

The Effect of Emotional Labor on Job Satisfaction in Dental Hygienists: Focusing on the Mediation Effects of Positive Psychological Capital

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Background: This study investigated the effects of positive psychological capital on the relationship between emotional labor and job satisfaction among dental hygienists.

Methods: Data were collected from 296 dental hygienists working at clinical sites in Korea between July 25 and August 15, 2022. Participants were surveyed using structured questionnaires. Statistical analysis was performed using an independent t-test, ANOVA, descriptive statistics, and stepwise multiple regression analysis using SPSS/WIN 21.0. The mediating effect of positive psychological capital on the relationship between emotional labor and job satisfaction was tested using Baron and Kenny's 3-step hierarchical regression analysis.

Results: Emotional labor was negatively correlated with positive psychological capital ($r = -0.148$, $p = 0.011$) and job satisfaction ($r = -0.214$, $p < 0.001$). Positive psychological capital had a positive correlation with job satisfaction ($r = 0.441$, $p < 0.001$). In addition, the positive psychological capital, had a partial mediating effect ($z = -2.472$, $p = 0.013$) on the relationship between emotional labor and job satisfaction.

Conclusion: Attitudes that reduce emotional labor, which adversely affects job satisfaction, and bolster positive psychological capital are needed.

Key Words: Dental hygienists, Emotional labor, Job satisfaction, Mediating effect, Positive psychological capital

Introduction

1. Background

As the general public's medical knowledge has increased over time, so too have demands for high-quality medical services¹. Healthcare professionals, particularly those caring for unwell patients, experience high levels of emotional labor and stress². This is also the case in the dental market, where medical staff often grapple with mental conflicts as they aim to control their emotions under stress. Dental hygienists, in particular, face the dual responsibilities of maintaining direct patient contact and providing consultation services², frequently concealing their true emotions to project an image of confidence and serve their

patients with a smiling expression. Stress and emotional labor are often the result of delivering a service that requires the suppression of one's emotions³. Experiences of emotional labor, such as verbal abuse at dental hygienists, occur frequently in the clinical environment. Studies by Park and Jang⁴ and Moon et al.⁵ report high incidences of verbal violence towards dental hygienists, at rates of 60.2% and 61.2%, respectively. Frequent experiences of emotional labor, including verbal abuse, negatively affect dental hygienists' quality of life⁵, reducing job satisfaction and increasing intentions to quit⁶. Therefore, we must look for ways to reduce emotional labor in the working environment and hence improve job satisfaction.

Research into the role of emotional labor in job satis-

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faction has been actively conducted. Existing literature encompasses studies on dental hygienists' job satisfaction⁷⁾, emotional labor^{8,9)}, and job satisfaction according to gender, emotional labor, and intention to quit¹⁰⁾. Prior research suggests that medical institutions are implementing various strategies to enhance external factors, thereby aiming to increase staff satisfaction and provide an optimal working environment. Recently, there has been great interest in strengthening the internal factors that lead to job satisfaction in organizations through the global experience of foundations⁴⁾. Within this context, positive psychological capital is presented as a new paradigm for unlocking human resources¹¹⁾. Positive psychological capital refers to the psychological capacity that organizational members exert while performing their duties, encompassing concepts of self-efficacy, hope, optimism, and resilience¹²⁾. It embodies the mindset capable of rectifying the negative aspects generated by emotional labor and addressing challenges. Since the dental clinic and hospital is a unique workspace, it is important to manage the positive psychology that affects the satisfaction of the organization's members¹³⁾. The personal capacity for change and development can lead to life satisfaction and job self-esteem¹⁴⁾. According to Kim and Kim study¹⁵⁾, employees with high positive psychological capital reported relatively high levels of job satisfaction. Notably, positive psychological capital, increasingly recognized as a key factor for enhancing internal capabilities, has been applied to medical staff in some studies. While some studies have investigated the relationship between positive psychological capital and job satisfaction among nurses^{11,14)}, and others have explored the effect of positive psychological capital on the degree of work attendance of dental hygienists as a means to address dental labor shortages¹⁶⁾, these studies have mostly focused on understanding the principal effects and relationships between these variables. There is also a lack of research targeting dental hygienists. Therefore, it is essential to devise strategies that can mitigate the negative aspects such as emotional labor, and augment positive facets with the aim of improving the job satisfaction of dental hygienists, potentially through the enhancement of positive psychological capital.

2. Objectives

This study aims to understand the extent of emotional labor among dental hygienists and investigate the mediating role of positive psychological capital in the relationship between emotional labor and job satisfaction. By doing so, we aim to identify a mechanism that can foster job satisfaction among dental hygienists who experience emotional labor. The findings of this research could serve as a foundational resource to inform effective personnel management strategies in dental organizations.

Materials and Methods

1. Ethics statement

This study was approved by the Korea National Institute for Bioethics Policy (KONIBP) (No. P01-202206-01-015). Participants in the study were given an overview of the posts and were directed to access the URL if they agreed to participate. Upon connecting to the URL questionnaire, they could revalidate the explanation of the research purpose and its ethical considerations. The questionnaire was only administered after obtaining informed consent. The collected data was directly organized and stored by the researcher and will be deleted and discarded along with the IP address three years after the end of the research.

2. Study design

Participants in this study were dental hygienists with more than two years of experience. Those with less than a year of professional experience were not included, as their professional values were considered to be not fully developed. The number of study participants was calculated using G*Power 3.1.7 program, considering a significance level of 0.05, an effect size of 0.5, and a power of 95%. This resulted in a minimum requirement of 266 participants. However, considering previous studies and dropout rates, a total of 300 participants were recruited for this study. The purpose and methods of the survey were explained to 300 dental hygienists working in dental hospitals and clinics between July 25 and August 15, 2022. Data collection was facilitated through a blend of self-administered questionnaires and online surveys, the latter conducted using posts on the online platform, NAVER. Prior to participation, verifi-

cation of each dental hygienist's licensure number and their respective place of employment was conducted, following which they were granted membership to the online platform. The research recruitment was monitored as needed, and when 300 responses were completed, we announced the end of the research and deleted the URL from the post. Among the collected surveys, 4 incomplete responses were excluded and a total of 296 were used in the final analysis.

3. Study variables

The questionnaire incorporated several measurement items, including general characteristics, emotional labor, positive psychological capital, and job satisfaction. The general characteristics included sex, age, marital status, workplace, and work experience.

1) Emotional labor

In this study, emotional labor was measured using an instrument initially developed by Morris and Feldman¹⁷⁾, and later modified and supplemented by Choi⁹⁾. This tool, specifically tailored and validated for dental hygienists, comprises 20 questions and employs a 5-point scale. Higher scores indicate a greater degree of emotional labor. At the time of its development, the instrument demonstrated reliability with a Cronbach's alpha of 0.82¹⁷⁾, while in the Choi study⁹⁾, Cronbach's alpha was 0.87. The Cronbach's alpha value in this study was 0.71.

2) Positive psychological capital

In this study, we employed a scale for dental hygienists that was adapted by Park and Jang⁴⁾ to measure the Korean version of the model proposed by Luthans et al.¹²⁾ This instrument consists of 24 items, encapsulating positive psychological states conducive to personal development, incorporating concepts of self-efficacy, resilience, hope, and optimism. Self-efficacy refers to the confidence in one's problem-solving abilities, while resilience refers to the ability to overcome adversity⁴⁾. Hope is defined as the capability to overcome emotional problems with positive expectations, whereas optimism is the expectation that positive outcomes will occur in the future⁴⁾. In Park and Jang's study⁴⁾, the instrument had a reliability of Cronbach's alpha of 0.93, while in this study it was 0.77.

3) Job satisfaction

Job satisfaction measurement tools are used to assess dental hygienists' satisfaction with aspects of their work, such as income, working conditions, and relationships with patients and colleagues. In this study, a scale developed by Park and Lim⁷⁾ was used, which included 20 questions. The reliability of the tool⁷⁾, as measured by Cronbach's alpha, was 0.82, during its development. The same reliability score was obtained in this study.

4. Statistical methods

The collected data were analyzed using PASW Statistics ver. 21.0 (IBM Corp., Armonk, NY, USA). The statistical significance level was set at $p < 0.05$. An independent t-test and one-way ANOVA were used for emotional labor, positive psychological cap, and job satisfaction according to the participants' general characteristics, and the post-analysis was verified using the Scheffé test. Descriptive statistics were used to analyze emotional labor, positive psychological capital, and job satisfaction variables, along with their means and standard deviations. Pearson's correlation coefficient was used to analyze the correlations between emotional labor, positive psychological capital, and job satisfaction. Furthermore, the effect of positive psychological capital on the relationship between emotional labor and job satisfaction was analyzed using hierarchical multiple regression. A three-step multiple regression analysis was conducted to verify the mediating effects proposed by Baron and Kenny¹⁸⁾. In the first step, the influences of the emotional labor variable and positive psychological capital were assessed. The second step focused on the influence of emotional labor on job satisfaction. In the third step, the effects of emotional labor, positive psychological capital, and job satisfaction were evaluated, following the order of the analysis results. The Sobel test was used to determine whether the effects of the parameters in this study were statistically significant.

Results

1. Participant's general characteristics

Table 1 presents the measures of emotional labor, positive psychological capital, and job satisfaction according to the

Table 1. Emotional Labor, Positive Psychological Capital, and Job Satisfaction according to Participants' General Characteristics (n=296)

Variable	Number (%)	Emotional labor		Positive psychological capital		Job satisfaction	
		Mean±SD	t or F (p-value)	Mean±SD	t or F (p-value)	Mean±SD	t or F (p-value)
Sex							
Male	5 (1.7)	2.64±0.96	-1.224	3.19±0.20	0.200	3.62±0.51	1.336
Female	291 (98.3)	3.17±0.41	(0.288)	3.17±0.26	(0.842)	3.33±0.48	(0.182)
Age (y)							
23~29	169 (57.1)	3.17±0.44	0.154	3.14±0.27	3.481	3.23±0.47 ^a	10.529
30~39	122 (41.2)	3.16±0.42	(0.857)	3.20±0.25	(0.032)	3.48±0.45 ^b	(<0.001)
≥40	5 (1.7)	3.07±0.29		3.35±0.17		3.34±0.44 ^{ab}	
Material status							
Unmarried	223 (75.3)	3.18±0.42	1.119	3.15±0.27	-2.542	3.28±0.49	-3.342
Married	73 (24.7)	3.11±0.44	(0.264)	3.24±0.22	(0.006)	3.50±0.40	(0.001)
Workplace							
Dental clinic	173 (58.4)	3.16±0.41	0.232	3.17±0.28	0.077	3.30±0.51	1.774
Dental hospital	92 (31.1)	3.14±0.44	(0.874)	3.16±0.26	(0.972)	3.36±0.46	(0.152)
University hospital	25 (8.4)	3.21±0.54		3.17±0.17		3.45±0.29	
Public health center	6 (2.1)	3.23±1.78		3.20±0.19		3.65±0.25	
Work experience (y)							
≤2	70 (23.6)	3.18±0.43	0.719	3.12±0.30	2.455	3.08±0.53 ^a	12.100
3~4	94 (31.8)	3.19±0.41	(0.542)	3.15±0.23	(0.063)	3.33±0.33 ^{bc}	(<0.001)
5~9	100 (33.8)	3.15±0.43		3.20±0.26		3.51±0.41 ^{bc}	
≥10	32 (10.8)	3.06±0.44		3.25±0.22		3.37±0.67 ^{bc}	

SD: standard deviation.

By independent t-test or one-way ANOVA.

^{a,b,c}The same characters were not significant by Scheffe's test at=0.05.

general characteristics of the participants. Most participants were female (98.3%), with the age groups being divided into three categories: 23 to 29 years (57.1%), 30 to 39 years (41.2%), and over 40 years (1.7%). Regarding marital status, 223 participants (75.3%) were unmarried and 73 (24.7%) were married. The most common place of work was a dental clinic (58.4%). Work experience appeared in the order of 5 to 9 years (33.8%), 3 to 4 years (31.8%), 1 to 2 years (23.6%), and over 10 years (10.8%).

The degree of emotional labor was not statistically significant across the various general characteristics. However, significant differences were observed in positive psychological capital according to age (F=3.481, p=0.032) and marital status (t=-2.542, p=0.006). The average positive psychological capital was 3.14±0.27 for those aged 23 to 29 years, 3.20±0.25 points for those aged 30 to 39 years, and 3.35±0.17 for those aged 40 years and above. This confirms that the higher the age, the higher the positive psychological capital score. Considering marital status,

married participants had a higher positive psychological capital score (3.24±0.22) compared to unmarried subjects (3.15±0.17). Significant differences in job satisfaction were observed according to age (F=10.529, p<0.001), marital status (t=-3.342, p=0.001), and work experience (F=12.100, p<0.001). Job satisfaction was found to be higher among those aged 30 to 39 years, those who were married, and those with 5 to 9 years of work experience. Post-hoc analyses revealed differences in job satisfaction between the 23~29 years and 30~39 years age groups. Notably, job satisfaction was lower (3.08±0.53) for those with two or more years of experience, compared to more experienced groups.

2. Participants' level of emotional labor, positive psychological capital and job satisfaction

Emotional labor was scored at 3.16±0.43 out of 5. Positive psychological capital was 3.17±0.26, and job satisfac-

tion was 3.34 ± 0.49 out of 5. The skewness of each variable was normally distributed, with absolute values of one or less. Moreover, the absolute values of kurtosis were all less than or equal to three, also satisfying the conditions for a normal distribution (Table 2).

3. Correlation between emotional labor, positive psychological capital and job satisfaction

Table 3 presents the results of the analysis of the correlations between the main variables. All the variables showed statistically significant correlations. Emotional labor was negatively correlated with positive psychological capital ($r = -0.148$, $p = 0.011$) and job satisfaction ($r = -0.214$, $p < 0.001$). Positive psychological capital was positively correlated with job satisfaction ($r = 0.441$, $p < 0.001$).

4. Mediating effect of positive psychological capital between emotional labor and job satisfaction of the participants

Table 4 presents the results of the hierarchical regression analysis, examining the impact of positive psychological capital on the relationship between emotional labor and job satisfaction among dental hygienists. The Durbin-Watson statistic, used to confirm the independence of the residuals, yielded a value of 1.949.

The impact of emotional labor on positive psychological capital ($\beta = -0.148$, $t = -2.569$, $p = 0.011$) and job satisfaction ($\beta = -0.214$, $t = -3.765$, $p < 0.001$), as well as the effect of positive psychological capital on job satisfaction ($\beta = 0.418$, $t = 8.001$, $p < 0.001$) were all found to be significant, thus satisfying the basic assumptions necessary to confirm the mediating effect. To verify the significance of the partial mediating effect, a Sobel test was conducted. The results showed that the partial mediating effect was significant at $Z = -2.472$ and $p = 0.013$.

Table 2. Level of Emotional Labor, Positive Psychological Capital, and Job Satisfaction (n=296)

Variable	Mean±SD	Min	Max	Skewness	Kurtosis
Emotional labor	3.16±0.43	1.20	4.40	-0.200	2.073
Positive psychological capital	3.17±0.26	2.26	3.96	-0.358	0.831
Job satisfaction	3.34±0.49	1.65	5.00	-0.884	2.502

SD: standard deviation.
By descriptive statistics.

Table 3. Correlations between Emotional Labor, Positive Psychological Capital, and Job Satisfaction

Variable	Emotional labor	Positive psychological capital	Job satisfaction
Emotional labor	1		
Positive psychological capital	-0.148*	1	
Job satisfaction	-0.214***	0.441***	1

By person's correlation analysis at $\alpha = 0.05$, * $p < 0.05$, *** $p < 0.001$.

Table 4. Hierarchical Regression Analysis on Positive Psychological Capital

Step	Path	B	β	t	p	Adj. R ²	R ²	F
1	Emotional labor → Positive psychological capital	-0.091	-0.148	-2.569	0.011	0.019	0.022	6.598
2	Emotional labor → job satisfaction	-0.241	-0.214	-3.765	<0.001	0.043	0.046	14.174
3	Emotional labor → job satisfaction	-0.172	-0.153	-2.918	0.004	0.212	0.217	40.613
	Positive psychological capital → job satisfaction	0.766	0.418	8.001	<0.001			

By hierarchical multiple regression analysis.
Sobel test ($Z = -2.472$, $p = 0.013$).

Discussion

1. Interpretation and comparison to previous studies

This study aimed to verify the mediating effect of positive psychological capital on the relationship between emotional labor and job satisfaction among dental hygienists.

The average score for positive psychological capital among dental hygienists was 3.17 ± 0.26 out of 5 points. In comparison, previous studies targeting dental hygienists reported a score of 3.40 points in a 2019 survey conducted in Busan and Gyeongnam⁷⁾, 3.49 in 2021¹⁹⁾, 3.52 in another 2021 study surveying Seoul, Gyeonggi, Chungcheong, Gyeongsang, and Jeolla areas²⁰⁾, and 3.30 in a 2020 study in the Jeonbuk region¹⁶⁾. Notably, the score was higher in Seoul, possibly due to regional differences. Over time, however, there has been a decreasing trend in the level of positive psychological capital. As research on positive psychological capital among dental hygienists is still in its early stages, these disparities among studies may be expected. Therefore, it is necessary to subdivide the region and conduct additional surveys on the Seoul economic zone and local areas and to check the changes that can be seen periodically with the passage of time. In this study, positive psychological capital exhibited variations based on age and marital status, being higher among older and married participants. This finding aligns with the outcomes of a study conducted on nurses¹⁴⁾, in which married nurses showed higher positive psychological capital. These results can be attributed to the psychological changes accompanying shifts in attitudes towards life as individuals adapt to society and form families.

In this study, the average score for emotional labor among dental hygienists was 3.16 ± 0.43 on a 5-point scale, a finding consistent with the results of the studies by Ahn and Choi²¹⁾ and Kim²²⁾. This score is lower than that found in studies examining nurses working in general hospitals (3.42 points). Nurses, who often work shifts, engage with patients of various ages, many of whom have systemic illnesses¹⁾. Occupational demands, such as emergency situations and work overload³⁾, can result in a high level of emotional stress, thereby contributing to a heightened sense of emotional labor. In contrast, due to the nature of

their work, dental hygienists have relatively less contact with patients than nurses. Additionally, since dental hygienists deal with fewer life-threatening situations, their level of emotional interaction is generally considered to be lower. However, depending on the nature of the dental organization, which consists of a small number of personnel, stress within the organization may occur. In addition, in dentistry, conflict with patients may occur due to factors such as the high cost of medical treatment, the patient's fear of medical treatment, and increased dental knowledge among the general public. Emotional labor has been reported to be affected by multiple factors such as dental hygienists' work environment, depression, and social support^{10,21,23)}. In addition, the higher the level of emotional labor, the lower the job satisfaction and the higher the intention to quit^{21,24)}. Therefore, active intervention at the organizational level is required to manage the emotional labor of dental hygienists.

The average job satisfaction score among dental hygienists in this study was 3.34 ± 0.49 out of 5, which was higher than the scores reported by Yoon and Sung¹⁰⁾ and Jeong and Jang²⁵⁾. In addition, in this study, there was a statistically significant difference in job satisfaction based on age, marital status, and clinical history. According to a study by Kwon and Lee²⁶⁾, older and more experienced dental hygienists, particularly those who were married, had higher job satisfaction. In 2017, the Korean Association of Dental Hygienists conducted an analysis of factors affecting job satisfaction among 4,663 clinical dental hygienists²⁷⁾. They found that job satisfaction was higher among dental hygienists who occupied stable positions within the clinic²⁶⁾. Therefore, there is a need to develop a step-by-step program aimed at improving job satisfaction.

As a result of analyzing the correlation between emotional labor, job satisfaction, and positive psychological capital, we found a negative correlation ($r = -0.148$, $p = 0.011$) between emotional labor and positive psychological capital. The results of this study are supported by Jeong and Han's²⁴⁾ research, which showed that the higher the level of emotional labor, the higher the symptoms of negative emotions, and by Park and Jang's⁴⁾ research, which shows that positive psychological capital decreases as the level of damage caused by verbal violence increases.

Emotional labor and job satisfaction were also found to be negatively correlated ($r = -0.214$, $p < 0.001$). This is similar to the results of Kim²²⁾ and Jeong and Han²⁴⁾, which found that job satisfaction due to job stress decreased with increasing emotional labor. Positive psychological capital and job satisfaction appeared to be positively correlated ($r = 0.441$, $p < 0.001$). This is in line with the results by Lee and Han¹⁶⁾ and Min²⁰⁾, which showed that higher positive psychological capital led to lower job turnover intentions and increased job embeddedness.

In this study we found a partial mediation effect of positive psychological capital on emotional labor and job satisfaction ($z = -2.472$, $p = 0.013$). The findings align with those of Kim²²⁾, Jeong and Han²⁴⁾ and Park⁴⁾ which showed that emotional distress reduces positive psychological capital and that heightened emotional labor corresponds with lower job satisfaction. Negative factors such as verbal violence and emotional labor can induce stress in the workplace, consequently affecting positive psychological capital⁴⁾. In addition, studies by Lee and Han¹⁶⁾, and Min²⁰⁾ echo our research results, indicating that job satisfaction is higher when positive psychological capital is high. Therefore, damage from negative factors can increase stress and lower positive psychological capital, thus affecting job satisfaction. A study of Yeo¹⁴⁾ on nurses substantiated that positive psychological capital indeed has a mediating effect on emotional labor and job satisfaction, further supporting the results of our research. Given the nature of the dental practice environment, it is important to have a system in place that addresses negative emotions elicited by the surrounding environment in the process of delivering medical services. However, it is also essential to possess the ability for self-regulation and recovery from such negative emotions. Therefore, it becomes vital to enhance one's inner capacity to dissipate these negative emotions and to calibrate them appropriately within the organization.

Positive psychological capital, as a manageable psychological component, could mitigate negative effects through training in situations where individuals are subjected to emotional labor. Enhanced positive psychological capital can reduce negative emotions and stress and hence improve job satisfaction¹⁴⁾. Therefore, an individual's optimistic tendencies should be considered significant. As a result,

there is a need to acknowledge the importance of attitudes that reduce emotional labor, which adversely affect job satisfaction, and strengthen positive psychological capital. It will also be necessary to actively manage positive environmental factors to further contribute to increased job satisfaction.

2. Suggestion

This study proposes a qualitative research approach using direct observation, in-depth interviews, and content analysis methods for in-depth research on dental hygienists. In addition, there is a need to develop a systematic mediation program that can strengthen the positive psychological capital of dental hygienists, and subsequent research should be conducted to verify its effectiveness. Finally, further research is required to explore the various parameters influencing the relationship between emotional labor and job satisfaction.

3. Limitations

In this study, the sex distribution was skewed towards women, with the age group predominantly falling within the 20s and 30s. Therefore, it was necessary to subdivide participants and confirm the factors affecting each group. The subjective perceptions of the participants were examined via a self-administered questionnaire. Thus, the responses could potentially reflect self-protective tendencies or social desirability bias.

Notes

Conflict of interest

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

Ethical approval

This study was approved by the Korea National Institute for Bioethics Policy (KONIBP) (No. P01-202206-01-015).

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Data availability

Please contact the corresponding author for data availability.

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