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Influencing of compassion satisfaction and burnout on positive psychological capital of clinical dental hygienists

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ABSTRACT

Objectives: This study seeks to identify the positive psychological capital, burnout, and compassion satisfaction levels of clinical dental hygienists to understand the factors affecting positive psychological capital and to establish measures to improve the positive psychological capital, and to utilize them. **Methods:** A self-reported questionnaire was filled out by 190 dental hygienists of the clinic from February 1 to April 30, 2020. Statistical analyses were conducted with the help of independent t-test, one-way ANOVA, Pearson correlation coefficients, and stepwise multiple regression analysis. **Results:** Dental hygienists scored 3.47 points in positive psychological capital. The variables that influenced positive psychological capital were burnout and compassion satisfaction. The variables influencing positive psychological capital were monthly income_dummy2 (200–249/≥250), burnout, and compassion satisfaction. **Conclusions:** The positive psychological capital of clinical dental hygienists was found to be related to burnout and compassion satisfaction; additionally, compassion satisfaction had the greatest influence. Therefore, it will reduce burnout, improve compassion satisfaction, positive psychological capital, and contribute to efficient human resource management.

Key Words: Burnout, Compassion satisfaction, Dental hygienist, Positive psychological capital

Introduction

Positive psychology has proven that positive attitudes and experiences affect individuals as well as organizations, and it is being suggested as a new approach in personnel organizations [1]. In recent years, competition for dental medical treatment has intensified, leading to patient-centered dental medical service where dental professionals are required to prioritize patients and unilaterally accept their emotions. Clinical dental hygienists experience stress and burnout from work, and these factors cause them to change their

occupations [2]. In fact, a study revealed that 69.1% of clinical dental hygienists underwent a job change and that 49.7% are currently considering such change. Therefore, despite the rapid increase in the number of dental hygienists, there is a shortage of dental hygienists [3], suggesting that a positive psychological state of clinical dental hygienists is highly important to reduce job stress and burnout.

Organizational research has focused on management of manpower through positive motivation and developing strengths of its members, and recently, studies have focused on positive psychological capital as a new paradigm [4]. Positive psychological capital is defined as a concept of capital that can be developed by an individual to produce developmental and positive performance in a positive psychological state [5], and those with a high level of positive psychological capital achieve high work performance in the organization by reinforcing positive emotions [6]. It has been mostly examined in studies related to business administration, and studies have been recently attempted in various other academic areas to demonstrate the benefits of positive psychological capital [1,5-14]. Lee and Choi [1] assessed whether the results of U.S. studies on the precedence factors of positive psychological capital and approach of organizational behavior have the same vitality and significance for organization members in Korea. Additionally, they attempted to expand the scope of the study of static organizational behavior. Lim [10] prepared basic data for interdisciplinary research and developed a Korean version of the Positive Psychological Capital Scale for life sports enthusiasts and college students majoring in psychological sports. Kim and Nam [11] reported that, to achieve greater organizational performance of a company, positive psychological capital of the members in an organization needs to be improved to increase organizational commitment. Jung and Jung [12] suggested that measures to enhance compassion satisfaction through continuous manpower management are necessary for clinical nurses within the organization. Ha and Lee [13] recognized the importance of positive psychological capital in job performance of food service industry employees and emphasized the importance of educations and programs to enhance optimism, hope, resilience, and self-efficacy to maximize work efficiency and performance in employees. In studies on positive psychological capital in dental hygiene, Park and Jang [14] stated that positive psychological capital intervention programs for systematic support need to be developed to induce a healthy organizational culture. As such, studies on positive psychological capital are being conducted in various academic areas, demonstrating that positive psychological capital helps to reduce negativity in members and increase positivity to affect physical and psychological health [7]. Furthermore, it was shown to increase organizational commitment and lower burnout, stress, and intention for job change [11]. However, studies on positive psychological capital in dental hygiene are lacking, and it is be necessary to assess the relationship of positive psychological capital with burnout and compassion satisfaction. Therefore, the current study was conducted to devise a plan that can improve positive psychological capital of clinical dental hygienists and use the results as basic data for effective management of manpower. The specific objectives were to evaluate differences in positive psychological capital, burnout, and empathy satisfaction, assess the relationship between the factors, and identify factors that affect positive psychological capital.

Methods

1. Research Subjects

Data were collected from February 1st to April 30th, 2020. Random sampling was performed on dental hygienists working in dental clinicals and hospitals in Seoul, Gyeonggi, Chungcheong, Gyeongsan, and Jeolla, and a self-administered questionnaire was used. The sample size was calculated using G*power 3.1.9.4 program with a significance level of 0.05, a power of 0.95, an effective size of 0.15 required for regression analysis, and 10 predictive variables (positive psychological capital, burnout, empathy satisfaction, and general characteristics). The minimum required sample size was 178, and a total of 190 subjects were included in final analysis. This study was conducted after obtaining approval from the Institutional Review Board of 00 University (IRB No: 1041490-20200122-HR-002).

2. Research Tools

The research tools included 7, 18, 8, and 10 items on general characteristics, positive psychological capital, burnout, and compassion satisfaction, respectively. This study used the positive psychological capital scale developed by Luthan et al. [15] and translated by Lim [10], and the tool consisted of 18 items in four sub-domains of self-efficacy, resilience, hope, and optimism with six questions each. Burnout and compassion satisfaction were measured using the Professional Quality of Life (version 5.0) tool developed by Stamm [16] and used by Lee [17]. Each burnout and compassion satisfaction were assessed using 8 and 10 items. and the items were evaluated on a 5-point Likert scale (1 point for strongly disagree and 5 points for strongly agree). Higher scores indicated higher positive psychological capital, burnout, and compassion satisfaction. The research tools were analyzed for validity, and those factors and items with an eigenvalue of 1.0 or higher and a factor load of 0.4 or higher were selected. Cronbach's α, which indicated content reliability, was 0.935, 0.727, and 0.923 for positive psychological capital, burnout, and compassion satisfaction, repectively.

3. Data analysis

Collected data were analyzed using the PASW Statistics 22.0 (IBM Co., Armonk, NY, USA) program at a significance level of α=0.05. Descriptive statistical analysis was performed to assess the level of positive psychological capital, burnout, and compassion satisfaction. Differences between these factors according to the general characteristics of the subjects were analyzed using t-test and one-way analysis of variance (ANOVA). Additionally, the Scheffe Test was performed for post-hoc analysis. Pearson correlation analysis was performed to assess correlation between the variables, and factors affecting positive psychological capital were evaluated with stepwise multiple regression analysis.

Results

1. The level of positive psychological capital, burnout, and compassion satisfaction in subjects

Positive psychological capital, burnout, and compassion satisfaction of clinical dental hygienists were 3.47, 2.73, and 3.49 points, respectively<Table 1>.

Table 1. Descriptive statistics of variables

Unit : Mean±SD

Variables	Item	Min	Max	Mean±SD
Positive psychological capital	18	1.39	5.00	3.47±0.63
Burnout	8	1.00	4.63	2.73±0.58
Compassion satisfaction	10	1.00	5.00	3.49±0.66

2. The level of variables according to general characteristics

The level of positive psychological capital according to the general characteristics was significantly higher in those who "graduated from university and above" (p=0.031), earned "more than 2,500,000 won" (p=0.032), and were "Chief dental hygienist" (p=0.030). The level of burnout was lowered in "unmarried" subjects (p=0.042), and the level of compassion satisfaction was significantly higher in those who "graduated from university and above" (p=0.004) and in "Chief dental hygienist" (p=0.044) <Table 2>.

Table 2. Level of scales according to general characteristics

Unit : Mean±SD

Characteristics	Division	N	Positive psychological capital	t or F (p^*)	Burnout	t or F (p^*)	Compassion satisfaction	t or F (p^*)
Age (yrs)	<25	95	3.38±0.54	2.420	2.78±0.48	1.201	3.43±0.63	1.272
	25-29	58	3.54±0.70	(0.092)	2.73±0.69	(0.303)	3.50±0.70	(0.283)
	≥30	37	3.62±0.70		2.60±0.60		3.63±0.68	
Married	Single	151	3.45±0.62	-0.860	2.77±0.58	2.051	3.46±0.68	-1.313
	Married	39	3.55±0.69	(0.391)	2.56±0.54	(0.042)	3.61±0.59	(0.191)
Educational level	College	126	3.40±0.61	-2.168	2.75±0.56	0.761	3.39±0.63	-2.883
	≥University	64	3.61±0.66	(0.031)	2.68±0.62	(0.448)	3.68±0.68	(0.004)
Dental type	Dental clinic	143	3.47±0.66	-0.125	2.76±0.60	1.309	3.48±0.68	-0.157
	Dental hospital	47	3.48±0.53	(0.900)	2.63±0.50	(0.192)	3.50±0.62	(0.876)
Career (yrs)	<3	89	3.36±0.60	2.507	2.79±0.52	2.619	3.44±0.65	0.410
	3-6	57	3.56±0.62	(0.084)	2.58±0.63	(0.076)	3.54±0.71	(0.664)
	≥7	44	3.58±0.69		2.79±0.60		3.52±0.62	
Monthly income (KRW 10,000)	<200	52	3.32±0.60[a]	3.512	2.78±0.58	0.347	3.37±0.67	1.328
	200-249	87	3.47±0.56	(0.032)	2.72±0.54	(0.708)	3.50±0.65	(0.267)
	≥250	51	3.64±0.73[b]		2.69±0.64		3.58±0.67	
Position	General dental hygienist	55	3.63±0.69	-2.181	2.69±0.64	0.570	3.64±0.64	-2.023
	Chief dental hygienist	135	3.41±0.60	(0.030)	2.74±0.55	(0.570)	3.43±0.66	(0.044)

*by the t-test or one-way ANOVA

[a,b]The same character indication shows that there is no statistical significance by Scheffe test at α=0.05

3. Correlation between the variables

Positive psychological capital was negatively and positively correlated with burnout (r=0.569) and compassion satisfaction (r=0.699), respectively. Among independent variables, burnout and compassion satisfaction were negatively correlated (r=-0.582)<Table 3>.

Table 3. Correlation of compassion satisfaction, burnout on positive psychological capital

Variables	Positive psychological capital	Burnout	Compassion satisfaction
Positive psychological capital	1		
Burnout	-0.569**	1	
Compassion satisfaction	0.699**	-0.582**	1

**p<0.001, by pearson's correlation analysis

4. Factors affecting positive psychological capital

A stepwise multiple regression analysis was performed with positive psychological capital as the dependent variables and general characteristics, burnout, and compassion satisfaction as independent variables. General characteristics were converted to dummy variables. The Durbin-Watson test coefficient was 1.843, which showed no signs of autocorrelation, and the tolerance limit, ranging 0.662-0.993, was significant (F=72.692, p<0.001). The multicollinearity index was 1.007-1.520, which was significantly lower than the standard of 10. It was observed that significant factors affecting positive psychological capital of clinical dental hygienists were burnout (β=-0.247, p<0.001), monthly salary_dummy 2 (200-249/≥250) (β=0.105, p<0.037), and compassion satisfaction (β=0.546, p<0.001). The standard variable of monthly salary_dummy 2 had more effects at 2,500,000 won or more than at 2,000,000-2,490,000 won. Compassion satisfaction, which had an explanatory power of 53.2% had the greatest effects on positive psychological capital<Table 4>.

Table 4. Influencing factors of positive psychological capital

Variables	B	SE	β	t	p*	Tolerance	VIF
(constant)	2.353	0.345		6.819	0.001		
Monthly income_dummy2 (200-249/≥250)	0.149	0.071	0.105	2.097	0.037	0.993	1.007
Burnout	-0.271	0.067	-0.247	-4.041	0.001	0.662	1.511
Compassion satisfaction	0.521	0.058	0.546	8.909	0.001	0.658	1.520
R^2=0.540, adjusted R^2=0.532, F=72.692 (p<0.001), Durbin-Watson: 1.843							

*by stepwise multiple regression analysis at α=0.05

Discussion

This study evaluated the levels of positive psychological capital, burnout, and compassion satisfaction in clinical dental hygienists, and factors affecting positive psychological capital were assessed. The ultimate goal was to prepare basic data required to propose measures that can improve positive psychological capital and effectively manage manpower of clinical dental hygienists. In clinical dental hygienists, the level of positive psychological capital was 3.47 out of 5, which was higher than 3.32 and 3.10 observed by Kim et al. [4] and Yang [18], respectively. Lee and Kim [7] reported that positive psychological capital had the potential to be developed and that programs which can strengthen positive psychological capital to induce organizational changes through positive emotions in clinical settings need to be developed. Therefore, it would be necessary to strengthen positive psychological capital to induce organizational changes in clinical dental hygienists. The level of burnout was assessed at 2.73 points, which was lower than 3.12 and 2.93 points observed by Jung and Jung [8] and Han et al. [19], respectively. The level of compassion satisfaction was 3.49, which was higher than 3.28 observed by Lee and Yeom[20]. Additionally, a previous study also observed that burnout was low in a group that had high compassion satisfaction, which was consistent with the finding of our study. Compassion satisfaction reflects a positive reward, and therefore, efforts to increase such satisfaction, which has positive protective functions, are needed to reduce burnout of clinical dental hygienists.

Differences in positive psychological capital according to general characteristics showed that positive psychological capital was high when dental hygienists had an educational level of university and higher (p=0.031), a monthly income "more than 2,500,000 won" (p=0.032) and were appointed as "Chief dental hygienist" (p=0.030). Kim and Lee [21] suggested the importance of reinforcing positive psychological capital, which helps to increase positive attitudes and is necessary to achieve goals during difficult tasks. Therefore, strengthening positive psychological capital can maintain a positive psychological state in clinical settings, which leads to positive effects on controlling stress and promoting self-worth and happiness, and programs that can strengthen positive psychological capital need to be offered for benefits of dental hygienists. In our study, the level of burnout was significantly higher in "unmarried" subjects. This finding was partially consistent Kim and Lee's [21] results, where burnout was higher in those of younger age, lower educational level, no spouse, and low working experience. In the current study, there was a high proportion of subjects over the age of 25, which seemed to have increased the overall level of burn out, and in those who were under the age of 25, the level of burnout was the greatest although statistical significance was not observed. It is thought that lack of coping skills due to limited clinical experience led to such findings. As continuous burnout can cause mental and psychological damage, which can induce greater work-related stress, psychological support, in addition to institutional and administrative support, to reduce burnout would be necessary. The level of compassion satisfaction was significantly higher in those who "graduated from university and above" and were "Chief dental hygienist." Yang [18] reported that a higher educational level and greater work experience led to a

greater level of compassion satisfaction. Additionally, Kim and Lee [21] revealed that a greater age, higher educational level, and greater work experience led to a greater level of compassion satisfaction. The results of these two studies were opposite to our findings. On the other hand, Kim and Yeom [22] reported similar findings to ours, suggesting that the results differ in different studies. It is thought that clinical dental hygienists with abundant work experience and of high authority had a high level of positive psychological capital resulting from appropriate support. Therefore, human management measures that utilize the positive emotion of clinical dental hygienists would be necessary. Moreover, positive psychological capital was negatively and positively correlated with burnout (r=-0.569) and compassion satisfaction (r=0.699), respectively. This finding was consistent with that of previous studies [15, 20], and it is thought that positive psychological capital, which lowers burnout and increases positive attitudes, should be strengthened. Significant factors affecting positive psychological capital of clinical dental hygienists were burnout (β=-0.247), monthly salary_dummy 2 (200-249/≥250) (β=0.105), and compassion satisfaction (β=0.546). Additionally, the standard variable of monthly salary_dummy 2 had greater effects at 2,500,000 won or more than at 2,000,000-2,499,000 won. The factor that had the greatest effects on positive psychological capital was compassion satisfaction, which had an explanatory power of 53.2%, and this finding was consistent with that of Jung and Jung [8]. It is thought that compassion satisfaction, which is a positive feeling toward colleagues, affected positive psychological capital. Therefore, it is thought that strengthening positive psychological capital of clinical dental hygienists can increase job satisfaction through positive minds and contribute to management of manpower. In the current study, random sampling was performed on clinical dental hygienists, and therefore, results cannot be generalized for all clinical dental hygienists. However, this study is meaningful in that factors affecting positive psychological capital of clinical dental hygienists were identified. In future studies, it would be necessary to develop a tool for positive psychological capital of clinical dental hygienists, and the results of our study would need to be verified through follow-up studies.

Conclusions

This study was performed to assess the level of positive psychological capital, burnout, and compassion satisfaction in clinical dental hygienists and identify factors that affect positive psychological capital to propose measures that can increase positive psychological capital and thereby effectively manage manpower. Random sampling was performed to analyze data of 190 clinical dental hygienists, and the follow results were obtained:

1. In clinical dental hygienists, positive psychological capital, burnout, and compassion satisfaction showed a score of 3.47, 2.73, and 3.49, respectively.

2. The level of positive psychological capital significantly differed according to the educational level, monthly income, and position of the subjects. Burnout significantly differed depending on the marital status, and compassion satisfaction was significantly different according to the educational level and position in dental hygienists (p<0.05).

3. Positive psychological capital was negatively correlated with burnout (r=-0.569) and positively correlated with compassion satisfaction (r=0.699).

4. Monthly salary_dummy 2(200-249/≥250), burnout, and compassion satisfaction were significant factors that affected positive psychological capital in dental hygienists with an explanatory power of 53.2%.

This study demonstrated that positive psychological capital was correlated with burnout and compassion satisfaction in dental hygienists, and compassion satisfaction had the greatest effects on positive psychological capital. Therefore, psychological support and institutional measures to lower burnout of clinical dental hygienists and improve compassion satisfaction and positive psychological capital would be necessary.

Conflicts of Interest

The author declares no conflict of interest.

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