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A study on the correlation between job stress, incentive system and turnover intention: A case study of the intensive care unit of the southern medical center

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Abstract
Purpose: Nursing shortage is a global issue while the most important factor is nursing retention difficulties. This study discusses the effects of intensive care unit staffs on job stress, incentive system, and turnover intention.
Methods: This study was a cross sectional study. The study samples were convenient sampling of nursing staffs from the intensive care unit at a medical center in Southern Taiwan in south Taiwan. The questionnaire was classified into four parts including individual attributes, job stress scale of nursing staff, incentive system scale, and turnover intention scale. Testing time was from February 1, 2017 to February 28, 2017, a total of 180 questionnaires were issued, recovering valid questionnaires 157 shares, and SPSS Version 20 Software was used for data analysis and statistical analysis.
Results: The findings of this study indicated that the marital status of individual attributes of nursing staff had significant correlation with job stress to affect turnover intention. Job stress had a significantly positive influence on the turnover intention（r=0.32，P<0.01）, while incentive system had a significantly negative influence on the turnover intention=-0.29，P<0.01）. Which explains that the higher the job stress is, the more turnover intention there will be, and incentive system can reduce turnover intention.
Conclusions: Job stress has significant positive effect on turnover intention while incentive system has significant negative effect on turnover intention. Nursing staffs' job stress and incentive system are predictable factors for turnover intention.

Keywords: job stress, incentive system, turnover intention

Introduction

In many developing countries around the world, shortage of nursing staff is currently the biggest issue (Yeh & Yu, 2009; Tran, Johnson, Fernadez, & Jones, 2010) [21, 18]. In the U.S. healthcare system, the shortage of intensive care unit nursing staff is a common issue; the annual growth rate of manpower is more than 25% to 60% (Mealer, Jones, & Moss, 2012; Meredith *et al*., 2014) [14, 15]. Therefore, there are lots of related studies aiming at the intensive care units. The direct impact on the clinical nurses is the lack of manpower, leading to increasing the workload, the working hours are not fixed, and these long-term cumulating stresses can easily lead to low morale at work and declining work efficiency (Ho, *et al*., 2010) [5].

The lower job satisfaction of nursing staff not only seriously affects the patient's care quality and image of the hospital, but also causes negative reactions such as dereliction of duty and malfeasance, resulting in frequent loss of workforce or incitement. The lower job satisfaction of nursing staff not only severely affects the patient's care quality and image of the hospital, but also causes negative reactions, such as resigning and absence, resulting in manpower loss or frequent workforce changes (Lee、Wu、Liou、Lee，2010) [13]. According to the investigation of Chen, Lin, Lian, Yu, & Tsai, (2000) [3] of the nursing staffs in medical center, 75% of the staffs has turnover intention; the more satisfied the staffs are to the incentive system, the less turnover there would be (Lee、Wu、Feng，2013；Ghiselli, Lopa & Bai, 2001) [8, 4]. In Taiwan, the satisfactory level for nursing staff's incentive system is lower than other countries, only about 33% of the nurses stated that they may be staying in nursing industry in the next 5 years (Chang *et al*., 2010) [2]. Van-Bogaert, Van-heusden, Timmermans, & Franck (2014) [19] finds that 10 % of the nursing staffs are unsatisfied or very unsatisfied with the current job. Whether the nursing staffs' working requirements are fulfilled and whether they are satisfied with the incentive system are significantly influential to the intention of remaining at clinical work and the service quality they are providing (Yin *et al*., 2001；Lee, Pai, & Yen, 2008) [22, 10].

This study uses nursing staffs as subjects, investigating the relationship between the nursing staff's work pressure, incentive system and turnover intention in a Southern medical center.

Methods

Study Subject and Data Collection

This study follows cross-sectional design and uses an

intentional sampling method on the nursing personnel of intensive care unit of a certain medical center, including internal ICU, surgical ICU, cardiac medicine ICU, cardiac surgery ICU, neurology and nerves ICU. A total of 10 units, about 180-200 nursing staff, 180 questionnaires were issued, and 180 of which were recovered, a total of 157 valid questionnaires, with the completion rate of 87%.

Inclusion criteria

1. Had a complete nursing education in the country or abroad and hold a nurse certificate.
2. Nursing staffs who work in intensive care units at a certain medical center in the south for at least 6 months.
3. Current work section is the ICU.

Exclusion criteria

The subject of this study is the primary nursing personnel, so directors and specialists of the nursing department are excluded.

Data Collection

Before the study was conducted, the researcher first gain the agreement of Department of Nursing of the Medical Center and then contacted the supervisor of the unit that met the conditions of the study and prepared the research plan book and questionnaire. The researcher personally explained the purpose of this study, the study subject, and the questionnaire collection method. During the data collecting period, the researcher personally went to each intensive care unit and explained to the respondent that he had obtained the consent and proceeded to collect the data.

Ethics Considerations

This study was approved by the appropriate research ethics committee (Case No: 201601616B0C 501). Each and every participant was required to sign an informed consent form.

Study instruments

This study uses structured questionnaire survey method. The instruments included: personal attributes, nursing staff work stress scale, incentive system scale and turnover propensity scale. The questionnaire is revised and finalized after authorized by the author of reference or translated original text.

Personal attributes include gender, age, academic qualifications, marital status, years of service in the hospital, total years of nursing work, and years of nursing care. This may affect nursing staff's work stress, incentive system, and turnover intention.

Nursing Staff Work Stress Scale: This study used the “Nursing Staff Work Stress Scale” developed by Tsai, Chen, & Wang, (1996) [2]. After the consent of Dr. Tsai, SL, the work pressure was measured and divided into Scale one (12 questions) and Scale two (31 questions), a total of 43 questions, using nine points Likert evaluation, the minimum value of each question scoring is 0 points, the maximum value is 8 points; the higher the score, the greater the pressure, in other words, lower points Indicate that the working pressure is lower. In Tsai, Chen, & Wang, (1996) [2], the Cronbach´s α values for each aspect are above 0.84.

Incentive system scale: Using the questionnaire of the incentive system designed by Robinson (1982) and translated by Wu and WJ (2015) [2], we developed three aspects of the incentive system: internal financial reward, external financial reward and external non-financial, a total of 17 questions were asked. The questionnaire is based on the Likert five-point scale, which is based on "strongly disagrees", "disagrees", "ordinary", "agrees" and "strongly agrees" to give 1, 2, 3, 4 and 5 points respectively. The higher the score is, the higher the degree of certainty of the facet of the incentive system implemented by the subject to his company. Because this category of Robbins already contains the motivational aspect proposed by other scholars, and is also widely used in all kinds of related research, the study adopts this classification to conduct research and analysis.

Turnover intention scale: Using the turnover intention scale designed by Mobley (1978) [16] and translated by Huang, K. Y. (1984) [6], the main objective is to assess the individual's willingness to leave the current position. Including turnover intention, looking for other work, assessment of external job opportunities, and willingness to leave current positions. We adopted the Likert five-point scale. We gave 1, 2, 3, 4 and 5 points from "strongly disagree", "disagree", "normal", "agree" and "strongly agree". The higher the tendency.

Data Processing and Analysis

The SPSS 20 statistical software was used for statistical analysis, and descriptive statistics were made with means and percentages. Inferential analysis was conducted using Independent t-Test, One-way Analysis of Variable (One-way ANOVA), Pearson's Product-Moment Correlation. And regression analysis was used to understand the basic attributes of nursing staff in terms of turnover intention prediction ability by the working stress and incentive systems.

Results

(1) Difference of nursing staffs’ different characteristics on job stress, incentive system and turnover intention.

Table 1 shows that there are no statistical meaning in between incentive system, turnover intention and other individual characteristic differences ($P > 0.05$).

In table 2, unmarried (including divorced) has higher scores in total job stress and in job stress scale 1 than those who are married. There are no statistical meaning in other individual characteristic differences ($P > 0.05$).

Table 1: Difference of nursing staffs' different characteristics on incentive system and turnover intention (n=157)

Name of Variables	Incentive system			Turnover intention		
	Mean ± SD	t/F Value	P Value	Mean ± SD	t/F Value	P Value
Age (Years old)						
<30(n=42)	61.24±8.45	0.145	0.865	12.83±3.69	1.943	0.147
30-39(n=86)	60.37±8.02			13.18±3.05		
≥40(n=28)	60.57±10.62			11.79±3.25		
Education level						
College (including junior college and two-year technical schools) (n=17)	57.29±9.67	1.709	0.090	11.59±3.14	1.675	0.0968
University (Including two-year and four-year college of technology) and above (n=140)	61.04±8.40			12.99±3.28		
Marital state						
Unmarried (Including divorced) (n=85)	60.75±7.97	0.169	0.866	13.11±3.10	1.082	0.281
Married (n=72)	60.51±9.30			12.54±3.48		
Years of staying in the Nursing industry (years)						
<5(n=28)	62.86±8.45	0.966	0.411	12.53±4.1	0.430	0.731
5-10(n=56)	59.57±8.49			12.96±2.96		
11-15(n=35)	60.17±7.07			13.23±3.37		
≥16(n=38)	61±10.02			12.33±2.97		
Years of providing service in this hospital (year)						
<5(n=31)	63.42±8.24	1.681	0.173	12.42±4.24	2.110	0.101
5-10(n=74)	60.2±8.17			13.38±2.85		
11-15(n=19)	58.21±7.96			13.26±3.35		
≥16(n=33)	60.39±9.85			11.79±2.98		
Total years of being in Nursing department (Years)						
<5(n=32)	63.94±8.35	2.098	0.103	12.53±4.1	0.430	0.731
5-10(n=73)	60.08±8.03			12.96±2.96		
11-15(n=31)	59.19±9.38			13.23±3.37		
≥16(n=21)	59.67±9.02			12.33±2.97		

Table 2: Differences of nursing staffs' different characteristics on job stress (n=157)

Variables	Total score of job stress			Job Stress Scale 1			Job Stress Scale 2		
	Mean ± SD	t/F Value	P Value	Mean ± SD	t/F Value	P Value	Mean ± SD	t/F Value	P Value
Age (Years)									
<30	197.83±82.34	0.039	0.962	38.65±22.13	0.771	0.464	159.18±62.02	0.002	0.998
30-39	202±80.59			43.33±19.49			158.67±63.68		
≥40	200.22±72.21			42.02±18.64			158.2±54.54		
Education Level									
College (including junior college and two-year technical schools) (n=17)	212.71±65.72	0.668	0.505	44.41±17.86	0.557	0.578	168.29±50.29	0.680	0.497
University (Including two-year and four-year college of technology) and above (n=140)	199.09±80.73			41.54±20.34			157.56±62.59		
Marital state									
Unmarried (Including divorced)	215.68±76.31	2.649	0.009	45.62±20.71	2.611	0.010	170.06±57.72	2.562	0.011
Married	182.72±79.28			37.39±18.4			145.33±63.14		
Years of staying in the Nursing industry (years)									
<5	194.92±81.63	0.093	0.964	39.12±22.01	0.231	0.875	155.8±61.77	0.101	0.960
11-15	198.26±79.56			43.06±18.77			155.2±63.05		
≥16	204.27±75.66			42.62±20.39			161.65±57.08		
Years of providing service in this hospital (year)									
<5	194.92±81.63	0.093	0.964	39.92±23.31	0.184	0.907	160.37±69.6	0.090	0.966
5-10	202.32±81.92			42.66±20.1			160.57±62.65		
11-15	198.26±79.56			43.26±15.8			154.42±51.39		
≥16	204.27±75.66			41.02±19.55			155.5±57.65		
Total years of being in Nursing department (Years)									
<5	206.99±81.74	1.086	0.357	41.11±21.77	0.995	0.397	165.89±62.04	1.117	0.344
5-10	198.37±81.2			41.92±20.04			156.45±63.28		
11-15	184.1±71.82			38.29±16.77			145.81±57.75		
≥16	222.72±77.73			47.98±21.78			174.74±57.66		

(2) The correlations of nursing staffs' job stress and incentive system on turnover intention

Table 3 shows that the total job stress score, job stress scale 1 score and job stress scale 2 score are positive correlated. Nursing staffs' total job stress score and turnover intention are positive correlated (r=0.32, P<0.01). Nursing staff's job incentive system and turnover intention are negative correlated (r=-0.29, P<0.01). Explaining that the more job stress there is, the higher turnover intention the would be; a completed incentive system can reduce turnover intention.

Table 3: The Correlation of Nursing Staffs' Job Stress and Incentive System on Turnover Intention

	Job Stress Scale 1	Job Stress Scale 2	Total Job Stress Score	Incentive System	Turnover Intention
Job Stress Scale 1	1				
Job Stress Scale 2	0.72**	1			
Total Job Stress Score	0.92**	0.99**	1		
Incentive System	-0.27**	-0.22**	-0.25**	1	
Turnover Intention	0.19*	0.35**	0.32**	-0.29**	1

Note: Pearson correlated, *P<0.05 **P<0.01

Table 4 uses Stepwise multiple regression to discuss the influential factors of turnover intention, the potential factors includes: age, education level, marital state, total job stress score (the total score of Job Stress Scale 1 and Job Stress Scale 2), years of working, and incentive system. The result shows as in the Table, the three variables: total job stress score (t=3.59, p<0.01), incentive system (t=-3.14, p=0.01) and marital state (t=2.34, p=0.02) are included in regression ode. Meaning that those who are unmarried have higher job stress, and further affect turnover intention. The more job stress there is, the higher turnover intention the would be; a completed incentive system can reduce turnover intention.

Table 4: The prediction of nursing Staffs' personal characteristics, job stress, incentive system on turnover intention (n=157)

Variables	Non-standardized coefficient		Standard coefficient			Collinearity	
	β	SE		t	p	Tolerance	VIF
(constant)	12.83	2.37		5.42	<0.01		
Total Score of Stress	0.02	0.01	0.27	3.59	<0.01	0.94	1.06
Incentive System	-0.09	0.03	-0.24	-3.14	0.01	0.93	1.07
Marital State	1.69	0.72	0.17	2.34	0.02	0.99	1.01

Note: Dependent variables are turnover intentions

Discussion

This study found in the analysis of the differences between the personal attributes of the nursing staff and the job stress (see Table 2) that the marital status and overall job stress reached a statistically significant difference (p<0.05). The difference between other personal attributes and job stress scores was not statistically significant (P>0.05). The unmarried (including divorced) have a total job stress scores higher than married people, both in job stress scale 1 scores and job stress scale 2 scores. Lin (2011) [12] explained that unmarried people have higher job stress and the job stress of married people is less, because married families are more stable than their families, and unmarried people have more things to consider, which increases their own pressure.

In this study, there was a positive correlation between the total job stress of nursing staff and the turnover intention (r = 0.32, P < 0.01). See Table 3. According to Table 3, there is a significant negative correlation between the incentive system for nursing staff and turnover intention (r=-0.29, P<0.01). Lee (2012) [9] shows that the better the work incentive system, the lower the turnover intention. The incentive system is a comprehensive concept. This study divides it into internal financial rewards, external financial rewards, and external non-financial rewards. The intrinsic financial reward measures the project that is indirectly related to the work. Breau & Rheaue (2014) [1] found that the factors that are unsatisfactory for the nursing staff are mainly salary compensation and working environment. The highest score in this study was the company providing reasonable year-end bonuses. In the incentive system scale, nurses have the highest level of sensibility for providing reasonable year-end bonuses for the company, followed by being able to get satisfaction and accomplishment at work, company provides reasonable business competition bonuses, company provides adequate and comprehensive group insurance, and company provides reasonable commission system, etc. Lin (2013) [11] and Lu (2001) pointed out that organizations can adjust incentive policies from the aspect of increasing year-end bonuses, increase the job satisfaction of nursing staff, and thus reduce the turnover tendency of nursing staff.

The results of this study show that the nursing staff's job stress, incentive system and marital state are predictors of turnover intention. This result is similar to that of Chen *et al*., (2000) [5], the length of career, the will to quit, with or without children are the prediction factors for turnover intention. It can be seen that the higher the job stress and load of nursing staff are, the lower the salary and incentive measures are, and the more difficult it is for the clinical professional to play, and the higher the job burnout (Lee, 2012; Tran *et al*., 2010) [9, 21].

Conclusion

The results of this study show that job stress has a positive and significant effect on turnover intention, which means that the higher the job stress, the greater the turnover intention.

The incentive system has a significant negative impact on turnover intentions, which means that the more dissatisfied the

system of hospital incentives, the easier it is to quit the job.

Study limitations

This study focused on primary care workers in some intensive care units in a hospital, and did not compare the differences between different types and levels of hospitals. Therefore, this limitation may cause the external validity of the study to be reduced, and the conclusions obtained from the study lack generalized inference ability.

There are many factors that affect turnover intention and cannot be fully incorporated into this research framework. And limited by the length of the questionnaire, this study can only cooperate with the research framework and selectively measure the influence of personal attributes, job stress and incentive system on turnover intention.

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