



2022

Speech-Language Pathology Graduate Student Clinicians' Self-Perceived Competency in Dysphagia Management

R. Jordan Hazelwood
Appalachian State University, hazelwoodrj@appstate.edu

Erin D. Bouldin
University of Utah, Erin.Bouldin@hsc.utah.edu

Indigo R. Burford
East Tennessee State University, hollisteri@etsu.edu

See next page for additional authors

DOI: 10.30707/TLCSD6.3.1664996985.113836

Follow this and additional works at: <https://ir.library.illinoisstate.edu/tlcsd>



Part of the [Speech Pathology and Audiology Commons](#)

Recommended Citation

Hazelwood, R. Jordan; Bouldin, Erin D.; Burford, Indigo R.; and Steffen, Emily A. (2022) "Speech-Language Pathology Graduate Student Clinicians' Self-Perceived Competency in Dysphagia Management," *Teaching and Learning in Communication Sciences & Disorders*: Vol. 6: Iss. 3, Article 4.

DOI: 10.30707/TLCSD6.3.1664996985.113836

Available at: <https://ir.library.illinoisstate.edu/tlcsd/vol6/iss3/4>

This Scholarship of Teaching and Learning Research is brought to you for free and open access by ISU ReD: Research and eData. It has been accepted for inclusion in Teaching and Learning in Communication Sciences & Disorders by an authorized editor of ISU ReD: Research and eData. For more information, please contact ISUREd@ilstu.edu.

Speech-Language Pathology Graduate Student Clinicians' Self-Perceived Competency in Dysphagia Management

Abstract

Speech-language pathologists (SLPs) are the preferred healthcare providers for managing the direct clinical care of patients with dysphagia. By assessing self-perceived competency during academic training, SLP graduate student clinicians may increase their understanding of their skills in dysphagia management. We modified the Dysphagia Competency Verification Tool (DCVT) to use a 5-point ordinal scale to explore how SLP graduate student clinicians' self-perception of competency in dysphagia management changes over time and to determine the impact of clinical practicum experiences. Seventy-two SLP graduate student clinicians rated their self-perceived competency for four DCVT domains. We used Generalized Estimating Equations (GEE) models to analyze the statistical significance of self-perception of competency ratings for each of the DCVT domains across semesters while accounting for clinical practicum experiences. Overall, the SLP graduate student clinicians indicated an increase in DCVT scores from the beginning of their graduate training program to the time of graduation, but did not perceive themselves as Adequate on most items of the DCVT until their last semester. These results suggest that both SLP graduate student clinicians and SLP graduate training programs would benefit from using a standardized metric to assess self-perceived competence in dysphagia management. DCVT self-perceived competency ratings could inform SLP graduate student clinicians about areas of dysphagia management practice and skills that need further development, allowing them to target these specific areas and gain actual competence.

Keywords

Swallowing, Swallowing Disorders, Dysphagia, Competency, Training, Dysphagia Competency Verification Tool (DCVT)

Cover Page Footnote

Disclosure Statements Funding Statement. This work was supported by the Appalachian State University Research Council Grant (awarded to R. J. Hazelwood in Fall 2019), the ASHFoundation Researcher-Practitioner Collaboration Grant (awarded to R. J. Hazelwood and A. Virani in Fall 2020), by the Appalachian State University Office of Student Research Undergraduate Research Assistantship (awarded to I. R. Burford in Fall 2019), and by the Department of Communication Sciences and Disorders Graduate Assistantship (awarded to E. A. Steffen in Summer 2021 and Fall 2021). Financial and Nonfinancial Relationships. Portions of this work were presented at the annual Celebration of Student Research and Creative Endeavors at Appalachian State University in Boone, NC (April, 2019) and at the annual convention of the American Speech-Language-Hearing Association in Orlando, FL (November, 2019). Financial: Dr. R. Jordan Hazelwood receives salary from Appalachian State University and funding from the Appalachian State University Research Council grant and ASHFoundation Researcher-Clinician Collaboration grants. Dr. Erin Bouldin receives salary from University of Utah. Mrs. Indigo R. Burford received funding from the Appalachian State University Office of Student Research Undergraduate Research Assistantship. Ms. Emily A. Steffen was a Appalachian State University Department of Communication Sciences and Disorders graduate assistant. Non-financial: Dr. R. Jordan Hazelwood is a member of the North Carolina Speech Hearing & Language Association, the American Speech-Language-Hearing Association Member (ASHA), and the Dysphagia Research Society, and is an affiliate of the ASHA Special Interest Group, Swallowing and Swallowing Disorders (SIG 13). Mrs. Indigo R. Burford was a graduate student at East Tennessee State University, a member of the National Student Speech Language Hearing Association, and an affiliate of the ASHA Special Interest Group, Swallowing and Swallowing Disorders (SIG 13). Ms. Emily A Steffen is a member of the North Carolina Speech Hearing & Language Association, the National Student Speech Language Hearing Association, and is an affiliate of the ASHA

Special Interest Group, Swallowing and Swallowing Disorders (SIG 13). Acknowledgments Gratitude is extended to E.E. Keeter and K.A. Sartori for their assistance with data organization.

Authors

R. Jordan Hazelwood, Erin D. Bouldin, Indigo R. Burford, and Emily A. Steffen

Introduction

Impacting 1 in 25 adults each year, dysphagia (swallowing difficulty) can lead to decreased quality of life, malnutrition, and even death (Bhattacharyya, 2014; Jones et al., 2018; Namasivayam & Steele, 2015; Wagner, 2008). Specialized clinical skills are necessary to competently manage dysphagia because it is a complex, multifactorial condition (American Speech-Language-Hearing Association [ASHA], 2020; Clavé & Shaker, 2015). Speech-language pathologists (SLPs) are the preferred healthcare providers for managing the direct clinical care of patients with dysphagia (ASHA, n.d.). Even though competency in this specialty area is crucial to providing the best patient care, many SLPs report a lack of training and decreased self-perceived competency in dysphagia management (ASHA, 2016; Caesar & Kitila, 2020; Fuller, 2020; Vose et al., 2018). In a survey of certified SLPs who indicated swallowing as their area of clinical expertise, 37.2% reported having less than a semester of their graduate training program education focused on the evaluation and treatment of dysphagia, and 19.8% reported having no experience with dysphagia management in their graduate clinical practicum experiences (ASHA, 2016). Despite this lack of training of the SLPs surveyed, on average, over 60% of their caseloads were patients requiring management for dysphagia (ASHA, 2016). Therefore, assessing competency during academic training may increase SLPs' understanding of their own skills in dysphagia management.

The creation of a general reference framework established the need to further explore the development of practice competency guidelines (Royal College of Speech and Language Therapists [RCSLT], 2003). In 2014, following changes made to undergraduate coursework across the United Kingdom, the RCSLT updated their recommendations for dysphagia education and training (RCSLT, 2014). Doing so helped to identify a lack of standardization in dysphagia training and to develop themes leading to a competency and training framework (Guthrie et al., 2017; RCSLT, 2014). In Ireland, SLPs specializing in dysphagia management perceived new SLP graduates to be afraid of this clinical practice area, lacking competency, having poor recognition for needing assistance, with a decreased ability to take a holistic client view, and needing support systems when transitioning into the professional workplace (Smith et al., 2013). Subsequently, ASHA charged a subcommittee comprised of members from the ASHA Special Interest Group for Swallowing and Swallowing Disorders (SIG 13) and the American Board of Swallowing and Swallowing Disorders (ABSSD) to develop a metric to measure clinical competency in dysphagia management. Released in 2019, the Dysphagia Competency Verification Tool (DCVT) was developed to be used by certified SLPs as a tool to systematically assess their own competency across specific domains of dysphagia management (ASHA, 2019).

The training SLP graduate student clinicians experience in dysphagia management varies greatly. Depending on a graduate training program's curriculum and available clinical experiences, the opportunities for professional development, training in general skills, and practical training focused on direct patient care for dysphagia management varies (McAllister, 2005). Additionally, the number of clinical practicum experiences completed and the exposure to patient care differs for those training to be SLPs (ASHA, 2016; Caesar & Kitila, 2020; Fuller, 2020; Vose et al., 2018). Therefore, by assessing dysphagia competency during academic training, SLP graduate training programs can establish the minimum standard of skills and knowledge SLP graduate student clinicians should possess before entering clinical practice, leading to increased readiness for clinical practice.

However, it is important to consider that clinical competency does not equate to self-perceived competency. It is well established that healthcare providers do not accurately assess their own competency when compared to objective measures, and that competency in clinical skills often supersedes self-perception of competency (Davis et al., 2006; Lai & Teng, 2011; Wojciszke, 2011). Literature has also revealed several factors that may influence self-perception of competency including confidence, self-efficacy, exposure to clinical skills, anxiety levels, the amount of social support provided by instructors (Mozingo, et al., 1995; Kamal et al., 2012; Brady et al., 2018). While clinical competency assessment can provide information about direct clinical skills, measurement of self-perceived competency can provide insight into students' awareness of their skills and can encourage a practice of self-reflection. Given this, assessment of self-perceived competency supports a holistic approach to competency development that goes beyond traditional task completion.

Increased insight into SLP graduate student clinicians' self-awareness of clinical skills, which supports competency-based education models, is integral for developing competence in clinical practice (Fisher & Parolin, 2000; Holmboe et al., 2010; McAllister, 2005; McAllister et al., 2008). A conceptual framework describing training in dysphagia management supports integrating self-perception of competence as novice learners advance to become expert clinicians (Brady et al., 2016). By addressing how the principles of learning and different learning environments may influence professional development, this dysphagia training framework emphasizes, "clinicians should also engage in self-directed learning opportunities by analyzing, synthesizing, and interpreting their own dysphagia practice" (Brady et al., 2016, p. 102). Therefore, assessment of self-perceived competency in dysphagia management may help SLP graduate student clinicians better identify their clinical strengths and weaknesses throughout academic training, leading to readiness for managing dysphagia in patients with swallowing disorders. Given this, evaluating SLP graduate student clinicians' competency should be a collaborative activity that combines supervisors' objective assessments of competency and measurements of self-perceived competence (ASHA, 2020).

By self-assessing self-perceived competency throughout their graduate training program, SLP graduate student clinicians can better direct their education towards areas with decreased self-perceived competence. Therefore, the purpose of this paper is to: 1) describe how we modified the DCVT for SLP graduate student clinician use to measure self-perceived competency, 2) explore how DCVT scores change over time, and 3) determine whether clinical practicum experiences may impact SLP graduate student clinicians' self-ratings. We hypothesized that DCVT scores for self-perception of competency in dysphagia management would increase throughout the graduate training program, with most SLP graduate clinicians providing ratings of adequate or better (scores ≥ 3) at time of graduation. We also hypothesized that those with mostly medical-based clinical practicum experiences would report higher DCVT scores at graduation.

Methods

Participants. This is a cross-sectional analysis of 72 SLP graduate student clinicians enrolled in the speech- language pathology graduate program at Appalachian State University in Boone, NC from Spring 2019 to Spring 2021. The SLP graduate student clinicians were mostly female

(77.8%) and ranged from 21-33 years old at their first measurement, with a mean age of 23.4 years old (SD=1.9) and a median age of 23 years old.

Data Collection. In our graduate training program, the SLP graduate student clinicians participate in clinical practicum experiences, which are semester-long experiences where clinicians participate in clinical placements with high levels of clinical supervision two to three days per week, during their first four semesters. Additionally, they complete adult dysphagia coursework during semester 2 and pediatric dysphagia coursework during semester 4. During semester 5 of the graduate training program, SLP graduate student clinicians participate in a clinical externship experience, which is a semester-long experience where clinicians participate in a community-based clinical placement with individualized levels of clinical supervision four to five days per week. The Semester 6 timepoint represents graduation from the graduate training program. We captured responses from various student cohorts at various timepoints, from program orientation to program graduation, by administering the DCVT before each semester of the SLP graduate training program. Data were collected from Cohort A prior to their second and fourth semesters of the graduate training program, from Cohort B prior to their first, second, and third semesters and at the time of graduation from the graduate training program, and from Cohort C prior to their third semester of the graduate training program. No data were collected prior to the fifth semester of the graduate training program for any of the cohorts because the SLP graduate student clinicians were off campus for clinical externship experiences. In total, 100 responses were collected across all cohorts and all semesters.

Table 1

Number of Participant Responses by Semester

Semester & Relevant Curriculum Component(s)	Number of Responses Cohort A	Number of Responses Cohort B	Number of Responses Cohort C	Total Responses by Semester
1 Clinical Practicum Experience	0	14	0	14
2 Clinical Practicum Experience & Adult Dysphagia Coursework	31	0	16	38
3 Clinical Practicum Experience	0	16	13	29
4 Clinical Practicum Experience & Pediatric Dysphagia Coursework	16	0	0	16
5 Clinical Externship Experience	0	0	0	0
6 Graduation	0	3	0	3
Total Responses by Cohort	47	40	13	100

Data Scoring. SLP graduate student clinicians rated their self-perceived competency as measured by the four DCVT domains: Clinical Swallow Assessment & Dysphagia Treatment-General Skills (CSA-GS), Clinical Swallow Assessment & Dysphagia Treatment-Direct Patient Care (CSA-DPC), Videofluoroscopic Swallow Study (VFSS), and Fiberoptic Endoscopic Evaluation of Swallowing (FEES). The CSA-GS domain includes items like describing normal swallowing physiology and understanding the differences between screening and assessment, while the CSA-DPC domain includes items like gathering appropriate assessment materials and developing treatment plans based on clinical information. Both the VFSS and FEES domains include items relevant to procedure-related skills, like demonstrating appropriate set-up and documenting findings and interpreting those findings to support a treatment plan. While the original DCVT scale is binary for SLPs to score themselves as “Competent” or “Inadequate”, we were concerned that students may interpret “Competent” differently than certified SLPs and, therefore, wanted to offer a broader range of scoring options. Also, based on previous literature (Davis et al., 2006; Lai & Teng, 2011; Wojciszke, 2011) and our own experience, we expected that most SLP graduate student clinicians would self-perceive being “Inadequate”. We were concerned that the binary format would result in very few “Competent” responses, preventing meaningful analyses due to of a lack of variation. Therefore, we modified the DCVT from the original binary scoring system to a qualitative rating using a 5-point ordinal scale. In doing this, we could measure self-perceived competency with greater variation by using descriptions of skill development that were already familiar to the clinicians. The definitions used for our modified DCVT rating scale were the same self-rating definitions the SLP graduate student clinicians were introduced to during their orientation to their graduate program (before Semester 1) and continued to use throughout their training to rate their clinical practicum experiences: Absent (0), Dependent (1), Emerging (2), Adequate (3), and Excellent (4) (Clinical Assessment of Learning Inventory of Performance Streamlined Office Operations [CALIPSO], 2014).

Table 2

Interpretation of the DCVT Scale with Respect to Skills

Modified DCVT Rating Scale	Description of Skill Development
0 Absent	Skill not demonstrated by student. Skill performed by supervisor.
1 Dependent	Skill is limited to behavior directly modeled or reviewed by supervisor.
2 Emerging	Student attempts skill but requires specific supervisory guidance to complete.
3 Adequate	Student demonstrates skill that needs refinement or consistency in execution. Supervisor provides suggestion for modification.
4 Excellent	Student performs skill independently and initiates modifications with supervisory consultation.

Because there is not currently a psychometrically tested approach to scoring these modified DCVT ratings, however, and because our primary hypothesized interest was in the proportion of SLP graduate student clinicians that perceived themselves as Adequate or not in the various DCVT domains, we created a variable to indicate Emerging (Absent, Dependent, or Emerging; Scores ≥ 2) or Adequate (Adequate or Excellent; Scores ≥ 3) in the analysis. Additionally, this allowed us to compare two different cut-points (Emerging vs. Adequate) for the modified DCVT, which would not have been possible with the original DCVT binary scoring approach.

Along with DCVT scores, we collected data regarding SLP graduate student clinicians' age and sex, the semester during which they responded, and information about the number of school-based and medical-based clinical practicum experiences they had completed at the time of the survey. We created a variable at each time point to indicate whether the SLP graduate student clinicians had completed no clinical practicum experience, mostly school-based, or mostly medical-based clinical practicum experiences.

Data Analysis. Descriptive statistics were used to summarize the SLP graduate student clinicians' demographics. We calculated the mean number and proportion of items the SLP graduate student clinicians provided rating of Adequate (Scores ≥ 3) in each DCVT domain by semester in the graduate training program. We then used generalized estimating equations (GEE) models to test whether changes in the number of Emerging (Scores ≥ 2) items and Adequate (Scores ≥ 3) items in each DCVT domain over time in the graduate training program (semester) were statistically significant, adjusting for clinical practicum experience and accounting for repeated measures. We chose to use a GEE model rather than repeated measures ANOVA because GEE makes fewer assumptions about the distribution of the outcome, allows for different correlation matrices to be considered, and accommodates unbalanced data (i.e., missing data at different time points). As noted by others, GEE's flexibility can increase statistical power, making it well-suited to small studies like this one (Ma et al., 2012). Statistical significance was set at 0.05. Analyses were completed using Stata version 13.1 (College Station, TX). This study was approved by the IRB at Appalachian State University in Boone, NC.

Results

Measures of Central Tendency and Dispersion. At baseline (before semester 1), CSA-GS was the only DCVT domain for which Adequacy was reported; Adequacy was not reported for any items in the other DCVT domains at this timepoint. At the time of graduation (semester 6), SLP graduate student clinicians reported Adequacy (Scores ≥ 3) for most (greater than half) of the items in three of the four DCVT domains (CSA-GS, CSA-DPC, and VFSS). The mean number of items for which SLP graduate student clinicians reported Adequacy (Scores ≥ 3) increased for all four DCVT domains as the graduate program progressed. By the end of the graduate training program, the proportion of items reported by SLP graduate student clinicians as Adequate (Scores ≥ 3) was similar for the clinical assessment DCVT domains (CSA-GS, 54.8%; CSA-DPC, 55.6%), while the proportion of items reported by SLP graduate student clinicians as Adequate (Scores ≥ 3) between the instrument assessment DCVT domains was higher for VFSS (60.9%) compared to FEES (21.2%).

Table 3*Descriptive Results by DCVT Domains and Semester*

Semester	DCVT Domains			
	CSA-GS	CSA-DPC	VFSS	FEES
	M (SD) %	M (SD) %	M (SD) %	M (SD) %
1 ^a	0.4 (0.6) 3.1%	0.0 0%	0.0 0%	0.0 0%
2 ^b	1.4 (2.0) 10.4%	0.7 (2.3) 2.7%	0.7 (3.6) 2.6%	0.3 (0.9) 1.3%
3 ^c	3.0 (4.3) 21.4%	3.5 (6.7) 12.9%	3.4 (7.4) 11.7%	1.3 (2.9) 6.0%
4 ^d	5.8 (3.8) 41.5%	8.0 (7.1) 29.6%	6.4 (8.6) 22.0%	1.4 (2.6) 6.3%
6 ^e	7.7 (6.5) 54.8%	15.0 (13.1) 55.6%	17.7 (15.3) 60.9%	4.7 (7.2) 21.2%

Note: Means (M) and percentages relate to the number of items in each domain that the respondent rated “Adequate” or better. Dysphagia Competency Verification Tool (DCVT); Clinical Swallow Assessment and Dysphagia Treatment-General Skills (CSA-GS; 14 items); Clinical Swallow Assessment and Dysphagia Treatment-Direct Patient Care (CSA-DPC; 27 items); Videofluoroscopic Swallow Study (VFSS; 29 items); Fiberoptic Endoscopic Evaluation of Swallowing (FEES; 22 items); Standard Deviation (SD). ^a14 Responses, ^b38 Responses, ^c29 Responses, ^d16 Responses, ^e3 Responses

Generalized Estimating Equations (GEE) Modeling. When compared to baseline (before semester 1), mean DCVT ratings were generally significantly higher across all subsequent semesters regardless of whether Emerging (Scores ≥ 2) or Adequate (Scores ≥ 3) was used as the cut point. After SLP graduate student clinicians completed adult dysphagia coursework during semester 2, they were significantly more likely to perceive themselves as Emerging in both CSA domains. By semester 3, self-perceived competency was higher in all DCVT domains for both cut points. By semester 4, self-perceived competency was also higher than baseline (before Semester 1) in nearly all DCVT domains for both Emerging (Scores ≥ 2) or Adequate (Scores ≥ 3) except for Adequate for FEES. At the time of graduation (Semester 6), were increases in self-perceived competency in the CSA-DPC and VFSS domains compared to baseline (before Semester 1) for both Emerging (Scores ≥ 2) or Adequate (Scores ≥ 3). Additionally, SLP graduate student clinicians were more likely to perceive themselves as Emerging in the FEES domain at the time of graduation (semester 6) compared to semester 1, while this was not the case when the cut point of Adequate was used. In almost all instances, self-perceived competency ratings were higher when the cut point was set at Emerging (Scores ≥ 2) versus Adequate (Scores ≥ 3). When adjusting for clinical practicum experience and accounting for repeated measures, on average from baseline (before semester 1) to graduation (semester 6), SLP graduate student clinicians perceived themselves as Adequate (Scores ≥ 3) on 6 of 14 items in the CSA-GS domain, on 14 of 27 items in the CSA-DPC

domain, and 15 of 29 items in the VFSS domain. There was no significant difference from baseline (before semester 1) to graduation (semester 6) for the FEES domain for self-perception of Adequate (Scores ≥ 3) ratings. Clinical practicum experience type was only significantly related to DCCVT ratings for the VFSS and FEES domains. Specifically, compared to those with no practicum experience, SLP graduate student clinicians who reported having mostly school-based and mostly medical-based clinical practicum experiences had higher DCVT ratings in the VFSS domain using either the Emerging (Scores ≥ 2) or Adequate (Scores ≥ 3) cut point. SLP graduate student clinicians with mostly medical-based experiences reported more items on which they were Emerging or Adequate than those with mostly school-based experiences. Also, when using the Emerging cut point for FEES, SLP graduate student clinicians with mostly medical-based experiences reported themselves as Emerging on more items than those with no practicum experiences.

Discussion

In this exploratory study, the SLP graduate student clinicians reported an increase in DCVT ratings for all domains from the beginning of their graduate training program to the time of graduation. Additionally, SLP graduate student clinicians did not report ratings of Adequate (Scores ≥ 3) on most items of the DCVT until their last semester. For three of the four domains, none reported Adequacy at baseline (before semester 1). SLP graduate student clinicians may have reported some Adequacy with CSA general skills at the beginning of their graduate training program because undergraduate SLP coursework introduces clinical dysphagia management through clinical evaluations. However, once they began their graduate training program, graduate student clinicians reported significantly higher DCVT ratings across all domains after completing adult dysphagia coursework, revealing the impact of exposure and learning after semester 2.

Our findings should be contextualized to best interpret the results of this study. As there is no established competency assessment for dysphagia management students training to be SLPs, the DCVT scoring was modified for graduate student clinicians and used to gather ratings of self-perceived competency in dysphagia management. The interpretation of these results should be focused on self-perception of competency as the outcome measurement, not actual competency. Given that Brady et al. (2016) suggested that SLPs in their clinical fellowship would be considered advanced beginners who possess some clinical experience with routine clinical skills, we anticipated most SLP graduate student clinicians would report a mean self-perceived competency as Adequate (Scores ≥ 3) by the time of graduation. However, most reported their mean self-perceived competency to be Emerging (Scores ≥ 2), which is consistent with the novice learning stage and lends to reliance upon rule-based application for clinical skills (Brady et al., 2016). Our data reveal that SLP graduate student clinicians have lower self-perceived competency in all areas of dysphagia management at the time of graduation, likely due to inexperience and decreased exposure (especially for FEES), despite clinical supervisors' and hiring managers' prerequisites for high levels of competency in dysphagia management (Carozza, 2011; Cripps-Ludlum, 2006). This reveals a gap between SLP graduate student clinicians' self-perceived competency and professional expectations, which may explain why newer SLPs feel unprepared to manage dysphagia caseloads independently when starting their clinical fellowships (ASHA, personal communication, September 1, 2016; Cripps-Ludlum, 2006; Eaton et al., 2022; Ferguson et al., 2008; Ten Cate & Scheele, 2007; Urban & Hazelwood, 2019).

Table 4

Results from Generalized Estimating Equation Modeling for Emerging or Better Ratings by DVCT Domain

Effect	CSA-GS	CSA-DPC	VFSS	FEES
	Estimate [95% CI]	Estimate [95% CI]	Estimate [95% CI]	Estimate [95% CI]
	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>
Semester				
1	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
2	3.27 [1.39-5.16] 0.001	5.13 [1.98-8.29] 0.001	3.28 [-0.25-6.82] 0.069	1.42 [-0.56-3.40] 0.16
3	3.69 [1.66-5.72] <0.001	6.72 [3.25-10.19] <0.001	8.75 [4.66-12.84] <0.001	2.58 [0.84-4.31] 0.004
4	10.57 [8.86-12.28] <0.001	21.47 [17.52-25.42] <0.001	14.39 [8.34-20.44] <0.001	3.80 [1.23-6.36] 0.004
6	5.51 [-1.38-12.41] 0.12	15.29 [4.41-26.18] 0.006	22.58 [17.75-27.41] <0.001	10.31 [3.69-16.93] 0.002
Clinical Practicum Experience				
None	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Mostly School- Based	-0.91 [-2.74-0.91] 0.33	0.66 [-3.08-4.39] 0.73	4.93 [1.07-8.78] 0.012	0.57 [-1.67-2.82] 0.62
Mostly Medical-Based	0.77 [-2.26-3.79] 0.62	3.23 [-2.17-8.63] 0.24	10.87 [4.38-17.36] 0.001	5.49 [1.05-9.92] 0.015

Note: n=100 observations from 72 SLP Graduate Student Clinicians; Dysphagia Competency Verification Tool (DCVT); Clinical Swallow Assessment and Dysphagia Treatment-General Skills (CSA-GS; 14 items); Clinical Swallow Assessment and Dysphagia Treatment-Direct Patient Care (CSA-DPC; 27 items); Videofluoroscopic Swallow Study (VFSS; 29 items); Fiberoptic Endoscopic Evaluation of Swallowing (FEES; 22 items); CI=confidence interval; *p*-value <0.05

Table 5

Results from Generalized Estimating Equation Modeling for Adequate or Better Ratings by DVCT Domain

Effect	CSA-GS	CSA-DPC	VFSS	FEES
	Estimate [95% CI] <i>p</i>	Estimate [95% CI] <i>p</i>	Estimate [95% CI] <i>p</i>	Estimate [95% CI] <i>p</i>
Semester				
1	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
2	0.93 [-0.17-2.02] 0.10	0.93 [-0.47-2.33] 0.19	0.12 [-1.56-1.79] 0.89	0.18 [-0.35-0.70] 0.51
3	2.78 [1.34-4.21] <0.001	4.35 [1.84-6.87] 0.001	4.05 [1.75-6.35] 0.001	1.24 [0.37-2.11] 0.005
4	5.08 [3.10-7.06] <0.001	8.00 [4.35-11.66] <0.001	4.94 [1.66-8.22] 0.003	1.01 [-0.07-2.08] 0.067
6	6.76 [0.79-12.73] 0.026	14.94 [4.00-25.89] 0.007	15.34 [4.06-26.62] 0.008	3.77 [-3.83-11.38] 0.33
Clinical Practicum Experience				
None	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Mostly School- Based	0.75 [-0.74-2.25] 0.32	1.19 [-1.22-3.60] 0.33	2.54 [0.32-4.76] 0.025	0.37 [-0.37-1.11] 0.33
Mostly Medical-Based	1.49 [-1.35-4.32] 0.30	2.33 [-2.25-6.91] 0.32	7.63 [3.51-11.74] <0.001	1.83 [-0.34-4.00] 0.10

Note: n=100 observations from 72 SLP Graduate Student Clinicians; Dysphagia Competency Verification Tool (DCVT); Clinical Swallow Assessment and Dysphagia Treatment-General Skills (CSA-GS; 14 items); Clinical Swallow Assessment and Dysphagia Treatment-Direct Patient Care (CSA-DPC; 27 items); Videofluoroscopic Swallow Study (VFSS; 29 items); Fiberoptic Endoscopic Evaluation of Swallowing (FEES; 22 items); CI=confidence interval; **p-value <0.05**

Lastly, our hypothesis that SLP graduate student clinicians with mostly medical-based clinical practicum experiences would report a greater increase in DCVT was only supported for the VFSS domain. The SLP graduate student clinicians' required participation in training for standardized approach to VFSS as part of their adult dysphagia coursework in semester 2 may support this finding. Furthermore, unless FEES training is integrated as part of their medical-based clinical

practicum experience, SLP graduate student clinicians are not fully exposed to FEES instrumental training during their graduate training program and do not have the opportunity to gain competency.

Implications. The results of this study offer new knowledge about how SLP graduate student clinicians' self-perception of competency in dysphagia management changes throughout graduate training. Instructors should incorporate this knowledge into teaching and learning processes by establishing procedures to identify levels of self-perceived competency and evaluating areas perceived to be inadequate. By using the DCVT to assess self-perceived competency throughout their graduate training programs, SLP graduate student clinicians may better direct their education as they develop into dysphagia specialists. Data gathered from the DCVT could enhance graduate training program curricula and opportunities to ensure adequate preparation and competency in dysphagia management for SLP graduate student clinicians (Ferguson et al., 2008; Fisher & Parolin, 2000; Karger et al., 2015; McAllister et al., 2008). For example, designated clinical learning environments may focus on increasing trainee exposure to and experience with instrumental assessment for swallowing disorders. DCVT self-perceived competency ratings could inform SLP graduate student clinicians about areas of dysphagia management practice and skills that need further development, allowing them to concentrate on specific areas of clinical practice and gain actual competence. With this knowledge, instructors can better understand if and how self-perception of competency aligns with actual competency of knowledge and skills taught throughout the graduate curriculum. Subsequently, graduate training programs may better recognize academic coursework deficiencies and pinpoint areas where clinical education and mentorship could be improved. The implication is that measuring SLP graduate student clinicians' self-perception of competency in dysphagia management can help instructors better judge the accuracy of these perceptions, direct and focus clinical training as needed, and increase the effectiveness of preparing SLP graduate student clinicians for professional practice.

Limitations & Future Directions. The DCVT was originally developed as a tool for clinicians, employers, and supervisors to evaluate and document clinical skills and has not yet been validated as a means for SLP graduate student clinicians to self-assess during their course of study. The format was modified from a binary to 5-point ordinal scale in order to gain more insight into SLP graduate student clinician perceptions. However, some questions remained explicitly geared towards practicing clinicians and some did not apply to SLP graduate student clinicians. Therefore, results of this study may be limited as the DCVT metric has yet to be validated for use in this manner with SLP graduate student clinicians. Future studies should develop and test a self-perceived competency in dysphagia assessment instruments for SLP graduate student clinicians. Future studies would also benefit from exploring the relationship between, and changes in, self-perception and actual competency assessed by objective measures during the transition from graduate training to independent clinical practice while considering additional demographic differences (e.g. academic, financial, gender, cultural, etc.) that may influence self-perception and participation in clinical experiences.

This was a relatively small study at a single university. Particularly, only three SLP graduate student clinicians completed the DCVT in semester 6, resulting in wide confidence intervals for estimates for that time point. Conducting a study with a larger number of participants from a variety of graduate training programs around the country would increase the generalizability of the

results. Furthermore, extensive analyses of SLP graduate student clinicians' placements were not conducted in this study. In the future, data concerning the type of medical-based clinical practice experience (e.g., hospital, skilled nursing facility, acute care) and number of clinical hours completed should be examined. Lastly, it is important to note that the COVID-19 pandemic made it challenging to follow individual SLP graduate student clinicians over time. Therefore, the study followed different SLP graduate student clinicians at each time point, which was controlled for through the GEE statistical modeling.

Conclusions

SLPs can use the DCVT as an assessment of self-perceived competency across specific domains of dysphagia management. However, SLP graduate student clinicians training to be SLPs do not have a way to specifically measure their competency in dysphagia management, nor do graduate training programs have a standardized means to determine if SLP graduate student clinician competency in dysphagia management has been achieved. Therefore, both SLP graduate student clinicians and SLP graduate training programs would benefit from a standardized dysphagia competency assessment instrument. By self-assessing competence throughout their training, SLP graduate student clinicians can better direct their education to targeted areas and compare their self-perceived ratings to ratings of actual competence.

Disclosure Statements

Funding Statement. This work was supported by the Appalachian State University Research Council Grant (awarded to R. J. Hazelwood in Fall 2019), the ASHFoundation Researcher-Practitioner Collaboration Grant (awarded to R. J. Hazelwood and A. Virani in Fall 2020), by the Appalachian State University Office of Student Research Undergraduate Research Assistantship (awarded to I. R. Burford in Fall 2019), and by the Department of Communication Sciences and Disorders Graduate Assistantship (awarded to E. A. Steffen in Summer 2021 and Fall 2021).

Financial and Nonfinancial Relationships. Portions of this work were presented at the annual Celebration of Student Research and Creative Endeavors at Appalachian State University in Boone, NC (April, 2019) and at the annual convention of the American Speech-Language-Hearing Association in Orlando, FL (November, 2019).

Financial. Dr. R. Jordan Hazelwood receives salary from Appalachian State University and funding from the Appalachian State University Research Council grant and ASHFoundation Researcher-Clinician Collaboration grants. Dr. Erin Bouldin receives salary from University of Utah. Mrs. Indigo R. Burford received funding from the Appalachian State University Office of Student Research Undergraduate Research Assistantship. Ms. Emily A. Steffen was an Appalachian State University Department of Communication Sciences and Disorders graduate assistant.

Non-financial. Dr. R. Jordan Hazelwood is a member of the American Speech-Language-Hearing Association Member (ASHA), the North Carolina Speech Hearing & Language Association, and the Dysphagia Research Society, and is an affiliate of the ASHA Special Interest Group, Swallowing and Swallowing Disorders (SIG 13). Mrs. Indigo R. Burford was a graduate student at East Tennessee State University. She is a member of the National Student Speech Language Hearing Association and is an affiliate of the ASHA Special Interest Group, Swallowing and Swallowing Disorders (SIG 13). Ms. Emily A Steffen is a member of the North Carolina Speech Hearing & Language Association, the National Student Speech Language Hearing Association, and is an affiliate of the ASHA Special Interest Group, Swallowing and Swallowing Disorders (SIG 13).

Acknowledgments

Gratitude is extended to E.E. Keeter and K.A. Sartori for their assistance with data organization.

References

- American Speech-Language-Hearing Association. (2019). *Dysphagia competency verification tool (DCVT): User's guide*. <https://www.asha.org/siteassets/practice-portal/dysphagia-competency-verification-tool-users-guide.pdf>
- American Speech-Language-Hearing Association. (2020). *2020 Standards and implementation procedures for the certificate of clinical competence in speech-language pathology*. <https://www.asha.org/certification/2020-slp-certification-standards/>
- American Speech-Language-Hearing Association. (n.d.) *Speech-language pathologist (SLPs) as the preferred providers for dysphagia services*. <https://www.asha.org/slp/clinical/speech-language-pathologists-as-the-preferred-providers-for-dysphagia-services/>
- Bhattacharyya, N. (2014). The prevalence of dysphagia among adult in the United States. *Otolaryngology- Head and Neck Surgery*, 151(5), 765-669. <https://doi.org/10.1177/0194599814549156>
- Brady, S. L., Williams, L., Hakel, M., & Pape, T. (2016). Developing the talents of future dysphagia experts: A conceptual framework. *Perspectives of the ASHA Special Interest Groups*, 1(13), 97–103. <https://doi.org/10.1044/persp1.sig13.97>
- Brady, S., Rao, N., Gibbons, P., Williams, L., Hakel, M., & Pape, T. (2018). Face-to-face versus online training for the interpretation of findings in the fiberoptic endoscopic exam of the swallow procedure. *Advances in Medical Education and Practice*, 9, 433-441. <https://doi.org/10.2147/amep.s142947>
- Caesar, L.G, & Kitila, M. (2020). Speech-language pathologists' perceptions of their preparation and confidence for providing dysphagia services. *Perspectives of the ASHA Special Interest Groups*, 5(6), 1666-1682. https://doi.org/10.1044/2020_PERSP-20-00115
- Carozza, L.S. (2011). *Science of successful supervision and mentorship: Engagement and participation*. Plural Publishing. <http://ebookcentral.proquest.com/lib/appstate/detail.action?docID=1922902>
- Clavé, P., & Shaker, R. (2015). Dysphagia: Current reality and scope of the problem. *Nature Reviews Gastroenterology & Hepatology*, 12, 259-270. <https://doi.org/10.1038/nrgastro.2015.49>
- Clinical Assessment of Learning Inventory of Performance Streamlined Office Operations. (2014). *CALIPSO Client*. <https://www.calipsoclient.com/index.html>
- Cripps-Ludlum, J. (2006). A glimpse into the CFY. *Perspectives on Administration and Supervision*, 16(1), 14–16. <https://doi.org/10.1044/aas16.1.14>
- Davis, D. A., Mazmanian, P. E., Fordis, M., Van Harrison, R., Thorpe, K. E., & Perrier, L. (2006). Accuracy of physician self-assessment compared with observed measures of competence. *JAMA*, 296(9), 1094–1102. <https://doi.org/10.1001/jama.296.9.1094>
- Eaton, C. T., Ermgodts, K., & Mairet, K.O. (2022). What do you expect? A comparison of perceptions on the roles of clinical educators and graduate clinicians. *Teaching and Learning in Communication Sciences & Disorders*, 6(1), Article 7. <https://doi.org/10.30707/TLCS6.1.1649037808.590704>
- Ferguson, A., Lincoln, M., McAllister, L., & McAllister, S (2008). *COMPASS directions: Leading the integration of a competency based assessment tool in speech pathology learning and teaching*. Carrick Institute for Learning and Teaching in Higher Education Report. https://ltr.edu.au/resources/Grants_leadership_UoN%20Ferguson%20Final%20Report%20Part%201%20-%202022%20May%202008.pdf

- Fisher, M., & Parolin, M. (2000). The reliability of measuring nursing clinical performance using a competency based assessment tool: A pilot study, *Collegian*, 7(3), 21-27. [https://doi.org/10.1016/S1322-7696\(08\)60373-X](https://doi.org/10.1016/S1322-7696(08)60373-X)
- Fuller, F. (2020). *Speech-language pathologist confidence in dysphagia management*. [Master's thesis, Arkansas State University]. Masters Abstracts International, 82-09.
- Guthrie, S., Lancaster, J., & Stansfield, J. (2017). Consensus-building on developing dysphagia competence: A North West of England perspective. *International Journal of Language and Communication Disorders*, 52(6), 854-869. <https://doi.org/10.1111/1460-6984.12321>
- Holmboe, E. S., Sherbino, J., Long, D. M., Swing, S. R., & Frank, J. R. (2010). The role of assessment in competency-based medical education. *Medical Teacher*, 32(8), 676–682. <https://doi.org/10.3109/0142159X.2010.500704>
- Jones, E., Speyer, R., Kertscher, B., Denman, D., Swan, K., & Cordier, R. (2018). Health-related quality of life and oropharyngeal dysphagia: A systematic review. *Dysphagia*, 33, 141-172. <http://doi.org/10.1007/s00455-017-9844-9>
- Kamal, R. M., Ward, E., & Cornwell, P. (2012). Dysphagia training for speech-language pathologists: Implications for clinical practice. *International Journal of Speech-Language Pathology*, 14(6), 569–576. <https://doi.org/10.3109/17549507.2012.713394>
- Karger, A., Scherg, A., Wenzel-Meyburg, U., Raski, B., Vogt, H., Schatte, G., Schatz, M., Schnell, M. W., & Schulz, C. (2015). A pilot study on undergraduate palliative care education: A study on changes in knowledge, attitudes and self-perception. *Journal of Palliative Care & Medicine*, 05(06). <https://doi.org/10.4172/2165-7386.1000236>
- Lai, N. M., & Teng, C. L. (2011). Self-perceived competence correlates poorly with objectively measured competence in evidence based medicine among medical students. *BMC Medical Education*, 11(1). <https://doi.org/10.1186/1472-6920-11-25>
- Ma, Y., Mazumdar, M., & Memtsoudis, S. G. (2012). Beyond repeated-measures analysis of variance. *Regional Anesthesia and Pain Medicine*, 37(1), 99–105. <https://doi.org/10.1097/aap.0b013e31823ebc74>
- McAllister, S. (2005). *Competency based assessment of speech pathology students' performance in the workplace* [Doctoral thesis, University of Sydney]. <http://hdl.handle.net/2123/1130>
- McAllister, S., Lincoln, M., Ferguson, A., & McAllister, L. (2008, November 20-21). *Engaging speech pathology students in design and validation of competency based assessment in the workplace*. ATN Assessment Conference, Adelaide, South Australia, Australia <https://ojs.unisa.edu.au/index.php/atna/article/view/345>
- Mozingo, J., Thomas, S., & Brooks, E. (1995). Factors associated with perceived competency levels of graduating seniors in a baccalaureate nursing program. *Journal of Nursing Education*, 34(3), 115–122. <https://doi.org/10.3928/0148-4834-19950301-06>
- Namasivayam, A. M., & Steele, C. M. (2015). Malnutrition and dysphagia in long-term care: a systematic review. *Journal of Nutrition in Gerontology and Geriatrics*, 34(1), 1-21. <http://doi.org/10.1080/21551197.2014.1002656>
- Royal College of Speech and Language Therapists. (2003, September). *Reference framework: Underpinning competence to practise*. <https://www.rcslt.org/wp-content/uploads/media/Project/RCSLT/competencies-project.pdf>
- Royal College of Speech and Language Therapists. (2014). *Dysphagia training and competency framework: Recommendations for knowledge, skills and competency development across the speech and language therapy profession*. <https://www.rcslt.org/wp-content/uploads/media/Project/RCSLT/dysphagia-training-competency-framework.pdf>

- Smith, T. O., Bessell, N., & Scholten, I. (2013). Are new graduate speech and language therapists ready to work with swallowing disorders? *Journal of Clinical Practice in Speech-Language Pathology*, *15*(2), 80-86.
- ten Cate, O., & Scheele, F. (2007). Competency-based postgraduate training: Can we bridge the gap between theory and clinical practice? *Academic Medicine*, *82*(6), 542-547. <https://doi.org/10.1097/ACM.0b013e31805559c7>
- Urban, M., & Hazelwood, R. J. (2019). Are you ready to manage dysphagia? *The ASHA Leader*, *24*(7). <https://doi.org/10.1044/leader.OTP.24072019.38>
- Vose, A. K., Kesneck, S., Sunday, K., Plowman, E., & Humber, I. (2018). A survey of clinician decision making when identifying swallowing impairments and determining treatments. *JSLHR*, *61*(11), 2735-2756. https://doi.org/10.1044/2018_JSLHR-S-17-0212
- Wagner, L. C. B. (2008). Dysphagia: Legal and ethical issues in caring for persons at the end of life. *Perspectives on Swallowing and Swallowing Disorders*, *17*(1), 27-32. <https://doi.org/10.1044/sasd17.1.27>
- Wojciszke, B. (2011). Morality and competence in person- and self-perception. *European Review of Social Psychology*, *16*(1), 155–188. <https://doi.org/10.1080/10463280500229619>