

# The Effect of Clinical Dental Hygienist's Moral Sensitivity and Psychological Well-Being on Job Engagement

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**Background:** The present study aimed to provide basic data to establish a foundation for efficient operation of the organization by identifying the effects of factors related to moral sensitivity and psychological well-being on job engagement of clinical dental hygienists.

**Methods:** This cross-sectional survey consisted of self-administration questionnaires. After the approval by the Institutional Review Board, a survey was conducted from September 2019 to November 2019, targeting dental hygienists with clinical experience of 1 year or more. A total of 189 questionnaires were analyzed using SPSS 18.0 for Windows. The data were analyzed using average standard deviation, t-test, one-way analysis of variance, Scheffe test, Pearson's correlation analysis, and multiple regression analysis.

**Results:** According to job-related characteristics, higher job engagement was associated with more amount of clinical experience, less turnover intention, higher positions, and occasional job fatigue. Job engagement was improved by increasing moral sensitivity and psychological well-being of clinical dental hygienists. The factors affecting job engagement revealed that along with clinical career, the sub-areas of job engagement, namely turnover intention, moral sensitivity, and psychological well-being had statistically significant influence on job engagement and the explanatory power of the model was approximately 44.8%.

**Conclusion:** Joy of working as a clinical dental hygienist, clinical career, turnover intention, moral sensitivity, and psychological well-being were confirmed as influencing factors that affected job engagement of clinical dental hygienists. It is necessary to establish an effective plan to improve job engagement by increasing moral sensitivity and psychological well-being of clinical dental hygienists.

**Key Words:** Dental hygienists, Morals, Psychological adaptation, Work engagement

## Introduction

Currently, dentistry is changing rapidly with the development of high-tech medical equipment. Medical consumers are demanding high-quality dental services due to improved living standards. To respond to such changes, voluntary actions by members of the organization are indispensable. At the same time, reinforcement of organizational competitiveness including strengthening the members' capacity<sup>1,2)</sup> and human resource management is also required to provide quality services. Clinical dental

hygienists contribute in determining the quality of dental services. They are a key human resource to lead the survival and the growth of special organizations such as dental institutions<sup>3)</sup> and their role is becoming more important than ever before. Additionally, in a situation where organizational innovation and flexibility are emphasized, clinical dental hygienists should take an active stance on oral health problems of medical consumers to adapt to the dental field. Moreover, they should actively participate in decisions that affect the quality of life by improving the oral health of dental consumers as

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competent professionals through a high level of intellectual and professional education<sup>4)</sup>.

Since clinical dental hygienists belong to a clinical field intertwined with a variety of complex ethical issues, it is necessary to promote moral sensitivity to resolve conflicts and to provide the best dental services to medical consumers. Moral sensitivity refers to a psychological process that requires empathy, which is the ability to identify ethical problems in specific situations and to recognize processes of various actions<sup>5)</sup>. It is a key element of early ethical decision-making and the ability to complete the process of recognition<sup>6,7)</sup>. However, due to time constraints, control by supervisors, and structural problems of a medical institution, the caregivers often experience moral agony due to performing actions of connivance and avoiding circumstances instead of acting according to moral decisions<sup>8)</sup>.

In addition, hospitals and clinics that provide medical services to medical consumers through cooperative work are considered to have a higher job stress than other occupations due to their work characteristics<sup>6)</sup>. Particularly, clinical dental hygienists are influenced by their psychological well-being, since various psychological factors are integrated to exert their capabilities. It has been reported that moral sensitivity and psychological well-being are not innate, but can be changed and developed through learning or training<sup>9-11)</sup>. Moreover, long service factor of dental hygienists affects the psychological ownership and job engagement<sup>12)</sup>. No previous studies have specifically identified factors related to job engagement and it was used for job stress of dental hygienists, job burnout, and job satisfaction.

Therefore, the present study concentrated on moral sensitivity and psychological well-being as the main variables to identify the factors affecting job engagement. This study aimed to identify the effect of influence factors related to moral sensitivity and psychological well-being on job engagement of clinical dental hygienists and to provide basic data for establishing measures to increase job engagement of clinical dental hygienists.

## Materials and Methods

### 1. Study subjects

The present study included clinical dental hygienists with more than one year of clinical experience, working at dental clinics or hospitals in Jeollabuk-do from September 2019 to November 2019. This inclusion criterion was consistent with a prior research reporting that at least one year of experience is required to experience ethical situations<sup>9)</sup>. After obtaining consent from the subjects to participate in the research, structured questionnaires were used for the survey and the subjects were randomly sampled. A total of 189 samples were required according to the calculations for minimum sample size with a significance level of 0.05, the effect size of 0.15, and the power of 0.95 using G\*power 3.1 program (Düsseldorf, Germany). A total of 210 subjects were selected for the study, considering the maximum sample error, sample bias, or dropout rate of 10%. Among these, 29 subjects who showed no response or unfaithful response were excluded and data from 181 subjects (collect rate of 86.2%) were finally analyzed.

### 2. Study methods

#### 1) Moral sensitivity

Moral sensitivity refers to the ability to recognize moral value issues and to identify situations in which ethical decisions can be made in vulnerable situations for subjects who are in conflict<sup>6,7)</sup>. In this study, the researcher used Moral Sensitivity Questionnaire by Lütznén et al.<sup>13)</sup>, which was modified and supplemented to include five sub-areas, namely patient-centered dental hygiene management, professional responsibility, moral meaning, conflict, and good deed through factor analysis and reliability analysis according to the condition of dental hygienists. Each item was measured on a 7-point Likert scale with higher scores denoting higher moral sensitivity. The Cronbach's alpha for reliability of this study was 0.766.

#### 2) Psychological well-being

Psychological well-being refers to the integration of psychological aspects such as personal growth, positive

interpersonal relationships, self-acceptance, autonomy, purpose of life, and control over the environment, which are considered to constitute an individual's life<sup>14,15</sup>. In this study, the researcher modified and supplemented the tool developed by Ryff<sup>14</sup> and used by Kim et al.<sup>16</sup> through factor analysis and reliability analysis. Each item was measured on a 5-point Likert scale with higher scores indicating greater psychological well-being. The Cronbach's alpha for reliability of this study was 0.636.

### 3) Job engagement

Job engagement is the achievement of work, a positive attitude, and a state of being fully immersed in the job<sup>15</sup>. In this study, Utrecht Work Engagement Scale by Schaufeli and Bakker<sup>15</sup> was modified and supplemented through factor analysis and reliability analysis. It consisted of three subdivisions, namely immersion, dedication, and vitality. Each item was measured on a 5-point Likert scale with higher scores indicating higher job engagement. The Cronbach's alpha for reliability of this study was 0.900.

### 3. Data analysis

Collected data were analyzed using SPSS ver. 18.0 (IBM Corp., Armonk, NY, USA) and level of statistical significance was set at 0.05. Means and standard deviations were used for analysis of moral sensitivity, psychological well-being, and job engagement. Job engagement according to the job-related characteristics of the subjects was analyzed using t-test or analysis of variance. Scheffe test was used as a post-hoc test. Pearson's correlation analysis was used to analyze the correlation between the variables. Multiple regression analysis was conducted to identify the effect of the relationship between subjects' moral sensitivity and psychological well-being on job engagement.

## Results

### 1. Moral sensitivity, psychological well-being, and job engagement among clinical dental hygienists

Moral sensitivity, psychological well-being, and job engagement among clinical dental hygienists are shown in Table 1. The subjects' mean moral sensitivity score was

4.32 and the mean score for the sub-factor of patient-centered dental hygiene was the highest (5.24), benevolence, professional responsibilities, conflicts, and moral meaning. Mean score for psychological well-being was 3.04, with the sub-factor of autonomy showing the highest mean score of 3.19, followed by personal growth, self-acceptance, control over the environment, positive interpersonal relationship, and purpose of life. Mean job engagement score was 3.27 with the sub-factor of job absorption showing the highest mean score of 3.64, followed by vigor and dedication.

### 2. Job engagement according to job-related characteristics of clinical dental hygienists

Table 2 shows the results of the analysis of differences in job engagement according to the job-related characteristics of clinical hygienists. More amount of clinical experience was significantly associated with higher job engagement and the highest job engagement was associated with more than 20 years of experience ( $p < 0.05$ ). Job engagement was found to be higher when there was no turnover intention ( $p < 0.05$ ). Higher job engagement was significantly associated with a higher rank. Thus, clinical dental hygienists showed the highest job engagement followed by general dental hygienists and team leader

**Table 1.** Moral Sensitivity, Psychological Well-Being and Job Engagement

Classification	Mean±standard deviation
Moral sensitivity	4.32±0.66
Patient-centered dental hygiene	5.24±0.75
Professional responsibility	4.22±1.07
Conflict	4.13±1.07
Moral meaning	3.74±0.98
Benevolence	4.25±1.16
Psychological well-being	3.04±0.24
Self acceptance	3.13±0.37
Positive interpersonal relationship	3.01±0.53
Personal growth	3.14±0.31
Autonomy	3.19±0.35
Purpose of life	2.72±0.53
Control over the environment	3.06±0.37
Job engagement	3.27±0.57
Job absorption	3.64±0.56
Job dedication	2.91±0.79
Job vigor	3.26±0.68

**Table 2.** Organizational Commitment according to Job-Related Characteristics

Classification	n	Organizational commitment	
		Mean±standard deviation	t of F (p)
Clinical career (y)			2.875 (0.038)
2~4	71	3.19±0.53 <sup>a</sup>	
5~9	52	3.18±0.57 <sup>a</sup>	
10~19	47	3.41±0.61 <sup>a</sup>	
≥20	10	3.58±0.62 <sup>a</sup>	
Current experience (y)			0.916 (0.434)
≤2	56	3.16±0.54	
2~4	44	3.28±0.54	
5~9	45	3.25±0.71	
≥10	35	3.38±0.50	
Turnover intention			2.050 (0.014)
Yes	94	3.12±0.61	
No	86	3.43±0.49	
Rank			13.470 (<0.001)
General dental hygienist	56	3.45±0.49 <sup>a</sup>	
Team leader dental hygienist	107	3.14±0.57 <sup>a</sup>	
Head dental hygienist	17	4.03±0.35 <sup>b</sup>	
Job fatigue			18.798 (<0.001)
I do not feel job fatigue	2	3.03±0.58	
I feel job fatigue occasionally	82	3.53±0.55	
I often feel job fatigue	96	3.05±0.55	

By t-test or one- way ANOVA.

<sup>a,b</sup>The same characters are not significant by Scheffe multiple comparison (p<0.001, p<0.05).

**Table 3.** Correlation between Moral Sensitivity and Psychological Well-Being and Job Engagement

Classification	Moral sensitivity	Psychological well-being	Job engagement
Moral sensitivity	1		
Psychological well-being	0.298***	1	
Job engagement	0.216***	0.263***	1

\*\*\*p<0.001 by pearson’s correlation analysis.

dental hygienists (p<0.001). Higher job engagement was significantly associated with occasional job fatigue (p<0.001).

### 3. Correlation among moral sensitivity, psychological well-being, and job engagement in clinical dental hygienists

Table 3 shows the correlation among moral sensitivity, psychological well-being, and job engagement in clinical dental hygienists. Job engagement showed a statistically significant positive correlation with moral sensitivity (r=0.216) and psychological well-being (r=0.263). In other words, job engagement was found to increase with

increase in moral sensitivity and psychological well-being.

### 4. Factors affecting job engagement of clinical dental hygienists

In order to examine the factors that affected job engagement of clinical dental hygienists, multiple regression analysis was conducted with job-related features, namely total clinical career, current work experience, turnover intention, job title, and job fatigue as dummy variables; moral sensitivity and psychological well-being as independent variables; and job engagement as dependent variable. The results are shown in Table 4.

The fitted regression model was found to be statistically

**Table 4.** Factors Affecting Job Engagement

Classification	B	SE	$\beta$	t	p-value
Moral sensitivity	0.321	0.199	0.432	2.624	< 0.001
Psychological well-being	0.634	0.077	0.407	2.357	< 0.001
Clinical experience	0.212	0.076	0.362	2.605	0.009
Turnover intention (no)	0.424	0.081	0.192	1.344	0.020
$R^2=0.419$ , adjusted $R^2=0.448$ , $F=29.375$ ( $p < 0.001$ , $p < 0.05$ )					

significant ( $F=29.375$ ,  $p < 0.001$ ) and the explanatory power of the model was 44.8%. Among the selected independent variables, moral sensitivity ( $\beta=0.432$ ) and psychological well-being ( $\beta=0.407$ ) showed a statistically significant effect on job engagement, a dependent variable. Job engagement was found to increase with an increase in moral sensitivity and psychological well-being. In addition, clinical experience ( $\beta=0.362$ ) and turnover intention ( $\beta=0.192$ ) had statistically significant effects on job engagement. More amount of clinical experience and less turnover intention was significantly associated with higher job engagement.

## Discussion

Currently, dental hygienists are a part of most organizations including dental hospitals and clinics. They are key players in the care of medical consumers<sup>17</sup>. Therefore, dental hygienists must provide medical consumers with the best dental services, do their jobs enthusiastically, and become fully immersed in their jobs so that they can contribute to the achievement of the goals of the hospital or the clinic<sup>18</sup>. In addition, if dental hygienists improve their job engagement in the workplace and are immersed in their job, they may feel greater satisfaction and may provide longer service at the workplace. Therefore, this study aimed to identify the factors related to moral sensitivity and psychological well-being that affect job engagement of clinical dental hygienists. Based on these results, the study also aimed to provide basic data to build a foundation for efficient operation by increasing job engagement among clinical dental hygienists.

The mean job engagement score of clinical dental hygienists in the present study was 3.27. Ahn and Ryu<sup>19</sup> reported a score of 3.14 in their study involving clinical

nurses and a score of 3.17 was reported in the study by Ko et al.<sup>20</sup>. A study by Park<sup>21</sup> involving domestic businesspersons found that members with high job engagement were willing to help and collaborate with their peers and were beneficial to the organization, even if they were not assigned to them. Although there are no previous studies, making it difficult to compare the outcome variables of job engagement of clinical dental hygienists with results from other researches, job engagement could be considered a factor to enhance the work performance of clinical dental hygienists and organizational performance. It is believed that studying the effect of the outcome variables of job engagement on dental hygienists through further analysis of the level of job engagement is needed by accurately recognizing the importance of job engagement among clinical dental hygienists.

According to the job-related characteristics of the subjects, it was observed that job engagement was higher in case of more amount of clinical experience, lower turnover intention, higher position, and occasional job fatigue. In a study by Moon et al.<sup>22</sup>, nurses in their forties, head nurses, and chief nurses were higher than general nurses, while in a study by Ahn and Ryu<sup>19</sup>, married nurses, nurses with college graduation, and senior nurses were higher than general nurses. In addition, research by Ko et al.<sup>20</sup> found that job engagement had an indirect positive effect on nursing performance through the mediation of organizational citizenship behavior. It is considered that those with a clinical career and a position of clinical dental hygienist will show necessary job engagement that can overcome problems by performing positively in any situation or difficulty. In other words, it is necessary to seek a measure that can increase job engagement of clinical dental hygienist.

It was reported that job engagement increased with an

increase in moral sensitivity and psychological well-being. Chae<sup>23)</sup> found that the quality of working environment had a significant positive effect on job engagement and organizational commitment and job engagement in turn had a positive effect on organizational commitment. Yang et al.<sup>12)</sup> reported a positive relationship between psychological ownership and job engagement. Although previous studies identifying the relationship of moral sensitivity and psychological well-being in clinical dental hygienists with job engagement were insufficient, it was confirmed that job engagement increased with an increase in moral sensitivity and psychological well-being. Therefore, it is believed that job engagement can be effectively improved by providing personality education as a part of continuing education to strengthen dental hygienists' capacity through development of various personality programs that can improve moral sensitivity and psychological well-being.

Results of the present study suggested that factors related to job engagement of clinical dental hygienists, namely clinical career, turnover intention, moral sensitivity, and psychological well-being had a statistically significant effect on job engagement, a dependent variable. The fitted regression model was statistically significant and the explanatory power of the model was 44.8%. In addition, among the selected independent variables, higher amount of clinical experience, less turnover intention, and higher moral sensitivity and psychological well-being were associated with higher job engagement. Yang et al.<sup>12)</sup> reported a partial mediating effect of psychological ownership and job engagement on the relationship between continuous service factor and intention to remain. A study by Ko et al.<sup>20)</sup> found that job engagement had a positive effect on nursing performance through organizational citizenship behavior rather than a direct effect on nursing performance. When a given job is challenging, job engagement is also rewarded and increased as a result of using a variety of skills, being autonomous, making a significant contribution to the organization, and having trust and support from the supervisor and the organization through positive interactions with the supervisor<sup>24)</sup>. Based on the results of the present study, dental hygienists' performance can be increased through measures to increase job engagement in

the workplace. Thus, job engagement of clinical dental hygienists should be promoted by establishing various strategies to develop and apply interventions to increase moral sensitivity and psychological well-being. The limitation of the present study is that it did not specifically identify the factors related to job engagement of clinical dental hygienists, being limited to the objective description of these factors. Moreover, since the data were collected from clinical dental hygienists in some areas, it is difficult to apply the results to all dental hygienists. Therefore, it is necessary to perform such studies in the future using various variables by expanding the region and the subject to generalize the research results.

## Notes

### Conflict of interest

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

### Ethical approval

This study was approved by the Wonkwang University Bioethics Review Committee (IRB No. WKIRB-201910-SB-079).

### Author contributions

Concept and design: Young-Im Kim. Data collection: Young-Im Kim, Ye-Seul Han. Analysis and interpretation: Young-Im Kim, Ye-Seul Han. Writing the article: Young-Im Kim. Revision and Editing: Young-Im Kim. Overall responsibility: Young-Im Kim.

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