

# Influence of Job Crafting on Evidence-Based Practical Skills of Dental Hygienists

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**Background:** As the medical knowledge base grows at an accelerating rate, evidence-based clinical performance becomes increasingly important for providing quality care. Previous studies have highlighted the need to promote job crafting to actualize evidence-based practical skills in the medical field. This study aimed to investigate the degree of evidence-based practice among dental hygienists and assess the impact of job crafting on the evidence-based practical skills of dental hygienists.

**Methods:** Dental hygienists working at dental hospitals and clinics in Seoul and Gyeonggi Province were surveyed between February 28 and April 6, 2023. The sample was comprised of 267 participants. The hypotheses were tested independent t-tests, one-way analysis of variance, Pearson's correlation coefficients, and multiple regression analyses using SPSS 29.0.

**Results:** The degree of job crafting by dental hygienists demonstrated significant differences based on educational attainment, workplace size, and workplace type. Evidence-based practical skills exhibited significant variations based on educational attainment and job position. All job crafting subfactors demonstrated positive correlations with evidence-based practical skills. The job crafting subfactors affecting the evidence-based practical skills of dental hygienists were 'increasing structural job resources' and 'increasing challenging job demands,' which together explained 38.7% of the variance in evidence-based practical skills.

**Conclusion:** This study demonstrates that job crafting was positively and significantly correlated with evidence-based practical skills. To strengthen the job crafting ability of dental hygienists, improving environmental conditions and fostering an organizational culture that motivates continued participation in education is necessary. The development and promotion of programs that enable learning of the latest evidence should be actively pursued. Additionally, regular attendance at workshops and participation in organizational evidence-based practice education programs are necessary.

**Key Words:** Dental hygienists, Evidence-based practice, Job crafting

## Introduction

### 1. Background

As a result of recent changes in the healthcare environment and rapid advancements in medical technology, a concomitant acceleration has been observed in the accumulation of medical knowledge and the burden of medical costs<sup>1</sup>. Consequently, it is becoming increasingly important for clinical practice to be grounded in solid scientific evidence to provide high-quality healthcare services<sup>2</sup>. Dental hygienists, who have the most contact with patients in cli-

nical dental settings, are increasingly required to possess evidence-based practical skills to provide cost-effective and scientific healthcare<sup>3</sup>. Consequently, evidence-based practice has become an important paradigm in the education, practices, and policies of healthcare professionals worldwide<sup>4</sup>.

Evidence-based practice involves crafting questions that can help solve patient problems, searching for relevant literature, and applying the results of a literature analysis to clinical practice<sup>5</sup>. When this process is conducted skillfully, it enables high-level dental hygiene care and improves patient outcomes<sup>2</sup>. Evidence-based practical skills refer to

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the comprehensive ability of dental hygienists to apply behaviors, attitudes, knowledge, and skills rooted in the most valid and available evidence to guide decision-making in clinical settings<sup>6</sup>). In the United States and Canada, evidence-based practice was first introduced to dentistry and dental hygiene in the 1990s. Following the introduction, standardized clinical dental hygiene practice guidelines have been developed and utilized to provide evidence-based dental hygiene care to patients<sup>7</sup>). In South Korea, dental hygiene management courses were first introduced in the 2000s<sup>5</sup>). More recently, standardized clinical dental hygiene practice guidelines supporting evidence-based, patient-centered dental hygiene care have been developed and proposed. According to these guidelines, evidence-based dental hygiene care is considered to be an essential element for becoming a professional dental hygienist<sup>7</sup>). Moreover, the need to promote job crafting activities has been proposed as a method to enhance evidence-based skills in clinical practice<sup>2</sup>).

Job crafting is the process of autonomously adapting the characteristics and competencies of assigned tasks to make one's work more meaningful<sup>8</sup>). Job crafting activities stimulate a person's motivation for tasks, making them more meaningful and, thereby, enhancing job satisfaction, job identity, and relationship building<sup>9</sup>). Job crafting has a positive impact on task activation and self-development promotion. Moreover, job crafting also has a positive effect on voluntary participation in achieving organizational goals<sup>10</sup>), leading to improved service quality, increased productivity, and organizational benefits<sup>9</sup>). In clinical practice, however, job boundaries can become unclear. Performing various roles can increase job-related stress and decrease job satisfaction and enthusiasm, resulting in a decline in the quality of dental healthcare services and a failure to meet consumer expectations<sup>11</sup>). Dental hygienists can improve the quality of their service by securing their job identity and by enhancing job enthusiasm through job crafting. Despite the importance of job crafting and evidence-based practice competency for dental hygienists, a lack of research related to evidence-based practical skills and job crafting in South Korea has been observed.

Previous studies have revealed that evidence-based practice is not properly implemented in clinical settings. Dental hygiene associations in the United States and Canada

have recognized the importance of evidence-based dental hygiene practices since the late 1990s and have supported related research and education. However, evidence-based practice is not adequately implemented at the level of individual clinical dental hygienists<sup>5</sup>). Additionally, clinical practitioners rarely read the research literature and, instead, rely primarily on the opinions of well-known dentists whom they might encounter in professional journals or during continuing education courses<sup>5</sup>). In South Korea, no studies have been conducted on evidence-based practice among dental hygienists. Therefore, surveying the current situation and establishing measures to promote evidence-based practice in clinical settings is necessary.

The variables related to evidence-based practical skills include a belief in evidence-based practice<sup>4</sup>), critical-thinking tendencies<sup>6</sup>), and information retrieval skills<sup>12</sup>). These variables are reportedly relevant for supporting and establishing confidence in evidence-based practice, as well as for problem-solving thinking and behaviors<sup>4,6</sup>). The variables related to job crafting include authentic leadership<sup>13</sup>), information utilization skills<sup>14</sup>), job satisfaction<sup>10</sup>), and job enthusiasm<sup>15</sup>). These variables are reportedly relevant for the voluntary performance of duties and the proactive promotion of various tasks by healthcare professionals<sup>13</sup>). Although different variables have been studied in other health-related fields, research in dental hygiene is lacking. Therefore, analyzing the relationship between job crafting and evidence-based practical skills in the dental hygiene field is essential.

## 2. Objectives

This study aimed to survey the degree of job crafting and evidence-based practical skills among clinical dental hygienists, analyze the impact of job crafting on evidence-based practical skills, and provide basic data for developing measures to improve evidence-based practical skills.

## Materials and Methods

### 1. Ethics statement

This study was approved by the Ethics Committee of Eulji University (EUIRB2022-092).

## 2. Study design

The survey used in this study consisted of measurement tools about the general characteristics of participants, job crafting, and evidence-based practice experience and skills.

### 1) General characteristics

General characteristics were assessed using eight questions related to sex, age, educational attainment, workplace size, workplace type, work experience, position, and main duties.

### 2) Evidence-based practice experience

Evidence-based practice experience refers to efforts made to utilize the latest research findings in clinical settings. The measurement tool used in this study was adapted and modified from previous studies by Park<sup>16)</sup> and Cho<sup>17)</sup>. This tool consisted of six questions assessing “familiarity with the term evidence-based practice,” “research experience,” “membership in academic organizations,” “regular attendance at academic conferences,” knowledge of the “situation in which research evidence is most needed in practice,” and the ‘most commonly used problem-solving method when something unknown is present in practice.’

### 3) Job crafting

The job crafting measurement tool used in this study was developed by Tims and Bakker<sup>18)</sup> and adapted by Cho<sup>19)</sup>. The tool consists of 21 items, with five items related to ‘increasing structural job resources, five items related to increasing social job resources, five items related to increasing challenging job demands, and six items related to decreasing job demands. The items were rated on a 5-point Likert scale, in which “strongly agree” was assigned 5 points and “strongly disagree” was assigned 1 point. High scores indicated high levels of job crafting<sup>18)</sup>. Using this tool, increasing structural job resources refers to efforts to learn new things for task competence and professional development. Increasing social job resources involves seeking advice, feedback, and ideas to enhance relationship satisfaction within a job context. Increasing challenging job demands pertain to voluntarily and actively engaging in new tasks or changing existing ones, which leads to a sense of accomplishment. Reducing hindering job demands

involves efforts to minimize the psychological demands arising from interpersonal relationships, job tasks, overload, and role conflicts<sup>19)</sup>. The tool was identified to have a Cronbach’s alpha of 0.83 (structural, 0.81; social, 0.83; challenging, 0.68; and hindering, 0.69) in this study.

### 4) Evidence-based practical skills

The measurement tool used in this study was developed by Upton and Upton<sup>20)</sup> and adapted by Lim et al.<sup>1)</sup>. The tool consisted of 24 items, including six items related to “practice,” four items related to “attitude,” and 14 items related to “knowledge.” The items were rated on a 7-point scale, in which “frequently” was assigned 7 points and “not at all” was assigned 1 point. A high score indicated a strong perception of evidence-based practice<sup>1)</sup>. Using this tool, “practice” refers to behaviors related to searching for and evaluating scientific evidence, sharing evidence with colleagues or patients, collecting and assessing outcome data, and using evidence for practice changes<sup>3)</sup>. “Attitude” involves a recognition of the necessity and importance of evidence-based practice, a willingness to engage in evidence-based practice, and a willingness to engage in actions for practice change. “Knowledge” refers to the knowledge needed to transform the required information into clear questions, as well as the skills needed to search for appropriate literature to answer those questions<sup>21)</sup>. This tool had a Cronbach’s alpha of 0.92 (practice, 0.82; attitude, 0.64; and knowledge, 0.92).

## 3. Sample size

The minimum required sample size for the linear multiple regression was calculated to be 213 individuals using the G\*Power 3.1.9.7 analysis program, with an effect size of 0.15, a significance level of 0.05, and a power of 95%.

Between February 28, 2023, and April 6, 2023, 273 dental hygienists working at dental hospitals and clinics in Seoul and Gyeonggi-do were selected. After obtaining informed consent from the participants, a self-administered survey was conducted both online and offline. Among the collected surveys, 267 complete and valid responses were used as the final dataset after excluding 45 incomplete or inadequate responses.

#### 4. Statistical methods

The data collected in this study were analyzed using Statistical Package for the Social Sciences (SPSS) Version 29.0 (IBM Corp., Armonk, NY, USA). Frequency analysis was used to assess the general characteristics and evidence-based practice experience of participants. Independent t-tests and one-way analysis of variance were used to compare job crafting and evidence-based practical skills. Pearson's correlation coefficients and multiple regression analyses were conducted to determine the relationship between job crafting and evidence-based practical skills. Statistical significance was set at a p-value of < 0.05.

### Results

#### 1. General characteristics of study participants

General characteristics of the study participants are presented in Table 1. Among the 267 (100%) participants, 262 (98.1%) were female, 92 (34.5%) were 25 ~ 29 years old, and 145 (54.3%) had attended college for 3 years. Regarding employment, 101 (37.8%) had a workplace size of 5 ~ 9 employees, 236 (88.4%) worked in dental clinics, 85 (31.8%) had 10 years or more of work experience, 190 (71.2%) had the job position of staff, and 205 (76.8%) chose operation as their main duty.

#### 2. Evidence-based practice experience of participants

Data related to the evidence-based practice experience of the study participants are presented in Table 2. A majority of respondents (248 [92.9%]) answered "no" to having familiarity with the term evidence-based practice. For research participation experience, 218 participants (81.6%) answered "no." Most participants (227 or 85.0%) were not members of academic organizations, and 232 participants (86.9%) reported not attending academic conferences regularly. The most common situation where research evidence is most needed in practice, as indicated by 92 participants (34.5%) was when striving to become a competent professional. The most used problem-solving method, selected by 142 participants (53.2%), when faced with something unknown in practice was asking colleagues and superiors.

#### 3. Levels of job crafting and evidence-based practical skills of study participants

The levels of job crafting and evidence-based practical skills of the participants are displayed in Table 3. The average score for job crafting was 3.49 out of 5. Of the sub-dimensions of job crafting, increasing structural job resources had the highest score of 3.77, followed by increasing social job resources with a score of 3.70, increasing challenging job demands at 3.30, and decreasing hindering job demands at 3.26.

The average score for evidence-based practical skills was 4.26. Of the sub-dimensions of evidence-based practical skills, knowledge had the highest score (4.28), followed by performance (4.22), and attitude (4.23).

#### 4. Job crafting according to the general characteristics of study subjects

Differences in the subvariables of job crafting based on the general characteristics of the participants are presented

**Table 1.** General Characteristics (n=267)

Variable	Division	n (%)
Sex	Male	5 (1.9)
	Female	262 (98.1)
Age (y)	≤ 24	29 (10.9)
	25 ~ 29	92 (34.5)
	30 ~ 34	73 (27.3)
	≥ 35	73 (27.3)
Educational attainment	3-year college	145 (54.3)
	4-year college or higher	122 (45.7)
Workplace size (people)	< 5	88 (33.0)
	5 ~ 9	101 (37.8)
	10 ~ 19	46 (17.2)
	≥ 30	15 (5.6)
Workplace type	Dental clinic	236 (88.4)
	Dental hospital	19 (7.1)
	University hospital	12 (4.5)
Work experience (y)	≤ 2	52 (19.5)
	3 ~ 5	57 (21.3)
	5 ~ 10	73 (27.3)
	≥ 10	85 (31.8)
Position	Employee	190 (71.2)
	Team leader	25 (9.4)
	Manager or above	52 (19.5)
Main Duty	Operation	205 (76.8)
	Reception	40 (15.0)
	Counseling	22 (8.2)

**Table 2.** Evidence-Based Practice Experience (n=267)

Variable	Division	n (%)
Is the term “evidence-based practice” familiar?	Yes	19 (7.1)
	No	248 (92.9)
Research participation experience	Yes	49 (18.4)
	No	218 (81.6)
Membership in academic organizations	Yes	40 (15.0)
	No	227 (85.0)
Regular attendance at academic conferences	Yes	35 (13.1)
	No	232 (86.9)
Situation where research evidence is most needed in practice	New employee education	53 (19.9)
	When you want to become a competent professional	92 (34.5)
	When you want to know precisely about dental hygiene management procedures	51 (19.1)
	When errors occur in dental hygiene practice	34 (12.7)
	When encountering a new work environment	37 (13.9)
Most used problem-solving method when something unknown is present in practice	Textbooks	27 (10.1)
	Related research literature	6 (2.2)
	Job manuals	7 (2.6)
	Internet searches	85 (31.8)
	Asking colleagues and superiors	142 (53.2)

**Table 3.** Levels of Job Crafting and Evidence-Based Practical Skills of Participants (n=267)

Variable	Division	M±SD	Range
Job crafting	Total	3.49±0.43	1 ~ 5
	Increasing structural job resources	3.77±0.58	
	Increasing social job resources	3.70±0.69	
	Increasing challenging job demands	3.30±0.66	
	Decreasing hindering job demands	3.26±0.57	
Evidence-based practical skills	Total	4.26±0.82	1 ~ 7
	Performance	4.22±0.98	
	Attitude	4.23±1.07	
	Knowledge	4.28±0.93	

M: mean, SD: standard deviation.

in Table 4. Job crafting demonstrated significant differences based on educational attainment, workplace size, and workplace type of participants ( $p < 0.05$ ). Post-test analysis revealed that workplaces with 30 or more employees had significantly higher job crafting scores than those with less than 5 employees or 5 to 9 employees.

Among the sub-dimensions of job crafting, increasing structural job resources demonstrated a significant difference based on the main job duty ( $p < 0.05$ ). Increasing social job resources exhibited a significant difference based on the participant’s age ( $p < 0.01$ ). Post-test analysis revealed that those aged 24 years or younger scored significantly higher than those aged 30 to 34 years or 35 years

and older. In addition, those with work experience equivalent or less than 2 years also scored significantly higher than those with 10 years or more of work experience. For increasing challenging job demands, significant differences were identified based on job position ( $p < 0.001$ ). Moreover, the post-test analysis demonstrated that those in the position of manager or above scored significantly higher than staff or team leader. For decreasing hindering job demands, a significant difference was identified based on age ( $p < 0.05$ ). The post-test analysis demonstrated that workplace sizes of 30 or more employees scored significantly higher than those with less than 5 employees, 5 ~ 9 employees, 10 ~ 19 employees, or 20 ~ 29 employees. Dental

**Table 4.** Job Crafting According to the General Characteristics of the Participants (n=267)

Variable	Division	Total			Increasing structural job resources			Increasing social job resources			Increasing challenging job demands			Decreasing hindering job demands		
		M±SD	T/F	p	M±SD	T/F	p	M±SD	T/F	p	M±SD	T/F	p	M±SD	T/F	p
Sex	Male	3.68±0.54	0.964	0.336	3.76±0.67	-0.027	0.978	3.84±0.74	0.469	0.639	3.76±0.73	1.591	0.113	3.40±0.92	0.347	0.746
	Female	3.49±0.43			3.77±0.58			3.69±0.69			3.29±0.65			3.26±0.56		
Age (y)	≤24	3.60±0.34	1.130	0.337	3.92±0.52	1.220	0.303	3.99±0.53 <sup>a</sup>	4.762	0.003	3.39±0.57	1.908	0.129	3.19±0.36	2.298	0.034
	25~29	3.44±0.39			3.69±0.57			3.82±0.62 <sup>ab</sup>			3.17±0.58			3.14±0.53		
	30~34	3.52±0.51			3.80±0.63			3.59±0.74 <sup>b</sup>			3.32±0.75			3.39±0.65		
	≥35	3.49±0.41			3.76±0.57			3.53±0.71 <sup>b</sup>			3.40±0.66			3.31±0.56		
Educational attainment	3-year college	3.45±0.43	-2.023	0.044	3.71±0.57	-1.736	0.084	3.63±0.67	-1.684	0.093	3.23±0.68	-1.793	0.074	3.25±0.57	-0.394	0.694
	4-year college or higher	3.55±0.42			3.83±0.59			3.77±0.71			3.38±0.62			3.27±0.56		
Workplace size (people)	<5	3.45±0.36 <sup>b</sup>	2.934	0.021	3.68±0.54	1.519	0.197	3.62±0.76	1.719	0.146	3.28±0.66	1.041	0.386	3.27±0.50 <sup>b</sup>	4.823	<0.001
	5~9	3.46±0.42 <sup>b</sup>			3.79±0.61			3.64±0.63			3.26±0.65			3.23±0.56 <sup>b</sup>		
	10~19	3.51±0.47 <sup>ab</sup>			3.80±0.55			3.82±0.59			3.27±0.68			3.19±0.60 <sup>b</sup>		
	20~29	3.51±0.35 <sup>ab</sup>			3.77±0.51			3.85±0.77			3.52±0.53			3.00±0.50 <sup>b</sup>		
	≥30	3.82±0.60 <sup>a</sup>			4.04±0.75			3.98±0.78			3.52±0.67			3.77±0.66 <sup>a</sup>		
Workplace type	Dental clinic	3.47±0.41	3.074	0.048	3.74±0.58	2.370	0.096	3.69±0.68	0.111	0.895	3.27±0.66	2.056	0.130	3.24±0.55 <sup>ab</sup>	4.779	0.009
	Dental hospital	3.72±0.55			3.98±0.57			3.77±0.73			3.53±0.67			3.62±0.72 <sup>a</sup>		
	University hospital	3.55±0.46			3.98±0.63			3.70±0.82			3.52±0.57			3.08±0.45 <sup>b</sup>		
Work experience (y)	≤2	3.54±0.43	0.594	0.619	3.83±0.60	0.985	0.400	3.93±0.56 <sup>a</sup>	3.152	0.025	3.30±0.61	0.928	0.428	3.16±0.53	1.271	0.285
	3~5	3.44±0.42			3.66±0.59			3.71±0.78 <sup>ab</sup>			3.22±0.65			3.20±0.51		
	5~10	3.49±0.43			3.77±0.56			3.68±0.64 <sup>ab</sup>			3.25±0.66			3.28±0.63		
	≥10	3.51±0.43			3.80±0.60			3.56±0.70 <sup>b</sup>			3.39±0.68			3.34±0.56		
Job Position	Employee	3.48±0.43	2.036	0.133	3.72±0.58	2.467	0.087	3.77±0.67	3.547	0.030	3.21±0.62 <sup>b</sup>	8.965	<0.001	3.25±0.56	0.981	0.376
	Team leader	3.42±0.37			3.82±0.50			3.47±0.56			3.30±0.69 <sup>b</sup>			3.15±0.57		
Main duty	Manager or above	3.60±0.43			3.92±0.60			3.55±0.79			3.63±0.68 <sup>a</sup>			3.34±0.60		
	Operation	3.47±0.41	1.097	0.335	3.72±0.57	3.160	0.044	3.76±0.64	4.416	0.013	3.23±0.63	5.068	0.007	3.23±0.55	1.221	0.297
	Reception	3.58±0.52			3.97±0.63			3.52±0.73			3.50±0.65			3.38±0.56		
	Counseling	3.51±0.39			3.82±0.59			3.40±0.90			3.57±0.78			3.29±0.69		

M: mean, SD: standard deviation.  
 p values were calculated by one-way ANOVA or t-test.  
<sup>a,b</sup>Scheffé's test (means with the same letters are not significantly different).

**Table 5.** Evidence-Based Practical Skills According to General Characteristics of the Participants (n=267)

Variable	Division	Total			Practice			Attitude			Knowledge		
		M±SD	T/F	p	M±SD	T/F	p	M±SD	T/F	p	M±SD	T/F	p
Sex	Male	4.03±0.75	-0.631	0.529	4.10±1.09	-0.278	0.781	4.60±2.09	0.406	0.705	3.83±0.57	-1.100	0.272
	Female	4.26±0.81	0.748	0.524	4.22±0.98	0.179	0.911	4.22±1.04	2.503	0.060	4.28±0.91	0.856	0.464
Age (y)	≤24	4.37±0.62			4.30±0.89			4.23±1.02			4.44±0.63		
	25 ~ 29	4.16±0.73			4.25±0.94			4.00±1.05			4.17±0.81		
	30 ~ 34	4.31±0.85			4.18±1.08			4.43±1.03			4.34±0.94		
	≥35	4.26±0.92			4.18±0.96			4.31±1.10			4.28±1.08		
Educational attainment	3-year college	4.13±0.82	-2.821	0.005	4.09±0.97	-2.320	0.021	4.25±1.07	0.391	0.696	4.10±0.93	-3.384	<0.001
	4-year college or higher	4.40±0.78			4.37±0.97			4.20±1.07			4.47±0.85		
Workplace size (people)	> 5	4.28±0.86	0.832	0.506	4.23±1.00	1.300	0.270	4.37±1.11	0.702	0.591	4.28±0.98	0.599	0.663
	5 ~ 9	4.16±0.83			4.08±0.96			4.12±1.01			4.20±0.95		
	10 ~ 19	4.28±0.63			4.30±0.83			4.24±1.03			4.28±0.70		
	20 ~ 29	4.34±0.53			4.43±0.83			4.10±1.03			4.38±0.52		
Workplace type	≥30	4.50±1.02	2.578	0.078	4.56±1.35	3.131	0.045	4.22±1.32	0.242	0.785	4.55±1.08	3.032	0.050
	Dental clinic	4.22±0.80			4.18±0.95			4.24±1.06			4.23±0.91		
	Dental hospital	4.65±0.82			4.75±1.21			4.16±1.12			4.75±0.84		
	University Hospital	4.30±0.84	0.276	0.843	4.24±0.99	0.352	0.788	4.04±1.15	0.344	0.794	4.39±0.96	0.228	0.877
Work experience (y)	≤2	4.29±0.65			4.32±0.94			4.19±1.03			4.30±0.66		
	3 ~ 5	4.17±0.74			4.14±0.84			4.14±1.01			4.19±0.84		
	5 ~ 10	4.26±0.85			4.24±1.13			4.21±1.16			4.27±0.91		
	≥10	4.28±0.91	4.772	0.009	4.19±0.95	2.042	0.132	4.32±1.05	1.555	0.213	4.30±1.08	5.370	0.005
Job Position	Employee	4.17±0.76			4.18±0.98			4.16±1.06			4.17±0.84 <sup>b</sup>		
	Team leader	4.24±0.85			4.06±1.07			4.23±1.20			4.31±0.91 <sup>ab</sup>		
	Manager or above	4.56±0.91	1.788	0.169	4.46±0.88	0.183	0.833	4.46±0.99	1.545	0.215	4.63±1.08 <sup>a</sup>	2.043	0.132
Main duty	Operation	4.22±0.78			4.21±1.01			4.18±1.09			4.23±0.85		
	Reception	4.27±0.90			4.22±0.89			4.28±0.92			4.29±1.10		
	Counseling	4.56±0.87			4.34±0.86			4.59±1.02			4.64±1.00		

M: mean, SD: standard deviation.

P values were calculated by one-way ANOVA or t-test.

<sup>a,b</sup>Scheffé's test (means with the same letters are not significantly different).

hospitals also scored higher than university hospitals.

### 5. Evidence-based practical skills according to the general characteristics of the participants

Differences in the subvariables of evidence-based practical skills according to the general characteristics of the participants are presented in Table 5. Evidence-based practice competency exhibited significant differences based on educational attainment and job position of participants ( $p < 0.01$ ).

Among the sub-dimensions of evidence-based practical skills, practice displayed significant differences based on educational attainment and workplace type ( $p < 0.05$ ). Knowledge exhibited significant differences based on educational attainment ( $p < 0.001$ ). The post-test analysis revealed that those with a position of manager or above scored higher than staff. However, no significant differences were observed based on attitude. The average scores for evidence-based practical skills, practice, and knowledge were higher for those with an educational attainment of 4-year college or higher than for those with 3-year college.

### 6. Correlations between job crafting and evidence-based practical skills of participants

Correlations between job crafting and evidence-based practical skills are presented in Table 6. In this study, evidence-based practical skills demonstrated statistically significant positive correlations with the sub-dimensions of job crafting. A positive correlation was also observed between the subfactors of job crafting.

### 7. Factors associated with evidence-based practical skills of participants

The multiple regression analysis conducted to examine the influence of each subvariable of job crafting on the evidence-based practical skills of dental hygienists is presented in Table 7. The regression model was statistically significant. The analysis demonstrated that the factors affecting the evidence-based practical skills of dental hygienists were increasing structural job resources ( $\beta=0.358$ ) and increasing challenging job demands ( $\beta=0.303$ ), which together explained 38.7% of the variance in evidence-based practical skills ( $F=43.006, p < 0.001$ ).

**Table 6.** Correlation Between Job Crafting and Evidence-Based Practical Skills of the Participants

Variable	Evidence-based practical skills	Increasing structural job resources	Increasing social job resources	Increasing challenging job demands	Decreasing hindering job demands
Evidence-based practical skills	1				
Increasing structural job resources	0.571***	1			
Increasing social job resources	0.303***	0.360***	1		
Increasing challenging job demands	0.542***	0.596***	0.282***	1	
Decreasing hindering job demands	0.164**	0.236***	0.153*	0.198**	1

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$  by Pearson correlation analysis.

**Table 7.** Factors Associated with Evidence-Based Practical Skills of the Participants

Variable	B	SE	$\beta$	t(p)
(Constant)	0.740	0.328		2.260*
Increasing structural job resources	0.495	0.086	0.358	5.744***
Increasing social job resources	0.103	0.061	0.088	1.700
Increasing challenging job demands	0.374	0.074	0.303	5.039***
Decreasing hindering job demands	0.009	0.071	0.006	0.123
F(p)			43.006***	
Adj. R <sup>2</sup>			0.387	

SE: standard error.

\* $p < 0.05$ , \*\*\* $p < 0.001$  by multiple regression analysis.



## Discussion

### 1. Interpretation

This study aimed to analyze the job crafting and evidence-based practice experience and skills of clinical dental hygienists in order to provide important information for improving professionalism.

Evidence-based practice experience, represented by participation in research, regular attendance at academic conferences, and affiliation with academic organizations, was marked “no” by over 80% of the respondents, indicating that only a minority of dental hygienists are engaged in evidence-based practice in clinical settings. The low rate of evidence-based practice experience may be attributable to various factors, including a lack of a perceived need for continuous education without mandatory requirements<sup>22)</sup> and challenges in managing work alongside continuing education due to issues related to time, distance, and working conditions<sup>23)</sup>. To enhance evidence-based practice experience, changes should be implemented at both the level of the association and the medical institution. The association should promote the importance of staying updated with the latest professional knowledge and should encourage membership and regular participation at conferences and academic organizations. Medical institutions should devise supportive systems to encourage research participation and conference attendance by addressing environmental constraints.

### 2. Key results and comparison

Concerning the necessity for research evidence in the most critical situations in practice, the lowest percentage (12.7%) was attributed to the scenario of “when errors occur in dental hygiene practice.”

This finding is similar to the results of Ryu’s study<sup>3)</sup>, in which “when errors occur in nursing practice” had the lowest reported percentage.

When facing uncertainties in practice, the predominant problem-solving method was questioning colleagues and superiors (53.2%), while utilization of ‘related research literature’ registered the lowest (2.2%). This finding is similar to the results of Cho’s study<sup>17)</sup>, in which “asking colleagues and senior nurses” was the most common

approach and “searching for relevant research literature” was the least common. Yi JE et al.<sup>24)</sup> also indicated that a tendency exists to rely heavily on nonscientific sources like experiential knowledge and interpersonal information when making decisions and resolving uncertainties in clinical practice. To increase the utilization of research evidence in practice, implementing strategies early in training, such as creating curricular learning objectives focused on evidence-based practice and allowing students to engage with the research literature in their undergraduate years, as well as enabling the application of research in clinical problem solving is necessary<sup>25)</sup>.

The average job crafting score of the study participants was 3.49 points. This result is similar to the findings of Baghdadi et al.<sup>26)</sup>, who reported an average score of 3.54 in Saudi Arabian nurses. Among the subfactors of job crafting, increasing structural job resources was the highest, with a score of 3.77. This finding is also similar to the results of Baghdadi et al.<sup>26)</sup> (4.21 points) and Thun and Bakker<sup>27)</sup> (4.04 points).

Increasing challenging job demands had the highest score among individuals in the position of manager or above. This finding aligns with a study conducted on nurses by Hyun<sup>28)</sup>, who also discovered that participants were likely to engage in activities aimed at trying new tasks to improve their performance as their job level increased.

Reducing hindering job demands was identified to be highest in workplaces with a staff size of 30 or more and, dental hospitals versus university hospitals. This discovery implies a more concerted effort to alleviate demands related to interpersonal issues, and mental strain caused by the job, workload, and role conflicts in larger dental workplaces. Furthermore, university hospitals tend to have standardized and well-structured procedures for dental hygienists based on manuals and a relatively consistent daily patient load, which could reduce hindering factors. On the other hand, dental hospitals, which might prioritize profit maximization and handle a large number of patients, could have a significant need to address hindrances to their workflow due to a potentially high patient volume and a less refined division of tasks among different positions.

When examining the extent of job crafting according to general characteristics, “increasing social job resources” was

highest in those aged 24 and below and in those with a job experience of 2 years or less. This finding suggests that individuals with low seniority engage in behaviors aimed at enhancing job resources through interactions with supervisors and colleagues, thereby promoting personal growth, learning, and development. In a study by Yun et al.<sup>29)</sup> conducted on dental hygienists, individuals with low seniority experienced great apprehension and anxiety about new environments, patient relationships, and job responsibilities. Furthermore, their personal capabilities were strengthened through mentorship-based job education, leading to increased job authority and autonomy. Therefore, for clinical dental hygienists, organizational support at the managerial level, such as mentoring systems between supervisors and colleagues, is necessary to enhance job resources<sup>29)</sup>.

The average score for evidence-based practical skills among the study participants was 4.26 points. These results were similar to the findings of a study conducted in nurses by Jung and Jeong<sup>2)</sup> who reported a score of 4.27. It was lower, however than the scores reported in other nursing studies by Kim and Lee<sup>6)</sup> (4.35 points) and Lim et al.<sup>1)</sup> (4.72 points). The evidence-based practical skills in the present study may be lower than those in the studies by Kim and Lee<sup>6)</sup> and Lim et al.<sup>1)</sup> because of a low familiarity with evidence-based practice terminology among the participants and the relatively low proportion of dental hygienists who had experience participating in research. Organizational efforts are needed to provide continuous learning opportunities for evidence-based practice applications, such as evidence-related terminology, interpretation of research findings and statistical analyses, and participation in practical programs that enhance skills for searching for the best evidence. These efforts would involve active engagement and should be sustained to foster evidence-based practice<sup>3)</sup>.

Among the subfactors of evidence-based practical skills, knowledge scored the highest at 4.28 points. This result was also similar to the findings of Jung and Jeong<sup>2)</sup>, who reported a score of 4.32, and Lee et al.<sup>30)</sup>, whose study reported a score of 4.83. In these three studies, practice and attitude scores were low despite possessing knowledge of evidence-based practice. This finding may indicate a lack

of time to apply research evidence, inadequate facilities for utilization, and a shortage of studies reflecting complex real-world clinical situations from a practical perspective<sup>31)</sup>. Therefore, at the institutional level, a need exists to foster a culture conducive to the application of evidence-based practice within the workplace and to provide tools, such as electronic devices and database subscription services, to enable literature searches and learning related to the current research. At the association level, promoting the significance of clinical evidence within the dental medical community, creating an environment that facilitates research in clinical settings, and developing a foundation of evidence applicable to various practical clinical issues is imperative.

Additionally, significant differences were observed in evidence-based practical skills and knowledge based on participants' job positions. Yi and Park<sup>24)</sup> noted that nurses in managerial positions are more likely to be involved in resource allocation and decision-making roles than general nurses; thus, they are likely to exhibit strong motivation for evidence-based practice utilization. Additionally, an inference can be made that the demand for evidence utilization varies according to the job position.

To promote motivation through self-development at the employee and team-leader levels, performance assessments and incentives related to skill enhancement in evidence-based practice, including performance, attitudes, and knowledge, must be established.

When examining the degree of evidence-based practical skills according to the general characteristics, evidence-based practical skills, practice, and knowledge were observed to be consistently and significantly correlated with educational levels. The average scores for these aspects were higher for those with educational attainment of 4-year college or higher versus those with a 3-year college. This finding could be attributed to the fact that 4-year university programs are more likely to offer dental hygiene research courses and opportunities for extracurricular activities related to research planning and paper writing than 3-year college programs. This finding aligns with the results of Lim's study<sup>1)</sup>, in which nurses with high educational levels and awareness of evidence-based practices demonstrated high evidence-based practical skills. Therefore, in the education of dental hygienists, fostering the development

of research-oriented individuals who can apply research skills to practice from an undergraduate level is crucial<sup>25)</sup>. To achieve this goal, the entire curriculum and not just individual courses must focus on teaching students to evaluate research evidence and to apply it effectively<sup>25)</sup>.

All subfactors of job crafting displayed positive correlations with evidence-based practical skills. Of the subfactors, increasing structural job resources and challenging job demands influenced evidence-based practical skill improvement. This finding suggests that proactive efforts to learn new things and active participation in job roles positively affect a dental hygienist's sense of achievement, thereby positively affecting evidence-based practical skills. To enhance structural job resources, organizations must be motivated to strengthen specialized capabilities and facilitate research activities. Specifically, a need is present for regular attendance at workshops and participation in organizational evidence-based practice education programs<sup>3)</sup>. For the development of challenging job demands, various efforts should be undertaken to increase the practical skills of dental hygienists, including presenting clinical cases and revising job manuals based on the latest evidence<sup>3)</sup>.

### 3. Suggestion

As a lack of research exists on job crafting and evidence-based practical skills among dental hygienists, comparisons were made with studies from other health-related fields. However, even in these fields, research utilizing the four subfactors of job crafting was scarce, necessitating comparisons with foreign literature and studies involving nonmedical personnel. Therefore, future research should expand the scope of study nationwide to balance the sex distribution of participants. Furthermore, more in-depth interview methods should be employed to precisely identify the reasons why dental hygienists may not engage in job crafting or evidence-based practice. Further research is needed to explore the link between the four subfactors of job crafting and evidence-based practical skills among dental hygienists. Nonetheless, this study is valuable in its examination of the current state of evidence-based practical skills among clinical dental hygienists and in the identification of factors that may influence job crafting.

### 4. Limitations

This study had limitations related to generalization because convenience sampling was used to recruit dental hygienists working in Seoul and Gyeonggi-do. The self-administered survey also had limited objectivity due to potential variations in how respondents interpreted the questions.

## Notes

### Conflict of interest

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

### Ethical approval

This study was approved by the institutional review board of Eulji University (IRB No. EUIRB2022-092).

### Author contributions

Conceptualization: Hee-jung Lim. Data acquisition: all authors. Formal analysis: all authors. Funding: Hee-jung Lim and Min-ji Kim. Supervision: Hee-jung Lim. Writing-original draft: all authors. Writing-review & editing: Hee-jung Lim.

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### Data availability

Raw data is provided at the request of the corresponding author for reasonable reason.

## References

1. Lim KC, Park KO, Kwon JS, et al.: Registered nurses' knowledge, attitudes, and practice about evidence-based practice at general hospitals in Korea. *J Korean Clin Nurs Res* 17: 375-387, 2011.  
<https://doi.org/10.22650/JKCNR.2011.17.3.8>
2. Jung MR, Jeong E: Influences of job crafting, and grit on evidence based practice competency of nurses: for small and medium hospitals. *JKAIS* 22: 575-584, 2021.  
<https://doi.org/10.5762/KAIS.2021.22.10.575>
3. Ryu S, Kim YS, Kim YH: Factors influencing of evidence based practice competency and evidence based practice readiness in general hospital nurses. *J Korean Acad Nurs Adm* 22: 448-460, 2016.  
<https://doi.org/10.11111/jkana.2016.22.5.448>
4. Kim SK, Lee HH, Park GH, et al.: Nurses' evidence-based practice beliefs and competencies, and organizational supports. *J Korean Clin Nurs Res* 24: 245-254, 2018.  
<https://doi.org/10.22650/JKCNR.2018.24.2.245>
5. Cho YS: Clinical dental hygiene education and practice based on dental hygiene process. *J Dent Hyg Sci* 11: 135-154, 2011.
6. Kim KY, Lee EJ: The relationship among critical thinking disposition, nursing process competency and evidence-based practice competency in nurses working in hospitals. *JKDIS* 27: 451-461, 2016.  
<https://doi.org/10.7465/jkdi.2016.27.2.451>
7. Lee HJ, Bae SM, Choi YK, et al.: Development and evaluation of standards for clinical dental hygiene practice. *J Korean Soc Dent Hyg* 20: 717-731, 2020.  
<https://doi.org/10.13065/jksdh.20200066>
8. Kwon JO, Kang JM: Validity and reliability of a Korean version of nurse job crafting. *JKAIS* 22: 813-821, 2021.  
<https://doi.org/10.5762/KAIS.2021.22.12.813>
9. Han SJ, Jeong EH: Concept analysis of nurses' job crafting. *J Korean Acad Fundam Nurs* 29: 375-387, 2022.  
<https://doi.org/10.7739/jkafn.2022.29.3.375>
10. Lee EA, Ha Y: Effects of positive psychological capital, job crafting and job satisfaction on intention of retention in hospital nurses. *J Korean Acad Nurs Adm* 28: 586-595, 2022.  
<https://doi.org/10.11111/jkana.2022.28.5.586>
11. Kim MJ, Kim JY, Ryu SW: Effect of self-determination motivation on job engagement and the moderating effect of compensation satisfaction in dental hygienists. *JKSIM* 10: 173-184, 2022.  
<https://doi.org/10.15268/ksim.2022.10.3.173>
12. Son YJ, Kim SH, Park YS, Lee SK, Lee YM: The influence of information retrieval skill on evidence based practice competency in clinical nurses. *Korean J Adult Nurs* 24: 635-646, 2012.  
<https://doi.org/10.7475/kjan.2012.24.6.635>
13. Yoon SH, Si-Thu P, Kim HR: The effects of nurse manager's authentic leadership on staff nurse's trust and job crafting: focused on general hospitals in Ulsan area. *J Ind Innov* 38: 267-277, 2022.  
<https://doi.org/10.22793/indinn.2022.38.3.023>
14. Park JA, Kim SY, Moon SE, Kim YJ, Cho HE, Kang HJ: The effect of information literacy the communication ability of dental hygienist: mediating effect of job crafting. *J Korean Soc Dent Hyg* 22: 217-224, 2022.  
<https://doi.org/10.13065/jksdh.20220024>
15. Han SJ: Effect of empowering leadership on work engagement and the mediating effect of job crafting among clinical nurses. *J Korean Acad Nurs Adm* 29: 22-31, 2023.  
<https://doi.org/10.11111/jkana.2023.29.1.22>
16. Park SY: Effects of evidence-based practice (EBP) beliefs and organizational readiness on nurses' EBP competency in a veterans hospital. Unpublished master's thesis, Chonnam National University, Gwangju, 2022.
17. Cho HS, Kim YH, Kim HY: Mediating effect of innovative behavior on the relationship between awareness of nursing manager's leadership type in general hospital nurses and future use of evidence-based practice. *J Korea Converg Soc* 10: 511-521, 2019.  
<https://doi.org/10.15207/JKCS.2019.10.11.511>
18. Tims M, Bakker AB, Derks D: Development and validation of the job crafting scale. *J Vocat Behav* 80: 173-186, 2012.  
<https://doi.org/10.1016/j.jvb.2011.05.009>
19. Cho JY, Kim MS: Development and validation of the Job Crafting Scale. *J Life-span Stud* 5: 29-46, 2015.  
<https://doi.org/10.30528/jolss.2015.5.3.003>
20. Upton D, Upton P: Development of an evidence-based practice questionnaire for nurses. *J Adv Nurs* 53: 454-458, 2006.  
<https://doi.org/10.1111/j.1365-2648.2006.03739.x>
21. Park JE: The relationship between information literacy, nur-

- sing process competency and evidence-based practice competency of nursing students. Unpublished master's thesis, Kyung Hee University, Seoul, 2018.
22. Han YJ, Han MA, Park J, Ryu SY, Choi SW, Moon SE: Current status of continuing education and related factors in dental hygienists. *J Korean Soc Dent Hyg* 19: 183-194, 2019. <https://doi.org/10.13065/jksdh.20190014>
  23. Yoo KH, Lee SK, Seong JM: Through continuing education of dental hygienists for the job satisfaction. *J Korean Soc Dent Hyg* 12: 771-780, 2012.
  24. Yi JE, Park MH: Nurses' access & use of information resources and barriers & competency of evidence based practice. *Korean J Adult Nurs* 23: 255-266, 2011.
  25. Park MH: Implementation of evidence based nursing education into nursing management clinical practicum: outcome evaluation and diffusion strategies. *J Korean Acad Nurs Adm* 19: 39-47, 2013. <https://doi.org/10.11111/jkana.2013.19.1.39>
  26. Baghdadi NA, Farghaly Abd-El Aliem SM, Alsayed SK: The relationship between nurses' job crafting behaviours and their work engagement. *J Nurs Manag* 29: 214-219, 2021. <https://doi.org/10.1111/jonm.13141>
  27. Thun S, Bakker AB: Empowering leadership and job crafting: the role of employee optimism. *Stress Health* 34: 573-581, 2018. <https://doi.org/10.1002/smi.2818>
  28. Hyun MS: Structural relationship between nurses' occupational motivation and effectiveness based on the job crafting model. *J Korean Acad Nurs Adm* 26: 192-204, 2020. <https://doi.org/10.11111/jkana.2020.26.3.192>
  29. Yun HK, Choi MS, Choi GY: Effect of mentoring function on job satisfaction, organization commitment, and turnover intention in the newly employed dental hygienists. *J Korean Soc Dent Hyg* 16: 69-75, 2016. <https://doi.org/10.13065/jksdh.2016.16.01.69>
  30. Lee GA, Shin SH, Ko SJ: Influences of critical thinking disposition, nurse managers' transformation and transactional leadership style on nurses' competency with evidence based practice. *J Korean Acad Nurs Adm* 26: 305-315, 2020. <https://doi.org/10.11111/jkana.2020.26.4.305>
  31. Kim YH, Ryu SA, Kim HY: Effect of fundamental nursing class using evidence-based practice. *J Korea Contents Assoc* 18: 38-49, 2018. <https://doi.org/10.5392/JKCA.2018.18.06.038>