is known about what is required to support these SLPs in their effort to effectively provide these services. To further investigate, I am conducting a survey to gather information on different aspects of dysphagia management in the school setting.

Your participation in this survey is requested, as it will provide valuable information on the types of support required for effective dysphagia management in schools. A better understanding of this important aspect of service delivery will help to move our profession forward, as the demand for these services across school settings continues to grow. **Please note: This survey is directed at clinicians who conduct at least some portion of their service delivery in the school setting. If you do not practice in the school setting, please disregard this request.**

This survey will take approximately 10 minutes to complete and can be returned in the postage-paid envelope. To protect confidentiality, responses will be anonymous so please do not provide any personal information (e.g., name, address) beyond that which is asked for. If you agree to participate, please return the completed survey by [two weeks].

If you have any questions or would like to learn the results of the study, please contact me at the e-mail address or mailing address listed below. If you have any questions about your rights as a participant in a research project, please contact Nancy Stalnaker, Director of the Research Protections Office at the University of Vermont at (802) 656-5040. Thank you in advance for your thoughtful consideration.

[1]subsequently Katherine Gerety; second author

APPENDIX B (P. 1 OF 2). DYSPHAGIA MANAGEMENT IN SCHOOLS SURVEY

1. What is your gender? Male _____ Female _____
2. What year did you receive your master's degree in speech-language pathology? _____
3. In which state did you complete your training in speech-language pathology? _____
4. What is your highest degree in speech-language pathology?
   Bachelor's _____ Master's _____ Doctorate _____
5. What is your current employment setting? (Please check all that apply.)
   Public school _____ Rehabilitation center or clinic _____
   Private school _____ Hospital or clinic _____
   Alternative school _____ Private practice _____
   Professional organization _____ Other (Please specify) _____
6. Have you ever worked as an SLP in a medically based setting? Yes _____ No _____
7. How many graduate-level courses in dysphagia did you complete during your academic career? _____
8. Approximately how many graduate school clinical practicum hours did you complete in dysphagia intervention (evaluation and treatment)? _____
9. Have you acquired CEUs in dysphagia? Yes _____ No _____ (if no, skip to item 11)
   If yes, approximately how many hours have you acquired in total? _____
   If yes, approximately how many hours have you completed in the past two years? _____
10. What was the nature of the training? (Please check all that apply.)
    Graduate-level course _____ Conference _____
    Seminar _____ In-service _____
    Peer-reviewed journal article _____ Internet _____
    Other (Please specify) _____
11. Other than through trainings to acquire CEUs, how do you typically gain access to information on evidence-based practice for dysphagia intervention? (Please check all that apply.)
    Internet searches _____ Peer-reviewed journals _____
    ASHA Web site _____ Colleagues _____
    ASHA publications _____
    Other (please specify) _____
12. My district has provided support for dysphagia training through (check all that apply):
    District workshops _____ Funding for conferences _____
    In-service training _____ Other _____
13. Approximately how many children who attend the schools in which you work *currently* require assistance for feeding? _____
14. Of those children fed, how many are *currently* on the school SLP's caseload? _____
15. How many of these children on the school SLP's *current* caseload have IEP goals that address swallowing and/or feeding? _____
16. If these children are *not currently* on the school SLP's caseload, approximately how many have received interventions from an SLP at the school in the past? _____
17. Looking back, approximately how many students with swallowing or feeding disorders have you evaluated and/or treated *over the course of your career*? _____
18. What has been your involvement in working with children with dysphagia in schools? (On each line that applies, please indicate **C** for current involvement, **P** for past involvement, or **B** for both current and past involvement).
    _____ Evaluation and provision of "hands-on" therapy (e.g., oral motor exercises, swallowing techniques)
    _____ Provision of in-service to school staff regarding dysphagia and safe feeding
    _____ Obtaining medical information from the child's physician
    _____ Identifying and referring to medical personnel (e.g., medically based SLP)
    _____ Collaborating with other professionals (e.g., OT, PT, and/or school nurse) in the dysphagia management process
    _____ Managing dysphagia interventions independently
    _____ Coordinating with medical SLP and school team (including family members) to evaluate and establish an intervention plan in the school setting
    _____ Obtaining medical clearance from a physician for dysphagia intervention
    _____ Establishing accommodations and precautions only and ensuring follow-through as a consult
    _____ Implementation of established district-wide dysphagia program and procedures
19. Does the school or school district in which you work have a dysphagia team? Yes _____ No _____
20. Does the SLP treat the children in your school who have dysphagia? Yes _____ No _____
21. If the SLP does not treat the children in your school who have dysphagia, who does?
    Occupational therapist _____ Individual aide _____ Other (Please specify) _____

APPENDIX B (P. 2 OF 2). DYSPHAGIA MANAGEMENT IN SCHOOLS SURVEY

The following items focus on your ideas regarding different aspects of dysphagia intervention in schools. Please rate the following statements:

A. It is an SLP's responsibility to provide dysphagia intervention to children with swallowing and/or feeding disorders in the school setting.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

B. It is within an SLP's scope of practice to provide treatment to children with swallowing and/or feeding problems in the school setting.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

C. It is an SLP's responsibility to complete whatever dysphagia training is necessary to achieve competency in dysphagia intervention in the school setting.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

D. The provision of dysphagia intervention is educationally relevant.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

E. My school's administrators and colleagues believe that dysphagia intervention has educational relevance.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

F. Despite the low incidence of students with dysphagia on school-based SLP caseloads, additional training in dysphagia is necessary.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

G. Dysphagia management should be provided by medically based SLPs only.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

H. Restrictions of a school setting (e.g., limited or no access to instrumental assessment tools such as videoendoscopy or videofluoroscopy) pose barriers to the provision of dysphagia intervention in schools.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

I. Logistical and scheduling concerns pose barriers to the provision of dysphagia intervention in schools.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

J. The risk of the student choking would be grounds to avoid dysphagia intervention in the school setting.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

K. I am interested in increasing my knowledge in the area of dysphagia intervention.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

L. I am unsure of where or how to seek additional training in dysphagia intervention.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

M. My school's administrators and colleagues provide a high level of support in my efforts to provide dysphagia intervention to students who have swallowing and/or feeding disorders.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

N. In my school district, dysphagia intervention procedures, protocols, and guidelines are in place to assist SLPs working in the schools.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

O. I feel confident in my ability to provide dysphagia evaluation to children with swallowing and/or feeding disorders.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

P. I feel confident in my ability to provide dysphagia treatment to children with swallowing and/or feeding disorders.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

Dysphagia Management: A Survey of School-Based Speech-Language Pathologists in Vermont

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