2018-0845 IJOI
http://www.ijoi-online.org/

EVALUATING SAFETY CULTURE AND RELATED FACTORS ON LEAVING INTENTION OF NURSES: THE MEDIATING EFFECT OF EMOTIONAL INTELLIGENCE

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Abstract

The study aimed to investigate the relationships among related factors and nurses' safety attitude, and examine whether emotional intelligence as a mediator between safety attitude on leaving intention of nurses. A correlational study was conducted, utilizing the safety attitudes, emotional intelligence, and leaving intention questionnaires of 626 nurses working in the general hospital. The overall safety attitude scores of nurses working in the hemodialysis unit is the lowest including team work climate, safety climate, job satisfaction, and working conditions. Obviously, nurses working in OPD are less satisfied

than working in OR/ ICU. In general, nurses working in the OR and ICU have greater safety attitude than others. Two mediating effects of emotional intelligence occurred on reduction of the influences on safety attitude. Hemodialysis nurses experienced the lowest safety attitude and related to their leaving intention and need further concern. Targeted strategies of emotional intelligence can be applied to increase positive attitude or decrease the leaving intention.

Key Words: Management, Safety Attitude, Emotional Intelligence, Leaving Intention, Working Units, Mediating Effect

Introduction

Patients' safety culture is a major component in relation to the quality and safety of healthcare. Many definitions about safety culture exist; the common components of safety culture include individual's safety cognitions and behaviors, the management of safety system, safety environment, individual's stress recognition and competence (Agnew et al., 2013), or six components including team work climate, safety climate, stress recognition, job satisfaction, the perception of working conditions and unit management usually linking with healthcare outcomes.

The shortage of nurses is always a global issue, increasing retentions of staff nurses and job satisfaction are all supervisors' objectives. Safety culture in hospital was usually related to retention and job satisfaction for nurses. Usually, organization's safety culture is an underlying factor that impacts the whole system and units' safety (Agnew et al., 2013). Moreover, employees' safety attitude are also as the concerns for certify patient safety. Evaluating the safety attitude of the environment could be an approach for maintaining or increasing safety for patients and healthcare professionals, which also consequently impacts on quality of care delivery.

Additionally, nurses' emotional intelligence was a significant factor to the retention and satisfaction for both healthcare professionals and other employees (Cherniss et al., 2010). Codier, Freitas, and Muneno (2013) suggested that improvement in emotional intelligence among clinical staff nurses may promote their retention, performance, and productivity (Bormann and Abrahamson, 2014). This will reduce turnover and the costs related to it while also addressing the shortage of nurses and enhancing job satisfaction and healthcare quality (Lin et al., 2013).

No study examines the mediating effect of emotional intelligence between safety attitudes and leaving intention of nurses. The majority reports of safety culture in general hospitals for Taiwan nurses only described six components of safety attitude scores (Lee et al., 2010).

Thus, the first research question is to evaluate the safety culture of various units in the general hospital. The second research question is to examine the relationships among emotional intelligence, safety attitude, and leaving intention of

nurses. The third the research question is to test whether emotional intelligence plays a mediator between safety attitudes on leaving intention of nurses.

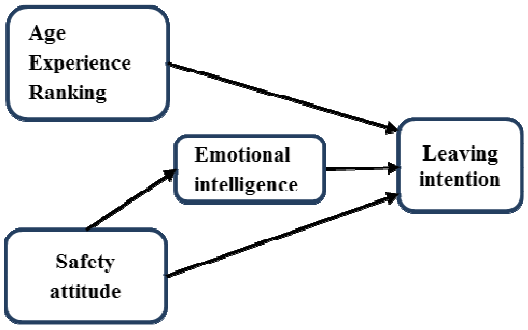

Figure 1. The hypothesized path model of safety attitude of nurses

Method

Participants and procedure

A correlational design and structured questionnaires were applied to gather data. Nurses aged 20 had three or more months with professional experience of clinical nursing were eligible for this study. Six hundred and twenty-six nurses were adequate to evaluate correlation and regression statistical analysis on α= .05, medium effect size .15, and power .80 by Cohen (1988). The study protocol was approved by the Institutional Review board in a teaching hospital. The researcher contacted eligible participants about the research questions and they were given a written consent form for human rights protection.

Measures

Several scales were used in this study, including demographics, job characteristics, emotional intelligence, leaving intention and the safety attitude questionnaires as follows:

Safety attitude questionnaire

The staff nurse's perception of safety was measured by a modified safety attitude questionnaire (SAQ) (Shie et al., 2011) and originally designed by Sexton et al. (2006), which is 30-items tool to measure professional caregivers' safety attitudes. SAQ consists six subscales: team work climate, safety climate, stress recognition, job satisfaction, the perception of working conditions and unit management. SAQ can be applied to assess safety attitudes through different specialties in healthcare centers, which is a 5-point Likert scale as 1 = disagree strongly to 5 = agree strongly. Cronbach's α was 0.96 in Wang et al.'s study (2011), and was 0.92 in the current study.

Emotional intelligence

Emotional intelligence was assessed by using the Wong's Emotional Intelligence Scale (WEIS) (Wong and Law, 2002). WEIS comprises of four subscales, 16 items: (a) Self-Emotion Appraisal (SEA), (b) Use of Emotion (UOE), (c) Regulation of Emotion (ROE), and (d) Others' Emotion Appraisal (OEA). Each item of the WEIS was expressed on a 7-point Likert-type scale (1= totally disagree to 7 = totally agree). Cronbach's α was 0.85 for SEA, 0.81 for UOE, 0.78 for ROE, and 0.80 for OEA in this current study.

Leaving Intention

The Leaving intention Scale originally developed by Mobley et al. (1978) and has been modified by Huang (1984), the total scale including four questions about individuals intend to resign in 6 months, recently searching a new job, and searching alternative job to substitute the recent one in 6 months. This scale is a self-reported Likert scale, "1 = "Not at all," to "5 = To a very great extent." The higher the summed up scores, the greater intention the nurse leaving. The Cronbach's alpha of Chinese version was 0.82 in Chen, Chen, and Su's study (2006) and.82 in the current study.

Statistical Analysis

Data analyses were applied by a Statistical Package for Social Sciences software version 22.0. No violation of assumptions of correlation and multiple regressions were performed, a p-value < 0.05 indicated the statistical significance on effect weights. Pearson's correlations, t-test and ANOVA are applied for analysis. Additionally, to examine the mediating effect of EI between leaving intention and the overall safety attitude for nurses, three equations included: (1). $t = b1x$, (2). $y = b2x$, (3). $y = b3x + b4t$, "t" considered as a mediator (EI), overall safety attitude (x) as the independent variable, leaving intention (y) was the dependent variable.

Results

Sample characteristics

Six-hundred twenty-six valid questionnaires were completed, twelve was declined. The characteristics of participants include age, marital status, education, income, ranking, work unit, professional experience shown in Table 1.

The Differences Of Safety Attitude

The differences of safety attitude in gender and "work units" were shown in Table 2. The team work climate, job satisfaction, unit management, and total safety attitude of male nurses are better than those of female nurses.

To determine the safety attitude in different work units, which classified into 8 different grouping settings include ward, operation room, intensive care unit, emergence room, Pediatric unit, *Gynecology*/Obstetrics (GYN/OBS), outpatient department (OPD), and Hemodialysis room (HR). The results show the overall safety attitude scores of nurses working in the hemodialysis unit is the lowest. Nurses working in the ward are also likely as the second lower scores of safety attitude including "jab satisfaction, working conditions, and unit management. Obviously, nurses in OPD are also not satisfied with their job than those working in OR or ICU. In general, nurses working in the OR and ICU are more likely have greater safety attitude scores than others. (see Table 2 at the end of this article).

Mediating Effect of Emotional Intelligence

In this study, shown in Figure 2,

Table 1. Characteristics of nurses (N = 626).

Variables		N	%	Range	Mean	SD
Age				20-52	30.1	5.4
Gender	Female	605	96.6			
	Male	21	3.4			
Marital	Single	406	64.9			
	Married	220	35.1			
Education	Associate degree	152	24.3			
	College/University	474	75.7			
Income (**Monthly**)	<50,000	428	68.4			
	>50,000	198	31.6			
Ranking	N	237	37.9			
	N1	138	22.0			
	N2	221	35.3			
	N3	30	4.8			
Work unit	① Ward	223	35.6			
	② Operation Room	114	18.2			
	③ ICU	98	15.7			
	④ Emergency Room	47	7.5			
	⑤ Pediatric Department	18	2.9			
	⑥ GYN/OBS	13	2.1			
	⑦ OPD	80	12.8			
	⑧ Hemodialysis Room	33	5.2			
Prof. exp. (Months)				1~298	91.4	67.4

Note. Prof. Exp.: Professional experience; ICU: Intensive care unit; OBS: Obstetrics; GYN: G*ynecology;* OPD: Outpatient Department

emotional intelligence of nurses influenced their safety attitude. In step 1, nurses' emotional intelligence significantly affected living intention (β = -.34, p < .01). In step 2, safety attitude significantly affected emotional intelligence (β = .14, p < .05), and emotional intelligence affected living intention (β = .36, p < .01). However, in step 3, the effect of emotional intelligence on living intention was reduced but continued to be significant when emotional intelligence was entered into the regression (β = -.31, p < .01). Because only a reduction effect occurred, this result suggests that emotional intelligence only partially mediated the relationship between safety attitude and living intention. That is, emotional intelligence may influence the

relationship between safety attitude and nurses' living intention.

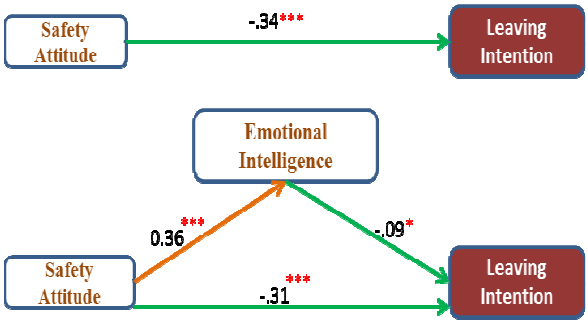

Figure 2. The Mediating Effect Occurred Of Emotional Intelligence Between Safety Attitude And Leaving Intention.

Discussion

In the present study, the results showed that the influence of emotional intelligence is positively related to safety attitude of nurses. It might be the reason while nurses have better emotional intelligence, they may consider the work or safety climate and other components of safety attitude toward positive direction. Leaders could improve emotional intelligence of their staff nurses, which might also decrease turnover rate. Regarding gender difference in safety attitude of nurses, teamwork climate, job satisfaction and perceptions of unit management, male nurses are greater than female nurses, which is consistent with a previous study (Wang et al., 2011). On the other hand, nurses in operation room and intensive care unit have the higher scores of safety attitude than others. Which may be when nurses working in smaller units of which members works closely, such as OR or ICUs, they feel safe and easy to maintain teamwork and safety climate than their colleagues in various working unit and they showed more positive attitude toward safety climate [14]. The lower safety culture of unit in the hospital consequently impact on clinical practice and the quality of care. Moreover, to evaluate the safety culture in different unit may use a specific scale for each unit survey. The survey outcomes of safety attitude can be criteria for examining clustering of responses as safety culture for a work unit or hospital. Leaders can use the results for further education to improve safety attitude.

Conclusion and Suggestions

First study was conducted to examine the relationships of emotional intelligence, safety attitude for nurses in their work environment and their leaving intention in the general hospital in the southern Taiwan. Generally, most findings in this study with several implications for clinical practice designed to improve the safety culture for the hospital. To improve the safety climate and safety attitude by a psycho-education intervention is advisable. Patient safety culture contains several different categories; a multifaceted method including improving emotional intelligence is suggested when trying to change the safety culture in hemodialysis room.

Conflict of Interest

No conflict of interest is declared by the authors.

References

Agnew, C., Flin, R., Mearns, K., (2013), Patient safety climate and worker safety behaviours in acute hospitals in Scotland. *Journal of Safety Research*, Vol.45, 95-101.

Chen, K.H., Chen, L.R., Su, S., (2006), Exploring the attitudes of nursing staffs toward job perception and turnover intention. *Taiwan Journal of Public Health* Vol. 25 177-188.

Cherniss, C., Grimm, L., Liautaud, J., (2010) Process-designed training: A new approach for helping leaders develop emotional and social competence. *Journal of Management Development*, Vol. 29, 413-431.

Codier, E., Freitas, B., Muneno, L., 2013. Developing emotional intelligence ability in oncology nurses: a clinical rounds approach. Oncology Nursing Forum 40 (1), 22-29.

Cohen, J., (1988), Statistical power analysis for the behavioral sciences. Lawrence Erlbaum Association, Hillsdale. NJ.

Huang, K.I., (1984), Effects of job characteristics, individual attributes, leadership style, job satisfaction, and organizational commitment on turnover intention. Chung Yuan Christian University, Taiwan, R.O.C.

Lee, W.C., Wung, H.Y., Liao, H.H., Lo, C.M., Chang, F.L., Wang, P.C., Fan, A., Chen, H.H., Yang, H.C., Hou, S.M., (2010), Hospital safety culture in Taiwan: a nationwide survey using Chinese version Safety Attitude Questionnaire. *BMC Health Services Research*, Vol. 10, 234.

Lin, Y.C., Kao, M.H., Yang, A.L., Yang, H.C., Chen, C.L., (2013), A program for reducing the resignation rate of new nursing staffs within the first year in a hospital. *Journal of MacKay Nursing*, Vol. 7 (2), 13-24.

Mobley, W., H., Horner, S.O., Hollingsworth, A.T., (1978) An Evaluation of Precursors of Hospital Employee Turnover. *Journal of Applied Psychology*, Vol. 63, 408-414.

Raftopoulos, V., Pavlakis, A., (2013), Safety climate in 5 intensive care units: a nationwide hospital survey using the Greek-Cypriot version of the safety attitudes questionnaire. *Journal of Critical Care*, Vol. 28 (1), 51-61.

Sexton, J.B., Makary, M.A., Tersigni, A.R., Pryor, D., Hendrich, A., Thomas, E.J., Holzmueller, C.G., Knight, A.P., Wu, Y., Pronovost, P.J., (2006), Teamwork in the operating room: frontline perspectives among hospitals and operating room personnel. Anesthesiology, Vol. 105 (5), 877-884.

Shie, H.G., Lee, W.C., Hsiao, H.F., Lin, H.L., Yang, L.L., Jung, F., (2011), Patient safety attitudes among respiratory therapists in Taiwan. Respiratory Care, Vol. 56 (12), 1924-1929.

Wang, S.H., Lin, X.Y., Lin, C.F., Tao, C.Y., Cheng, Y.H., (2011), The Relationship between Hospital Employee Personality Characteristics and Patient Safety Culture. Taipei City Medical Journal, Vol. 8 (2), 116-125.

Wong, C.-S., Law, K.S., 2002. The effects of leader and follower emotional intelligence on performance and attitude. *The Leadership Quarterly*, Vol. 13 (3), 243-274.

Table 2. Differences of Safety Attitude Among Units *(N = 626)*

Variables	Team work climate		Safety climate		Job Stisfaction	
	M(*SD*)	*t* / *F*	*M*(*SD*)	*t* / *F*	*M*(*SD*)	*t* / *F*
Gender						
①Female	60.2(13.8)	-2.04*	60.6(3.8)	-1.86	57.0(15.9)	-2.94**
②Male	66.4(14.2)	②>①	65.5(3.3)		67.4(17.9)	②>①
Work unit						
① Ward	60.3(13.3)	5.30***	59.5(10.9)	6.15***	55.5(16.2)	2.58*
②Operation Room	62.6(14.0)	①②③④>⑧	64.0(12.6)	①②③⑦>⑧	60.6(15.8)	②③>①
③ICU	64.7(12.3)		64.0(10.7)		60.2(15.2)	②③>⑦⑧
④ER	60.4(11.4)		58.3(9.4)		58.7(14.5)	
⑤Pediatric	61.1(12.2)		63.8(12.6)		60.3(17.4)	
⑥GYN/OBS	58.8(14.7)		57.8(9.9)		58.8(11.0)	
⑦Outpatient Department	56.2(13.6)		60.4(12.6)		55.1(16.6)	
⑧Hemodialysis Room	50.9(19.1)		51.8(14.4)		51.5(16.7)	

Table 2. Differences of Safety Attitude Among Units, Continued *(N = 626)*

Variables	Stress Recognition		Working conditions		Unit management		Total Safety attitude	
	M(*SD*)	*t* / *F*	*M*(*SD*)	*t* / *F*	*M*(*SD*)	*t* / *F*	*M*(*SD*)	*t* / *F*
Gender								
①Female	65.6(19.0)	-1.82	57.5(14.8)	-1.81	53.2(14.7)	-2.21*	100.97(12.7)	2.94**
②Male	73.3(17.3)		63.5(17.5)		60.5(19.0)	②>①	109.29(14.4)	②>①
Work unit								
① Ward	65.9(18.9)	1.83	56.1(14.5)	2.08*	50.9(14.9)	2.59*	99.84(12.01)	4.89***
②Operation Room	69.4(20.0)		61.3(17.0)	②③>①	56.9(16.0)	②③⑦>①	105.04(13.63)	②③>①
③ICU	66.6(18.3)		59.8(14.0)	①②③④⑤>⑧	55.0(14.1)	②>⑧	104.47(11.02)	②③>⑧
④ER	60.3(17.6)		57.0(13.2)	①②③>⑦	54.5(13.6)		99.96(11.10)	①②③④⑤⑦>⑧
⑤Pediatric	71.6(19.4)		57.7(14.6)		51.8(14.4)		103.50(14.24)	
⑥GYN/OBS	66.8(19.3)		54.3(12.6)		50.2(13.1)		99.38(10.66)	
⑦Outpatient Department	62.5(19.2)		57.5(13.8)		55.6(13.6)		99.48(13.28)	
⑧Hemodialysis Room	63.9(17.4)		53.7(16.6)		50.1(16.6)		93.82(15.76)	

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Note: ICU: Intensive Care Unit; ER: Emergency Room; GYN/OBS: *Gynecology*/Obstetrics