

The Relationship between Sleep Disorders, Job Satisfaction, Practicing Health Promoting Behavior, Quality of Life and turnover intention of Shift Nurses and Non-shift Nurses

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Abstract

The purpose of this study was to examine the relationship between sleep disorders, job satisfaction, health promotion behavior, quality of life, turnover intention. And also to find the predicting factors on turnover intention of shift and non-shift nurses. A descriptive study design was used. Study subjects were 239 nurses worked as a shift (167) and non-shift (72) in two general hospitals in P city. Turnover Intent, Sleep disorders, Job satisfaction, practicing health promotion profile and quality of life scales were used to collect the data. Data were analyzed by descriptive statistics and Pearson's correlation coefficient for find the relationship between study variables. Stepwise multiple regressions used to find predicting factors of turnover intention with other variables. The shift group showed lower Job satisfaction, practice of health promotion behavior and intention of turnover than non-shift nurses. The most important predictive factors of turnover intention in of shift group was job satisfaction ($\beta = -.477, p < .001$) and non-shift group was health promotion behavior ($\beta = -.295, p = .040$) than other factors. Findings showed that turnover intention highly influenced by job satisfaction than health promoting behavior and quality of life. This study suggests organizational efforts to provide sufficient staffing and nurse managers should make more concentration to allot work schedule in order to avoid over load shift nurses and promote quality of client care.

Keywords: Shift work, Nurses, Turnover intention, Health promoting behaviors, Quality of life, Job satisfaction

1. Introduction

In most of the national and international health care settings, nurses are the backbone of the client care [1]. Nurses represent the important group in hospital and serve a critical role in delivering high quality of client care [2]. In Korea, shift work is carried out in various work sectors, it includes nursing profession too. Commonly shift work known as in nursing profession since long period. Nurses have three shifts per day, ranging from 2-3 days to one week based on regular routine order [3]. The de-synchronization of the regular activities caused by shift work can lead to physical and psychological problems among shift nurses [4]. In recent years, expectation of quality of nursing care has increased according to patients' rights and protection

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act [5]. However, many hospitals do not have enough manpower in nursing. Therefore, the nurse's stress and work load gets much worse. The number of the nurses has shift works in hospital sectors than non-shift nurses such as outpatient debarments, special wards, and examination departments [6]. Previous literature mentioned that most of the nurses' complaints sleep disorders and chronic fatigue due to shift work and irregular rhythms of daily life [7-9]. Sleep is an essential activity of for normal human life, lack of sleep leads to fatigue, drowsiness, aggressiveness, anxiety and nervous tension, also it affects psycho-physiological homeostasis [10-11]. According to the ICSD 2 classification, essential symptoms of shift work sleep disorder are insomnia or excessive sleepiness that occurs as transient phenomena in relation to work schedules [12]. The reasons behind are different schedules in terms of "shift work"-occasional overnight duty, rotating shifts, permanent night shifts, or early morning work [13]. Clinical nurses, on the other hand, consume a lot of mental and physical energy due to the characteristics of their work to provide professional nursing services and the responsibility with workers in hospitals of various occupations including doctors. Job stress is known to be very high [14].

Job satisfaction is seen to be high when there is an understanding to demonstrate the opportunity, fair remuneration, the proper workload and the good interpersonal relationship. Hospitals should recognize the importance of effective workforce management to improve job satisfaction [15]. Furthermore, recently published studies have shown that shift work nurse has a strong influence on job satisfaction, burnout, and intention to leave the hospital or even the profession [16-18].

Whereas increasing the workload and stress influence the nurse's performance in health promoting behavior too [17]. In addition, it is difficult for the nurses to respond to their quality of care to clients, which causes lack of self satisfaction and affects the quality of life [18]. The change of working environment and shortage of nurses affects the turnover of nurses directly in medical institutions [16]. The quality of life caused by shift work is also deteriorating, and nurses are considered to be one of the most stressful occupations in the existing studies [19], which considered as a low quality of life. In particular, shift nurses reported higher job stress and lower quality of life than non-shift nurses [20]. A study reported that, Higher levels of job satisfaction, turn over and lower level of stress perception have been reported to increase professional self-efficacy and health promoting behavior among shift nurses [21].

Therefore, the main objective of this study was to examine the relationship between sleep disorders, job satisfaction, health promotion behavior, quality of life and turnover intention of shift and non-shift nurses. And also to find the predictive factors of turnover intention among shift and non-shift nurses.

2. Methodology

2.1 Research Design

This is a descriptive research study to investigate relationship between sleep disorder, job satisfaction, practice of health promoting behavior, quality of life and turnover intention of shift nurse and non-shift nurses.

2.2 Research subjects

The study participants were 239 nurses as shift based (167) and non-shift (72) working in two general hospitals in P city. Shift work nurses works three shifts everyday based on rotation at 7.00 to 15.00 (day), 15:00~23:00 (Evening) and 23:00~7:00 (Night). The duty time of the non-shift nurses from 7:00 to 16:00 or 8:00 to 7:00. In the study used the G * power to determine sample size. The results show that significance levels of moderate effect size 0.5, a minimum of 64 subjects are required in each independent group. In terms of regression analysis, at least 10 subjects should be secured for prediction variable to establish a stable equation. Therefore, the number of subjects in this study was found to be appropriate.

2.3 Research Tools

2.3.1 Turnover Intent

The turnover intention tool was developed by Mobley [22], revised and supplemented by Lee [23]. The

instrument consists of 13 items. The reliability of this instrument was Cronbach = .899 in this study.

2.3.2 Sleep disorders

Sleep disorder tool was developed by Oh et al. [24], it includes sleep pattern (7 items), sleep evaluation (4 items) and sleep balance (2 items). The total of 15 items measured by 4 points Likert scale. The reliability Cronbach's $\alpha = .858$ was in this study.

2.3.3 Job satisfaction

Job satisfaction tool was used by Park & Yoon [25] and developed by Stamps and Slavitt [26]. It includes autonomy (5 items), professional (7 items) and administration (6 items) and measured by 5-point Likert scale. The reliability Cronbach's $\alpha = .878$ was in this study.

2.3.4 Practicing Health Promotion Act

Health Promoting Lifestyle Profile tool was developed by Walker, Sechrist and Pender [27] (HPLP-II) and modified by Seo [28]. It consists of 5 subcategories (physical activity, nutrition, spiritual growth, interpersonal relationship and stress management) each items measured by 4 points Likert scale. The reliability of the study was Cronbach's $\alpha = .928$ in this study.

2.3.5 Quality of life

The quality of life tool was developed by Yoo [29]. The tool consists 6 subcategories such as working life (8 items), self – esteem (5 items), emotional state (6 items), leisure activity (5 items), family relation (2 items), body condition and function (2 items) with 5-point Likert scale. The reliability of the study was Cronbach's $\alpha = .826$ in this study.

2.4 Data collection method

The data were collected from April 15 to May 20, 2018. The research approval was obtained from researcher's affiliated university and nursing department of two general hospitals before data collection process. Visited each ward and outpatient department and explained the research purpose. Two research assistants were trained to collect the data, and the nurses who agreed to participate in each study department were asked to fill out questionnaires at morning or evening during their leisure hours. However, in case of a shift nurses, it was restricted to complete the data before going to work at night to control fatigue caused by working night shift.

2.5 Ethical Consideration of Subject

This study was approved by Kaya IRB - 215 from the Research Ethics Review Board (IRB) of K University. The consent form was collected from all the participants of this study. In addition, ethical consideration details were instructed to the participants by stating about volunteer participation, there is no disadvantage to participation and can withdraw at any time during the study period.

2.6 Data Analysis

The collected data were analyzed using IBM SPSS 21.0. Comparison of general characteristics between shift and non shift groups were analyzed by χ^2 -test, Fisher's exact, t-test. Covariate and ANCOVA were analyzed to compare the difference in turnover intention, sleep disturbance, job satisfaction, health promotion behavior, and quality of life by shift group and comparison group, age, clinical career, current hospital work experience, current department. Pearson's correlation coefficient was used to analyze the relationship between the major variables of the shift group and the comparison group. Stepwise multiple regressions were used to affect the turnover intention of the shift group and the comparison group.

3. Results

3.1 General characteristics of the subject

The general characteristics of the shift non shift nurses were as follows (Table 1). A total of 239 subjects were surveyed and most of them aged between 25-29 years old (53.8%, 39.2%). Shift group subjects were unmarried and completed university level of education status. The clinical experiences of the subjects were 1 to 5 years respectively the work experience in the current hospital also like 1-5 years. In the current department, the shift group had the largest number of surgical wards, internal wards, pediatric wards, and intensive care units. The current position of the subjects were general nurse and some of them In-charge nurses.

3.2 Comparison of Sleep Disorder, Job Satisfaction, and Health Promotion Practice, Turnover Intention and Quality of Life between Shift and non-shift groups

The results of comparison of sleep disorder, job satisfaction, health promotion behavior, turnover intention and quality of life showed in the Table 2. The average turnover score of the shift group was $3.57 \pm .68$ and that of the non-shift group was $3.51 \pm .71$ ($p = .041$). The sleep disorders scores of the shift group ($2.48 \pm .52$) and non-shift group ($2.47 \pm .50$), which was higher in the shift group but was not significant. Job satisfaction between the shift group and the non-shift group was $3.08 \pm .49$ in the shift group and $3.09 \pm .37$ in the non-shift group, which was slightly higher in the non-shift group, but there was no significant difference. In the case of failure to promote health behavior, the shift group scored $2.04 \pm .51$ and the non-shift group scored $2.23 \pm .52$, which was significantly higher ($p = .041$). The non-shift group was significantly higher ($p = .040$) and the non-shift group was $1.79 \pm .63$ and the non-shift group was $2.05 \pm .69$ ($p = .040$). = .021). In terms of quality of life, the shift group was significantly higher ($2.62 \pm .49$) and the control group was $2.80 \pm .48$ ($p = .037$), and the significant change was $2.39 \pm .75$ in the working conditions. The non-shift group had a significantly higher score of $2.66 \pm .69$ ($p = .038$), and the shift group was $2.39 \pm .74$ and the non-shift group was $2.68 \pm .66$ ($p = .021$) slightly higher than shift group.

Table 1. General Characteristics of Shift and Non-shift groups

Variables	Categories	Shift work(n=167)		Non-Shift work(n=72)		Total(n=239)		Fisher's exact	p	
		n (%)	Mean±SD	n (%)	Mean±SD	n (%)	Mean±SD			
Age (years)	24>	23(13.8)		4(5.6)		27(11.3)		22.523	<.001	
	25~29	87(52.1)	28.28 ±4.209	34(47.2)	31.14 ±6.372	121(50.6)	29.14 ±5.119			
	30~34	45(26.9)		13(18.1)		58(24.3)				
	35~40	10(6.0)		18(25.0)		28(11.7)				
	40≤	2(1.2)		3(4.2)		5(2.1)				
Gender	F	162(97.0)				70(97.2)			232(97.1)	
	M	5(3.0)		2(2.8)		7(2.9)				
Marital status	Unmarried	146(87.4)		50(69.4)		196(82.0)		11.024	.678	
	Married	21(12.6)		22(25.5)		43(18.0)				
Religion	Yes	42(25.1)		16(22.2)		58(24.3)		.235	.743	
	No	125(74.9)		56(77.8)		181(75.7)				
Education	College	56(33.5)		21(29.2)		77(32.2)		3.144	.370	
	University	110(65.9)		50(69.4)		160(66.9)				
	Graduate	1(0.6)		1(0.4)		2(0.90)				
Clinical Experience (years)	1>	35(21.0)		9(12.5)		44(18.4)		4.77±	22.701	<.001
	1~5	78(46.7)		28(38.9)		106(44.4)				
	6~10	43(25.7)		16(22.2)		59(24.7)				
	11≤	11(6.6)		19(26.4)		30(12.5)				
Work experience (Years)	1>	43(25.7)		13(18.1)		56(23.4)		11.638	.009	
	1~5	85(50.9)		40(55.6)		125(52.3)				
	6~10	32(19.2)		8(11.1)		40(16.7)				
	11≤	7(4.2)		11(15.3)		18(7.5)				
Present department	Internal medicine	23(13.8)		3(4.2)		26(10.9)		170.548	<.001	
	External medicine	106(65.3)		11(15.3)		117(49.0)				
	Pediatric ward	20(12.0)		0		20(8.4)				
	Emergency room	1(0.6)		0		1(0.4)				
	ICU	17(10.2)		2(2.8)		19(7.9)				
	Surgical room	0		22(30.6)		22(9.2)				
	OPD	0		9(12.5)		9(3.8)				
	Others	0		25(34.7)		25(10.5)				
Position	General nurse	162(97.0)		58(80.6)		220(92.1)		25.550	.001	
	In charge nurse	5(3.0)		4(5.6)		9(3.8)				
	Head nurse	0		10(13.9)		10(4.2)				

Table 2. Correlation of Turnover Intention, Sleep Disorder, Job Satisfaction, Health Promotion Behavior, Quality of Life by Shift and Non-shift Groups

Variables	Shift work (n=167)	Non-Shift work(n=72)	Total(n=239)	F	p
	Mean±SD	Mean±SD	Mean±SD		
Turn over intension	3.57±.68	3.35±.75	3.51±.71	2.410	.041
Sleep Disorders	2.48±.52	2.46±.46	2.47±.50	.018	.982
Sleep pattern	2.46±.57	2.43±.51	2.45±.55	.075	.928
Sleep Assessment	2.31±.52	2.29±.49	2.30±.51	.015	.985
Sleep result	2.57±.79	2.58±.75	2.57±.78	.001	.999
Sleep Retardation	2.78±.68	2.81±.70	2.79±.69	.033	.967
Job satisfaction	3.08±.49	3.09±.37	3.08±.46	.035	.966
Administration	2.86±.92	2.91±.58	2.87±.61	.203	.816
Autonomy	3.19±.54	3.25±.61	3.21±.56	.264	.768
Professional	3.19±.63	3.14±.58	3.21±.56	.127	.881
Health promotion Profile	2.04±.51	2.23±.52	2.10±.52	3.223	.041
Health responsibility	2.11±.49	2.29±.50	2.17±.49	3.231	.040
Physical activity	1.82±.67	2.04±.67	1.889±.68	2.655	.071
Nutrition	1.87±.61	2.09±.63	1.94±.62	3.003	.051
Interpersonal Relationship	2.45±.51	2.54±.50	2.48±.51	0.710	.492
Stress management	1.79±.63	2.05±.69	1.87±.66	3.900	.021
Spiritual growth	2.16±.56	2.33±.49	2.21±.55	2.217	.110
Quality of life	2.62±.49	2.80±.48	2.67±.49	3.332	.037
Self esteem	3.08±.50	3.16±.45	3.11±.49	0.711	.492
Work environment	2.39±.75	2.66±.69	2.48±.74	3.286	.038
Leisure activities	2.39±.74	2.68±.66	2.48±.73	3.911	.021
Emotional condition	2.62±.65	2.75±.63	2.66±.65	1.063	.346
Physical condition and function	2.38±.72	2.45±.72	2.40±.72	.223	.900
Family relations	3.17±.81	3.22±.80	3.18±.80	0.102	.903

3.3 Relationship between sleep disorder, job satisfaction, Turnover intention, health promotion behavior and quality of life

The relationship between turnover intention, sleep disorder, job satisfaction, health promotion behavior and quality of life among shift and non-shift group showed in Table 3. In shift group results were turnover intention and job satisfaction ($r = -.523$, $p < .001$), health promotion practice ($r = -.296$, $p < .001$), quality of life ($r = -.520$) and there was a statistically significant correlation ($p < .001$) but not with sleep disorder. Whereas job satisfaction and sleep disorders ($.155$, $P = .045$), health promotion behavior ($r = .307$, $p < .001$) and quality of life ($r = .494$, $P = < .001$) showed a statistically significant correlation. There was a significant correlation between health promotion behavior and quality of life ($.660$, $p < .001$). In non-shift group showed statistically significant correlation with turnover intention, job satisfaction, health promotion behavior, and quality of life

($r = -.379$, $p < .001$; $r = -.285$, $p = .015$; $r = -.427$, $p < .001$), but there was no significant correlation with sleep disorder. In job satisfaction, sleep disorders and quality of life ($r = .253$, $p = .032$; $r = .379$, $P = .001$) revealed significant correlation, but there was no correlation in health promotion behavior. There was a significant correlation between health promotion practice and quality of life ($r = .679$, $p < .001$).

Table 3. Relationship between Turnover Intention, Sleep Disorder, Job Satisfaction, Health Promotion Behavior, and Quality of Life of Shift and Non-shift Groups

Working condition	Variables	Turnover intention	Job satisfaction	Sleep disorder	Health promotion behavior	Quality of life
		r(p)	r(p)	r(p)	r(p)	r(p)
Shift group	Turnover intention	1				
	Job satisfaction	-.523(<.001)	1			
	Sleep disorder	-.086(.271)	.155(.045)	1		
	Health promotion behavior	-.296(<.001)	.307(<.001)	-.131(.091)	1	
	Quality of life	-.520(<.001)	.494(<.001)	.029(.714)	.660(<.001)	1
Non-Shift group	Turnover intention	1				
	Job satisfaction	-.379(<.001)	1			
	Sleep disorder	-.058(.630)	.253(.032)	1		
	Health promotion behavior	-.285(.015)	.070(.561)	.010(.932)	1	
	Quality of life	-.427(<.001)	.379(.001)	.114(.339)	.679(<.001)	1

3.4. Factors affecting the Sleep disorders, job satisfaction, health promotion behavior, and quality of life of shift and non-shift group based on the intention of turnover.

A stepwise regression was analyzed between two groups showed in table 4. Job satisfaction ($\beta = -.477$, $p < .001$) was the most important predictor of turnover intention of shift group, followed by health promotion behavior ($\beta = -.158$, $p = .032$), Quality of life ($\beta = -.154$, $p = .018$) was in order, with 28.5% explanatory power. On the other hand, the most important predictors of turnover intention of the non-shift group was health promotion behavior ($\beta = -.295$, $p = .040$), followed by job satisfaction ($\beta = -.291$, $p = .007$), Quality of life ($\beta = -.220$, $p = .031$) and 26.9% of explanatory power.

Table 4. Factors Predicting Turnover Intention of Shift and Non-shift groups

Working condition	Predictive factors	B	SE	β	t(p)	R ²	Adj.R ²	F(p)	VIF
Shift group	(Constant)	6.005	.2298		20.122(<.001)	.294	.285	34.150(<.001)	
	Job satisfaction	-.656	.095	-.477	-6.924(<.001)				1.104
	Health promotion behaviour	-.200	.092	-.158	-2.469(.032)				1.104
	Quality of life	-.161	.067	-.154	-2.388(.018)				1.272
Non-shift group	(Constant)	5.379	.896		6.003(<.001)	.310	.269	7.532(<.001)	
	Job satisfaction	-.303	.145	-.295	-2.692(.040)				1.025
	Health promotion behaviour	-.581	.208	-.291	-2.792(.007)				1.054
	Quality of life	-.546	.110	-.220	-2.201(.031)				1.131

B - Non-standardization coefficient; β - standardized coefficient; SE- Standard Error

4. Discussion

The purpose of the study to examine the relationship between sleep disorders, job satisfaction, health promotion behavior, quality of life and turnover intentions of shift and non-shift nurses.

The study subjects 239 and most of them were age between 25-29 years with university level of education respectively. The clinical experience was 4 to 5 years and also working experience 1-5 years in the present working hospital. Study showed unmarried nurses' significantly high rate of employment rate and turnover intention than the married. It indicates that, non-shift nurses were married. According to this study, the turnover intention for married nurses had a higher job satisfaction, the lower the role conflict, and in the place of high position. Therefore, hospitals need to take administrative modifications such as reverse the remuneration, securing sufficient manpower, flexible working time etc [8, 13]. The previous study that the sleep rhythm is disturbed due to the rapid change of the shift and the change of night and day activities of the shift nurses supports the preceding paper [11]. Unlike the previous paper, which is large, there was no similar difference between non-shift work and shift work in this paper, which indicates that the turnover rate is higher than in sleep [13].

Considering the job satisfaction comparison between shift work and non-shift groups, the study found that night shift nurses had worse perceptions of nurse manager ability, leadership and support. In addition exhibited that nurses feel that in-charge staff does not co operative in their practice. Another study showed same results seems logical because most of the head nurses not assign for night shift [15,19]. Therefore, the hospital or the organization needs to consider changing policy. However, the manager could play an effective leadership role by providing interpersonal and psychological support, which results to improve positive team work [17]. Nurses' intention to turnover is also reported in the administrative sector, which is reported as the lower pay and higher job stress [18-19]. A study suggested that job stress may be due to a drop in productivity of absenteeism and accidents at work [20-21]. The increase in turnover intentions increased with the increase [22].

In the practice of health promotion behavior, the scores of the physical activities and conditions were the same between shift and the non-shift group. Whereas the shift group, there was not a enough time when allotted for three shifts. So, there could not able to concentrate their physical activity like exercise [6, 25, 28] . As a result, the stress management not well done, therefore, the hospital should encourage exercise, such as opening a health center or by offering a discount agreement partnership with a nearby health center [6,29]. The higher the job stress, the higher the turnover intention was, including for nurses in local hospitals for nurses in small and medium hospitals, and general hospital nurses in Seoul [21]. The nutritional status results for the both groups were similar. In the case of the comparative group, the time to receive the patient is determined because the meal time is fixed, but shift work nurses mostly engage patient during meal by the time meals would be missed [22-23]. It is necessary to enable efficient work management to guarantee mealtime during work. It would be recommended additional supporting nursing staff during heavy work hours [5]. The practice of health promotion and the quality of life had an effect on the shift group, it should be filled which improves the quality of life and related to reduce the turnover intention. In terms of quality of life, both the groups scored higher in terms of living conditions, which means the turnover intention of the nurses influenced by the working environment [11]. It can be seen that efforts should be made to improve.

The all over results of this study showed that regular and stable practice of health behavior positively affects the quality of life, which ultimately helps to improve nursing performance. However, shift work is inevitable for nurses and urgent need and necessary to develop new policy in order to maintain the regular shift work nurses. It helps them to set a living guideline suitable for oneself by maintain their own standard of living. This study suggests that Promoting one's own health and improving the quality of life of nurses will help to improve

and provide high quality of client care in health care sectors.

5. Conclusion and Suggestions

This study was a descriptive study to investigate the relationship between sleep disorders, job satisfaction, health promotion behavior, intention to turnover and quality of life of shift nurses and non-shift nurses. Also attempts were made to provide data to determine the impact of turnover intentions and quality of life between shift nurses and non-shift nurses. The study revealed Job satisfaction directly associated with sleep disorder, health promotion behavior, quality of life. And also found relationship between practice of health promotion behavior and quality of life, but there was no relation with sleep disorder. In comparison, there was a significant correlation between turnover intention, job satisfaction, health promotion practice and quality of life. Therefore, it's recommended Organizational efforts to provide sufficient staffing and resources. In addition, nurse managers should draw a equal work schedule for shift works to avoid overload. At the same time nurses have to be aware of the work shift advantages and disadvantages to maintain job satisfaction and quality of life. It could be effective strategies for improving nursing performance quality and patient outcomes.

Conflict of interest

The authors declared no conflict of interest.

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