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Critical Review Of Online Resources Frequently Used By Certified Speech-Language Pathologists For Dysphagia Management

By: **R. Jordan Hazelwood** and **Leanna M. Pollack**

Abstract

The purpose of this study was to identify the online resources that are frequently used by certified speech-language pathologists (SLPs) for dysphagia management and to evaluate these online resources against a standardized critical review metric. Certified SLPs were surveyed and asked to describe their familiarity and confidence in critically reviewing online resources and to provide three online resources that they use to inform them about their management of patients with swallowing disorders. Three raters independently judged each online resource that was provided by survey respondents using the DISCERN Instrument. Relationships between respondent demographics and characteristics of online resources were explored. Our results revealed that no patterns in DISCERN Instrument ratings for online resources were provided by the 48 respondents. There was no difference in who was more or less likely to choose credible online resources for dysphagia management when considering respondents' characteristics and familiarity and confidence in reviewing online resources. Most of the online resources provided by the respondents lacked a high level of reliability for most of the DISCERN Instrument review criteria. Professional training in the critical review of online resources used for managing dysphagia is needed across all levels of training.

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R. Jordan Hazelwood[a] (iD) and Leanna M. Pollack[a] (iD)

Purpose: The purpose of this study was to identify the online resources that are frequently used by certified speech-language pathologists (SLPs) for dysphagia management and to evaluate these online resources against a standardized critical review metric.
Method: Certified SLPs were surveyed and asked to describe their familiarity and confidence in critically reviewing online resources and to provide three online resources that they use to inform them about their management of patients with swallowing disorders. Three raters independently judged each online resource that was provided by survey respondents using the DISCERN Instrument. Relationships between respondent demographics and characteristics of online resources were explored.

Results: Our results revealed that no patterns in DISCERN Instrument ratings for online resources were provided by the 48 respondents. There was no difference in who was more or less likely to choose credible online resources for dysphagia management when considering respondents' characteristics and familiarity and confidence in reviewing online resources. Most of the online resources provided by the respondents lacked a high level of reliability for most of the DISCERN Instrument review criteria.
Conclusion: Professional training in the critical review of online resources used for managing dysphagia is needed across all levels of training.

O nline resources are available in various formats, including social media, personal and professional blogs, and video sharing websites. Publicly available and accessible online resources can guide speech-language pathologists (SLPs) toward answering clinical questions that may arise when managing patients with swallowing disorders (dysphagia). SLPs may also use online resources to enhance their therapeutic knowledge and skills through professional development. However, because information online may be incorrect or misleading, evidence-based practice requires a critical review of resource quality and credibility (American Speech-Language-Hearing Association [ASHA], 2020; Chan et al., 2018). Additionally, the rapid and widespread distribution of outdated, misdirected, or incorrect information from online resources could easily create confusion (National Institutes of Health, 2011). As

consumers of online information, SLPs need skills in critical review in order to appraise these online resources for biased, unethical, or deceitful information that may directly affect the health of their patients (Dalmer, 2017). Therefore, it is imperative that SLPs develop critical review skills in order to optimize dysphagia care and mitigate patient harm.

The Standards of Accreditation in Speech-Language Pathology set forth by the Council on Academic Accreditation for Audiology and Speech-Language Pathology require all graduate education programs demonstrate provision of "opportunities for students to become knowledgeable consumers of research literature" (Council on Academic Accreditation in Audiology and Speech-Language Pathology, 2020). Additionally, while the 2020 Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology now require clinicians to complete continuing education units in the area of supervision in order to supervise graduate students, this does not necessarily mean that clinical supervisors have the skills necessary to critically review online resources used to support evidence-based practice when training students (Vose et al., 2018). With technology ever changing through the introduction of new applications and

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social media influencers becoming modern-day marketing experts, the level of training provided at the graduate level may not sufficiently address how to critique mainstream or nonscholarly online resources (Pinkham et al., 2008). Without training, newer clinicians may be more inclined to use information from online resources without first considering quality factors that may be revealed during critical review (Boster et al., 2018; Tunnecliff et al., 2015). Additionally, decreased access to in-person training due to the COVID-19 pandemic has magnified the need for critical review skills in clinical training as the utilization of online resources has increased (Cuan-Baltazar et al., 2020).

Critical review of online resources should be simple and straightforward. The quality of online resources can be determined by the author's credentials, the presence and appropriateness of supporting resources, relevancy to the subject, recency of publication, ease of site navigation, and professional appearance (Charnock, 1998). By utilizing a standardized metric to evaluate online resources, SLPs can develop a mental appraisal framework and determine how reputable an online resource may be (Eysenbach et al., 1998; Fogg et al., 2001; Goodman et al., 2018). Doing so may help SLPs choose quality online resources to guide their clinical practice in dysphagia management. A standardized review metric may also guide SLPs and patients as they search for reputable information about swallowing disorders (Chan et al., 2018; Council on Academic Accreditation in Audiology and Speech-Language Pathology, 2020; Eysenbach et al., 1998). Additionally, social media influencers and SLP content developers would be compelled to provide more credible information when creating content and literature focused on dysphagia management to maintain their followers (Charnock et al., 1999). Therefore, the purpose of this study was to identify the online resources that are frequently used by certified SLPs for dysphagia management and to evaluate these online resources against a standardized critical review metric. We hypothesized that clinician experience, familiarity in critically reviewing online resources, and confidence in critically reviewing online resources would be positively associated with the level of credibility of the online resources.

Method
Procedure

Survey respondents were certified SLPs recruited from ASHA's Special Interest Group Swallowing and Swallowing Disorders (SIG 13) through the ASHA Community in August 2019. Each respondent was asked to provide demographic information, to describe their familiarity with online resources to inform their management of swallowing disorders, to describe their confidence in critically reviewing online resources, and to provide three online resources that they had used in the past 2 months to inform them about their management of patients with swallowing disorders. Online resources provided by survey respondents were excluded from the study if the online resources were

search engines, databases, and unnamed or nonspecific resources (i.e., social media sites, blogs, podcasts, document files, smartphone applications, or physical products). Online resources provided by survey respondents were included in the study if they were refereed journals, educational websites, university websites, scientific websites, product websites, named podcasts, and specifically named social media sites.

Standardized Metric

The DISCERN Instrument is a valid and reliable questionnaire developed to assess the quality of written consumer health information in order to judge the scientific quality of a publication in terms of its content (Charnock, 1998; Charnock et al., 1999). The DISCERN consists of 16 questions with three sections that can be judged by consumers or health care providers. Each question is judged on a scale of 1–5 with a score of 1 indicating that the quality criterion has *not been fulfilled,* scores from 2 to 4 indicating that the quality criterion has *been partially met,* and a score of 5 indicating that the quality criterion has *been fulfilled.* Section 1 (Questions 1–8) focuses on the reliability of the publication to determine if the resource can be trusted. Section 2 (Questions 9–15) focuses on information about treatment choices. Section 3 (Question 16) provides an overall quality rating for the publication.

Rating

For this study, three raters (one university professor and two undergraduate SLP students) independently judged each online resource provided by survey respondents using the DISCERN Instrument. Raters judged each online resource by navigating to only the exact source location provided by the respondents (see Appendix B) and only judging online resources that were publicly accessible without logging in or providing payment. This means that information embedded within websites or podcast audio information was not considered when judging the online resources using the DISCERN Instrument. Prior to judging, all raters participated in training to understand how to use the DISCERN instrument. This included reading the DISCERN Handbook, reviewing the general and specific scoring instructions, and discussing how to apply the instrument's scoring procedures using the example provided in the DISCERN Handbook. Interrater reliability of 95% agreement was established between the three raters during training. Two-way mixed-effects, average measurement with absolute agreement interclass correlations model was calculated for the three raters' individual DISCERN scores (Koo & Li, 2016). A high degree of interrater reliability was found with an average measure intraclass correlation coefficient of 0.777 with a 95% confidence interval from 0.723 to 0.822, $F(239, 478) = 4.544$, $p < .000$. Because Section 2 of the DISCERN Instrument judges information about treatment choices, neither that section nor Section 3 (overall score) was considered relevant. Therefore, the three raters only judged each online resource using

Section 1 (Questions 1–8) of the DISCERN Instrument (see Appendix A). This resulted in a modified total DISCERN score ranging from 8 to 40 given by each of the three raters for each online resource.

Analysis

Descriptive statistics were used for survey respondents' demographics and for the characteristics of the online resources provided. Individual DISCERN questions were considered *high quality* if the mean question DISCERN scores were greater than 4.0, *mediocre quality* if mean scores were between 2.0 and 4.0, and *poor quality* if the mean scores were less than 2.0 out of 5 possible points. Adding the individual question scores together provided a total DISCERN score for each online resource. Online resources of *high quality* had a total mean DISCERN score greater than or equal to 32.0. Online resources of *mediocre quality* had total mean DISCERN scores between 17.0 and 31.0. Lastly, online resources of *poor quality* had total mean DISCERN scores less than 16.0 out of 40 possible points. Pearson correlations (two tailed) were used to determine the relationship between continuous variables for respondents' characteristics, self-reported levels of familiarity and confidence with critically reviewing online resources, and mean total DISCERN scores. One-way analysis of variance and independent *t* tests were used to determine statistically significant differences between group categorical variables and mean total DISCERN scores. Assumptions of normality were upheld for parametric testing. The significance level was set at 0.01. Statistical analysis was completed using IBM SPSS Statistics (Version 27). This study was approved by Appalachian State University's Institutional Review Board (IRB #19–0221).

Results

Survey Responses

We received 88 survey responses during the first month the survey was open. Thirty-seven responses were initially excluded from the analysis as the respondents did not provide any information about online resources. This meant that the respondents wrote "none" when asked to list an online resource, left all response fields blank, or ended the survey before providing a response. Fifty-one respondents provided information about at least one online resource. Of those, three responses were excluded from the analysis as the online resources were not ratable using the DISCERN Instrument as none of the DISCERN items could be scored. Forty-eight respondents provided information about at least one online resource ratable using the DISCERN Instrument. These online resources were included in the final analysis (see Figure 1).

Respondent Demographics

All survey respondents were female (100%) with a mean age of 40.7 years (range: 24–65; *SD* = 10.9) and an average of 15.0 years of experience post–clinical fellowship

(range: 0.0–44.0; *SD* = 11.2). Most respondents (62.5%) were not Board Certified Specialists in Swallowing and Swallowing Disorders (BCS-S). The largest percentage worked in a hospital (68.8%) and was from the Southern region of the United States (39.6%; see Table 1). Nearly 40% of the respondents reported being extremely familiar with critically reviewing online resources, and just over 40% reported that they were moderately confident in their skills in critically reviewing online resources (see Table 2).

Characteristics of Online Resources

The 48 respondents included in the study provided information about 30 unique online resources that were ratable using the DISCERN Instrument (see Appendix B). The *Swallow Your Pride* named podcast was the online resource most frequently provided by respondents (*n* = 15) and had a mean total DISCERN score (28.67 out of 40 possible points) indicating *mediocre quality*. Of the five online resources most frequently provided by respondents, three had mean total DISCERN scores indicating *high quality*. Fourteen of the 30 online resources were educational websites. Overall, seven online resources provided by respondents had mean total DISCERN scores indicating *high quality,* of which four were professional organization websites. Twenty-three online resources had mean total DISCERN scores indicating *mediocre quality*. None of the online resources had mean total DISCERN scores indicating *poor quality* (see Table 3).

Along with mean total DISCERN scores, mean question scores were calculated for each online resource to determine if specific DISCERN questions were more likely to contribute to decreased overall mean total scores. DISCERN Question 1 "*Are the aims clear?*" had a mean question score indicating *high quality* for 18 of the 30 online resources. This means that most of the online resources provided by respondents clearly and accurately provided information targeting dysphagia management. DISCERN Question 2 "*Does it achieve its aims?*" had a mean question score indicating *high quality* for 23 of the 30 online resources. This means that most of the online resources provided by respondents provided the information they aimed to provide. DISCERN Question 3 "*Is it relevant?*" had a mean question score indicating *high quality* for 26 of the 30 online resources. This means that most of the online resources provided by respondents were suited to users' needs. However, DISCERN Questions 4–7 had mean question scores indicating *mediocre quality* for most of the 30 online resources (see Appendix A). This means that the information about the source of scientific evidence, the publication recency, and the possible bias was not well balanced or may have been unclear for many of the online resources provided by respondents. Lastly, DISCERN Question 8 "*Does it refer to areas of uncertainty?*" had a mean question score indicating *poor quality* for 18 of the 30 online resources (see Table 4). This means that most of the online resources provided by respondents did not acknowledge gaps in knowledge or existing differences in opinion.
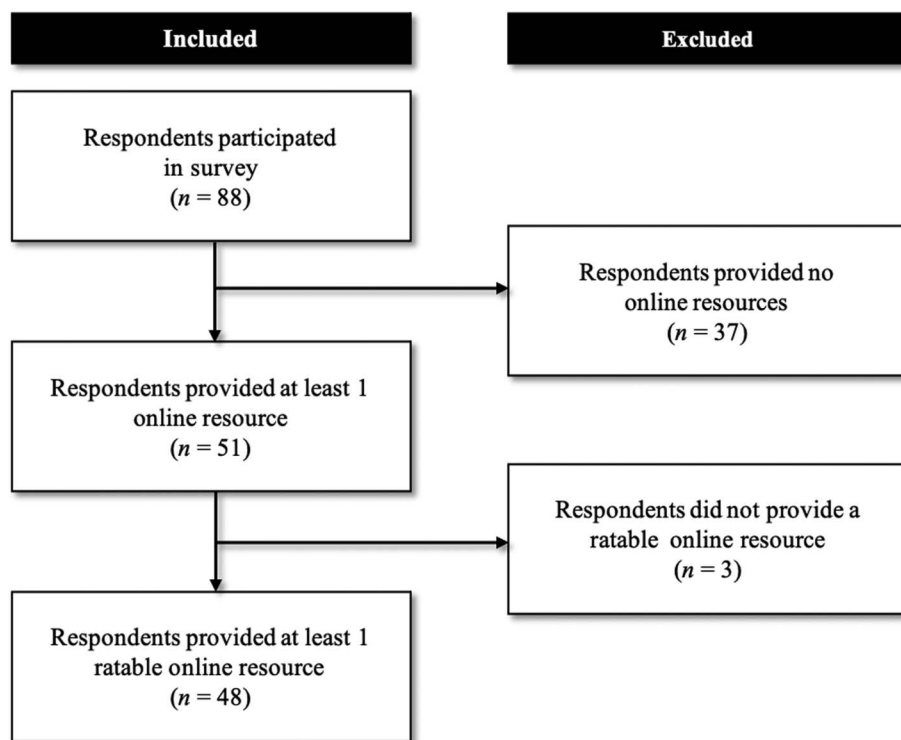
Figure 1. Inclusion criteria.

Relationships Between Respondent Demographics and Characteristics of Online Resources

Respondent age and years since obtaining their Certificate of Clinical Competence did not correlate significantly with mean total DISCERN scores ($r = .080$, $p = .590$ and $r = .236$, $p = .106$, respectively). Mean total DISCERN scores did not vary significantly by BCS-S status, $t(46) = -0.418$, $p = .678$; by respondent practice setting, $F(5, 42) = 0.987$, $p = .437$; or by region of the United States, $F(3, 44) = 1.253$, $p = .302$. Familiarity and confidence with critically reviewing online resources did not correlate

Table 1. Respondent demographics.

Variables	M (range; SD)
Continuous variables	
Age	40.7 (24.0–65.0; 10.9)
Years since obtaining CCC*	15.0 (0.0–44.0; 11.2)
Categorical variables	% (n = 48)
Sex	
Female	100.0 (48)
Male	0.0 (0)
Board Certified Specialist in Swallowing and Swallowing Disorders (BCS-S)	
No	62.5 (30)
Yes	37.5 (18)
Practice setting	
Hospital	68.8 (33)
Health care facility	10.4 (5)
Private practice	6.2 (3)
University/college	6.2 (3)
Home health	4.2 (2)
Skilled nursing facility	4.2 (2)
Region of the United States	
South	39.6 (19)
West	20.8 (10)
Midwest	20.8 (10)
Northeast	18.8 (9)

*Certificate of Clinical Competence from the American Speech-Language-Hearing Association.

Table 2. Respondents' familiarity and confidence in reviewing online resources.

Responses	% (n = 48)
"How familiar are you with critically reviewing online resources?"	
Extremely	39.6 (19)
Moderately	37.5 (18)
Somewhat	18.7 (9)
Slightly	4.2 (2)
No response provided	0.0 (0)
"How confident are you with your skills in critically reviewing online resources?"	
Extremely	20.8 (10)
Moderately	41.6 (20)
Somewhat	31.3 (15)
Slightly	2.1 (1)
No response provided	4.2 (2)

Table 3. Resource type, response frequency, and mean total DISCERN score by online resource.

Online resource	Resource type	Response frequency	Mean total DISCERN score	Range total DISCERN score
Swallow Your Pride	Named podcast	15	28.67[b]	28–30
Dysphagia Café	Educational website	10	32.33[a]	24–30
MedSLP Collective	Educational website	8	21.67[b]	19–26
American Speech-Language-Hearing Association (ASHA)	Professional organization website	7	35.33[a]	32–38
National Foundation of Swallowing Disorders	Professional organization website	6	33.67[a]	31–37
Down the Hatch	Named podcast	6	28.00[b]	25–30
Passy-Muir	Product website	5	27.33[b]	23–32
MedBridge Education	Educational website	5	26.67[b]	24–29
ASHA Special Interest Group 13, Swallowing and Swallowing Disorders (Dysphagia)	Educational website	4	25.33[b]	21–32
Northern Speech Services	Educational website	3	29.33[b]	28–30
MedSLP Forum Facebook Page	Specific social media site	3	25.67[b]	24–48
International Dysphagia Diet Standardisation Initiative	Educational website	3	33.33[a]	27–37
Swallowing Training and Education Portal	Educational website	2	26.67[b]	21–31
Dysphagia Journal Homepage	Refereed journal	2	32.00[b]	26–38
Modified Barium Swallow Impairment Profile	Educational website	2	30.33[b]	27–33
Dysphagia Research Society	Professional organization website	2	31.67[b]	25–35
ASHA SIG 13 Community Page	Professional organization website	2	19.67[b]	14–30
ASHA Practice Portal	Professional organization website	2	35.00[a]	29–39
Expiratory Muscle Strength Training 150	Product website	1	33.00[a]	31–35
American College of Radiology	Professional organization website	1	32.67[a]	28–35
Shaker4Swallow	Named podcast	1	31.33[b]	29–33
Speech Pathology	Educational website	1	31.33[b]	29–35
Dysphagia Ramblings	Educational website	1	30.67[b]	27–34
MedSLP Mentoring Facebook Page	Specific social media site	1	29.67[b]	26–35
University of Wisconsin School of Medicine and Public Health Voice and Swallow Clinic Lecture Series	Educational website	1	28.33[b]	23–31
Mayo Clinic	Educational website	1	27.67[b]	25–29
Dysphagia Squad Facebook Page	Specific social media site	1	25.33[b]	23–28
Northeast Mobile Swallow & Speech Services	Educational website	1	24.67[b]	23–26
Ciao Seminars	Educational website	1	22.00[b]	20–23
VitalStim Facebook Page	Specific social media site	1	17.00[b]	14–20

[a]Indicates *high quality* (mean total DISCERN scores > 32.0 of 40 possible points).
[b]Indicates *mediocre quality* (mean total DISCERN scores 17.0–32.0 of 40 possible points).

significantly with mean total DISCERN scores ($r = -.209$, $p = .154$ and $r = -.146$, $p = .322$, respectively).

Discussion

The purpose of this study was to identify the online resources that are frequently utilized by certified SLPs for dysphagia management and to evaluate these online resources against a standardized critical review metric. Our results revealed no patterns in DISCERN Instrument ratings of online resources according to clinician characteristics, familiarity with critically reviewing online resources, or confidence in critically reviewing online resources. Additionally, when considering respondents' characteristics and familiarity and confidence in reviewing online resources, results showed that there was no difference in who was more or less likely to choose credible online resources for dysphagia management. Therefore, our hypothesis that clinician experience, familiarity in critically reviewing online resources, and confidence in critically reviewing online resources would be positively associated with the level of credibility of the online

resources was not supported as no associations were found between these measures and total DISCERN scores.

The findings of this study reveal that while most SLPs reported feeling at least moderately familiar and confident in critically reviewing online resources, many respondents provided online resources that were not of *high quality*. Also, despite their appreciation of evidence-based practice and value of integrating research into clinical practice, many clinicians reported using nonacademic resources, such as podcasts and product websites, to guide their dysphagia practice. This may be because many SLPs do not have access to free, peer-reviewed journal articles or feel that research is cumbersome and time-consuming to read and review (Vallino-Napoli & Reilly, 2004). Additionally, the increased amount of time needed to search for and locate appropriate evidence for a particular clinical question could be contributing to SLPs' use of online resources to help direct clinical care (Vallino-Napoli & Reilly, 2004).

Fortunately, findings from other health-related fields reveal that some attention has been given to using standardized methods for evaluating the quality of online health

Table 4. Mean question DISCERN scores by online resource.

Online resource	Mean question DISCERN score							
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Swallow Your Pride	4.67[a]	4.33[a]	4.33[a]	3.67[b]	2.33[b]	3.00[b]	4.00[b]	2.33[b]
Dysphagia Café	4.33[a]	4.67[a]	5.00[a]	5.00[a]	4.00[b]	3.33[b]	4.33[a]	1.67[c]
MedSLP Collective	2.33[b]	3.33[b]	4.33[a]	2.67[b]	2.33[b]	3.00[b]	2.00[b]	1.67[c]
American Speech-Language-Hearing Association (ASHA)	4.67[a]	4.67[a]	4.67[a]	5.00[a]	4.67[a]	4.67[a]	4.33[a]	2.67[b]
National Foundation of Swallowing Disorders	4.67[a]	5.00[a]	5.00[a]	4.33[a]	4.67[a]	3.67[b]	4.00[b]	2.33[b]
Down the Hatch	2.33[b]	3.33[b]	4.33[a]	2.67[b]	2.33[b]	3.00[b]	2.00[b]	1.67[c]
Passy-Muir	4.67[a]	4.67[a]	5.00[a]	3.33[b]	2.33[b]	2.67[b]	3.67[b]	1.00[c]
MedBridge Education	4.00[b]	4.33[a]	5.00[a]	3.33[b]	2.33[b]	3.00[b]	3.33[b]	1.33[c]
ASHA Special Interest Group 13, Swallowing and Swallowing Disorders (Dysphagia)	3.67[b]	4.33[a]	4.67[a]	2.33[b]	2.33[b]	3.67[b]	3.33[b]	1.00[c]
Northern Speech Services	3.67[b]	5.00[a]	4.67[a]	4.33[a]	2.33[b]	3.33[b]	4.00[b]	2.00[b]
MedSLP Forum Facebook Page	4.33[a]	5.00[a]	5.00[a]	1.67[c]	2.67[b]	2.33[b]	3.00[b]	1.67[c]
International Dysphagia Diet Standardisation Initiative	5.00[a]	5.00[a]	5.00[a]	3.67[b]	4.33[a]	4.33[a]	4.00[a]	2.00[b]
Swallowing Training and Education Portal	5.00[a]	4.67[a]	5.00[a]	2.00[b]	3.00[b]	3.67[b]	1.67[c]	1.67[c]
Dysphagia Journal Homepage	5.00[a]	4.67[a]	5.00[a]	4.00[b]	4.00[b]	4.33[a]	3.00[b]	2.00[b]
Modified Barium Swallow Impairment Profile	4.67[a]	4.33[a]	5.00[a]	4.33[a]	4.00[b]	4.00[b]	2.67[b]	1.33[c]
Dysphagia Research Society	4.67[a]	4.67[a]	4.67[a]	3.33[b]	4.00[b]	4.33[a]	4.33[a]	1.67[b]
ASHA SIG 13 Community Page	2.33[b]	2.33[b]	4.00[b]	2.00[b]	2.00[b]	2.33[b]	3.00[b]	1.67[c]
ASHA Practice Portal	4.67[a]	4.33[a]	4.67[a]	4.67[a]	3.00[b]	4.67[a]	5.00[a]	4.00[b]
Expiratory Muscle Strength Training 150	4.67[a]	4.67[a]	4.67[a]	5.00[a]	4.67[a]	4.33[a]	3.67[b]	1.33[c]
American College of Radiology	4.00[b]	4.00[b]	4.33[a]	4.33[a]	3.67[b]	3.67[b]	5.00[a]	3.67[b]
Shaker4Swallow	5.00[a]	5.00[a]	5.00[a]	4.33[a]	4.33[a]	3.67[b]	2.67[b]	1.33[c]
Speech Pathology	3.67[b]	4.00[b]	5.00[a]	4.00[b]	4.33[a]	4.33[a]	4.00[b]	2.00[b]
Dysphagia Ramblings	4.00[b]	4.33[a]	4.67[a]	4.00[b]	3.67[b]	4.00[b]	4.33[a]	1.67[c]
MedSLP Mentoring Facebook Page	5.00[a]	4.00[b]	5.00[a]	3.33[b]	3.67[b]	3.00[b]	3.33[b]	2.33[b]
University of Wisconsin School of Medicine and Public Health Voice and Swallow Clinic Lecture Series	5.00[a]	4.33[a]	4.67[a]	3.33[b]	3.67[b]	4.00[b]	2.33[b]	1.00[c]
Mayo Clinic	4.00[b]	5.00[a]	3.00[b]	3.00[b]	2.67[b]	4.00[b]	3.67[b]	2.33[b]
Dysphagia Squad Facebook Page	5.00[a]	4.33[a]	4.33[a]	2.33[b]	3.00[b]	2.33[b]	2.67[b]	1.33[c]
Northeast Mobile Swallow & Speech Services	4.67[a]	5.00[a]	5.00[a]	1.33[c]	1.67[c]	3.00[b]	2.00[b]	2.00[b]
Ciao Seminars	3.33[b]	3.67[b]	3.67[b]	2.33[b]	2.67[b]	3.00[b]	2.33[b]	1.00[c]
VitalStim Facebook Page	3.00[b]	2.33[b]	3.33[b]	1.67[c]	2.67[b]	2.00[b]	1.00[c]	1.00[c]

[a]Indicates *high quality* (mean total DISCERN scores > 4.0 of 5 possible points).
[b]Indicates *mediocre quality* (mean total DISCERN scores 2.0–4.0 of 5 possible points).
[c]Indicates *poor quality* (mean total DISCERN scores < 2.0 of 5 possible points).

information (Ayani et al., 2020; Fahy et al., 2014; Lorence & Abraham, 2008). Several studies have applied the DISCERN Instrument to assess quality of online content as it relates to accuracy and health information related to specific mental health disorders, chronic pain, and asthma (Kaicker et al., 2010; Khazall et al., 2009; Lorence & Abraham, 2008). The DISCERN Instrument has been shown to be reliable and valid when judging quality between websites with *good quality* and *poor quality* content but still maintains some ambiguity in its scoring system and application to nontraditional resources that SLPs in our study reported using for dysphagia management (Batchelor & Ohya, 2009; Charnock et al., 1999; Fahy et al., 2014; Robillard et al., 2018). Therefore, developing a standardized metric for rating online resources specific to speech-language pathology would have important implications for clinical practice by enhancing SLPs' awareness when choosing online resources to guide clinical practice in dysphagia management.

In addition to developing a standardized metric, education across all levels of SLP training to target critical appraisal of online materials is needed. Graduate students in SLP training programs are inundated by social media and frequently use online resources to implement therapy tasks (Boster et al., 2018). Therefore, graduate faculty and clinical educators must acknowledge that students need training, not to avoid these online resources but in how to appraise them appropriately. This is especially important as students consider a different set of qualities when choosing online resources than the quality criteria that should be considered when appraising clinical evidence (Boster et al., 2018; Robillard et al., 2018). Academic instructors should develop a curriculum that integrates teaching students *how* to find evidence then collaboratively determining *if* that evidence aligns with or refutes the online resources students know about for dysphagia management. Furthermore, practicing SLPs, especially those who provide clinical supervision, can integrate critical review of online resources by providing feedback regarding the online resources' suggestions for dysphagia management when compared with actual clinical practice (Nagarajan & McAllister, 2015). Doing so will help address the discrepancy our study found of online resources not frequently addressing areas of uncertainty.

Limitations

This study was limited due to the short time frame the study was open, which may have resulted in fewer survey respondents. This study may also be limited due to selection bias as the survey was accessible only to ASHA SIG 13 affiliates. Additionally, the DISCERN Handbook advises that irrelevant questions should not be judged. Because Sections 2 and 3 of the DISCERN Instrument were not relevant to the online resources provided by the respondents, the raters were limited to only judging Section 1 of the DISCERN Instrument. Despite this, the DISCERN Instrument was found to be the most appropriate metric for this study as it is a reliable quantitative tool available to the public. Lastly, the COVID-19 pandemic has led to an increased use of online resources, which may influence repetition of this study design.

Future research in this area includes developing a standardized metric to critically appraise online resources utilized by SLPs, especially one that would be able to judge the wide variety of online resources available for dysphagia management. Developing a training curriculum that teaches critical appraisal of online resources would be particularly helpful for SLPs who specialize in dysphagia management to support best practice based on evidence. Exploring this area further in a larger sample comparing students and SLPs would strengthen the literature.

Conclusions

An agreed upon standard for rating the credibility of online resources is warranted for medical resources on the Internet. This is especially important since we discovered SLPs frequently use online resources judged with cautionary credibility despite high self-reports of familiarity and confidence in rating online resources. Therefore, training SLPs to recognize and be familiar with credible online resources is imperative to increase critical thinking and support evidence-based practice. Clinical education for graduate SLP students and continued education for certified clinicians should include opportunities to assess online resources used for dysphagia management. The results of this study support the need for professional development in the critical review of online resources used for managing dysphagia.

Acknowledgments

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Appendix A

DISCERN Section 1 Questions

DISCERN Section 1	Questions
Q1	Are the aims clear?
Q2	Does it achieve its aims?
Q3	Is it relevant?
Q4	Is it clear what sources of information were used to compile the publication (other than the author or producer)?
Q5	Is it clear when the information used or reported in the publication was produced?
Q6	Is it balanced and unbiased?
Q7	Does it provide details of additional sources of support and information?
Q8	Does it refer to areas of uncertainty?

Appendix B

Online Resources and Source Location

Online resources	Source location
American College of Radiology	https://www.acr.org/
American Speech-Language-Hearing Association (ASHA)	https://www.asha.org/
ASHA Practice Portal	https://www.asha.org/Practice-Portal/Clinical-Topics/Adult-Dysphagia/
ASHA SIG 13 Community Page	https://community.asha.org/communities/community-home/digestviewer?communitykey=ad8b6d54-44e7-4f7b-a33a-3e9bf5766a44&tab=digestviewer
ASHA Special Interest Group 13, Swallowing and Swallowing Disorders (Dysphagia)	https://www.asha.org/SIG/13/
Ciao Seminars	https://www.ciaoseminars.com/home/
Down the Hatch	https://podcasts.apple.com/us/podcast/down-the-hatch-the-swallowing-podcast/id1263588769
Dysphagia Café	https://dysphagiacafe.com/blog-dysphagia/
Dysphagia Journal Homepage	https://www.springer.com/journal/455?detailsPage=aboutThis&gclid=EAIaIQobChMIjYC6_pfC5QIVjZOzCh0QJgT7EAAYASAAEgIhdvD_BwE
Dysphagia Ramblings	https://dysphagiaramblings.net/
Dysphagia Research Society	https://www.dysphagiaresearch.org/default.aspx
Dysphagia Squad Facebook Page	https://www.facebook.com/groups/343282762350392/
Expiratory Muscle Strength Training 150	https://emst150.com/
International Dysphagia Diet Standardisation Initiative	https://iddsi.org/
Mayo Clinic	https://www.mayoclinic.org/
MedBridge Education	https://www.medbridgeeducation.com/
MedSLP Collective	https://medslpcollective.com/
MedSLP Forum Facebook Page	https://www.facebook.com/groups/medicalslpforum/
MedSLP Mentoring Facebook Page	https://www.facebook.com/groups/medslpmentoring/
Modified Barium Swallow Impairment Profile	https://www.mbsimp.com/
National Foundation of Swallowing Disorders	https://swallowingdisorderfoundation.com/
Northeast Mobile Swallow & Speech Services	https://swallowingdisorders.com/
Northern Speech Services	https://www.northernspeech.com/
Passy-Muir	https://www.passy-muir.com/
Shaker4Swallow	https://shaker4swallowingandfeeding.com/
Speech Pathology	https://www.speechpathology.com/
Swallow Your Pride	https://www.mobiledysphagiadiagnostics.com/podcast-3/
Swallowing Training and Education Portal	https://www.stepcommunity.com/
University of Wisconsin School of Medicine and Public Health Voice and Swallow Clinic Lecture Series	https://cme.surgery.wisc.edu/courses/voice
VitalStim Facebook Page	https://www.facebook.com/pages/category/Medical-Service/Vital-Stim-Feeding-and-Swallowing-Therapy-224618984217763/