

# Research trends on dysphagia among Korean older adults in long-term care facilities: A scoping review

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**Purpose:** This scoping review aimed to identify the research trends for dysphagia among older Korean adults in long-term care facilities. **Methods:** A literature search was performed using Korean Studies Information Service System, Research Information Sharing Service, ScienceON, Cumulative Index to Nursing and Allied Health Literature, and PubMed. A total of 1,395 articles were identified, and 10 articles were selected for the final analysis. Two reviewers independently performed the study selection and extraction using pre-tested forms to confirm those for final inclusion. **Results:** Most of the studies were published between 2011 and 2014. The quasi-experimental design was most frequently applied. The Gugging Swallowing Screen was the most widely used assessment tool. All studies, including dysphagia intervention programs, involved oral and facial exercise programs. In addition, they all used swallowing-related outcome variables to assess the effectiveness of the interventions. **Conclusion:** Additional studies on dysphagia among older Korean adults in long-term care facilities should be conducted, and various interventions and assessment tools should be developed and implemented. This study is anticipated to establish a fundamental foundation for further dysphagia-related research and help improve the quality of life of Korean older adults in long-term care.

**Keywords:** Aging; Deglutition disorders; Nursing homes; Review

## INTRODUCTION

### 1. Background

In the Republic of Korea, the population of adults aged 65 years and older is approximately 9.5 million, accounting for 18.4% of the total population in 2023 [1]. It is expected to reach 20.6% by 2025 and 46.4% by 2070 [1]. Owing to the increase in the older adult population and the social burden of various health and care problems, the number of older adults in long-term care facilities is also increasing [1,2].

Due to aging, older adults experience changes in throat structure and swallowing mechanisms, and a decline in physiological functions, leading to a gradual decrease in swallowing

ability [3]. Dysphagia, a swallowing disorder occurring in the oral cavity, pharynx, and esophagus [4], is primarily observed in older adults [5]. Of the beneficiaries using long-term care services, 70.4% are adults aged over 80 years [6]; since long-term care facilities accommodate older adults with neurological diseases such as stroke and dementia, which are closely related to dysphagia [7], dysphagia is a significant issue. Moreover, over half of the older adults in long-term care facilities experience dysphagia [8,9].

These swallowing difficulties negatively affect the health, nutrition, skin condition, and mortality rates of older adults in long-term care facilities [10,11]. If dysphagia persists, it can lead to complications such as malnutrition, dehydration, aspiration pneumonia, and even death [12], thus significantly af-

fect the quality of life of these individuals [13]. Therefore, early detection and intervention of dysphagia in older adults in long-term care facilities are crucial for reducing aspiration risks, improving swallowing function and nutritional status, and enhancing the quality of life related to dysphagia [14,15].

Accordingly, research on dysphagia in older adults in long-term care facilities has been conducted internationally including quantitative studies on the causes and prevalence of dysphagia [16], identifying influencing factors [10], assessments, and interventions for dysphagia [17], scoping reviews [18,19], systematic reviews [20], and qualitative research [21]. According to international studies, the major factors related to dysphagia in older adults include aspiration, history of pneumonia or myocardial infarction, oral medications, Parkinson's disease, weight loss, and malnutrition [10,16,20], with prevalence rates ranging from 15% to 70% [18]. Interventions for dysphagia include exercise, diet and mealtime adjustments, stimulation of taste and smell, postural adjustments, and oral care [19]. Safe swallowing techniques and emotional support are also crucial in managing dysphagia in older adults in long-term care facilities [21].

However, relatively few studies have been conducted on dysphagia among older adults living in long-term care facilities in the Republic of Korea. Research has primarily focused on dysphagia related to the community [22], community-dwelling older adults [23], hospital inpatients [24], and users of welfare centers [25]. Studies targeting Korean older adults in long-term care facilities began with the research by Park [26], including the development and application of dysphagia intervention programs within facilities [27], the development of assessment tools for dysphagia [28], and surveys on related factors [29]. However, there is a lack of scoping and systematic reviews on this topic. In other words, research has not yet been conducted to understand the trends and characteristics of research related to dysphagia among older adults in long-term care facilities in the Republic of Korea. To date, only a few reviews have been published on dysphagia in older adults with sarcopenia [30], stroke [31], and community residents [22].

Scoping reviews aim to rapidly map key concepts, types of evidence, and research gaps within a specific research area [32]. Therefore, this study used the scoping review method to examine the overall literature on dysphagia among Korean older adults in long-term care facilities.

## 2. Study Purpose

This study aimed to identify the research trends of dysphagia among Korean older adults living in long-term care facilities.

The specific goals of this study were:

- 1) To identify and analyze the trends and characteristics of existing research on dysphagia conducted with Korean older adults in long-term care facilities.
- 2) To establish a fundamental foundation for the development of dysphagia interventions and assessment tools tailored to Korean older adults in long-term care facilities and guide future research.

## METHODS

**Ethic statement:** This study was approved by the Institutional Review Board (IRB) of Ewha Womans University (IRB No. ewha-202310-0005-01).

### 1. Research Design

This review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for coping review (PRISMA-ScR) guidelines [33].

### 2. Population and Data Collection

A scoping review is a method designed to systematically search, collect, and synthesize the literature to map key concepts, types of evidence, and the extent and range of research within a specific research area [34]. This process helps ascertain how research has been conducted and identifies gaps in the existing literature. This study was conducted based on the methodological framework developed by Arksey and O'Malley [32] and further refined by Levac et al. [35] using the Joanna Briggs Institute (JBI) manual for scoping reviews [34]. The sequential steps in a scoping review include 1) identifying the research question; 2) data search; 3) study selection; 4) data extraction; and 5) data analysis, summarizing, and reporting the results. Steps 1) to 4) are described in this METHODS section and Step 5) in the RESULTS section.

#### 1) Research Question

Based on the JBI manual, the research questions were struc-

tured according to population, context, and concept. The population in this study comprised Korean older adults living in long-term care facilities. The context was long-term care facilities in the Republic of Korea under Article 31 of the Elderly Welfare Act, encompassing nursing homes and group homes for older adults. The main concept was dysphagia, and the research question of this study was “How has research on dysphagia among Korean older adults in long-term care facilities been conducted to date?”

## 2) Data Search

### (1) Search strategies

The literature search was conducted from August 11, 2023, to September 11, 2023, utilizing both domestic and international databases. To gain a comprehensive understanding of the topic, no publication year restrictions were applied and the search included the literature up to September 2023. The search was limited to the documents published in Korean or English. The domestic databases used were the Korean Studies Information Service System (KISS), Research Information Sharing Service (RISS), and ScienceON. To include studies from the Republic of Korea that were submitted to international platforms, the international databases Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed were searched.

The search terms included Korean terms for “older adults,” “long-term care facilities,” and “dysphagia,” and their English equivalents such as “aged,” “aging,” “elder,” “elderly,” “geriatric,” and “senior” for older adults, “long-term care,” and “nursing home” for long-term care facilities, and “dysphagia,” “deglutition disorders,” and “swallowing disorders” for dysphagia.

### (2) Inclusion and exclusion criteria

The inclusion criteria were: (1) Korean older adults in long-term care facilities, as defined under Article 31 of the Elderly Welfare Act; (2) studies related to dysphagia; and (3) studies in a domestic context. The exclusion criteria were: (1) studies that could not be assessed from full-text articles and (2) duplicate publications. If a thesis was published in a journal, the journal was excluded to avoid duplication and to confirm the details.

## 3) Study Selection

Following the guidelines for scoping reviews, two researchers independently conducted a literature review and cross-checked to ensure agreement on the final selection of articles. The search across domestic and international databases yielded 142 articles from KISS, 97 from RISS, 26 from ScienceON,

568 from CINAHL, and 562 from PubMed, totaling 1,395 articles. Sixty-six duplicates, and 1,019 non-domestic studies excluded using Endnote software. After screening the titles and abstracts, 282 articles that did not meet the inclusion criteria based on study population, topic, and content were excluded. During the full-text review stage, six unrelated articles, eight articles not focusing on Korean older adults in long-term care facilities, and four journal articles that were duplicates were excluded, resulting in 10 articles selected for final inclusion in this study. Figure 1 presents the selection process.

In cases of disagreement between the two researchers during the study selection phase, discussions to reach consensus were obtained to determine the articles for final inclusion. In the process of reviewing the title and abstract, there were differences in opinions among researchers regarding whether the study subjects met the inclusion criteria; however, in alignment with the inclusion criteria during the title and abstract review, a consensus was reached after a thorough review and discussion of the full texts.

## 4) Data Extraction

For data extraction, EndNote (Clarivate) and Microsoft Excel

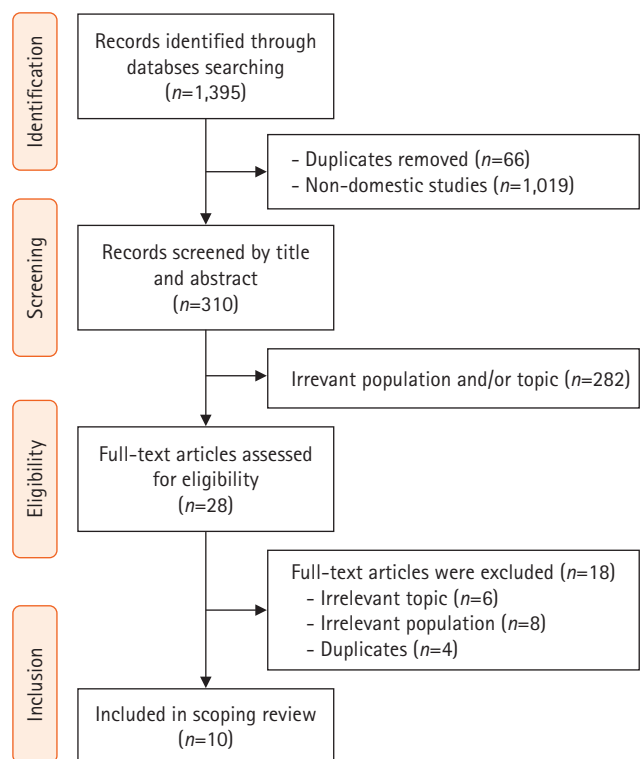


Figure 1. Flow chart of the selection process.

(Microsoft Corp.) were used to organize the main contents according to the predefined forms from the two researchers. Data were extracted independently by each researcher and verified to ensure consistency. The extracted information was categorized and analyzed under three main headings: general characteristics of the literature, topic and content analysis of the literature, and characteristics of dysphagia intervention programs.

## RESULTS

### 1. General Characteristics of the Literature

The final analysis included a total of 10 articles, and their general characteristics are summarized in Table 1. Upon reviewing the publication years of the articles, it was found that research on dysphagia among older Korean adults in long-term care facilities began in 2011. Seven articles [9,26-28,36-38] were published between 2011 and 2014, followed by two articles [15,29] from 2015 to 2018. Since 2018, only one article [39] was identified; the highest number of publications occurred between 2011 and 2014. All the analyzed articles consisted of academic theses and journal publications, with one article [36] listed in the Korean Citation Index, three articles [9,15,37] in the Science Citation Index, and six articles [26-29,38,39] were academic theses. Regarding the study design, there were three descriptive studies [6,26,29], two methodological studies [36,37], four quasi-experimental studies [15,27,38,39], and one study combined methodological and quasi-experimental studies [28]. Most of these were quasi-experimental studies, and all the analyzed articles were within

the academic field of nursing.

### 2. Topic and Content Analysis of the Literature

For the analysis of topics and content within the included articles, the data were categorized by author(s), year of publication, study design, study aims, participants, instruments used for dysphagia evaluation, and key findings (Table 2). Research on dysphagia among Korean older adults in long-term care facilities began in 2011 with a study [26] exploring the prevalence and related factors of dysphagia, followed by a study [28] on the development of dysphagia assessment tools and intervention programs, and an evaluation of their effectiveness. Subsequent research has addressed the prevalence and related factors of dysphagia, dysphagia assessment, the development of nursing protocols, and dysphagia intervention programs. In 2022, a study [39] was conducted to verify the effects of a swallowing training program for older adults with dysphagia after stroke in a long-term care facility.

The participants in the selected articles were exclusively older adults in long-term care facilities, with the number of residents ranging from 34 to 395, and three articles [27,38,39] specifically targeted older adults with stroke. The Gugging Swallowing Screen (GUSS) was the most frequently used instrument for dysphagia evaluation in six articles [9,15,26,27,36,38]. The Swallowing Symptom Questionnaire and Iowa Oral Performance Instrument were used in two studies [38,39]. Other tools included warning signs and symptoms in one article [9], the Functional Oral Intake Scale in one article [39], a newly developed dysphagia assessment tool in one article [28], and its application in another article [29].

In the key findings from three descriptive studies [9,26,29] and one methodological study [37], the prevalence of dysphagia in long-term care facilities in the Republic of Korea was 43.5% [26] and 52.7% [9]. Factors associated with dysphagia included nutritional and functional status, dependence in eating behavior, age over 75 years, male sex, dementia, and severe functional decline [9,26,29]. Additionally, the Korean version of the Standardized Swallowing Assessment was identified as a sensitive and reliable tool for evaluating dysphagia [37].

### 3. Characteristics of Dysphagia Intervention Programs

Six articles [15,27,28,36,38,39] included dysphagia intervention programs. These articles were analyzed based on interven-

Table 1. Characteristics of Included Studies (N=10)

Variable	Category	n (%)
Year of publication	2011~2014	7 (70.0)
	2015~2018	2 (20.0)
	2019~2023	1 (10.0)
Journal status	KCI	1 (10.0)
	SCI	3 (30.0)
	Dissertation	6 (60.0)
Study design	Descriptive	3 (30.0)
	Methodological	2 (20.0)
	Quasi-experimental	4 (40.0)
	Methodological+quasi-experimental	1 (10.0)
Academic field	Nursing	10 (100.0)

KCI=Korean citation index; SCI=Science Citation Index.

**Table 2.** Summary of Included Studies (N=10)

Reference No.	Author(s) (year)	Study design	Study aims	Participation	Instrument for dysphagia evaluation	Key findings
26	Park JA (2011)	Descriptive	Provide preliminary evidence regarding the prevalence and related factors of dysphagia at long-term care facilities.	177 Nursing home residents	■ GUSS	■ The prevalence of dysphagia was 43.5% in the long-term care facilities and nutritional state and functional state were related to dysphagia.
28	Kim CY (2011)	Methodological+qualitative+experimental	Develop dysphagia assessment tool and intervention program for elderly in the long-term care facilities and evaluate its effect.	50 Nursing home residents -Exp. (n=25) -Cont. (n=25)	■ Dysphagia Assessment Tool	■ After the application of the dysphagia assessment tool and intervention program, the weight was increased, and the total time of swallowing was reduced in the experimental group.
9	Park YH et al. (2013)	Descriptive	Evaluate the prevalence of dysphagia in nursing home residents and identify factors associated with dysphagia.	395 Nursing home residents	■ GUSS ■ Warning symptoms and signs*	■ The prevalence of dysphagia was 52.7% among Korean nursing home residents, and older adults aged 75 years or older, males, and those with dementia or severe functional decline were particularly vulnerable.
36	Bang HL and Park YH (2013)	Methodological	Develop an evidence-based dysphagia care protocol for nursing home residents, validate its clinical effectiveness, and assess the reduction in dysphagia risk after implementing the protocol.	69 Nursing home residents -Exp. (n=35) -Cont. (n=34)	■ GUSS	■ The developed dysphagia nursing care protocol was clinically feasible and effective in improving the swallowing function of nursing home residents with dysphagia and reducing the incidence of dysphagia-related complications.
27	Han MS (2013)	Quasi-experimental	Investigate effects on swallowing function following visual stimulation and swallowing promotion exercises before meals for elders with swallowing difficulties following stroke.	69 Nursing home residents with stroke -Exp. (n=34) -Cont. (n=35)	■ GUSS	■ There were no significant differences between the experimental and control groups in GUSS score, body weight, total caloric intake, but self-efficacy for swallowing showed a significant improvement.
37	Park YH et al. (2014)	Methodological	Validate a screening tool for nurses to identify dysphagia and aspiration risk in nursing home residents.	395 Nursing home residents	■ K-SSA	■ The K-SSA tool is sensitive and reliable to discern whether older adults need further evaluation for dysphagia and customized care plans for nutrition.
38	Bang HL (2014)	Quasi-experimental	Develop a training program for swallowing and test its effect on swallowing capacity and nutritional status among nursing home residents with stroke.	34 Nursing home residents with stroke -Exp. (n=16) -Cont. (n=18)	■ GUSS ■ SSQ ■ IOPI	■ The experimental group showed better scores in dysphagia screening and SSQ and a significant increase in tongue pressure.
15	Park Y et al. (2015)	Quasi-experimental	Examine the effect of the ENCAD on the oral health, risk of aspiration and dysphagia-specific quality of life among nursing home residents.	40 Nursing home residents	■ GUSS	■ The ENCAD can lead to significant improvement in health outcomes particularly in reducing risk of aspiration as well as enhancing dysphagia-specific quality of life.
29	Won JB (2018)	Descriptive	Investigate the subjective oral health status, dependence of eating behavior, and nutritional status of elderly individuals with dysphagia in nursing facilities.	102 Nursing home residents	■ Dysphagia Assessment Tool by Kim [28] (2011)	■ Eating behavior dependence was significantly higher with dysphagia, but there was no significant difference in oral health and nutritional status related to dysphagia.
39	Kim HS (2022)	Quasi-experimental	Verify the effects on swallowing function and depression by applying a swallowing training program for older adults with dysphagia after stroke in a nursing facility.	42 Nursing home residents with stroke -Exp. (n=21) -Cont. (n=21)	■ IOPI ■ SSQ ■ FOIS	■ The program significantly improved the oral motor function, dysphagia, and oral intake function, while there was no significant difference in the level of depression.

\*Wet-sounding voice, drooling, slow swallowing, coughing, difficulty chewing, weight loss, food sticking in the throat, food pocketing, heartburn; cont.=Control group; ENCAD=Evidence-Based Nursing Care Algorithm of Dysphagia; exp.=Experimental group; FOIS=Functional Oral Intake Scale; GUSS=Gugging Swallowing Screen; IOPI=Iowa Oral Performance Instrument; K-SSA=Korean version of Standardized Swallowing Assessment; SSQ=Swallowing Symptom Questionnaire.



tion duration and frequency, intervention sessions per day, intervention contents, and outcome variables (Table 3). The total intervention duration ranged from a minimum of 4 weeks to a maximum of 6 months, with 4 weeks in three articles [27, 28,36], 8 weeks in two articles [38,39], and 6 months in one article [15]. Regarding intervention frequency, less than or equal to 3 days per week was reported in two articles [38,39], and more than 3 days per week in three articles [15,27,36]. One

study [28] did not specify the frequency. For intervention sessions per day, two or fewer sessions were noted in five articles [15,27,36,38,39] and more than two sessions in one article [28].

The intervention contents were classified as exercise, maneuvers, diet and mealtime, stimulation, and other interventions. Exercise interventions included oral/facial exercises in all six articles [15,27,28,36,38,39], head/neck exercise in three articles [15,36,39], body exercise in two articles [27,39], and expiratory

**Table 3.** Characteristics of Dysphagia Intervention Programs (N=6)

Variable	Category	n (%)	Reference No.		
Intervention duration	4 weeks	3 (50.0)	27, 28, 36		
	8 weeks	2 (33.3)	38, 39		
	6 months	1 (16.7)	15		
Intervention frequency	≤3 days per week	2 (33.3)	38, 39		
	>3 days per week	3 (50.0)	15, 27, 36		
	Unkown	1 (16.7)	28		
Intervention session per day	≤2 times per day	5 (83.3)	15, 27, 36, 38, 39		
	>2 times per day	1 (16.7)	28		
Intervention contents*	Exercise	Oral/facial exercise	6 (17.1)	15, 27, 28, 36, 38, 39	
		Head/neck exercise	3 (8.6)	15, 36, 39	
		Body exercise	2 (5.7)	27, 39	
		Expiratory muscle strength exercise	5 (14.3)	15, 27, 36, 38, 39	
	Maneuver	Effortful swallow	3 (8.6)	15, 36, 38	
		Mendelsohn maneuver	1 (2.9)	28	
		Diet and mealtime	Diet modification	3 (8.6)	15, 28, 36
	Stimulation	Mealtime care	3 (8.6)	15, 28, 3	
		Five senses stimulation	1 (2.9)	28	
	Others	Visual stimulation	1 (2.9)	27	
		Positioning	4 (11.4)	15, 27, 28, 36	
		Oral care	3 (8.6)	15, 28, 36	
	Outcome variables*	General_Swallowing-related	Swallowing difficulties	4 (20.0)	15, 27, 36, 38
			Swallowing symptoms	2 (10.0)	38, 39
			Total time of swallowing	1 (5.0)	28
Self-efficacy for swallowing			1 (5.0)	27	
Dysphagia-related quality of life			1 (5.0)	15	
Coughing episodes during meal times			1 (5.0)	27	
Non_Swallowing-related		Nutrition-related	Body weight	2 (10.0)	27, 28
			BMI	1 (5.0)	38
			MAMC	1 (5.0)	38
			Total caloric intake	1 (5.0)	27
		Oral-related	Oral health status	1 (5.0)	15
			Oral intake function level	1 (5.0)	39
			Oral and facial muscle strength	1 (5.0)	39
		Others	Tongue pressure	1 (5.0)	38
			Depression	1 (5.0)	39

\*Multiple choices; BMI=Body mass index; MAMC=Mid arm muscle circumference.

muscle strength exercise in five articles [15,27,36,38,39]. Maneuver interventions included effortful swallowing in three articles [15,35,38] and the Mendelsohn maneuver in one article [28]. Diet and mealtime interventions included diet modification [15,28,36] and mealtime care [15,28,36] in three articles each. Stimulation included five-sense stimulation [28] and visual stimulation [27], whereas other interventions included positioning in four articles [19,27,28,36] and oral care in three articles [15,28,36].

Outcome variables were categorized into swallowing-related and non-swallowing-related variables. Swallowing-related variables included swallowing difficulties in four articles [15,27,28,36], swallowing symptoms in two articles [38,39], and one article each for the total time of swallowing [28], self-efficacy for swallowing [27], dysphagia-related quality of life [15], and coughing episodes during mealtimes [27]. Non-swallowing-related variables were categorized into nutrition-related, oral-related, and other. Nutrition-related variables included body weight [27,28], body mass index [38], mid arm muscle circumference [38], and total caloric intake [27], whereas oral-related variables included oral health status [15], oral intake function level [39], oral and facial muscle strength [39], and tongue pressure [38]. The other variables included depression in one article [39].

## DISCUSSION

This study aimed to identify the research trends and characteristics of studies on dysphagia among Korean older adults in long-term care facilities and explore future research directions using the scoping review method. The number of studies increased between 2011 and 2014, likely because of the increase in the number of older adults in long-term care facilities following the implementation of long-term care insurance in 2008, which underscores the need for management and interventions for dysphagia issues among facility residents. However, there has been a gradual decrease in the number of such studies, especially since 2019, with only one identified by 2022. This finding suggests that there is insufficient research on dysphagia among older Korean adults in long-term care facilities. Given the rapid increase in the number of Korean older adults in long-term care facilities, there is an urgent need for continuous research on the prevalence and management of dysphagia and the development of intervention programs for dysphagia prevention.

Regarding the study design, there were three descriptive studies, two methodological studies, four quasi-experimental studies, and one combined methodological and quasi-experimental study. Among the methodological studies, one developed a protocol and verified it through a quasi-experimental study. Most studies in this review applied a quasi-experimental design and a non-equivalent control group pre- and post-test design. This is believed to have been aimed at conducting a practical study, because it is difficult to apply a true experimental design owing to the living environment of Korean older adults in long-term care facilities [40]. International studies on dysphagia among older adults in long-term care facilities have included various research types, such as scoping and systematic reviews [18-20], survey research [10], and qualitative research [21], whereas domestic research in the Republic of Korea has been limited in its methodological diversity. Hence, it is necessary to actively engage in research concerning dysphagia among older Korean adults in long-term care facilities to expand methodological approaches and deepen our understanding of this issue.

Among the 10 articles analyzed in this study, six included dysphagia intervention programs. Of these six studies, three specifically targeted older adults with stroke in long-term care facilities. This is likely due to the association between neurological conditions such as stroke and dementia and the prevalence of dysphagia [7]. Since older adults with various diseases, such as neurological and geriatric diseases, are admitted to long-term care facilities [7], it is necessary to conduct a study on dysphagia that reflects the disease characteristics of these residents.

In studies that included dysphagia intervention programs, the intervention duration was mostly 4 and 8 weeks, and the intervention frequency was observed to be 3 and 5 days per week. This aligns with the previous literature, which indicates that dysphagia rehabilitation interventions for patients with stroke are typically conducted three to five times per week [41]. To establish the most effective intervention duration, frequency, and sessions for older Korean adults in long-term care facilities, it would be beneficial to conduct several follow-up intervention studies that apply dysphagia interventions to these residents. Thus, it is anticipated that the practical effectiveness of interventions can be measured, and a standardized dysphagia intervention for Korean older adults in long-term care facilities can be systematically established.

Five different assessment tools for dysphagia were identified

in the selected studies that included dysphagia interventions. The most frequently used tool was the GUSS developed by Trapl et al. [42], in 2007, which was used in four studies. The GUSS is a standardized tool for evaluating a patient's food intake status, consisting of five indirect test items and 12 direct test items [42]. The GUSS grades dysphagia, provides evaluations in stages, enables stage-specific food selection and provision, and offers more clinical information than other assessments [43]. Moreover, the GUSS is recognized as a reliable and sensitive tool for assessing dysphagia in older adults residing in long-term care facilities both domestically and internationally [44], as evidenced by its frequent use as an assessment tool for dysphagia in the analyzed studies.

When no dysphagia assessment tool had been developed for nurses in Korean long-term care facilities, one study [28] utilized an investigator-developed tool, and a descriptive study included in this research [29] also used this tool for dysphagia assessment. The tool comprises 20 items across four stages: the pre-oral phase; oral preparatory-oral phase; pharyngeal phase; and esophageal phase, and is designed to evaluate the presence or absence of conditions in each item [28]. The significance of this tool lies in its role in enabling nurses in Korean long-term care facilities to conduct early assessments of dysphagia in older adults and to prevent complications. However, given that nurses are not mandatory staff in Korean long-term care facilities, direct care workers often assume most nursing and care responsibilities [45]. Therefore, the effective utilization of dysphagia assessment tools requires the development of appropriate tools that consider the characteristics of older adults in the facilities as well as the staff, operational conditions, and facility environments.

Regarding the contents of the interventions in studies that included dysphagia interventions, exercise interventions were included in all six studies analyzed. Specifically, oral and facial exercises were included in all studies, followed by expiratory muscle strength exercises. According to previous research, exercise prescriptions of appropriate intensity were effective across all age groups, including adults over 80 years [46], and swallowing programs comprised exercise-based indirect training methods [38]. Furthermore, comprehensive interventions that include oral and respiratory exercises have been effective in alleviating swallowing symptoms [41], and previous studies on dysphagia exercise interventions have also addressed exercise interventions, such as oral/facial and expiratory muscle strength exercises [47]. Therefore, these exercise therapies

should be considered for the intervention of dysphagia in older adults in long-term care facilities. The intervention content was mainly categorized into alignment with exercise, maneuvers, diet and mealtime, stimulation, and oral care. This closely matches the findings of a scoping review [19] conducted on dysphagia in older adults in long-term care facilities abroad.

Patients with dysphagia frequently encounter a variety of speech-related challenges owing to reduced laryngeal function [48]. Vocalization training can facilitate the recuperation of laryngeal function, with singing being particularly effective in enhancing orofacial muscle and respiratory function [49]. Music therapy programs focused on singing have been shown to improve the swallowing function and quality of life of patients with dysphagia, promote physical and emotional recovery, and foster motivation and participation, thereby exerting a positive impact [50,51]. Since interventions for dysphagia that include music therapy have not been attempted in domestic long-term care facilities to date, it may be possible to introduce and evaluate the effectiveness of dysphagia interventions incorporating music therapy, considering the positive outcomes from both domestic and international research [50-52].

All the studies, including dysphagia interventions, used swallowing-related outcome variables to assess the effectiveness of the interventions. Swallowing refers to the action of passing food from the mouth through the digestive tract [53], and issues in the swallowing process can lead to dysphagia, indicating a significant interrelation. Additionally, nutrition-related and oral-related variables were observed, suggesting that dysphagia closely affects nutritional status and oral health [54,55]. One study identified depression as an outcome variable, highlighting that dysphagia not only affects physical health but also psychological, social, and mental health, influencing depression, anxiety, self-esteem, and loneliness [56]. Therefore, when evaluating the effectiveness of dysphagia interventions for older Korean adults in long-term care facilities, measuring outcome variables that reflect the broad impact on the psychological, social, and mental health of residents is recommended. Furthermore, while only one study utilized quality of life as an outcome variable, overseas research has conducted various studies on dysphagia and quality of life among older adults in long-term care facilities. Positive results have been reported, indicating that improving dysphagia-related influencing factors can enhance the quality of life of older adults in facilities [13]. However, research on the quality of life-related to dysphagia in older Korean adults in long-term care facilities re-



mains limited. Therefore, further studies on this topic are warranted.

This scoping review examined research trends for dysphagia among older Korean adults in long-term care facilities. This study not only explored the characteristics of studies related to dysphagia among Korean older adults in long-term care facilities, but also explored various aspects of research, including assessment tools, intervention programs, and outcome variables. These findings provide foundational data for developing dysphagia interventions and assessment tools specifically for dysphagia among Korean older adults in long-term care facilities.

The limitations of this study include the diverse terminology used to describe long-term care facilities and dysphagia; this variability was also present in the searches in the international databases. Despite utilizing multiple search terms, there was a possibility that relevant studies were not included in this review. Furthermore, as this review focused on Korean older adults in long-term care facilities, generalizing these findings to older adults in long-term care facilities outside the Republic of Korea may be limited.

## CONCLUSION

This study was conducted to identify research trends in dysphagia among Korean older adults in long-term care facilities and provide an overview of the existing research, thereby offering foundational data to guide future research directions. Ten studies were included in the analyses. Research began in 2011; however, there has been a noticeable decline, which indicated a lack of research on dysphagia among older Korean adults living in long-term care facilities. Additionally, most of the study designs were quasi-experimental and studies that included dysphagia intervention programs were generally prevalent.

Based on the results of this review, the following recommendations are proposed. First, due to the overall lack of research on dysphagia among Korean older adults in long-term care facilities, there is a need for further studies. Second, it is necessary to derive a comprehensive understanding of dysphagia among older Korean adults in long-term care facilities using various research methodologies. Third, although the dysphagia intervention programs primarily focused on physical exercise, considering that music interventions have been shown to improve swallowing function and quality of life in patients with dysphagia, it may be beneficial to develop programs incorporating various methods, including music interventions.

Fourth, as dysphagia affects not only the physical but also psychological, social, and mental aspects, it is recommended to develop comprehensive interventions and conduct subsequent studies to measure their effectiveness.

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## Authors' contribution

Study conception and design acquisition - SC, DJ, and JP; Data collection - SC and JP; Data analysis and interpretation of the data - SC, DJ, and JP; Drafting and critical revision of the manuscript - SC, DJ, and JP; Final revision - SC, DJ, and JP

## Conflict of interest

Dukyoo Jung has been editor in chief of the Journal of Korean Gerontological Nursing since January 2021. She was not involved in the review process of this manuscript. Otherwise, there was no conflict of interest.

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## Data availability

Please contact the corresponding author for data availability.

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