

Influence of Job Embeddedness and Resilience on Turnover Intention in Dental Hygienists

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Background: Maintaining a skilled workforce by minimizing the turnover of competent dental hygienists is very important for securing dental competitiveness. Therefore, it is necessary to find a predictor of turnover and lower turnover intention. To understand dental hygienist turnover, it is necessary to study the resilience, a positive factor of personal characteristics and job embeddedness that induces residual tissue. The purpose of this study was to investigate the effect of dental hygienists' job embeddedness and resilience on turnover intention.

Methods: A survey was conducted on licensed dental hygienists nationwide, from March 19 to July 19, 2020. T-test and one way ANOVA analysis were performed to compare the job embeddedness, resilience, and turnover intention according to the general characteristics. Pearson's correlation analysis was performed to identify the correlation between job embeddedness, resilience, and turnover intention. Multiple regression analysis was performed to determine the effect on the turnover intention.

Results: Job embeddedness was the highest with link and resilience scoring 3.57 and 4.16, respectively. The turnover intention scored 3.53. Among the general characteristics, age, marriage, total dental clinic career, education degree, and position showed statistically significant differences in job embeddedness, resilience, and turnover intention. Suitability, link, and sacrifice of job embeddedness were shown to affect the degree of turnover intention, with an explanatory power of 26.2%.

Conclusion: In order to reduce the dental hygienists' turnover intention, job embeddedness and resilience should be increased. Thus, measures should be undertaken for professional and systematic program development and human resources management.

Key Words: Dental hygienists, Job embeddedness, Resilience, Turnover

Introduction

A key element of hospital organization is human resources; securing and maintaining this is important for hospital growth and development¹⁻³. Dental hygienists are professional human resources that play a pivotal role in the promotion of oral health in the public and influence the determination of productivity and quality of dental services. Around 45.9% (88,000) of dental hygienist license holders are active, and more than 5,000 are licensed annually, but they are having difficulty in manpower supply and demand due to turnover⁴. Turnovers happen in 45.8% of

dental hygienists, which is almost half of the total⁵. Maintaining a skilled workforce by minimizing the turnover of competent dental hygienists is very important for securing dental competitiveness⁶. Therefore, it is necessary to find a predictor of turnover and lower turnover intention. Job embeddedness and resilience are being discussed as new variables for turnover^{7,8}. Job embeddedness refers to the degree to which an organizational member is rooted in the organization in relation to the job⁹. Job embeddedness expresses a high degree of relevance to be buried deeply in something, or in simpler terms, this is why an organization's members choose to

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remain⁷⁾. Resilience is a concept that includes the ability of an individual to overcome stress or adversity, adapt positively, and grow as an individual¹⁰⁾. Dental hygienists reportedly experience high stress, namely due to interpersonal conflict, physical environment, organizational system, job demand, and lack of reward¹¹⁾. In organizational culture, resilience is needed to mature human capital, control individual feelings, and overcome stress. These two factors lower the turnover intention of dental hygienists.

Due to the shortage of health care workers, other studies on turnover have been ongoing^{2,3,6-8)}. However, studies involving job embeddedness and resilience in dental hygienists are insufficient. To understand dental hygienist turnover, it is necessary to study resilience, a positive factor of personal characteristics, and job embeddedness, which is an individual's reason for remaining in their job. This study aims to provide basic data for efficient manpower management by understanding the effects of job placement and the resilience of dental hygienists on their turnover intentions.

Materials and Methods

1. Subjects and methods

This study was conducted by randomly sampling and surveying licensed dental hygienists across the country. The survey was conducted from March 19 to July 19, 2020. The purpose of the research were explained to the research subjects, and confidential information were investigated after receiving written consent from the subjects, to comply with research ethics. The sample size was obtained from the G Power 3.1 program, and 221 people were calculated for correlation and regression analysis based on an effect size of 0.15, significance level of 0.05, and statistical power of 0.8.

2. Variables used in analysis

A total of 9 questions were used to investigate the following general characteristics: age, sex, marriage, religion, total dental clinic career, current dental clinic carrier, educational degree, position, and monthly salary. Job embeddedness was based on the definition set by

Mitchell et al.⁹⁾, and its sub-domains consisted of 18 questions composed of 8 questions for fit, 4 questions for link, and 6 questions for sacrifice. Fit is the suitability of the subject to being a dentist. Link refers to the interaction between departments or colleagues. Lastly, sacrifice means the patient's sacrifice for the dental clinic. The answers to the questions were measured on a five-point scale ranging from five points for "very much so" to one point for "not at all." The reliability of the research tool was Cronbach's $\alpha=0.912$. The questions for resilience was developed by Connor and Davidson¹²⁾ and translated into Korean by Baek¹³⁾. The sub-domains consisted of a total of 25 questions: 9 for toughness, 8 for patience, 4 for positive tendency, 2 for support, and 2 for spirituality. The answers to the questions were measured on a five-point scale ranging from five points for "very much so" to one point for "not at all." The reliability of the research tool was Cronbach's $\alpha=0.910$. The turnover intention consisted of five questions by Moon and Han²⁾ modified and supplemented by the tools developed by Mobley¹⁴⁾. A Likert five-point scale was used, and Cronbach's α value was 0.847.

3. Data analysis

General characteristics were analyzed for frequency, and job embeddedness, resilience, and turnover intention were analyzed for technical statistics. The t-test and one-way ANOVA analysis were performed to compare job embeddedness, resilience, and turnover intention according to general characteristics. Levene statistics were

Table 1. Job Embeddedness, Resilience, Turnover Intention

Variable	Mean±standard deviation
Job embeddedness	3.35±0.608
Fit	3.47±0.719
Link	3.57±0.743
Sacrifice	3.06±0.624
Resilience	3.58±0.506
Toughness	3.36±0.632
Patience	3.74±0.601
Positive tendency	3.57±0.657
Support	4.16±0.810
Spirituality	3.37±0.709
Turnover intention	3.53±0.873

used to test for equal variances, and differences between groups were analyzed through the Scheffe follow-up test. Pearson’s correlation analysis was performed to identify the correlation between job embeddedness, resilience, and turnover intention. Multiple regression analysis was performed to determine the effect on turnover intention, and the significance level of all analyses was set to 0.05. The data were analyzed using the software for statistical analysis, PASW statistics ver. 18.0 (IBM Corp., Armonk,

NY, USA).

Results

1. Job embeddedness, resilience, and turnover intention

Job embeddedness was the highest in link with a score of 3.57, and sacrifice was the lowest at 3.06. Resilience had scores of 4.16 in support, 3.74 in patience, and 3.57 in

Table 2. Differences in Job Embeddedness, Resilience and Turnover Intention according to General Characteristics

Characteristic	Category	n (%)	Job embeddedness			Resilience			Turnover intention		
			Mean± standard deviation	p-value	Scheffe	Mean± standard deviation	p-value	Scheffe	Mean± standard deviation	p-value	Scheffe
Age (y)	< 30 ^a	133 (60.2)	3.28±0.536	0.005	a,b<c	3.51±0.471	0.015	a<c	3.62±0.785	0.004	a<b,c
	30 ~ < 40 ^b	59 (26.7)	3.35±0.673			3.64±0.539			3.56±0.991		
	≥ 40 ^c	29 (13.1)	3.68±0.690			3.79±0.537			3.04±0.867		
Sex	Male	5 (2.3)	3.35±0.925	0.995		0.724		3.60±1.067	0.863		
	Female	216 (97.7)	3.35±0.602		3.58±0.508		3.53±0.871				
Marriage	No	170 (76.9)	3.26±0.566	<0.001		<0.001		3.62±0.839	0.009		
	Yes	49 (22.2)	3.67±0.647		3.82±0.484		3.24±0.922				
	Etc.	2 (0.9)	3.83±0.392		3.86±0.197		2.60±0.848				
Religion	Yes	81 (36.7)	3.49±0.631	0.010		0.003		3.46±0.899	0.409		
	No	140 (63.3)	3.27±0.581		3.50±0.513		3.57±0.858				
Total dental clinic career (y)	< 1 ^a	25 (11.3)	3.40±0.609	0.001	c<e	3.69±0.504	<0.001	b<e	3.16±0.687	<0.001	c,d>e
	1 ~ < 3 ^b	55 (24.9)	3.28±0.473			3.40±0.421			3.65±0.713		
	3 ~ < 5 ^c	44 (19.9)	3.16±0.560			3.55±0.515			3.90±0.887		
	5 ~ < 10 ^d	50 (22.6)	3.29±0.623			3.52±0.500			3.73±0.835		
	≥ 10 ^e	47 (21.3)	3.35±0.608			3.83±0.505			3.02±0.888		
Dental clinic carrier in currently (y)	< 1 ^a	60 (27.1)	3.27±0.645	<0.001	a,b,c<e	3.64±0.486	0.072		3.40±0.898	0.009	e<b
	1 ~ < 3 ^b	82 (37.1)	3.23±0.502			3.47±0.493		3.73±0.756			
	3 ~ < 5 ^c	38 (17.2)	3.33±0.606			3.55±0.551		3.64±0.934			
	5 ~ < 10 ^d	20 (9.0)	3.68±0.475			3.71±0.461		3.40±0.892			
	≥ 10 ^e	21 (9.5)	3.78±0.734			3.76±0.510		3.04±0.896			
Education degree	Associate ^a	102 (46.2)	3.21±0.610	<0.001	a,b<c	3.42±0.507	<0.001	a<b<c	3.70±0.841	0.002	a,b>c
	Bachelor ^b	91 (41.2)	3.39±0.539			3.66±0.450			3.47±0.836		
	Master or higher ^c	28 (12.7)	3.73±0.608			3.89±0.479			3.06±0.936		
Position	Staffa	154 (69.7)	3.20±0.542	<0.001	a<b,d	3.50±0.498	0.001	a<d	3.62±0.823	0.009	c>d
	Head of a department ^b	27 (12.2)	3.76±0.663			3.75±0.473			3.32±1.054		
	Team leader ^c	20 (9.0)	3.55±0.410			3.68±0.364			3.67±0.768		
	Etc. ^d	20 (9.0)	3.80±0.672			3.90±0.559			2.99±0.893		
Monthly salary (10,000 won)	< 180 ^a	27 (12.2)	3.45±0.712	0.002	b,c,d<e	3.64±0.392	0.098		3.22±0.783	0.012	
	180 ~ < 200 ^b	48 (21.7)	3.29±0.573			3.46±0.505		3.53±0.731			
	200 ~ < 250 ^c	73 (33.3)	3.25±0.564			3.53±0.539		3.69±0.905			
	250 ~ < 300 ^d	48 (21.7)	3.29±0.529			3.65±0.464		3.66±0.894			
	≥ 300 ^e	25 (11.3)	3.79±0.655			3.76±0.549		3.12±0.921			

Data was analysed by t-test and one-way ANOVA statistics.

positive tendency, with toughness scoring the lowest at 3.36. The turnover intention had a score of 3.53 (Table 1).

2. Differences in job embeddedness, resilience, and turnover intention according to general characteristics

Among the general characteristics, there were statistically significant differences in job embeddedness, resilience, and turnover intention according to age, marriage, total dental clinic career, educational degree, and position. The higher the age and level of education, the higher the job embeddedness ($p=0.005$, $p<0.001$) and resilience ($p=0.015$, $p<0.001$) and the lower the degree of turnover intention ($p=0.004$, $p=0.002$). These variables also differed depending on marriage status; unmarried people showed lower job embeddedness ($p<0.001$), lower resilience ($p<0.001$), and a higher degree of turnover intention ($p=0.009$, Table 2).

3. Correlation between the sub-domains of job embeddedness, resilience, and turnover intention

Sacrifice and fit (0.701), patience and toughness (0.682), link and fit (0.604), and sacrifice and link (0.582) showed high positive correlations between each other. However, there was a negative correlation between turnover intentions and the sub-domains of job embeddedness and resilience. Among them, turnover intention and fit

(-0.484) showed the lowest negative correlation. Sacrifice (-0.414) and toughness (-0.275) showed a low negative correlation ($p<0.05$, Table 3).

4. Factors affecting turnover intentions

As a result of analyzing multicollinearity between independent variables prior to regression analysis, the tolerance limit was 0.450 to 0.586, which was 0.1 or more.

The variance inflation factors was 1.708 to 2.223, which did not exceed 10, indicating that there was no problem in multicollinearity between independent variables.

It was found that the fit, link, and sacrifice of job embeddedness were factors affecting turnover intention. The explanatory power was 26.2% and the Durbin-Watson index was 1.993, which was close to 2, indicating that there was no autocorrelation of the error term. The regression model was found to be statistically significant ($F=26.973$, $p<0.001$, Table 4).

Discussion

This study attempted to investigate the effect of job embeddedness and resilience on turnover intention in dental hygienists. The main implications according to the research results are as follows.

First, we examined the job embeddedness, resilience, and turnover intention of dental hygienists. Job embeddedness scored 3.35. Regarding the sub-domains, link scored the

Table 3. Correlation between Sub-Domains of Job Embeddedness and Resilience and Turnover Intention

Variable	A	B	C	D	E	F	G	H	I	
Job embeddedness ^a	A	1								
	B	0.604***	1							
	C	0.701***	0.582***	1						
Resilience ^b	D	0.526***	0.530***	0.452***	1					
	E	0.474***	0.390***	0.376***	0.682***	1				
	F	0.470***	0.400***	0.426***	0.569***	0.622**	1			
	G	0.257***	0.199**	0.227**	0.228**	0.436***	0.365***	1		
	H	0.265***	0.182**	0.225**	0.195**	0.208**	0.292***	0.161*	1	
Turnover intention ^c	I	-0.484***	-0.190**	-0.414***	-0.275***	-0.245***	-0.265***	-0.049	-0.175**	1

* $p<0.05$, ** $p<0.01$, *** $p<0.001$.

^aA: fit, B: link, C: sacrifice.

^bD: toughness, E: patience, F: positive tendency, G: support, H: spirituality.

^cI: turnover intention.

Data was analysed by Pearson correlation statistics.

Table 4. Factors Affecting Turnover Intentions

Variable	B	SE	β	t (p)	TOL	VIF
(Constant)	5.501	0.287		19.143		
Fit	-0.562	0.105	-0.463	-5.359***	0.450	2.223
Link	0.251	0.089	0.214	2.825**	0.586	1.708
Sacrifice	-0.299	0.118	-0.214	-2.525*	0.469	2.134
F (p)				26.973***		
Adjusted R ²				0.262		
Durbin-Watson				1.993		

SE: standard error, VIF: variance inflation factors, TOL, tolerance.
*p < 0.05, **p < 0.01, ***p < 0.001

highest at 3.57, and sacrifice scored the lowest at 3.06. According to the studies of Kang and Jung¹⁵⁾ and Kim et al.¹⁾ regarding nurses, job embeddedness (fit, link, and sacrifice) averaged 3.27 and 2.97, respectively. Dental hygienists had a better interaction with their peers than other nurses. Resilience scored 3.58, and among the sub-domains, support, patience, and positive tendency scored the greatest, in increasing/decreasing order. Dental hygienists were well-connected with other people who could support them even under stressful situations. The turnover intention was 3.53, slightly higher than Yoon et al.'s result¹⁶⁾ of 3.23.

Second, among the general characteristics, there were differences in job embeddedness, resilience, and turnover intention according to age, marriage, total dental clinic career, education degree, and position. The higher the age and education level, the higher the job embeddedness and resilience and the lower the turnover intention. The higher the age and level of education, the more they feel that they fit into the work and environment they are performing in and the more they seem to overcome and adapt to individual stress or adversity. Moreover, as work experience increases, a sense of stability for the organization and work is developed, and job embeddedness is high due to smooth interpersonal relations. According to the general characteristics of the study of Kang and Jung¹⁵⁾, higher job embeddedness was associated with more married people, full-time workers, senior nurses, and older age and career. This is the same as the result of this study. The study of Kim and Ryu⁷⁾ also showed that the higher the age and salary level, the lower the turnover intention. The more experience you have, the higher your income. However,

even if you move to another place, you cannot guarantee the income. In addition, there are few dentists who want a dental hygienist with a lot of experience. For these reasons, it seems that more careers are associated with a lower turnover intention.

Third, the fit, link, and sacrifice of job embeddedness appeared to be factors affecting turnover intention. Fit and sacrifice had a negative effect on turnover intention, as seen in several studies^{9,15,17,18)}. The more a dental hygienist perceives personal values, achievement of professional goals, and values as similar or appropriate to their job duties and organizational requirements, the lower the turnover intention. Furthermore, the more an individual perceives the material and psychological damages that occur when he quits his job, the lower the turnover intention. In the research of Mitchell et al.⁹⁾ and Park and Lee¹⁷⁾, link had no significant effect on turnover intention, but the present study had a positive effect, similar to the research of Ko and Lee⁸⁾. If the interpersonal relationship is good, it is interpreted as having a positive effect on turnover intention because there is no fear of adapting to the new environment. In order to reduce the dental hygienist's turnover intention, it is necessary to hire employees who fit the dental clinic's values and characteristics well. In addition, incentives and promotions should be actively considered so that employees with high links that have a positive impact on the organization do not deviate from their members. Resilience did not affect turnover intention. A positive response to overcoming an individual's stress or adversity does not appear to have a significant impact on job turnover. However, in the study of Seo and Cho¹⁹⁾ regarding nurses, resilience was a factor

influencing turnover intention, so further research is likely needed in the future.

It is difficult to draw generalizations from this cross-sectional survey, and job satisfaction, organizational commitment, job alternatives and job search suggested by Mitchell et al.⁹⁾ were excluded. Therefore, it is necessary to compare the influence of these variables on the turnover. Turnover intention is not yet expressed in action but is a predictor that can lead to turnover²⁰⁾. By looking at the factors of turnover intention, it is therefore necessary to lower the turnover to secure competent human resources and make them willing to work hard in the field¹⁾. Based on the results of this study, it is necessary to develop training and management programs to secure the core talents of dental clinics by minimizing the causes of the voluntary resignation of competent dental hygienists and to maximize their capabilities.

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 Baekseok Culture University (2-7008132-A-N-01).

Author contributions

Conceptualization: Ji-Min Hwang, Ji-Hyoung Han. Data acquisition: Ji-Min Hwang, Ji-Hyoung Han. Formal analysis: Ji-Min Hwang. Supervision: Ji-Min Hwang, Ji-Hyoung Han. Writing—original draft: Ji-Min Hwang, Ji-Hyoung Han. Writing—review & editing: Ji-Hyoung Han.

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