

A Systematic Review of Oral Health and Care Foods in Elderly Using Senior Center and Welfare Center

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ABSTRACT

This study examines research trends related to oral health and the use of care foods among elderly attending senior centers and welfare centers in Korea. Through an integrative literature review methodology, six studies published in domestic academic journals that met the selection criteria were selected as the final samples for analysis. The selected studies were systematically reviewed to investigate key variables including oral health status, complaints of chewing discomfort, variety of food eating, awareness of care foods, and the perceived need for care food development among elderly. The analysis results indicated that elderly with poorer oral health reported a higher incidence of chewing discomfort, which correlated with a reduction in food variety. Although awareness of care foods was found to be low, there was a strong perceived need for their development. Based on these results, it is necessary to establish social systems to manage oral health and improve dietary habits among elderly.

1. Introduction

Korea is experiencing rapid population aging, with the proportion of the population aged 65 and older reaching 19.2% as of 2024. This percentage is projected to exceed 20% by 2025, marking the country's transition into a super-aged society (Statistics Korea, 2024). Consequently, there is increasing interest in enhancing the health and quality of life of elderly. Notably, oral health among elderly is closely associated with overall physical health and cognitive function (Sin et al., 2023). Due to aging, elderly commonly encounter oral health issues, including reduced masticatory function, tooth loss, and diminished taste and smell sensations. These issues can lead to difficulties in food eating, potentially resulting in nutritional imbalances (Sin et al., 2023).

Care foods are specialized food products designed for ease of consumption and digestion, accom-

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modating the physical functional decline common among elderly(Chockalingam et al., 2024). These foods can help alleviate oral health problems, thereby enhancing the quality of life and nutritional status of elderly (Park & Cho, 2023).

Senior centers and welfare centers are key welfare facilities that support health promotion and provide leisure activities for elderly within the community. These facilities play a crucial role in managing the oral health and dietary lifestyles of elderly (Lee & Moon, 2023). Targeted interventions and effective solutions are essential within these centers to improve oral health outcomes and to offer and recommend suitable foods that consider the health and nutritional needs of elderly (Lee et al., 2024).

However, in Korea, research on the oral health of elderly and care foods remains limited. In particular, studies focusing on elderly who use senior centers and welfare centers, which a significant number of community-dwelling elderly utilize, are insufficient. This study, therefore, aims to examine research trends concerning oral health and care foods among elderly who use senior centers and welfare centers in Korea, providing an in-depth analysis of the characteristics and scope of the existing research. Through this, the study seeks to offer foundational data for developing strategies to promote oral health and the development and distribution of care foods for community-dwelling elderly.

2. Methods

2.1 Research subjects

This is a methodological study aimed at identifying and analyzing the characteristics of research conducted in Korea on oral health and care foods among elderly aged 60 or older who attend senior centers and welfare centers.

2.2 Research analysis

This study utilized the integrative literature review method proposed by Whittemore and Knafl (2005) to analyze literature related to oral health and care foods for elderly. This method comprises five stages: problem identification, literature search, literature evaluation, literature analysis, and literature presentation, with specific details as outlined below.

2.2.1 Problem identification

This study aimed to address two research questions concerning elderly who utilize senior centers and welfare centers in Korea: 1) What are the characteristics of research conducted on oral health and care foods among elderly who utilize senior centers and welfare centers in Korea?, 2) What are the current status and trends in research on oral health and care foods targeting utilizing senior centers and welfare centers in Korea, including oral health status, dietary characteristics, demand

for care foods, and the impact of oral health on nutritional eating? By addressing the two research questions raised above, this study aims to identify the characteristics of research on oral health and care foods targeting elderly who utilize senior centers and welfare centers in Korea. The study seeks to analyze current trends in research related to oral health and care foods among the older adult population. In doing so, it aims to provide direction and guidance for further studies in these areas.

2.2.2 Literature search

In this study, search databases, search terms, and criteria for literature selection and exclusion were predefined to identify studies conducted in Korea to date on oral health and care foods for elderly using senior and welfare centers. The search databases used were Research Information Sharing Service (RISS), Data Base Periodical Information Academic (DBpia), National Digital Science Library (NDSL), and e-article. The search terms used were “oral health and care foods in the elderly,” “oral health and care foods in the elderly,” “oral health and food in the elderly,” “oral health and food products in the elderly,” and “oral health and nutrition in the elderly.” The literature selection criteria included studies published in Korean between January 1, 2004, and September 30, 2024, covering approximately 20 years. The selected studies focused on elderly individuals utilizing senior centers and welfare centers, and the full text of these studies was available online in domestic academic journals. The literature exclusion criteria were studies published in languages other than Korean, studies where the research subjects were not elderly using senior centers or welfare centers, such as studies utilizing secondary data or studies targeting nursing homes, conference papers, or dissertations. In October 2024, a total of 367 studies were retrieved from the database search. After excluding 166 duplicate studies based on the title, author, and year, 201 studies were selected. To select the final literature for analysis, 183 studies unrelated to the research topic were excluded after reviewing the title and abstract, and 12 studies that were conference papers, dissertations, or studies where the research subjects were not targeted at senior centers or welfare centers were excluded, and finally, six studies were selected. Two researchers independently reviewed the literature and made the selection. In cases of disagreement, consensus was reached through discussion with a third researcher. This cross-validation process was designed to increase the credibility of the selection.

2.2.3 Data evaluation

In this study, the quality of the final six selected studies was assessed using the five-level evidence-based research framework developed by Arbesman, Scheer, and Lieberman (2008). Level I evidence includes systematic reviews, meta-analyses, and randomized controlled trial designs. Level II includes non-randomized studies with two groups. Level III includes non-randomized studies with one group. Level IV includes intervention study and survey research. Level V includes case studies, literature review, and qualitative study. In the papers selected for this study, five papers (83.3%) were Level IV survey research studies, and one paper (16.7%) was a Level V

case study (Table 1).

Table 1. Qualitative level of research

Levels of evidence	Research type	N(%)
I	System review	0(0.0)
	Meta-analysis	0(0.0)
	RCT(randomized controlled trial)	0(0.0)
II	Two groups non-randomized	0(0.0)
III	One group non-randomized	0(0.0)
IV	Intervention study	0(0.0)
	Survey	5(83.3)
V	Case study	1(16.7)
	Literature review	0(0.0)
	Qualitative study	0(0.0)

2.2.4 Data analysis

To analyze the selected literature according to the identified research questions, the literature was presented and analyzed in two formats. For the first research question, the analysis focused on characteristics such as publication year, research design, and the number of research subjects. For the second research question, the analysis included research objectives, research content (including variables), and research results to assess the status and trends.

2.2.5 Presentation

In this study, the literature analyzed based on problem identification is presented in Tables 2 and 3.

3. Results

3.1 Characteristics of research on oral health and care foods for elderly using senior centers and welfare centers

The characteristics of the six papers analyzed are as follows. Among these, one paper (16.7%) was published between 2004 and 2014, and five papers (83.3%) were published between 2015 and 2024. In terms of research subjects, three studies (50.0%) focused on senior centers, and three (50.0%) focused on welfare centers. The sample sizes varied, with two studies (33.3%) involving fewer than 50 participants, no studies (0.0%) involving 50-100 participants, and four studies (66.7%) involving 100-200 participants (Table 2).

Table 2. Characteristics of research

Item	Categories	N(%)
Publication year	2004~2014 yr	1(16.7)
	2015~2024 yr	5(83.3)
Research subject	Senior center	3(50.0)
	Welfare center	3(50.0)
Sample size	< 50	2(33.3)
	50-100	0(0.0)
	100-200	4(66.7)

3.2 Analysis of research on oral health and care foods for elderly using senior centers and welfare centers

The analysis of the final six papers in terms of research objectives, content (including variables), and results is summarized as follows (Table 3).

Firstly, regarding research objectives, studies examined the relationships among oral health status, dietary habits, and nutritional status in elderly(Choi & Mun, 2018; Back, 2009), as well as research aimed at establishing oral health-related policies (Choi & Lee, 2018). Additionally, studies explored the need for developing food products tailored to the oral and general health of elderly(Lee & Han, 2015; Shin et al., 2016), as well as research on awareness and preferences regarding care food products (Jang & Lee, 2017).

Secondly, regarding research content (variables), oral health-related variables included oral dryness, number of functional teeth (Choi & Mun, 2018), number of remaining teeth, and masticatory ability (Choi & Lee, 2018). For dietary life-related variables, these included food eating ability, nutritional status (Choi & Mun, 2018), meal frequency, and regularity of meal times (Lee & Han, 2015). In terms of variables related to care food products, the variables included chewability of food, awareness and preference for elderly-friendly food products (Jang & Lee, 2017), as well as demand and necessity (Shin et al., 2016).

Thirdly, regarding research results, studies on oral health indicated that poorer oral dryness was associated with lower nutritional status (Choi & Mun, 2018), and a greater number of remaining teeth was linked to higher masticatory ability (Choi & Lee, 2018). In studies related to care food products, findings showed that while the chewing ability of elderly was generally good, over half had difficulty consuming hard or large food items (Shin et al., 2016). Additionally, awareness of care food products was low, though willingness to purchase them was high (Jang & Lee, 2017). Furthermore, the research highlighted that elderly expressed interest in the development of products like breads, rice cakes, and beverages, along with a need for food options that consider chewing ability and the development of disease-specific diets (Lee & Han, 2015).

Table 3. Research contents and results

Author(year)	Objectives	Contents(variables)	Results
Choi & Mun (2018)	The relationship among dietary eating ability, oral health status, and nutritional status in elderly was evaluated.	Dietary eating ability, nutritional status, oral health status(oral dryness, number of functional teeth)	As the oral dryness increased, the nutritional status decreased, and as the food eating ability increased, the nutritional status tended to improve.
Choi & Lee (2018)	This study examined the oral health status of elderly and the findings will provide the basic data for establishing future oral health-related policies for this population.	Masticatory ability, number of remaining teeth	The results of the present study revealed that a statistically significant positive correlation was found between the number of residual teeth and chewing abilities. In other words, chewing ability increased with statistical significance as the number of residual teeth increased.
Jang & Lee (2017)	The perception and preferences regarding commercial universal design foods made with different ingredients were investigated in the study.	Degree of chewability of food for elderly, awareness of and preference for elderly-friendly food products	The chewing ability of elderly was generally good, with most not having any problems due to dental treatment. However, the awareness of elderly-friendly food products was very low, but they showed a high willingness to purchase them if they were commercially available.
Shin, etc. (2016)	Need to develop foods for elderly based on their food preferences.	Elderly's food preferences, demand, and necessity for elderly-friendly food products	According to the responses, 31.5% answered that they had "no difficulty with chewing," while more than half of the respondents said that they "had some difficulty consuming hard and large food items."
Lee & Han (2015)	Research the needs for food development for elderly based on their oral and overall health status.	Oral and general health status, demand for food product development among elderly, dietary behavior variables (meal frequency, regularity of meal times)	Both male and female elderly respondents desired the development of bread/rice cake products and beverages as snacks, and they were generally found to select food products considering their own chewing ability. elderly respondents were found to desire the development of disease-customized diets to alleviate symptoms and promote recovery related to their health conditions.
Back (2009)	Any correlation between dental condition, diet, and activity of daily life in seniors was aimed to be determined.	Oral health status (number of teeth, presence of loose teeth, presence of dentures), dietary life, oral health practice behaviors (dental check-ups, toothbrushing frequency, oral care methods)	The causal influence of oral health status and dietary life on activities of daily living showed that the younger the age, the fewer the children, and the fewer the oral problems, the healthier elderly were.

4. Discussion

This study analyzed research trends related to oral health and care foods among elderly attending senior centers and welfare centers in Korea. Previous studies primarily focused on identifying factors related to the oral health status and food eating of elderly, thereby providing foundational data for promoting oral health and developing care foods. The studies included in this analysis identified key variables such as oral health level, food eating and nutritional status, and awareness and demand for care foods among elderly (Choi & Mun, 2018; Back, 2009; Choi & Lee, 2018; Lee & Han, 2015; Shin et al., 2016; Jang & Lee, 2017). The inclusion of a wide range of variables in the study content revealed the complex and multifaceted relationships among oral health, dietary life, and nutritional status in the elderly. These findings suggest that for a healthy dietary life among elderly, it is essential to ensure proper nutrition along with effective oral health management.

Examining the research results in detail, a lower level of oral health among elderly was associated with a higher incidence of mastication difficulties (Choi & Mun, 2018; Choi & Lee, 2018), and a reduced diversity of food eating (Shin et al., 2016). In addition, while awareness of care foods among elderly was low, there was a high demand for the development of easily ingestible foods (Jang & Lee, 2017; Lee & Han, 2015). To promote the oral health of elderly and support their healthy dietary life, it is necessary to develop care foods considering the level of oral health of elderly. To achieve this, food design and nutrition enhancement measures reflecting the oral characteristics of elderly, such as their mastication and swallowing functions, number of functional teeth, denture use, oral dryness, and tooth loss, should be prepared. In addition, promoting and educating elderly about care foods can enhance their awareness, and establishing a supply system within the local community can improve accessibility.

Most studies included in the analysis were cross-sectional and focused on elderly attending senior centers and welfare centers in specific regions, which limits the generalizability of the findings to the broader older adult population nationwide. In addition, the number of studies included in the analysis was not sufficient, so it was difficult to explore the factors related to the oral health and care foods of elderly in depth. Therefore, in follow-up studies, it is necessary to secure a representative sample at the national level, and a comprehensive survey considering various influencing factors such as the socioeconomic characteristics of the elderly, their oral health and functional status, and food preferences should be conducted. In addition, systematic observational and experimental studies are needed to clarify the relationships among factors related to the oral health, dietary habits, and care foods of elderly. Despite these limitations, this study provides valuable foundational data for developing policies aimed at improving the oral health of elderly in the community, as well as for the development and distribution of care foods tailored to their oral health status. As a specific implementation measure, the placement of oral health professionals in community-based recreational and social facilities for the elderly and the provision of integrated oral health management programmes can promote the improvement of the oral health of the elderly, the reduction of chewing discomfort and the maintenance of dietary diversity.

5. Conclusion

To implement community-based oral health promotion programs for elderly and care food support policies, it is essential to establish a multidisciplinary cooperation system. The dental healthcare field and related fields such as nutrition and food engineering should be organically linked to develop an integrated approach to improve the oral health and dietary life of elderly. This is ultimately expected to contribute to the extension of healthy life expectancy and the improvement of the quality of life of elderly.

Notes

Author Contributions

Conceptualization: Kh Kang, MY Kim; Data collection: Kh Kang, MY Kim; Formal analysis: Kh Kang, MY Kim; Writing-original draft: Kh Kang, MY Kim; Writing-review&editing: MY Kim

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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