

# A Trend Analysis on the Qualitative Research of Dental Hygiene in Korea (2000~2023)

An-Na Yeo<sup>1</sup> and Yang-Keum Han<sup>2,†</sup>

<sup>1</sup>Department of Dental Hygiene, Baekseok Culture University, Cheonan 31065, <sup>2</sup>Department of Dental Hygiene, Daejeon Health University, Daejeon 34504, Korea

**Background:** This study aimed to analyze trends in qualitative research within the field of dental hygiene, focusing on papers published in Korean journals from 2000 to 2023. As dental hygienists play a crucial role in preventive oral health, understanding the breadth and depth of qualitative research in this field is essential for advancing practice and education.

**Methods:** This descriptive survey research study analyzed 23 qualitative studies using the Consolidated Criteria for Reporting Qualitative Research (COREQ) as a framework. Studies were selected through a comprehensive search of Korean databases. The analysis covered research topics, participant types, methodological approaches, and adherence to COREQ domains, including “Research Team and Reflexivity,” “Study Design,” and “Analysis and Findings.”

**Results:** The analysis revealed that most studies employed a phenomenological methodology (36.4%). Additionally, 87.0% of the studies mentioned Institutional Review Board (IRB) approval and only 8.7% utilized qualitative data analysis software. The studies primarily focused on oral care for the elderly, communication, and the experiences of dental hygienists. Furthermore, 95.7% of the studies included participant quotations, but only 56.5% checked data saturation.

**Conclusion:** This study highlights the need for a more diverse methodological approach in dental hygiene research. Journals should also emphasize strict adherence to IRB guidelines and encourage the use of qualitative data analysis software to enhance the rigor of research. By strengthening the systematic foundation of qualitative research in dental hygiene, the field can better address clinical challenges and expand the understanding of dental hygienists’ work environments.

**Key Words:** Dental hygienists, Oral health, Qualitative research, Research design

## Introduction

### 1. Background

Dental hygienists are professionals engaged in tasks related to the removal of dental calculus, the application of fluoride for the prevention of dental caries, and other activities related to the prevention of dental and oral diseases and the maintenance of oral hygiene, thereby playing a crucial role in safeguarding the oral health of the public. The discipline of dental hygiene is dedicated to establishing and advancing the scientific evidence underpinning the performance of dental hygienists, as well as overseeing their education. Consequently, the field of dental hygiene

bears the responsibility of continually expanding its body of knowledge through ongoing research. In practice, various studies are conducted to provide scientific evidence for the tasks performed by dental hygienists.

Qualitative research involves the collection and analysis of non-numeric data, such as observations, interviews, documents, and images. It aims to develop theories based on field experiences, understand the structure and attributes of phenomena, and address practical issues through reflective practice. Methodological approaches in qualitative research include grounded theory for theory development from field experiences, phenomenological research to understand the structure and attributes of phenomena, action

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†Correspondence to: Yang-Keum Han, <https://orcid.org/0000-0002-5074-0053>

Department of Dental Hygiene, Daejeon Health University, 21 Chungjeong-ro, Dong-gu, Daejeon 34504, Korea  
Tel: +82-42-670-9195, Fax: +82-42-670-9564, E-mail: ykhan@hit.ac.kr

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research for practical improvement and reflection, narrative research to construct and discover meaning through dialogue, and critical discourse analysis to examine the context in which discourse power operates. These approaches elucidate the interactions among complex factors within situations and provide clear answers to the questions of why and how<sup>1,2)</sup>.

Previous research in dental hygiene includes trends in elderly research<sup>3)</sup>, journal publications<sup>4,5)</sup>, infection control<sup>6)</sup>, dental hygiene professions<sup>7)</sup>, dental hygiene ethics<sup>8)</sup>, and dental fear<sup>9)</sup>. However, to our knowledge, comprehensive qualitative research has not been conducted. Therefore, a trend analysis study that examines the topics and research methods selected by researchers for qualitative research can be very meaningful for researchers. By analyzing existing research data, identifying research problems, and suggesting directions for current and future studies, such an analysis can provide valuable insights for researchers.

## 2. Objectives

This study aimed to identify trends in qualitative research within the field of dental hygiene by examining papers submitted to Korean journals from 2000 to 2023. The specific objectives of the study were as follows: First, to analyze the general characteristics and topics of the selected papers. Second, to present the areas of “Research Team and Reflexivity,” “Study Design,” and “Analysis and Findings” in the selected papers; and finally, to suggest directions for future qualitative research in dental hygiene.

## Materials and Methods

### 1. Ethics statement

This research is a literature review of previously published studies therefore received exempt from institutional review board approval.

### 2. Research design

This was a descriptive survey research study that analyzed studies conducted using qualitative research methodologies in the field of dental hygiene published in domestic journals. The analysis was based on the basic framework of the Consolidated Criteria for Reporting Qualitative Re-

search (COREQ)<sup>10)</sup>.

### 3. Analysis subjects

The subjects of this analysis were qualitative research papers published domestically between January 2000 and December 2023. Relevant studies were searched for using the databases of the Korean Studies Information Service System (KISS), Research Information Sharing Service (RISS), and Nurimedia (DBpia). The analysis focused on papers published in Korea Citation Index-accredited (or candidate) academic journals, excluding gray literature, such as dissertations, reports, and conference proceedings. The exclusion of gray literature was based on the premise that papers published in academic journals undergo rigorous peer review, ensuring the quality of the research<sup>11)</sup>.

### 4. Analysis framework

This study utilized the COREQ as the analysis framework. The COREQ comprises 32 detailed items across three main domains: “Research Team and Reflexivity,” “Study Design,” and “Analysis and Findings”<sup>10)</sup>. Additionally, to understand the general characteristics of the selected studies, we analyzed the publication year, the journal of publication, research topics, research subjects, and Institutional Review Board (IRB) approval status.

### 5. Data collection and analysis

Data searches were independently conducted by two researchers using the agreed-upon search terms (“dental hygiene” OR “dental hygienist”) AND (“qualitative” OR “qualitative research”) in the databases. The selection of data was also independently carried out by the researchers according to the inclusion criteria, with the final selection of papers for analysis being made through a consensus process on detailed matters. The selection process is illustrated using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) flow diagram (Fig. 1). To ensure consistency in the study analysis, the researchers reviewed the content of the COREQ and created a checklist to evaluate the final selected papers. Items that were not initially agreed upon by the evaluators were discussed and reconciled to achieve a consensus. The quantitative analysis of the final results and the creation of the

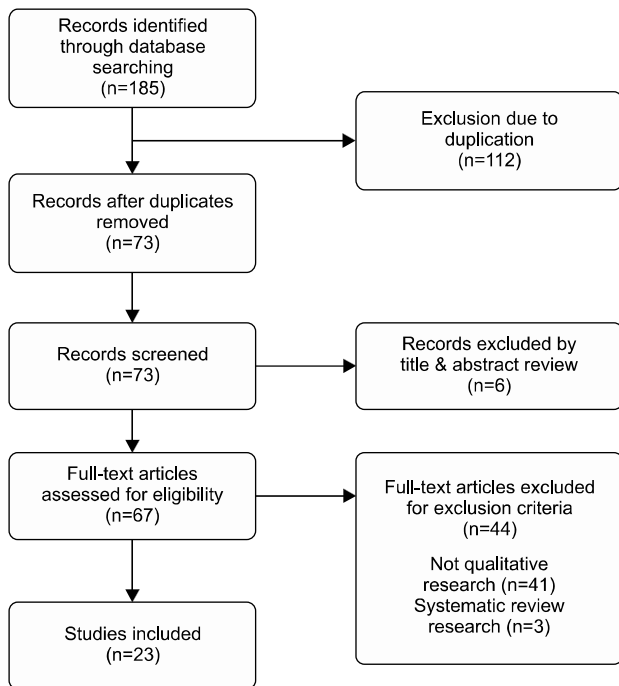


Fig. 1. Flow diagram for study selection process.

checklist were performed using Microsoft Excel (Microsoft Corp., Redmond, WA, USA), calculating frequencies and percentages.

## Results

### 1. General characteristics of included studies

Although the analysis period began in January 2000, relevant studies were only found from 2016 onwards. The publication years of the final 23 qualitative studies selected were as follows: one in 2016, two in 2017 and 2018 each, three in 2019, four in 2020, five in 2021, and three in 2022 and 2023 each (Fig. 2).

The general characteristics of the included studies are shown in Table 1. Among the journals, the *Journal of Korean Society of Dental Hygiene* published the most with 14 articles, followed by the *Journal of Dental Hygiene Science* with five articles, the *Journal of Korean Society of Oral Health Science* with two articles, and one article each in the *Journal of Korean Dental Hygiene Science* and the *Korean Journal of Clinical Dental Hygiene*. Of the selected studies, 20 (87.0%) mentioned IRB approval.

Regarding the types of research participants, dental hy-

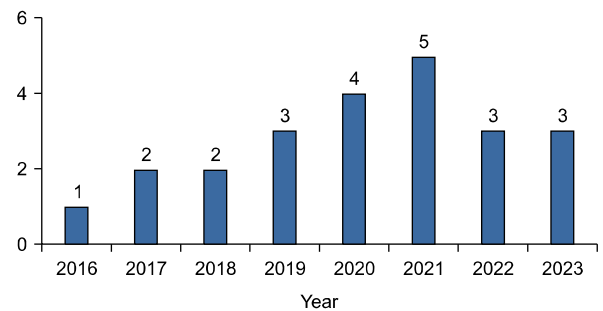


Fig. 2. Year of publication.

gienists were the most common with nine studies, followed by dental hygiene students with five studies; caregivers and families with two studies; and one study each involving patients, dentists, dental assistants, and the elderly. Three studies involved two or more types of participants, such as both dental hygienists and dentists.

The main topics of the 23 articles were as follows: six studies focused on oral care for elderly people over 65 years, patients with dementia, and the elderly participating in community care programs; two studies on dental hygienists' experiences of conflict; three on communication; two on the scope of work; one on job satisfaction; one on emotional labor; and one on performing scaling as part of comprehensive dental hygiene care. Additionally, four studies focused on the learning experiences of dental hygiene students in their courses, one on clinical practice experiences, one on dental anxiety among patients, and one on dental treatment cooperation among nursing assistants.

### 2. Evaluation of qualitative research

#### 1) Domain 1: research team and reflexivity

The first domain of the COREQ framework used in this study, "Research Team and Reflexivity," represents the personal characteristics of the researcher and the relationship with the research participants (Table 2). Item 1 indicates whether a description of the interviewer or facilitator was provided, which was mentioned in eight out of the 23 studies (34.8%). Item 2 inquires whether the qualifications of the researcher were described, with nine studies (39.1%) including this information. Item 3 asks about the researcher's occupation, which was mentioned in 10 studies (43.5%),

**Table 1.** General Characteristics of Included Studies (n=23)

Characteristic	Category	n (%)
Journal	<i>Journal of Korean Society of Dental Hygiene</i>	14 (60.9)
	<i>Journal of Dental Hygiene Science</i>	5 (21.7)
	<i>Journal of Korean Society of Oral Health Science</i>	2 (8.7)
	<i>Journal of Korean Dental Hygiene Science</i>	1 (4.3)
	<i>Korean Journal of Clinical Dental Hygiene</i>	1 (4.3)
Approval IRB	Stated	20 (87.0)
	Not stated	3 (13.0)
Participant of research	Dental hygienists	9 (39.1)
	Dental hygiene students	5 (21.7)
	Caregivers and families	2 (8.7)
	Patients	1 (4.3)
	Dentists	1 (4.3)
	Dental assistants	1 (4.3)
	Elderly	1 (4.3)
	Others	3 (13.0)
Themes of research	Conflict experiences of dental hygienists	2 (8.7)
	Communication of dental hygienists	3 (13.0)
	Practice of dental hygienist	2 (8.7)
	Job Satisfaction of dental hygienists	1 (4.3)
	Emotional labor of dental hygienists	1 (4.3)
	The course learning experiences of dental hygiene students	4 (17.4)
	The clinical practice experiences of dental hygiene students	1 (4.3)
	Dental anxiety	1 (4.3)
	Oral care for the elderly (general care, dementia, and community programs)	6 (26.1)
	Scaling experience through the application of comprehensive dental hygiene care	1 (4.3)
Dental clinical assistance work of nursing assistant	1 (4.3)	

IRB: Institutional Review Board.

**Table 2.** Domain 1: Research Team and Reflexivity (n=23)

Content	Detail content	Category	n (%)
Personal characteristics	Interviewer/facilitator	Stated	8 (34.8)
		Not stated	15 (65.2)
	Credentials	Stated	9 (39.1)
		Not stated	14 (60.9)
	Occupation	Stated	10 (43.5)
		Not stated	13 (56.5)
	Sex	Stated	0 (0)
		Not stated	23 (100.0)
Experience and training	Stated	12 (52.2)	
	Not stated	11 (47.8)	
Relationship with participants	Relationship established	Stated	10 (43.5)
		Not stated	13 (56.5)
	Participant knowledge of the interviewer	Stated	23 (100.0)
		Not stated	0 (0)
	Interviewer characteristics	Stated	23 (100.0)
		Not stated	0 (0)

while Item 4, which inquiries about the researcher’s sex, was not mentioned in any of the papers. Item 5 asks whether the researcher’s experience and training were stated, primarily focusing on qualitative research-related

conferences, seminars, or education, and was mentioned in 12 studies (52.2%). Item 6 inquires whether a relationship with the participants was established before the research began, which was mentioned in 10 studies (43.5%). Items

**Table 3.** Domain 2: Study Design (n=23)

Content	Detail content	Category	n (%)	
Theoretical framework	Methodological orientation and theory	Stated	22 (95.7)	
		Phenomenology	8 (36.4)	
		Grounded theory	2 (9.1)	
		In-depth interview	5 (22.7)	
		Focus group interview	7 (31.8)	
		Not stated	1 (4.3)	
Participant selection	Sampling	Stated	22 (95.7)	
		Purposive	3 (13.6)	
		Snowball	6 (27.4)	
		Convenience	12 (54.5)	
		Theoretical	1 (4.5)	
		Not stated	1 (4.3)	
	Method of approach <sup>a</sup>	Face-to-face	20 (71.4)	
		Non-face-to-face	8 (28.6)	
		Sample size		
			1 ~ 4	2 (8.7)
			5 ~ 9	8 (34.8)
			10 ~ 15	10 (43.5)
16 <			3 (13.0)	
Non-participation			Stated	2 (8.7)
Not stated			21 (91.3)	
Setting	Setting of data collection	Stated	16 (69.6)	
		Not stated	7 (30.4)	
	Presence of non-participants	Stated	2 (8.7)	
		Not stated	21 (91.3)	
	Description of sample	Stated	19 (82.6)	
		Not stated	4 (17.4)	
Data collection	Interview guide	Stated	23 (100.0)	
		Not stated	0 (0)	
	Repeat interviews	Stated	9 (39.1)	
		Not stated	14 (60.9)	
	Audio recording	Yes	20 (87.0)	
		No	3 (13.0)	
	Field notes	Yes	20 (87.0)	
		No	3 (13.0)	
	Duration of the interviews (min)		Stated	21 (91.3)
			< 60	5 (23.8)
			60 ~ 90	9 (42.9)
			90 <	7 (33.3)
Not stated			2 (8.7)	
Data saturation			Stated	13 (56.5)
Not stated	10 (43.5)			
Transcripts returned		Stated	13 (56.5)	
		Not stated	10 (43.5)	

<sup>a</sup>Multiple responses.

7 and 8, which ask whether the participants were aware of the research purpose and process and the reasons and interests behind the interviewer's choice of research topic, were mentioned in all 23 studies (100.0%).

## 2) Domain 2: study design

The second domain of the COREQ framework is "Study Design," which examines whether aspects such as the theoretical framework, participant selection, setting, and data collection were reported (Table 3). Item 9 refers to whether the theoretical framework and research methodology applied to support the study's evidence were mentioned. This was stated in 22 studies (95.7%), with a phenomenological methodology being the most common, appearing in eight studies (36.4%), followed by focus group interviews (FGIs) in seven studies (31.8%), in-depth interviews in five studies (22.7%), and grounded theory methodology in two studies (9.1%).

Item 10 concerns the methods of participant selection, with 22 studies (95.7%) providing this information. Convenience sampling was the most common, used in 12 studies (54.5%) followed by snowball sampling in six studies (27.4%), purposive sampling in three studies (13.6%), and theoretical sampling in one study (4.5%). Item 11 addresses the interview methods used with participants, with

face-to-face interviews being conducted in 20 studies and non-face-to-face methods in eight studies. Multiple responses were allowed, as some studies conducted repeated interviews with different methods for each session, with non-face-to-face methods primarily involving email or written submissions.

Item 12 pertains to the number of study participants, with 10~15 participants being the most common in 10 studies (43.5%), followed by 5~9 participants in eight studies (34.8%), 16 or more participants in 3 studies (13.0%), and 1~4 participants in two studies (8.7%). Item 13 reveals that two studies (8.7%) reported participant dropouts. Item 14 examines the environment where data collection took place, with 16 studies (69.6%) mentioning the collection site; typically, cafes or classrooms. Item 15 inquires whether anyone other than the interviewer and participant was present during the interview, which was mentioned in two studies (8.7%) where a third party was present. Item 16 checks whether the general characteristics of the study participants were described, with 19 studies (82.6%) presenting this information in tables or narrative form.

Item 17 verifies whether an interview guide was provided for data collection, and this was presented in all 23 studies (100.0%). Item 18 asks whether interviews were conducted repeatedly, and this applied to nine studies (39.1%). Item

**Table 4.** Domain 3: Analysis and Findings (n=23)

Content	Detail content	Category	n (%)
Data analysis	Number of data coders	Stated	17 (73.9)
		Not stated	6 (26.1)
	Description of the coding tree	Stated	23 (100.0)
		Not stated	0 (0)
	Derivation of themes	Stated	23 (100.0)
		Not stated	0 (0)
	Software use	Stated	2 (8.7)
		Not stated	21 (91.3)
	Participant checking	Stated	6 (26.1)
		Not stated	17 (73.9)
Reporting	Quotations presented	Stated	22 (95.7)
		Not stated	1 (4.3)
	Data and findings consistent	Stated	23 (100.0)
		Not stated	0 (0)
	Clarity of major themes	Stated	23 (100.0)
		Not stated	0 (0)
	Clarity of minor themes	Stated	0 (0)
		Not stated	23 (100.0)

19 reveals that interviews were recorded in 20 studies (87.0%), while Item 20 shows that field notes were taken during or after the interviews in 20 studies (87.0%). Item 21 mentions the time spent on interviews, with 60~90 minutes being the most common in nine studies (42.9%), followed by over 90 minutes in seven studies (33.3%), and less than 60 minutes in five studies (23.8%). Two studies (8.7%) did not mention the time spent. Item 22 checks whether data saturation was mentioned, which was reported in 13 studies (56.5%). Finally, Item 23 indicates that in 13 studies (56.5%), the interview transcripts were checked by the participants.

### 3) Domain 3: analysis and findings

The third domain of the COREQ framework, “Analysis and Findings,” focuses on data analysis and reporting, assessing the reliability of the study results. The detailed items are listed in Table 4. Item 24 indicates that 17 studies (73.9%) reported the number of people involved in the coding process. Item 25 examines whether the coding tree, a process where meaningful parts are extracted from the interview content with participants, was mentioned, and it was reported in all 23 studies (100.0%). Item 26 checks whether themes were derived from the collected data, and similarly, all 23 studies (100.0%) indicated that themes were derived. Item 27 verifies whether software was used for data analysis, and this was reported in seven studies (30.4%). Item 28 inquires whether the derived study results were confirmed by the research participants, with six studies (26.1%) indicating that this process was carried out. Item 29 reveals that 22 studies (95.7%) included quotations from research participants. According to Item 30, all studies indicated that the interview content and study results maintained consistency. Item 31 shows that all 23 studies (100.0%) clearly presented the major themes. However, Item 32 indicates that none of the studies (100.0%) reported any discussion on secondary themes.

## Discussion

### 1. Interpretation and comparison with previous studies

This study aimed to analyze the general characteristics and

trends of 23 qualitative research studies published in domestic journals from 2000 to 2023, with the goal of suggesting directions for qualitative research in dental hygiene.

Qualitative research in dental hygiene was not identified prior to 2016, and since then, approximately three to five articles have been published annually. However, compared to nursing, which has published around 40~60 qualitative studies annually since 2016, the number of studies in dental hygiene is still relatively low<sup>12)</sup>. Given that the goal of dental hygiene is to manage patient behavior and prevent oral diseases by providing preventive oral health-care<sup>13)</sup>, it is essential to adopt approaches that consider these objectives. In this context, qualitative research is valuable for contributing to a comprehensive understanding by exploring the meaning and purpose of human behavior<sup>14)</sup>, suggesting that more qualitative studies should be actively conducted.

IRB approval was mentioned in 87.0% of the studies, indicating that the process of obtaining IRB approval has become well-established among researchers. This result can be attributed to the fact that some of the leading journals in dental hygiene in Korea have made IRB approval a mandatory requirement for submission. Among the types of study participants, students, patients, and the elderly are considered vulnerable populations or individuals who may face potential conflicts of interest. Therefore, it is crucial to recognize the importance of IRB review in qualitative research to ensure the protection of participants’ rights and safety, as well as to balance the potential risks and benefits. Furthermore, it is deemed necessary for academic societies to encourage this practice or consider revising submission guidelines to reinforce these standards.

The main topics of the selected qualitative studies primarily focused on various experiences and work-related issues faced by dental hygienists, such as conflicts and emotions. Since qualitative research utilizes situational and field data as research material rather than relying on statistical techniques based on objective metrics, it offers insights<sup>14)</sup> into research topics that could serve as essential foundational data for driving changes in the field of dental hygiene.

To assess the quality of the selected studies, the three domains of COREQ were analyzed. In the first domain, “Research Team and Reflexivity,” which addresses the per-



sonal characteristics of the researcher and the relationship with research participants, the researchers' qualifications (39.1%), occupation (43.5%), and experience and training (52.2%) were documented. In qualitative research, the expertise of the researcher can significantly impact the quality of interviews, and a close relationship with participants may introduce personal bias<sup>10)</sup>. Therefore, analyzing the characteristics of the researcher is crucial for enhancing the reliability of the study. Providing a detailed description of these characteristics could offer a comprehensive explanation of the factors influencing the research. Kim et al.<sup>15)</sup> suggested that while a close relationship with participants might lead to a deeper understanding and richer interview content, it may also result in participants avoiding certain responses owing to the strong relational ties. Especially in cases where there is potential for conflict of interest between the researcher and participants, it is essential to clearly document the nature of the relationship to ensure transparency and address any possible biases.

In the second domain, "Study Design," the focus was on aspects such as the theoretical framework, participant selection, setting, and data collection. Among the research methodologies, a phenomenological methodology was the most frequently used, which is consistent with the trend observed in qualitative research within nursing<sup>12)</sup>. Phenomenological research often employs methods developed by Giorgi, Colaizzi, Van Manen, and Van Kaam, reflecting some variation in the qualitative research trends<sup>12)</sup>. It is essential that researchers possess a thorough understanding of qualitative research methodologies, along with proper training, and that they provide detailed explanations of the characteristics of the chosen methodology and its appropriateness for the study topic.

Regarding the number of study participants, 10~15 participants were the most common, with 10 studies (43.5%) reporting this range. According to prior research, the appropriate sample size varies by methodology: phenomenological studies typically involve 5~25 participants, in-depth interviews 5~30 participants, and FGIs 6~12 participants<sup>16,17)</sup>. In this study, four FGIs had sample sizes that either exceeded or fell short of the recommended range. However, the sample size in qualitative research is more dependent on the research topic and analysis

method, as well as the research type. Data saturation, which refers to the point at which further data collection no longer reveals new themes or patterns, is crucial for ensuring the reliability and validity of the research<sup>18)</sup> and was mentioned in 13 studies (56.5%). Therefore, rather than focusing solely on the absolute number of samples, it is more important to consider how much relevant data the selected samples provide for the research topic<sup>19)</sup>.

In terms of participant selection methods, convenience sampling was the most common, differing from trends observed in nursing<sup>20)</sup> and pediatric oriental medicine<sup>15)</sup>, where snowball and theoretical sampling methods were more prevalent. While convenience sampling involves selecting participants that are easily accessible to the researcher, it may not represent the entire population, potentially limiting the generalizability of the findings. However, for many qualitative studies in dental hygiene, which aim for an in-depth understanding of specific groups or situations, this method can still be useful. It is important to recognize the limitations of convenience sampling and carefully select it based on the research objectives and context.

The interview methods reported included both face-to-face (20 studies) and non-face-to-face (8 studies) approaches, with multiple responses allowed. The predominance of face-to-face interviews is consistent with findings from studies in nursing by Jang and Song<sup>20)</sup> and Lee et al.<sup>21)</sup> Face-to-face interviews allow the researcher to observe non-verbal cues from participants, facilitating a deeper understanding and enabling immediate responses and flexible data collection. However, there is a risk that participants might tailor their answers to meet the researcher's expectations<sup>22)</sup>. In this study, repeated interviews were conducted in nine cases, with eight of these initially conducted face-to-face, followed by email or online interviews as needed. The data collection settings were described in 16 studies (69.6%), typically in quiet, isolated locations, such as cafes, residences, meeting rooms, and classrooms. Two studies noted the presence of a third party other than the researcher. Additionally, the general characteristics of participants were documented in all but four studies. The setting, presence of a third party, and participants' general characteristics can significantly influence the data collected from participants<sup>22)</sup>. The data collection setting should allow



participants to focus, maximizing their responses. If others are present, it may affect the responses and raise ethical concerns, which should be addressed before the research begins and clearly stated in the study.

All studies reported the use of an interview guide, which is crucial for focusing on the research questions and ensuring consistent data collection, thus enhancing the flexibility and efficiency of the data collection process<sup>23)</sup>. Some studies conducted preliminary research, suggesting that more studies should actively implement preliminary or pilot studies to develop interview guides that are easy for participants to understand. All but two studies reported interview duration, with most interviews lasting between 60~90 minutes. Turner<sup>23)</sup> suggests that in qualitative research, the typical interview duration should be between 30~60 minutes, which is sufficient for maintaining participant focus. In-depth interviews may extend beyond 1 hour owing to the complexity and depth of the topic, but it is important to avoid exceeding 90 minutes to prevent fatigue. In qualitative research, the duration of interviews should be adjusted according to the specific characteristics and objectives of the study to facilitate effective data collection.

The third domain, "Analysis and Findings," consists of data analysis and reporting. Among the selected studies, 17 (73.9%) reported the number of individuals involved in coding. When multiple coders analyze data, it helps reduce individual subjective bias and produces more objective results<sup>10)</sup>. Additionally, it enhances the transparency of the research process, thereby improving reliability. Moreover, the use of a coding tree to hierarchically categorize large amounts of data is necessary to maintain transparency and consistency in the analysis process, which in turn enhances the qualitative level of the research. Only two studies (8.7%) mentioned the use of software for data analysis. Despite the support that qualitative data analysis software provides to help researchers efficiently process data, studies in nursing by Kim et al.<sup>24)</sup> and Jang and Song<sup>20)</sup> reported low usage rates of 1.1% and 6.6%, respectively. The software tools used in the selected studies included Parangsae 2.0 (Academy Press, Paju, Korea)<sup>18)</sup>, CLOVA NOTE (Naver Corporation, Seongnam, Korea), and Word Cloud Generator 3.7<sup>25)</sup>. There is a need to systematically analyze and visualize large volumes of qualitative research

data using various software tools such as NVivo (QSR International, Melbourne, Australia) and ATLAS.ti (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany)<sup>26)</sup>.

The reporting on whether feedback was received from research participants regarding the study results was low, with only seven studies (30.4%) mentioning this process. This feedback process is crucial for verifying the accuracy of the data collected and interpreted by the researcher, thereby enhancing the study's reliability. It also strengthens the validity of the study by ensuring that the themes and patterns identified align with the actual experiences of the participants<sup>10)</sup>. Providing quotations from research participants demonstrates the transparency and consistency of the data results, and it is essential that the main themes are clearly stated. In this study, 22 of the final selected studies (95.7%) presented participant quotations, and all studies consistently reported the interview content and research findings with clear statements of the main themes. However, it is also important to closely examine minority opinions to identify secondary themes, which can lead to a broader range of findings.

## 2. Limitations and suggestions for further studies

This study was limited by the sample size and research scope, as it focused on 23 qualitative papers in the field of dental hygiene in South Korea. The final selected studies predominantly conducted phenomenological research, resulting in a lack of analysis on other qualitative research methodologies, such as narrative research or case studies. Based on these findings, it is important to refer to guidelines or checklists, such as the COREQ, when conducting qualitative research, ensuring that any insufficiently detailed aspects are thoroughly addressed. Furthermore, it is necessary for journals in the field of dental hygiene to strictly incorporate IRB requirements into their submission guidelines. Establishing a systematic foundation for qualitative research in dental hygiene will not only contribute to the expansion of the research field but also enable a broader exploration of various issues in clinical practice, thereby enhancing the understanding of dental hygienists' work environments.

## Notes

### Conflict of interest

No potential conflict of interest relevant to this article was reported.

### Ethical approval

This research received review exemption from Daejeon Health University Institutional Review Board.

### Author contributions

Conceptualization: Yang-Keum Han and An-Na Yeo. Formal analysis: Yang-Keum Han and An-Na Yeo. Supervision: Yang-Keum Han and An-Na Yeo. Writing-original draft: Yang-Keum Han and An-Na Yeo. Writing-review & editing: Yang-Keum Han and An-Na Yeo.

### ORCID

An-Na Yeo, <https://orcid.org/0000-0003-2500-1408>

Yang-Keum Han, <https://orcid.org/0000-0002-5074-0053>

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### Data availability

Data supporting the results of this study are available from the corresponding author or the Korean Society of Dental Hygiene Science upon reasonable request.

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