

Scientific production on oropharyngeal dysphagia in elderly in Brazilian journals: a bibliometric analysis

Produção científica sobre disfagia orofaríngea em idosos nos periódicos brasileiros: uma análise bibliométrica

Producción científica sobre la disfagia orofaríngea en adultos mayores en periodicos brasileños: analisis bibliométrico

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Abstract

Objective: To analyze the profile of the scientific production of oropharyngeal dysphagia in the elderly in Brazilian journals, from 1995 to 2015. **Method:** This is a literature review, descriptive, with bibliometric analysis. The search was carried out from the intersection of strategy descriptors (MeSH): “old,” “swallowing disorders” and “aging” and free term “dysphagia”, applying then the selectivity to the inclusion criteria. The variables group was: relating to the identification of the publication, characteristics of the authors, study type and bibliometric aspects. The data were submitted to descriptive analysis. **Results:** 9987 articles were identified, 9827 were excluded for not meeting the inclusion criteria, and 43 were selected for the final reading of the full text and bibliometric analysis. The institutions that had a greater number of studies are in the Southeast region of Brazil, as well as its authors; the approach of the study was mainly quantitative, followed by mixed approach; the type of study most found was the cross and the samples concentrated between 20 and 39 participants. Journals with the most publications were specialized in Speech, Language and Hearing Sciences. **Conclusions:** In this study, it was found

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a large polarization of the publications in the Southeast, especially in public universities in the state of São Paulo. There is a predominance of the quantitative approach and cross-sectional studies, with greater scientific production on the subject in the field of Speech, Language and Hearing Sciences.

Keywords: Deglutition disorders; Aged; Aging; Bibliometrics.

Resumo

Objetivo: Analisar o perfil da produção científica sobre disfagia orofaríngea em idosos nos periódicos brasileiros, no período de 1995 a 2015. **Método:** Trata-se de uma pesquisa de revisão bibliográfica, de tipo descritiva, com análise bibliométrica. A busca foi realizada a partir da estratégia de cruzamento dos descritores “idoso”, “transtornos de deglutição” e “envelhecimento” e do termo “disfagia”, aplicando, em seguida, a seletividade para os critérios de inclusão. Foram considerados quatro grupo de variáveis: identificação da publicação, características dos autores, tipo de estudo e aspectos bibliométricos. Os dados foram submetidos à análise descritiva. **Resultado:** Foram identificados 9987 artigos, sendo excluídos 9827 por não cumprirem os critérios de inclusão, sendo selecionados 43 artigos para leitura final do texto completo e análise bibliométrica. As instituições com maior número de estudos se encontram na região Sudeste do Brasil, assim como seus autores; a abordagem dos estudos foi majoritariamente quantitativa, seguida da abordagem mista; o tipo de estudo mais encontrado foi o transversal e as amostras concentradas entre 20 e 39 participantes. Os periódicos com maior número de publicações foram os especializados em Fonoaudiologia. **Conclusão:** Neste estudo constatou-se grande polarização das publicações na Região Sudeste, em especial nas universidades públicas do estado de São Paulo. Houve predomínio da abordagem quantitativa e de estudos transversais, com maior produção sobre o tema na área da Fonoaudiologia.

Palavras-chave: Transtornos de deglutição; Idoso; Envelhecimento; Bibliometria.

Resumen

Analizar el perfil de la producción científica sobre la disfagia orofaríngea en adultos mayores en la literatura brasileña, de 1995 a 2015. **Método:** Se trata de una revisión bibliográfica, descriptiva, con análisis bibliométrico. La búsqueda se llevó a cabo a partir de la intersección de los descriptores “adulto mayor”, “trastornos de la deglución” y “envejecimiento” y del término “disfagia”, aplicando a continuación, la selección para los criterios de inclusión. Cuatro grupo de variables fueron considerados: identificación de la publicación, características de los autores, tipo de estudio y aspectos bibliométricos. Los datos se sometieron a análisis descriptivo. **Resultados:** Se identificaron 9.987 artículos, 9.827 fueron excluidos por no cumplir con los criterios de inclusión, y se seleccionaron 43 artículos para la lectura final del texto completo y el análisis bibliométrico. Las instituciones con mayor número de estudios se encuentran en la región sudeste de Brasil, así como sus autores; el enfoque de los estudios fue principalmente cuantitativa seguido de enfoque mixto; el tipo de estudio más encontrado fue el transversal y las muestras concentradas entre 20 y 39 participantes. Los periodicos con mayor numero de publicaciones fueron los especializados en Fonoaudiologia. **Conclusión:** En este estudio se encontró una gran polarización de las publicaciones en la region sudeste, especialmente en las universidades públicas en el estado de Sao Paulo. Hubo un predominio de enfoque cuantitativo y estudios transversales con un mayor producción sobre el tema en el área de la Fonoaudiologia.

Palabras clave: Trastornos de la deglución; Adulto mayor; Envejecimiento; Bibliometría.

Introduction

The Brazilian older adult population growth has aroused the interest of professionals regarding geriatric care.¹ In this sense, understanding the physiological changes resulting from aging have been the focus of study in the health area.²

In aging, there are natural changes in the functioning of swallowing dynamics and more often, specific diseases or degenerative conditions that can interfere with this functional appearance, as an example, stroke, head injury, head and neck cancer, brain tumors and dementia.³⁻⁴ This whole scenario can make swallowing less efficient in older adults, contributing to the emergence of oropharyngeal dysphagia.⁵

Swallowing characteristics of older adults are diverse and include difficulties in bolus control and intake, decreased masticatory force, increase of the amount of tongue connective tissue, residue accumulation, paresis of the pharyngeal muscles, reduction of the degree of elevation of the larynx, delay at the beginning of hyolaryngeal excursion, need for multiple swallows, higher cough incidence, polyphase laryngeal movements, increased likelihood of aspiration after swallowing and increased duration of esophageal phase.⁶ In addition to the anatomical and physiological aspects, changes to socialization and to the pleasure to feed themselves should also be considered.⁷

In Brazil, the engagement of researchers with oropharyngeal dysphagia started to occur with greater emphasis in the 90s, the period in which the discussions on specialties in the field of Speech-Language and Hearing Sciences were emphasized, culminating in the release of the first resolution on the subject in 1996, which established Oral Motricity as a Speech-Language and Hearing Sciences specialty area⁸ and, further, would split at Dysphagia as a specialty, as a resolution of the Speech-Language and Hearing Sciences Federal Council in the year 2010.⁹

In spite of the strong scientific production, recently it has taken a greater proportion; there is still the need for a lot of investment, study and dedication to the subject.¹⁰ In this context, the bibliometric reveals itself as an option to be used as a methodology for obtaining indicators of evaluation of scientific production, as it analyzes the scientific productivity by means of quantitative study and

aims to develop indicators that can translate today's panorama.¹¹⁻¹²

Thus, this study focuses to analyze the profile of scientific literature on dysphagia in older adults in Brazilian journals between January 1995 and December 2015.

Method

This is a literature review, descriptive, with bibliometric analysis of scientific production of Brazilian journals between January 1995 and December 2015, indexed in Medline, LILACS and SciELO. Adopted inclusion criteria were original articles, review articles, case studies, case series, essays, articles of opinion, update, discussion and brief communication, published in national journals during the period described. Exclusion criteria were annals of congress, reviews, editorials, letters to the editor, dissertations and theses.

The search was performed on each database separately, in Portuguese, based on the strategy of crossing official health sciences descriptors (MeSH) and the free term “dysphagia”, this being used due to the relevance of the topic addressed in this study. The crosses were as follows: “older adult versus swallowing disorders”; “older adult versus dysphagia”; “older adult versus swallowing disorders” and “older adult versus dysphagia”, applying then the selectivity in accordance with the inclusion criteria.

The collection in the databases was performed by two researchers and in case of doubt it was discussed with a third investigator for a consensual decision. This study included four groups of variables, according to a previous study.¹³ Publication identification, authorship, study type and bibliometric characteristics. The first step was reading the title and abstract, and then reading the full text until reaching the final number of included articles.

Regarding to identification information, it was considered the year of publication, region and state in which the studies were conducted. The variables relating to authorship were number of institutions involved, the number of authors per article and financing. In addition, information was collected on the education of the first author.

In order to learn the education of the authors, the resumes in the Lattes Platform were surveyed, and in case of having more than one degree, it was considered the most linked to the theme of

the article. Specific information about the work was obtained by reading the abstract and full text. Information related to the approach were also collected (quantitative, qualitative and mixed), study design (case study, cross-sectional cohort, clinical trial, ecological, case-control review, translated / validated questionnaires) the total sample number on each study (for review studies, the sample was considered as the number of articles analyzed in this study), and journals in which the studies have been published.

Results

In the period from 1995 to 2015, 9987 articles were identified. Of these, 9827 were excluded for not meeting the eligibility criteria. In all, 43 articles were selected for final reading of the full text and bibliometric analysis, according to the flow shown in Figure 1.

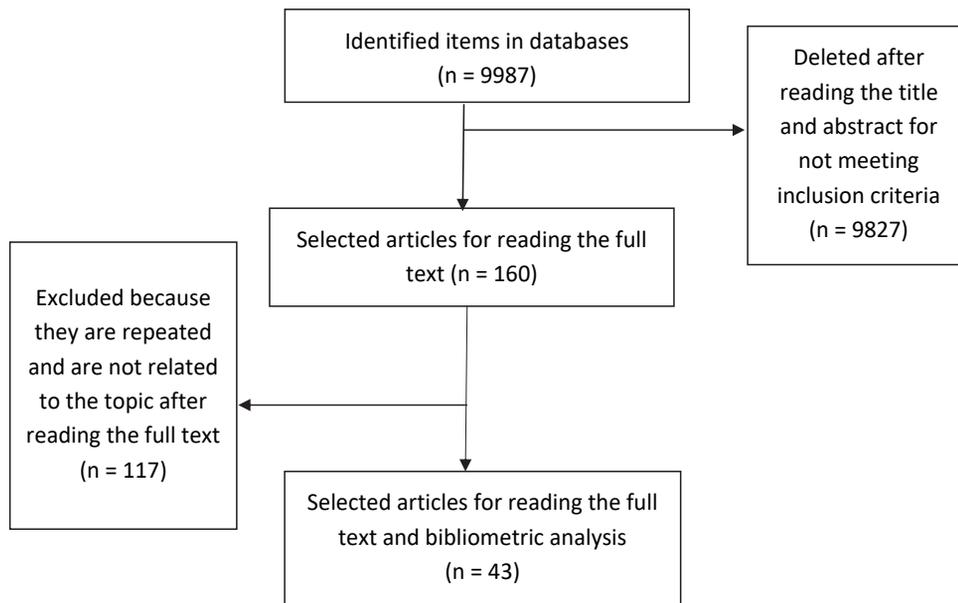


Figure 1. Flowchart for selection of dysphagia studies in older adults published between 1995 and 2015.

Table 1 shows the results of variables related to the authorship of articles, with the exception of the region and state variable that, in this case, refers to the location of the study. The Southeast region stands out with the largest number of manuscripts, unlike the northern region that showed no publication on the subject during the study period. The state of São Paulo leads with a large advantage in number of publications, with its production almost doubled between the first and second period considered in this review.

Authors who have published more were linked to the Federal University of São Paulo (UNIFESP) and University of São Paulo (USP), with emphasis on studies conducted by three or four authors, these being, in their majority, speech-language and hearing scientists. The analysis of the institutions that produced the manuscript was made in accordance with the binding of each author and by the inter-institutional studies; the total number of this variable was above the total of publications found.

Table 1. Descriptive analysis of the variables related to studies authorship on dysphagia in older adults published in Brazilian journals between 1995 and 2015.

Variables	1995-2005		2006-2015		TOTAL	
	n	%	n	%	n	%
Region						
North	0	0	0	0	0	0
Northeast	0	0	2	6	2	5
Midwest	0	0	1	3	1	2
Southeast	9	90	21	64	30	70
South	1	10	6	18	7	16
Uninformed	0	0	3	9	3	7
State						
Sao Paulo	9	90	16	49	25	59
Rio Grande do Sul	1	10	3	9	4	9
Rio de Janeiro	0	0	4	12	4	9
Minas Gerais	0	0	1	3	1	2
Paraná	0	0	3	9	3	7
Distrito Federal	0	0	1	3	1	2
Alagoas	0	0	2	6	2	5
Uninformed	0	0	3	9	3	7
Institutions						
USP	2	13	8	18	10	17
UFRJ	0	0	2	4	2	3
PUC-SP	4	27	4	9	8	14
UNCISAL-AL	0	0	2	4	2	3
UNIFESP	5	33	5	11	10	17
UNESP	1	7	5	11	6	10
Others	3	20	19	43	22	36
Number of institutions						
1	7	64	20	63	27	62
2 or more	4	36	12	37	16	38
Number of authors						
1 - 2	0	0	8	24	8	19
3 - 4	7	70	15	45	22	51
5 or more	3	30	10	31	13	30
Financing						
Yes	1	10	1	3	2	4
No	9	90	32	97	41	96
1st author education						
Speech, Language and Hearing	8	80	23	70	31	72
Nutrition	0	0	4	12	4	9
Medical	2	20	5	15	7	17
Dental	0	0	1	3	1	2

Table 2 shows the approach, design and working sample. The approach was mainly quantitative, then followed by mixed approach; both progressive increase in the number of publications in the two periods. Cross-sectional studies were more frequent and tripled in number in this period. Most studies showed concentrated sample between 20 and 39

participants, with a progressive increase of this number over the studied period.

Figure 2 presents the journals with a greater number of manuscripts on the subject. In this context, the journal "Distúrbios da Comunicação" leads and keeps its average of publications between the first and the second decade of the study. Second

Table 2. Descriptive analysis of the variables related to the methodological aspects of studies on dysphagia in older adults published in Brazilian journals in the period between 1995 and 2015.

	1995-2005		2006-2015		TOTAL	
	n	%	n	%	n	%
Approach						
Quantitative	3	30	18	55	21	49
Qualitative	4	40	5	15	9	21
Mixed	3	30	10	30	13	30
Study Design						
Cross-sectional / Case series (observational)	8	80	25	70	31	73
Review	0	0	1	3	1	2
Case series (intervention)	1	10	3	9	4	9
Case study	1	10	3	9	4	9
Group control	0	0	3	9	3	7
Sample						
1 to 19	4	40	8	25	12	28
20 to 39	2	20	12	36	14	33
40 to 59	0	0	6	18	6	14
60 to 79	0	0	3	9	3	7
80 to 99	0	0	0	0	0	0
100 or more	4	40	4	12	8	18

in the number of publications is the “Jornal da Sociedade Brasileira de Fonoaudiologia / CoDAS”, followed by the “Revista Brasileira de Geriatria e Gerontologia”, “Arquivos de Gastroenterologia”

and “Arquivos de Neuropsiquiatria” with the same number of publications on the subject. Journals that had only one publication during the study period were classified as “other.”

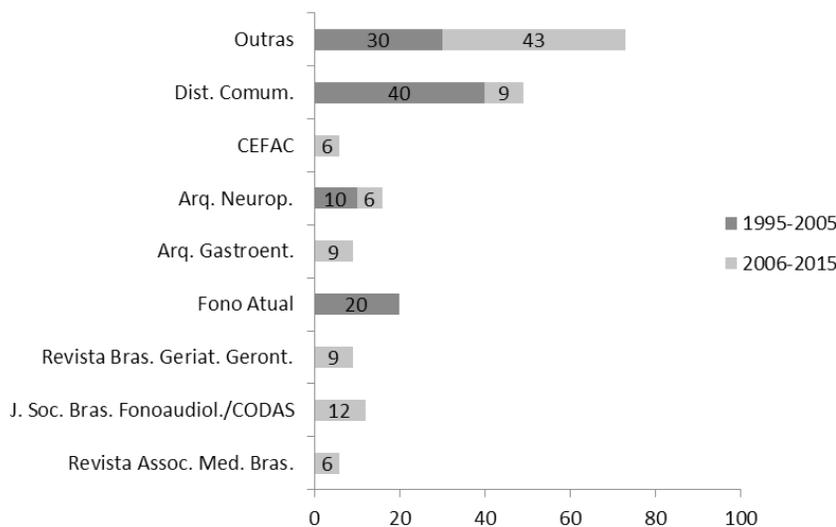


Figura 2. Percentage distribution of publications on dysphagia in older patients according to the national periodical in the period from 1995 to 2015.

Discussion

In this study, it was found that the highest number of publications was concentrated in the Southeast and in the state of São Paulo. In addition, the number of publications in these locations approximately doubled between the two decades investigated, unlike the northern region that showed no publication on that period.

A close relationship is identified between the publication of these manuscripts and higher education, and especially with graduate programs, this fact corroborates the development of universities in a localized and centralized way in our country, especially in the Southeast.¹⁴ This scenario is justified by the fact that higher education in Brazil began a more systematic organization in 1934 with the establishment of the University of São Paulo. This scenario reflects a recent historical condition in the context of education, and the development of other institutions concentrated in this region.¹⁴⁻¹⁵

The concentration of studies in the Southeast region and especially in the state of São Paulo, seems to be the result of a significant pole of universities and colleges installed. According to Ministry of Education (MEC)¹⁶, the Southeast region includes 49% of all Brazilian HEI (Higher Education Institution). On the other hand, the North region is the lowest concentration of institutions, accounting for only 6% of the entire country. The Northeast has 432 HEI, representing 18% of the total, thereby assuming the second highest number of HEI, especially due to recent investment phenomenon in higher education in the region¹⁷; still in the Northeast, HEI are concentrated in state capitals, especially in Sergipe and Piauí, 86% and 70% of its total HEI located in capitals, respectively. The Northeast region is followed by the South and Midwest Regions, consecutively.

As for the institutions that most produced, also highlighted the HEIs of São Paulo, as once again the concentration of the publications is in universities of this state.

It was observed that most authors were linked to USP and UNIFESP, both with the same number of publications. The latter keeps the courses offered in the area of health¹⁸ and since 2005 has the support of local governments and resources from the federal government expansion program. In addition, it increased its number of teachers with doctorate as minimum titration and began offering new courses,

which are based on modern pedagogical projects and allow for greater curricular flexibility; resulting therefore in greater incentive to new research.¹⁸

Important fact is that UNIFESP remained with similar number of publications on the subject between the first and second study periods, while USP quadrupled its number of publications between periods.

According to the THE (Times Higher Education) ranking¹⁹, released in 2015, among the top rated 800 universities, 17 are Brazilian. The list includes institutions from 70 countries and represents 4% of the global academic elite. USP was framed in the qualifying range 201-250, leading the Brazilian and Latin American higher education. UNIFESP, however, was not present in this ranking.

Even in this light, compared to the number of institutions involved, according to the authors, it is important to note that most of the studies involved only one institution, followed by studies involving two or more distinct institutions. It is noteworthy that in both cases the manuscripts almost tripled between the first and second decade of the study.

This profile suggests evolution toward a production model of collective and collaborative knowledge, to the extent that the various producers participate in arrangements, networks and alliances between academia, business and the public sector.²⁰ This model implies a new agreement between academia and society in which different social actors such as companies, public authorities and NGOs start to exercise a more active and direct role in the production of knowledge.²¹

Regarding the number of authors per study, it was found most articles were published with three or four authors, followed by the manuscripts with five or more authors, and a small amount authored by two authors. This scenario is justified due to a growing trend of integration between different authors and knowledge formation. Authors report that the ability to create the authors' knowledge is directly related to their interaction with other actors in the process of learning and collective knowledge exchange.²⁰

Learning through cooperation and building mutual confidence also grows with evolving relationships. These elements are a shared resource that tends to overcome any antagonism with the preparation of projects and integrated programs.²⁰

Although the majority of publications have been with three or four authors, it is important to

be aware of the fact that the number of publications with only one or two authors was the highest growth between the decades, followed by studies with five or more authors.

Regarding to the methodology of the studies analyzed, most of them presented a quantitative, cross-sectional approach with small samples of 20 to 39 subjects. Quantitative research allows the measurement of opinions, reactions, habits and attitudes of a particular universe²² and has been widely used in research with the older adult population, aiming greater convenience and flexibility, not requiring a large space of time, frequency and attendance of participants to the method.

Older adults, generally, do not have good adherence to treatments and studies which require long period of time and regular follow-ups, because of factors such as difficulty of access and mobility, extended time for assistance and consultation, social problems, the presence of disease and lack of inclusion of family members in guidance and monitoring; which in turn decreases the chances of adhesion to the qualitative method. This fact becomes even more frequent in older adult patients with swallowing disorders, which for the most part, do not recognize their difficulty or inability to swallow, and do not seek specialized treatment.

However, it is worth noting that the qualitative method is useful and necessary to identify and explore the meanings of the phenomena studied and interactions established, thus enabling to stimulate the development of new insights into the variety and depth of social phenomena²³. The approaches can be complementary, aiming to minimize the subjectivity and the approximation of the object of study and researchers, and providing greater reliability to data²⁴

Another issue concerns the conditions of research by randomized clinical trials in which often occurs excessive control on the sample, not portraying routine conditions, which greatly hinders the adhesion of the elderly population. Thus, the findings from randomized clinical trials can be complemented by transverse studies.²⁵

The cross-sectional study represents a cut snapshot of the population by means of a sampling, by examining the members of the sample or casuistry, the presence or absence of exposure and the presence or absence of the effect (or disease). The method has as main advantage the fact that it is inexpensive, and by virtually no loss to follow-

up²⁶, a fact that would justify the vast majority of studies on this proposal, including frequency tripled between the two decades considered in this review. Moreover, in this type of study there is a follow-up period, which may represent a safer option for researchers in terms of losses, whereas the older adult population is closer to the finitude and with increased susceptibility to decease.²⁷

Another aspect concerns the financial support for studies. In regard to articles published with financial support, the numbers represented in this study are unfortunately low, represented by a tiny portion of the publications in the two decades of the study. This scenario demonstrates the still insufficient incentive to the publishing of new researches, justified, in part, due to public funding having begun their significant development only from the 1990s, still making the promotion of research insufficient.²⁸

In Brazil, one of the biggest obstacles to the development of research is the high cost of implementation of quality projects as well as the demand of time and dedication of the researchers, who generally do not receive compatible grants or scholarships to devote themselves exclusively to projects.²⁹

These studies become even more costly when performed with the older adult population, as for their vulnerability, functional and physical limitations, and especially in older adult patients with swallowing disorders, because these require greater resources for the evaluation and treatment. Clinical assessment, on the other hand, comprises issues related to eating habits, medications, dental aspects, orofacial muscles, stomatognathic structures and functional evaluation of swallowing in different consistencies. In addition, it uses tests like video-fluoroscopy, in order to compare their results to the clinical evaluation, or even the swallowing endoscopy, a comparative analysis or only this examination as instrumental evaluation.³⁰ The lack of resources to cover these costs remains present during therapy and interferes in the achievement of this type of study in this population. These costs are still present during the rehabilitation process and increasingly undermine the execution of these studies.

Regarding the education of the first author, Speech, Language and Hearing Sciences leads with wide margin the authorship of publications, which is justified by being the “dysphagia” and “Geron-

tology” specialty areas recognized by the Speech, Language and Hearing class council, awakening increased interest on these topics. Moreover, it is important to note that other areas of expertise come in descent in the number of publications on the subject, like Nutrition, Dentistry and Medicine, especially Gastroenterology and Otolaryngology, as are areas of common interests with speech therapy in several respects.

In relation to the number of publications by journals on the subject, the “Distúrbios da Comunicação” totaled the greatest number of published studies, despite maintaining its number of nearly identical manuscripts between the two decades studied. This journal is a scientific publication of the undergraduate and postgraduate Speech, Language and Hearing Sciences programs and DERDIC (Division of Education and Rehabilitation of Communication Disorders) of PUC-SP.

Among the journals that published on the subject, the two with the highest number of manuscripts are of Speech, Language and Hearing pathology, another is a specialized periodical that publishes under the Geriatrics and Gerontology scope and others have medical approach, but with the association inherent in Speech, language and Hearing Sciences issues.

It is worth noting that the growth of scientific production needs greater engagement from various fields for the production of knowledge. The productions need more encouragement and incentive, as the number of publications on the subject in national journals is still too low compared to international journals. Due to the lack of stimulation and visibility of national journals, the authors prefer to publish their studies in international journals of greater impact and recognition, which strengthens progressively greater discredit of national journals.

Conclusion

In this study, there was a great polarization of publications on dysphagia in older adults in the Southeast of Brazil, especially in public universities in the State of São Paulo.

The approach of quantitative studies was mainly followed by the mixed approach and the predominant type of study was cross-sectional. The scientific literature on the subject shows greater production of manuscripts in the area of Speech, Language and Hearing Sciences, as “dysphagia”

and “Gerontology” are expertise fields recognized by Class Councils.

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