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REVIEW ARTICLE

A Scoping Review on Burnout among Dental Hygienists in South Korea

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Background: Dental hygienists, who play a vital role in promoting oral health, experience burnout due to various factors. This study aimed to identify these factors through a scoping review of the literature on burnout among dental hygienists in Korea to develop prevention and intervention strategies for burnout.

Methods: The literature review was conducted following a scoping review protocol, which included five stages: identifying the literature question, identifying relevant studies, study selection, charting the data, summarizing, and reporting the results. Of the 352 documents initially reviewed, 35 were ultimately selected as final studies. These documents were analyzed to identify general characteristics and key variables related to burnout and to review the recommendations made by the studies.

Results: Analysis of the final documents revealed that most studies published between 2013 and 2018 involved sample sizes ranging from 201 to 300 participants. Burnout-related characteristics include age, salary, work experience, and marital status. Emotional labor was the key variable most frequently identified, followed by intention to leave, job stress, job satisfaction, job involvement, and self-efficacy.

Conclusion: This study suggests that strategies for preventing and intervening in burnout should be developed through both personal efforts and institutional measures. This approach will improve the work environment for dental hygienists and, consequently, enhance the quality of dental healthcare services.

Key Words: Burnout, Dental hygienists, Emotional intelligence, Employee turnover, Occupational stress

Introduction

1. Background

Dental hygienists are uniquely positioned in clinical settings and engage in continuous, direct interactions with patients. Despite being critical in promoting oral health and preventing diseases, they face various challenges. According to recent surveys on the health workforce conducted by the Ministry of Health and Welfare, dental hygienists have reported difficulties due to conflicts within the profession and have experienced high turnover rates due to excessive workload and psychological burnout[1]. Burnout among dental hygienists is more than just a personal issue; it can affect the quality of patient care and the efficiency of the healthcare system.

Burnout is a reaction that manifests as emotional exhaustion, depersonalization, and reduced personal accomplishment when emotional or interpersonal stressors persist over a long period[2]. The accumulation of excessive work demands can lead to indifference toward various aspects of the job, satisfaction with only minimal performance in the healthcare setting, and a decline in the quality of patient care. Furthermore, it can lead to decreased personal achievement and self-confidence[3]. Ultimately, burnout worsens dental hygienists' physical and mental health, adversely affecting the quality of care and services provided to patients[4].

Most domestic studies on burnout among dental hygienists have utilized the Maslach Burnout Inventory (MBI) deve-

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loped by Maslach in the United States. These studies have shown that higher scores for emotional exhaustion and depersonalization and lower scores for personal accomplishment are associated with increased burnout intensity[5]. Subsequent measurements were also taken using modified tools such as the Maslach Burnout Inventory-General Survey (MBI-GS) and the Maslach Burnout Inventory Human Services Instrument)[6]. The relationship between burnout and various factors such as turnover intention[7,8], job stress[9], and emotional labor[10] has shown positive correlations, whereas job satisfaction[11], organizational commitment[12], self-efficacy[10], and happiness index[9] have shown negative correlations. Additionally, general characteristics such as age[13], marital status[14], education level[15], work experience[13], and salary[14] have also influenced burnout outcomes in different studies. Despite various previous studies on the leading causes and results of burnout among dental hygienists, most have presented isolated findings by focusing on specific variables. A systematic collection, analysis, and interpretation of these studies is necessary for a comprehensive understanding. Through a scoping review, it is imperative to understand the current state of research on this topic, identify areas for further investigation, and outline future research directions. Developing strategies to mitigate burnout among dental hygienists in clinical settings is essential.

2. Objectives

This study aimed to extensively review the existing literature on burnout among dental hygienists in Korea, examine the trends in the literature, and promote a comprehensive understanding of this issue. This study aimed to develop evidence-based prevention and intervention strategies by identifying various factors influencing burnout and synthesizing suggestions from the literature. Ultimately, this study contributes to improving the working environment of dental hygienists, thereby improving the quality of dental healthcare services.

Materials and Methods

This scoping review aimed to identify factors affecting burnout among Korean dental hygienists. This study was conducted according to the scoping review protocol outlined by Arksey and O'Malley[16]. The study process was divided into five stages: 1) identifying the research question, 2) identifying relevant studies, 3) study selection, 4) charting data, and 5) collating, summarizing, and reporting the results. The researchers adhered to this five-stage protocol and consulted the PRISMA Extension for Scoping Reviews (PRISMA-ScR) for the study design[17].

1. Identifying the research question

Comprehensive literature reviews are recommended to formulate research questions that allow for an extensive research approach while precisely articulating the questions. The research question can be structured using the Population, Concept, Context (PCC) format[18]. For this study, the population comprised dental hygienists, the concept of burnout, and the context of dental healthcare facilities in South Korea. Accordingly, the research questions are as follows:

- What are the trends in burnout research among dental hygienists in Korea?
- What factors are related to burnout among dental hygienists in Korea?
- What are the suggested interventions based on research on burnout among dental hygienists in Korea?

2. Identifying relevant studies

1) Search strategy

The literature analyzed was sourced from January 2000 to December 2023 using Korean electronic databases, such as the Korean Studies Information Service System (KISS), Korea Institute of Science and Technology Information (KISTI), Research Information Service System (RISS), National Assembly Library (Nanet), KoreaMed Base (KMBASE), and Nurimedia (DBpia). Additional sources included the websites of the Korean Society of Dental Hygiene and the Korean Society of Dental Hygiene Science. The search terms used were 'dental hygienists' AND ('소진' OR 'burnout').

2) Inclusion and exclusion criteria

The inclusion criteria were research papers published in Korean academic journals from 2001 to 2023, focusing on burnout among dental hygienists working in Korean den-

tal healthcare facilities, and written in Korean or English. The exclusion criteria were studies in which the subjects were not dental hygienists, dissertations, qualitative research, conference proceedings, books, or literature for which the full text was unavailable were excluded. We limited the literature to studies published in academic journals because we believe that a rigorous review process for journal publications ensures the quality of the studies[19].

3. Study selection

A total of 352 articles were initially retrieved from the KISS (n=100), KISTI (n=29), RISS (n=69), Nanet (n=57), KMbase (n=11), DBpia (n=57), Journal of Korean Society of Dental Hygiene (n=23), and Journal of Korean Society Dental Science (n=6). The selection process involved reviewing titles and abstracts based on set criteria, followed by full-text reviews. Two researchers independently conducted the selection, and disagreements were resolved through discussion. The selection process results are presented using the PRISMA flow diagram, as recommended by the Joanna Briggs Institute guidelines (Fig. 1)[20].

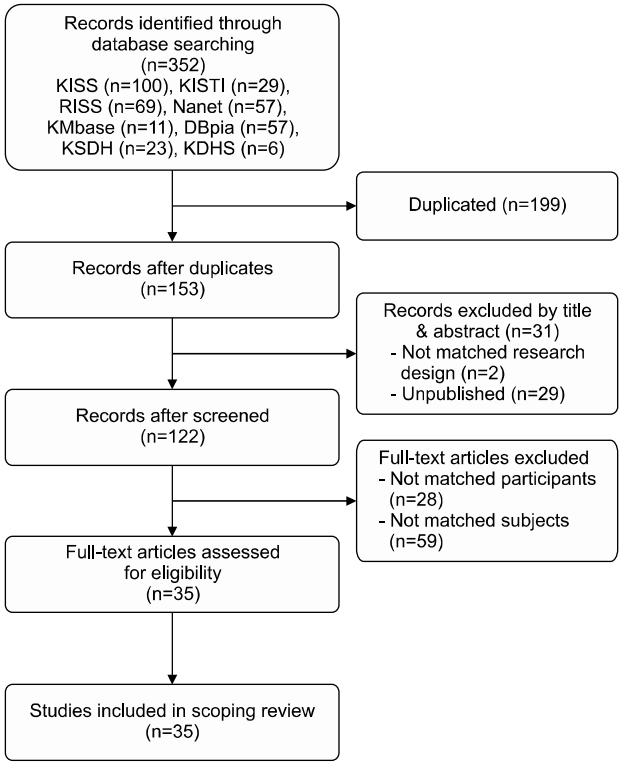

Fig. 1. Flow diagram for study selection according to PRISMA.

4. Charting data

The researchers developed a framework for analysis adapted to the objectives of this study based on methodologies used in nursing literature reviews in Korea[21]. The extracted information was organized into the general characteristics of the studies and thematic analysis. Data were entered into Microsoft Excel 2019 (Microsoft, Redmond, WA, USA).

5. Collating, summarizing, and reporting the results

The final set of studies was analyzed using descriptive statistics for frequencies and percentages. This phase is presented in the results section.

Results

1. General characteristics of the study

A total of 35 studies conducted in Korea on burnout among dental hygienists were analyzed. The general characteristics of these studies were examined based on the publication year, source of literature, number of subjects, and whether Institutional Review Board (IRB) procedures were followed. Detailed results are presented (Table 1).

1) Year of publication

No studies were identified between the search start year of 2001 and 2005. From 2006 to 2012, 8 studies (22.9%) were published between 2013 and 2018, with 18 papers (51.4%); from 2019 to 2023, there were 9 studies (25.7%). In 2016, they featured the highest number of publications on burnout among 5 studies.

2) Sample size

The size of the samples varied: 1 study had less than 100 participants (2.9%), 8 studies had between 101 and 200 participants (22.9%), 18 studies had between 201 and 300 participants (51.4%), and 8 studies had more than 301 participants (22.9%). The most extensive study had 807 participants, and the smallest had 84 participants.

3) Journal of publication

The studies were published in 13 different journals, with

Table 1. General Characteristics of Included Studies

Variable	Category	Number (%)
Year of publication	2001～2005	0 (0)
	2006～2012	8 (22.9)
	2013～2018	18 (51.4)
	2019～2023	9 (25.7)
Sample size	≤100	1 (2.9)
	101～200	8 (22.9)
	201～300	18 (51.4)
	≥301	8 (22.9)
Journal	Journal of Dental Hygiene Science	7 (20.0)
	Journal of Korean Society of Dental Hygiene	11 (31.4)
	Korean Public Health Research	1 (2.9)
	Journal of Korean Academy Medical Sciences	1 (2.9)
	Journal of Convergence for Information Technology	1 (2.9)
	Journal of Korean Academy of Preventive Dentistry and Oral Health	3 (8.6)
	Journal of Korean Society of Oral Health Science	3 (8.6)
	Journal of Korea Entertainment Industry Association	2 (5.7)
	Journal of Digital Policy	1 (2.9)
	Journal of the Korea Convergence Society	2 (5.7)
	Journal of the Korea Academia-Industrial cooperation Society	1 (2.9)
	The Journal of the Korea Contents Association	1 (2.9)
	The Korean Journal of Health Service Management	1 (2.9)
IRB approval	Yes	16 (45.7)
	Not reported	19 (54.3)

the Journal of the Korean Society of Dental Hygiene featuring the most publications with 11 studies (31.4%), followed by the Journal of Dental Hygiene Science with 7 studies (20.0%). Journals, such as the Korean Academy of Preventive Dentistry and Oral Health and the Korean Society of Oral Health Science, published 3 studies (8.6%). The Korean Entertainment Industry Association and the Korean Convergence Society journals each published 2 studies (5.7%). The Journal of Korean Public Health Research, Korean Academy of Medical Sciences, Convergence for Information Technology, Digital Policy, Korea Academia-Industrial Cooperation Society, and Korea Content Association published 1 study each (2.9%).

4) IRB approval

Among the final selected studies, 16 (45.7%) reported IRB approval, while 19 (54.3%) did not have IRB approval.

2. Analysis of study topics

1) General characteristics related to burnout

Analysis of the general characteristics related to burnout in the selected studies revealed factors such as age, salary, level of education, marital status, work experience, job rank, type of workplace, working hours, average daily number of patients, number of employees, presence of lunch breaks, availability of rest areas, and engagement in hobbies. Studies have indicated a negative relationship between age and burnout, with 9 papers showing higher burnout in younger individuals and one paper showing higher burnout with increasing age (Table 2). Specifically, the literature indicated that burnout was highest among individuals aged 26～30 and 30～34 years, as evidenced by two and one studies.

A total of 8 studies demonstrated that lower salaries correlated with higher levels of burnout. Two studies found higher burnout among those with higher educational levels, whereas 8 studies showed a negative relationship between educational level and burnout. Seven studies reported higher levels of burnout among unmarried individuals. In

Table 2. Correlation Between Various Factors and Burnout among Dental Hygienists

Related variable	Factor	Relationship	Literature	Number
Age		−	A1, A4, A5, A10, A13, A22, A24, A25, A34	9
		+	A27	1
	26～30 years	+	A12, A14	2
	30～34 years	+	A16	1
Salary		−	A1, A4, A10, A14, A16, A24, A32, A34	8
Education level		+	A24, A26	2
		−	A1, A14, A16, A22, A34	5
Marital status	Single	+	A1, A3, A10, A14, A16, A24, A29	7
Work experience		+	A26	1
		−	A1, A4, A5, A10, A16, A24, A25, A30	8
	6～10 years	+	A14, A27, A32, A34	4
Job rank		−	A4, A10, A24	3
Hospital size (type)	Clinic	+	A20, A23, A27	3
	Hospital	+	A10	1
	University hospital	+	A24	1
Working hours	10＋ hours/day	+	A14	1
Average daily patients	40～50/day	+	A14	1
Number of employees		+	A23	1
		−	A16	1
Lunch breaks	Yes	−	A24	1
Rest area available	Yes	−	A32, A34	2
Hobbies	Yes	−	A32, A34	2

eight studies, less work experience was associated with higher burnout, whereas one study reported the opposite. Four studies reported higher burnout among those with 6 to 10 years of experience.

Job rank was negatively correlated with burnout in all 3 studies. Workplace type also influenced burnout levels, with 3 studies showing a positive relationship with burnout at dental clinics, one at a dental hospital, and one at a dental university hospital. Higher burnout was reported when working hours exceeded 10 hours per day, and the average daily number of patients was between 40 and 50, each noted in one study. Studies have shown varying impacts of the number of employees on burnout, with one study each finding higher burnout in settings with more and fewer employees. One study found lower burnout in workplaces with lunch breaks, while rest areas correlated with lower burnout, as reported in two studies. Additionally, two studies have indicated that hobbies are associated with lower burnout.

2) Key variables related to burnout

Analysis of the 35 selected studies revealed that the primary variables related to burnout included emotional labor in 11 studies and turnover intention in 10. Job stress was discussed in 7 studies, job satisfaction in 6 studies, job involvement in 3 studies, and self-efficacy also in 3 studies. Two studies covered emotional intelligence, verbal abuse, and professional identity were each covered in 2 studies. Coping behaviors, organizational effectiveness, health promotion behaviors, empathy fatigue, empathy satisfaction, social support, supervisor support, happiness index, self-esteem, peer support and relationships, physical threats, work environment, Framingham type A behavior pattern[10], resilience, patient rudeness, supervisor rudeness, positive psychological capital, presenteeism, work engagement, grit, role conflict, role overload, and role ambiguity were each discussed in one study (Table 3)[7-15,22-47].

3) Recommendations for burnout

The 35 selected studies offered various recommendations categorized into individual and systemic efforts. At the individual level, dental hygienists should adopt a proactive and positive attitude toward managing burnout and engaging in hobbies and various programs for professional ide-

Table 3. Summary of Literature on Burnout among Dental Hygienists

No.	Author	Year	Measurement tool	Related variable	Recommendation
A1	Kim and Yoon[13]	2007	MBI-GS	Coping behavior	Formation of a positive, proactive personality; urgent need for systematic programs to enhance job values and satisfaction among junior dental hygienists; personal active coping strategies for burnout necessary.
A2	Kim and Yoon[22]	2008	MBI-GS	Organizational effectiveness	Improvement of the work environment; enhancement of responsibility and commitment to the organization; establishment of appropriate compensation systems; activation of promotion systems; diversification of welfare systems; flexible management mindset of hospital administrators.
A3	Park[23]	2009	MBI-HSS	Job satisfaction	Development of various programs by the dental hygienist association.
A4	Heo and Ji[44]	2010	Tedium scale	Job stress, Turnover intention	Intensive management of job-related and interpersonal stress.
A5	Lee and Kim[24]	2010	MBI-HSS	Job satisfaction	Active communication, discussions and consultations with managers, an organic management system, continuous self-development and enhancement of professional qualities by dental hygienists.
A6	Choi et al.[12]	2010	MBI-HSS	Turnover intention, Organizational commitment	Strengthening of bonds among organizational members, strategies to enhance organizational commitment among dental hygienists.
A7	Lee[25]	2011	MBI-HSS	Health-promoting behavior	Participation in professional health promotion programs for physical activity, nutrition, and stress management.
A8	Choi et al.[7]	2011	X	Turnover intention	Stress management, creating a favorable environment to exercise skilled work.
A9	Oh and Jin[26]	2013	MBI	Emotive dissonance	Organizational management of individual emotional labor.
A10	Han and Kim[14]	2014	PROQOL	Empathy fatigue, Empathy satisfaction, Social support	Development of training programs for overcoming burnout (including regular seminars).
A11	Jeong et al.[47]	2014	MBI-GS	Emotional intelligence, Supervisor support, Self-efficacy	Implementation of a five-day workweek, provision of rest areas, support for hobbies and cultural activities, internal organizational efforts (support from supervisors).
A12	Jeong and Han[8]	2015	Tedium scale	Turnover intention, Emotional labor	Support for self-development (graduate studies, hobbies), organizational attention.
A13	Oh[45]	2015	MBI-GS	Emotional dissonance, Turnover intention	Effective management of emotional aspects necessary.
A14	Min et al.[9]	2015	MBI-GS	Turnover intention, Job stress, Happiness index	Joint efforts in the dental field, institutional and administrative support.
A15	Jang and Lee[27]	2015	MBI-GS	Emotional labor, Self-esteem	Identification of organizational member issues, provision of hospital programs to enhance self-esteem.
A16	Lee and Ro[28]	2016	MBI-GS	Career commitment, Organizational commitment, Work involvement	Provision of practical psychological counseling to prevent emotional depletion, appropriate rewards.
A17	Kim[46]	2016	MBI-GS	Emotional labor performance, Peer support	Awareness of the importance of emotional labor management, systems for different groups established by managers and administrators.
A18	Jung[29]	2016	MBI-GS	Degree of emotional labor, Job stress	Need for systemic improvements, support for informal gatherings and clubs, vacations, refresh training, incentives, reduction of overtime outside of dental hygienist duties, adequate staffing, granting of discretionary powers.

Table 3. Continued

No.	Author	Year	Measurement tool	Related variable	Recommendation
A19	Ji[30]	2016	MBI-GS	Turnover intention, Job stress	Creation of a human environment conducive to long-term employment (3+ years).
A20	Min and Kim[11]	2016	MBI-GS	Turnover intention, Job satisfaction, Job stress	Implementation of a preceptor program, considerate care taking into account individual characteristics.
A21	Jeon et al.[31]	2017	MBI-GS	Verbal violence, Physical threat, Work environment, Peer relationships	Managerial intervention in resolving issues when violence occurs.
A22	Jeung et al.[10]	2017	MBI-GS	Emotional labor, Self-efficacy, Framingham type A Behavior Pattern	Development of burnout-related manuals and guidelines, preparation of coping strategies.
A23	Kang and Jang[32]	2017	MBI-GS	Emotional labor	Self-restraint of emotions, organizational-level compensation and management, expansion of welfare benefits.
A24	Jang and Han[15]	2018	MBI-GS	Professional identity, Role stress, Resilience	Enhancement of resilience programs, development of continuing education programs.
A25	Kim and Choi[33]	2018	MBI-GS	Emotional dissonance, Job satisfaction	Receptor system. Improvement of communication systems and welfare policies.
A26	Kim[34]	2018	MBI-GS	Emotional intelligence	Development of emotional regulation programs to reduce burnout and enhance job satisfaction, resulting in increased satisfaction among both external and internal customers.
A27	Yun and Min[43]	2019	Tedium scale	Job stress, Turnover intention, Emotional labor	Development and application of programs to reduce emotional labor and burnout.
A28	Cho et al.[35]	2019	MBI-GS	Patient rudeness, Supervisor rudeness, Job satisfaction	Responsibilities and training for dental clinic managers or lead dental hygienists to handle rudeness, lists of rude patients, emotional intelligence enhancement programs, regular workshops, character education for creating a healthy organizational culture for college freshmen and new dental hygienists.
A29	Min[36]	2020	PROQOL	Positive psychological capital	Psychological support, institutional measures.
A30	Lee et al.[37]	2020	MBI-GS	Verbal violence	Development of situational coping manuals, education programs for preventing and intervening in verbal violence, administrative and management systems.
A31	Min and Min[38]	2021	Tedium scale	Presenteeism	Development of health promotion programs, organizational support.
A32	Oh and Han[39]	2022	Tedium scale	Job embeddednes, Emotional labor	Provision of rest areas, support for hobbies and leisure activities.
A33	Park et al.[40]	2022	Tedium scale	Job satisfaction, Organizational commitment	Psychological counseling and short-term leaves.
A34	Won[41]	2022	Tedium scale	Grit	Recognition of professional identity, goal setting, and organizational support necessary for achieving goals.
A35	Baek and Ji[42]	2023	MBI-GS	Role conflict, Role overload, Role ambiguity, Professional identity	Establishment of professional identity.

MBI-GS: Maslach Burnout Inventory - General Survey, MBI-HSS: Maslach Burnout Inventory - Human Services Survey, PROQOL: Professional Quality Of Life Scale.

ntity development. Participation in specialized health promotion programs on nutrition and stress management is also recommended. At the organizational level, managers should adopt a flexible management style to enhance organizational effectiveness. Systematic efforts should include developing burnout prevention and management programs through regular seminars or continuing education professional associations provide. Therefore, burnout guidelines and manuals need to be developed. Improvements in the work environment are recommended, such as adequate staffing, provision of discretionary powers, activation of promotion systems, and establishment of a proper remuneration system. Proposals have been made to diversify welfare systems, including support for hobbies and cultural activities, incentives, club activities, and the provision of rest areas. The preceptor system has been suggested to reduce burnout among newer dental hygienists. Supportive measures, such as psychological counseling to overcome burnout, were also deemed necessary, alongside a call for collaborative efforts within the dental community.

Discussion

1. Interpretation and comparison to previous studies

This study used a scoping review methodology to analyze and discuss domestic literature on dental hygienist burnout, focusing on its causes and mitigation strategies. Unlike in-depth analyses of individual studies, this scoping review broadly examines the status and scope of research in the field[48]. The Journal of Dental Hygiene Science and the Journal of the Korean Society of Dental Hygiene are the leading journals in dental hygiene. A total of 35 studies published between 2001 and December 2023 were selected as final references, reflecting the period of literature published in these two journals from their inception to the present. Burnout among dental hygienists is complex and influenced by various factors, such as working conditions, personal characteristics, and organizational systems. This study synthesized trends and findings from the selected literature by comparing studies and collating suggestions to improve the work environment for dental hygienists.

Analysis of publication years revealed that most studies (51.8%) were published between 2013 and 2018. The first domestic study on dental hygienist burnout was published in 2007, and the international literature dates back to 1984[49]. A significant increase in empirical studies was noted post-2005 following a critical review highlighting the lack of substantial literature on this topic[50]. Domestically, a 2012 "2nd job analysis"[51] by the Korean Health Personnel Licensing Examination Institute highlighted discrepancies.

Between the duties performed by dental hygienists and those legally prescribed, potentially leading to adverse administrative actions, increased job stress, and turnover intention. This has amplified calls for legal revisions to reflect better the reality faced by clinical dental hygienists, prompting further research on their actual conditions[52].

The study sample size ranged from 84 to 807 participants, with 51.4% of the final studies including 201 to 300 participants. While most studies determined sample sizes based on statistical power and effect size, some needed to justify their sample size calculations, leading to inconsistencies in the sampling strategies between studies. There is a clear need for literature reviews with appropriate sample sizes in dental hygiene research to establish guidelines that ensure sufficient statistical power for the objectives of similar studies.

An analysis of published journals revealed that over half of the literature on dental hygiene education, which began in 1965, came from the Journal of Dental Hygiene Science and the Journal of the Society of Dental Hygiene, both flagship journals with a history of over 20 years. This indicates that many dental hygienists have researched various capacities, demonstrating academic advancement in dental hygiene and emphasizing the need for evidence to enhance professional scope and expertise. In addition to dental hygiene journals, research has been published in journals on preventive dentistry, oral health, health medicine, and integrated studies, allowing for a broad range of perspectives.

Ethical considerations showed that 16 papers were approved, whereas 19 did not provide details on compliance with research ethics. Since 2013, compliance with regulations concerning human subject research ethics under the Bioethics and Safety Act has been mandatory[53]; several recent studies have lacked IRB approval, highlighting the need for education on the importance of IRB reviews and

more robust recommendations for IRB approval.

Examination of the general characteristics associated with burnout in the remaining 35 studies revealed inconsistent findings. Studies have found a negative correlation between burnout and factors such as age, experience, job rank, and marital status. Most studies indicated higher burnout levels among younger, less experienced, and lower-ranked individuals and those who were unmarried. This might be interpreted as older, more experienced, or higher-ranked individuals having a better understanding of burnout triggers and managing conflicts during clinical practice more effectively and married individuals with more emotional and psychological stability[13]. Some studies classified ages 26～30 and 30～34 years and found higher burnout among individuals with 6～10 years of experience, suggesting that the initial enthusiasm for the job diminishes as one becomes more skilled, leading to conflicts over roles, social support, and self-achievement after about three years[54]. The need for organizational seminars and continuing education programs targeting new dental hygienists is evident. In addition, universities should minimize the discrepancies between educational curricula and clinical practice, and postgraduate in-service training programs should be developed to offer advanced courses. In contrast, some studies have shown higher burnout with increasing age, suggesting that burnout follows the assignment of responsibilities and a lack of confidence[43]. Enhancing promotion and incentive systems may reduce burnout among older, higher-ranking dental hygienists.

Salary plays a significant role in the burnout of dental hygienists in Korea, with all eight studies showing a negative relationship between burnout and turnover intention[9,44]. Turnover intention reflects dissatisfaction with one's current job and a desire to change workplaces or professions and serves as a crucial predictor of job turnover[55]. Systematic reviews on turnover intention among Korean dental hygienists have highlighted burnout as a highly influential factor[56]. Dental hygienists must continuously develop and enhance their professional qualities to cope with burnout. Managing nutrition and stress is crucial. This should lead to ongoing internal growth, strengthen organizational cohesion, foster member cooperation, ensure adequate staffing, and allow task discretion.

The final literature search identified emotional labor as the most prevalent factor related to burnout, appearing in 11 articles. Dental hygienists must constantly adjust their emotions from the patient's perspective to ensure service quality satisfaction, which can lead to frequent intentions to leave due to burnout caused by emotional labor[45]. Kim's study[46] suggests that colleague support (employing support) within organizational relationships can moderate job burnout. A conducive environment for effective communication with colleagues and supervisor support is necessary, and tailored management systems for each group are required. Enhancing welfare systems that allow for self-development and strengthening the preceptor system is essential for reducing emotional labor and decreasing burnout among dental hygienists.

Following emotional labor, the turnover intention has also significantly impacted burnout. Frequent turnover of dental hygienists has led to persistent staffing shortages in clinical dental settings[56]. Most studies have found a positive correlation between higher burnout levels and increased turnover intention[3,9,12,20,44]. Lee's systematic review and meta-analysis literature[56] of the turnover intention of dental hygienists. Among the factors demonstrating a medium effect size or greater on turnover intention, ten were protective factors, showing high correlations with organizational commitment, perceived organizational support, and job satisfaction. These findings indicate that protective factors have a more substantial impact on turnover intention than risk factors do. Therefore, strategies promoting protective factors may effectively reduce turnover intention, mitigating burnout.

The final literature review summarizes the suggestions for burnout in terms of personal and organizational commitment. empathy satisfaction[14], job satisfaction[11], self-efficacy[10], organizational commitment[12], supervisor support[47], and professional identity[15]. A systematic review of burnout among nurses found results similar to this study[57], with empathy satisfaction, job satisfaction, professional self-concept, self-efficacy, and health status as protective factors. To develop a positive professional self-concept and self-efficacy, continuous education should be provided, from undergraduate dental hygiene education to dental clinical practice. Continuous self-development and profe-

ssional improvement of dental hygienists are necessary through in-service training programs and continuing education or seminars at the association level. Appropriate remuneration and welfare systems should be established and expanded for job satisfaction to maintain long-term intentions. In addition, communication systems should be improved through interceptor systems, and individual characteristics should be considered to form a healthy organizational culture. Individual efforts are important; however, dental hygienist burnout also requires collective efforts from institutional and administrative dental communities.

2. Limitations and suggestions for further studies

This study has limitations, as it excluded qualitative literature and selected only a subset of studies focusing on clinical dental hygienists in Korea, thus not encompassing a broad range of results. However, its significance lies in analyzing the current literature on burnout among dental hygienists published in Korea, identifying factors influencing burnout, and providing evidence-based suggestions for developing prevention and intervention strategies based on the findings of the reviewed studies.

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

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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.

References

1. Shin YS, Lee SH, Lee YH, et al.: Survey on the current status of health and medical personnel. Ministry of Health and Welfare, Sejong, pp.661-671, 2021.
2. Maslach C, Schaufeli WB, Leiter MP: Job burnout. Annu Rev Psychol 52: 397-422, 2001. https://doi.org/10.1146/annurev.psych.52.1.397
3. Maslach C, Leiter MP: New insights into burnout and health care: strategies for improving civility and alleviating burnout. Med Teach 39: 160-163, 2017. https://doi.org/10.1080/0142159X.2016.1248918
4. Deeb GR, Braun S, Carrico C, Kinser P, Laskin D, Golob Deeb J: Burnout, depression and suicidal ideation in dental and dental hygiene students. Eur J Dent Educ 22: e70-e74, 2018. https://doi.org/10.1111/eje.12259
5. Maslach C, Jackson SE: The measurement of experienced burnout. J Organ Behav 2: 99-113, 1981. https://doi.org/10.1002/job.4030020205
6. Maslach C, Jackson SE, Leiter MP: Maslach burnout inventory manual. 3rd ed. Consulting Psychologists Press, Palo Alto, p.191-218, 1997.
7. Choi HN, Lee JW, Cho YS: Factors associated with turnover intention of public health dental hygienist. J Korean Soc Dent Hyg 11: 343-351, 2011.
8. Jeong KY, Han OS: A study on emotional labor, emotional burnout, turnover intention of dental hygienist. J Dent Hyg Sci 15: 280-286, 2015. https://doi.org/10.17135/jdhs.2015.15.3.280
9. Min HH, Jeon JH, Kim YS: Influencing factors of turnover intention in the clinical dental hygienists. J Korean Soc Dent Hyg 15: 831-839, 2015.

https://doi.org/10.13065/jksdh.2015.15.05.831
10. Jeung DY, Lee HO, Chung WG, et al.: Association of emotional labor, self-efficacy, and type a personality with burnout in Korean dental hygienists. J Korean Med Sci 32: 1423-1430, 2017. https://doi.org/10.3346/jkms.2017.32.9.1423
11. Min HH, Kim YS: Factors influencing turnover intention in new dental hygienists. J Korean Soc Dent Hyg 16: 1047-1055, 2016. https://doi.org/10.13065/jksdh.2016.16.06.1047
12. Choi HN, Lim SR, Cho YS: Factors associated with turnover intention of dental hygienist. J Korean Soc Dent Hyg 10: 973-981, 2010.
13. Kim YS, Yoon HS: Burnout among clinical dental hygienists and its coping behaviors. J Dent Hyg Sci 7: 225-233, 2007.
14. Han YK, Kim HH: The relationship among burnout, compassion fatigue, compassion satisfaction and social support of clinical dental hygienists. J Dent Hyg Sci 14: 256-263, 2014.
15. Jang HA, Han SJ: Effect of role stress, resilience, and professional identity on burnout in dental hygienists. J Korean Soc Dent Hyg 18: 683-691, 2018. https://doi.org/10.13065/jksdh.20180059
16. Arksey H, O'Malley L: Scoping studies: towards a methodological framework. Int J Soc Res Methodol 8: 19-32, 2005. https://doi.org/10.1080/1364557032000119616
17. Tricco AC, Lillie E, Zarin W, et al.: PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med 169: 467-473, 2018. https://doi.org/10.7326/M18-0850
18. Lockwood C, Dos Santos KB, Pap R: Practical guidance for knowledge synthesis: scoping review methods. Asian Nurs Res (Korean Soc Nurs Sci) 13: 287-294, 2019. https://doi.org/10.1016/j.anr.2019.11.002
19. Chang SJ, Jang SJ, Lee SH, Lee HO: Factors influencing quality of life and its measurements in patients with hypertension: a systematic review. J Muscle Jt Health 24: 24-36, 2017. https://doi.org/10.5953/JMJH.2017.24.1.24
20. The Joanna Briggs Institute: Joanna briggs institute reviewers' manual: 2015 edition / supplement. The Joanna Briggs Institute, Adelaide, 2015.
21. Seo HJ: The scoping review approach to synthesize nursing research evidence. Korean J Adult Nurs 32: 433-439, 2020. https://doi.org/10.7475/kjan.2020.32.5.433
22. Kim YS, Yoon HS: A study on burnout and organizational effectiveness of dental hygienists. J Dent Hyg Sci 8: 291-297, 2008.
23. Park JH: Burnout and job satisfaction among dental hygienists in some legions. J Korean Soc Dent Hyg 9: 569-579, 2009.
24. Lee BH, Kim JS: Analysis of the correlation of burnout, job satisfaction and turnover of dental hygienists. J Korea Contents Assoc 10: 217-227, 2010. https://doi.org/10.5392/JKCA.2010.10.11.217
25. Lee BH: Analysis of the correlation of burnout and health promoting behaviors of dental hygienists. Korean J Health Serv Manag 5: 111-121, 2011. https://doi.org/10.12811/kshsm.2011.5.3.111
26. Oh HY, Jin KN: A study on emotional labor and burnout in dental hygienist. J Dent Hyg Sci 13: 71-76, 2013.
27. Jang KA, Lee HS: Factors affecting the self esteem of a convergence dental hygienist. J Korea Converg Soc 6: 177-186, 2015. http://doi.org/10.15207/JKCS.2015.6.4.177
28. Lee JC, Ro HL: Influence of burnout on job commitment in dental hygienists: in the Gyeongsang-do region. J Digit Converg 14: 31-42, 2016. http://doi.org/10.14400/JDC.2016.14.9.31
29. Jung EK: Relationship between emotional labor and burnout among dental hygienists. J Korean Soc Dent Hyg 16: 53-59, 2016. https://doi.org/10.13065/jksdh.2016.16.01.53
30. Ji MG: The effect of turnover intention on the job stress, burn out and organizational commitment - focused on new dental hygienists -. J Korea Entertain Ind Assoc 10: 379-387, 2016. http://doi.org/10.21184/jkeia.2016.12.10.6.379
31. Jeon EJ, Han MA, Park J, Choi SW: The effect of violent experience on burnout among some dental hygienists. J Dent Hyg Sci 17: 413-422, 2017. http://doi.org/10.17135/jdhs.2017.17.5.413
32. Kang MH, Jang SJ: Convergent relationship between emotional labor, burnout, Job satisfaction and turnover intention in the dental hygienists. J Korea Converg Soc 8: 95-103, 2017. https://doi.org/10.15207/JKCS.2017.8.8.095

33. Kim CR, Choi JS: Mediating effects of burnout and moderating effects of organizational support on the relationship between emotional dissonance and job satisfaction in dental hygienists. J Korean Soc Dent Hyg 18: 489-499, 2018. http://doi.org/10.13065/jksdh.20180050
34. Kim YI: Factors affecting clinical dental hygienist emotional intelligence on burnout. J Korea Acad Ind Coop Soc 19: 410-416, 2018. http://doi.org/10.5762/KAIS.2018.19.8.410
35. Cho MM, Kim JB, Kwun HS, et al.: Impact of incivility experienced by dental hygienists on organizational achievement -as a mediating effect of emotional exhaustion. J Korean Acad Oral Health 43: 163-169, 2019. https://doi.org/10.11149/jkaoh.2019.43.3.163
36. Min HH: Influencing of compassion satisfaction and burnout on positive psychological capital of clinical dental hygienists. J Korean Soc Dent Hyg 20: 787-795, 2020. http://doi.org/10.13065/jksdh.20200073
37. Lee MJ, Lee HJ, Kwon JH, Kim EH, Kim JH: The effect of verbal violence experienced by dental hygienists on job stress and turnover intention and burn-out. J Korean Oral Health Sci 8: 1-10, 2020. http://doi.org/10.33615/jkohs.2020.8.3.1
38. Min KH, Min HH: Influences of presenteeism of clinical dental hygienists. J Korean Acad Oral Health 45: 82-86, 2021. http://doi.org/10.11149/jkaoh.2021.45.2.82
39. Oh HN, Han YS: The effect of emotional labor and burnout on job embeddedness in dental hygienists. J Korea Entertain Ind Assoc 16: 313-320, 2022. https://doi.org/10.21184/jkeia.2022.10.16.7.313
40. Park MJ, Min HH, Lee HJ: Factors affecting job satisfaction due to organizational commitment and burnout of clinical dental hygienists. J Korean Oral Health Sci 10: 96-102, 2022. https://doi.org/10.33615/jkohs.2022.10.1.96
41. Won YS: Convergence study about grit among dental hygienist. J Converg Inf Technol 12: 99-108, 2022. http://doi.org/10.22156/CS4SMB.2022.12.01.099
42. Baek JM, Ji JH: The effect of role stress on dental hygienists' job burnout and turnover intentions: the moderated mediating effect of professional identity. J Korean Oral Health Sci 11: 50-57, 2023. https://doi.org/10.33615/jkohs.2023.11.3.50
43. Yun MH, Min HH: Factors influencing burnout in clinical dental hygienists. J Korean Soc Dent Hyg 19: 975-982, 2019. https://doi.org/10.13065jksdh.20190083
44. Heo SE, Ji JH: The mediating effects of burnout on the relationships between job stress and turnover intention for dental hygienists. Korean Public Health Res 36: 35-55, 2010. https://doi.org/10.22900/kphr.2010.36.2.004
45. Oh HS: Relationship between emotional labor, burnout and turnover intention in the dental hygienists. J Korean Soc Dent Hyg 15: 641-648, 2015. https://doi.org/10.13065/jksdh.2015.15.04.641
46. Kim JY: Influence of emotional labor on job burnout in dental hygienists: the moderating effect of employee support. J Korean Soc Dent Hyg 16: 751-758, 2016. https://doi.org/10.13065/jksdh.2016.16.05.751
47. Jeong SB, Choi EM, Choi JS: The effects of emotional labor on burnout, turnover intention, and job satisfaction among clinical dental hygienists. J Korean Acad Oral Health 38: 50-58, 2014. https://doi.org/10.11149/jkaoh.2014.38.1.50
48. Sarrami-Foroushani P, Travaglia J, Debono D, Clay-Williams R, Braithwaite J: Scoping meta-review: introducing a new methodology. Clin Transl Sci 8: 77-81, 2015. https://doi.org/10.1111/cts.12188
49. Deckard GJ, Rountree B: Burnout in dental hygiene. Dent Hyg (Chic) 58: 307-313, 1984.
50. Gorter RC: Work stress and burnout among dental hygienists. Int J Dent Hyg 3: 88-92, 2005. https://doi.org/10.1111/j.1601-5037.2005.00130.x
51. Park JR, Kang KH, Kim SA, et al.: Dental hygienist second job analysis study. Korea Health Personnel Licensing Examination Institute, Seoul, pp.116-171, 2012.
52. Han YK, Kim SH, Yang JY, Yu JS, Bae SM: A survey of dentists' opinions on the performance of dental hygienists. J Kor Acad Dent Admin 7: 1-9, 2019. https://doi.org/10.22671/JKADA.2019.7.1.1
53. Kim JB, Kim JS: Institutional review board and research ethics. J Korean Acad Pediatr Dent 41: 187-192, 2014. https://doi.org/10.5933/JKAPD.2014.41.2.187
54. Ju OJ, Kim KS, Lee HO: Analysis of the correlation of job satisfaction to turnover among dental hygienists in the region of J. J Dent Hyg Sci 7: 251-256, 2007.
55. Yoo EM, Han HJ: A study on the work and turnover of

clinical dental hygienists. J Dent Hyg Sci 11: 41-46, 2011.
56. Lee DS, Hong HK, Han GS: Turnover intention among dental hygienists in Korea: a systematic review and meta-analysis. J Korean Soc Dent Hyg 22: 259-272, 2022. https://doi.org/10.13065/jksdh.20220029
57. Kim SH, Yang YS: A meta analysis of variables related to burnout of nurse in Korea. J Digit Converg 13: 387-400, 2015. https://doi.org/10.14400/JDC.2015.13.8.387