Field Study



A Study on Work Stress, Stress Coping Strategies and Health Promoting Lifestyle among District Hospital Nurses in Taiwan

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Abstract: A Study on Work Stress, Stress Coping Strategies and Health Promoting Lifestyle among District Hospital Nurses in Taiwan: Wei-Lun LEE, et al. Center for General Education, Tajen University, Taiwan-Objectives: To determine work stress, and stress-coping strategies, and to analyze their the relationships in order to improve health-promoting lifestyle of nurses in Taiwan. Methods: Three hundred eighty-five nurses who had work experience for more than 6 mo, were selected from four district hospitals in Kaohsiung and Ping Tung. We used a stratified cluster random sampling method for the selection. The nurses answered a self-report questionnaire, which was categorized into four sections: personal background data, work stress, stress-coping strategies, and healthpromoting lifestyle. Results: The findings indicate work stress and the health promoting lifestyle of nurses are at a higher level, with stress-coping strategies being at a medium level. Work stress and stress-coping strategies were significantly and positively correlated. Professional relationships, managerial role, personal responsibility, and recognition of work stress and the responsibilities of a health-promoting lifestyle were negatively correlated. Managerial role, personal responsibility, and organizational atmosphere of work stress as well as realization, an item of health-promoting lifestyle, were negatively correlated. Recognition of work stress and stress management, items of healthpromoting lifestyle, were negatively correlated. Health responsibility, and self-actualization, items of healthpromoting lifestyle, as well as stress-coping strategies were negatively correlated. Nutrition, an item of healthpromoting lifestyle, and the support stress-coping strategy was negatively correlated. Conclusions: Nurses have greater work pressure and better work stress-coping strategies, but worse health responsibility

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and realization of a health-promoting lifestyle. We suggest hospitals build good relationships and appropriately increase employment of nurses through a good work atmosphere to achieve nurses' realization of a health-promoting lifestyle.

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Key words: Health promoting life style, Nurses, Stress coping strategies, Work stress

In Taiwan, the standards of healthcare system and demands of high quality healthcare services have grown in past two decades. Under these circumstances, the work stress of the nurses is inevitable due to the complexity of increasing workload. With job stress generation, individuals and organizations experience a serious problem: the individual parts, these are the impact on individual health, long work hours, work shifts, family, social adjustment and job satisfaction; for hospitals, these are increased turnover rate, costs of education and training improved staff morale, patient safety and reduce the quality of care^{1–5)}.

Employers hospital managers face different consequences, such as poor attendance of staff, poor interpersonal relationship, lack of job satisfaction, early retirement and financial insecurity, resulting in recruitment and train of new staff becoming necessary^{3,5)}.

The Health and Safety Executive has explained that work stress, it is personal aspect of excessive demand pressure⁶⁾ resulting from continuously increasing work load, disorganized working patterns, inadequate leadership providing lack of support, poor inter-personal relationships with colleagues or between employers and employees and so on.

National Institute for Health and Clinical Excellence⁷⁾ defined work-related stress as excessive work pressure exerting an adverse reaction on work. "Work stress" then culminates negative physical and emotional response to the work atmosphere due to conflict between job demands

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and expected salary.

Many studies have shown that when the pressure generated, individuals will use different coping strategies to mitigate the adverse effects of pressure. This is because of personal characteristics, educational background and life experiences^{3,4,8}.

The question arises of how to perceive a stressprovoking event and how to tackle the situation, since workload critically influences health. A few studies have revealed that it essential to manage and maintain an equilibrium between work environment and health, despite of people being adaptive to stressful situations^{2, 9}). It is therefore necessary to prevent burnout among nursing staff. This would improve patient safety and lead to positive feedback to the hospital and management^{10, 11}).

It has been observed that employees with high demanding jobs and low work expectations develop stress^{11, 12}. A person already adapted to overcome difficult situation in life can easily cope up with similar challenges at work, too. Several studies have suggested that work stress is positively related to control and support stress-coping strategies^{1, 2, 7}.

The World Health Organization defines "health" as a state of complete physical, mental and social well-being, rather than simply the absence of disease or illness¹³. A lifestyle is the way a person actually lives. Encouraging people to better control life habits, and improve their health is important¹⁴). Hospital is a special type of workplace with large number of employees that are exposed physically and mentally in connection with their respective clinical task. In spite of work environment regulations, many exposures and risk factors are unavoidable. Special competences are another important aspect of improving the integration of daily clinical life¹⁵). Nurses can reduce work burnout only with a better health-promoting lifestyle. There is few research to study the relationships among work stress, stress-coping strategies, and health promoting lifestyle of nurses^{5, 7–10, 12}). Therefore, the aim of this study was to analyze the above three factors among nurses working in district hospitals in Taiwan.

Methods

Participants

A cross-sectional study was designed. The researchers initially communicated with the heads of hospitals in Kaohsiung and Pingtung counties and explained the purpose and procedure of the study. The participants were sampled from four district hospitals using a stratified random sampling and cluster sampling method. Of 385 nurses who agreed to participate, 360 of them (93.51%) answered the questionnaires completely. All participants were Primary level nurses working on the wards who had work experience of more than 6 mo. Permission was obtained from the ethics of committee institution, prior to beginning the investigation. Permission was also obtained from the head of each hospital.

Instruments

In this study, the questionnaire contained four elements: Demographic and work-related data, a work stress scale, a stress-coping strategy scale, and a health-promoting lifestyle scale. Demographic and work-related data included age, marital status, number of children, educational qualification, nursing experience, professional career status, professional title, and workplace.

The work stress scale consisted of eight subscales: work load, relationships, home/work balance, managerial role, personal responsibility, hassles, recognition, and organizational climate. This part of the questionnaire had 40 items. The work stress scale was measured with a 6-point Likert scale ranging from 1 (no pressure) to 6 (extreme pressure). According to the Lu, Tseng and Cooper¹⁶), the eight subscales were extracted from the 40 items. The alpha reliability coefficients of the eight subscales of the work stress scale were 0.94. The subscales of the work stress scale were as follows: workload (6 items), relationships (8 items), home/work balance (6 items), managerial role (4 items), personal responsibility (4 items), hassles (4 items), recognition (4 items), and organizational climate (4 items).

The stress coping strategy scale consisted of two parts: control and support. It was a 10-item questionnaire. The stress coping scale was measured with a 6-point Likert scale ranging from 1 (never) to 6 (always). According to the Lu, Tseng and Cooper¹⁶, two subscales were extracted from the 10 items. The alpha reliability coefficients of the two subscales of the stress coping strategy scale were 0.76.

The health-promoting lifestyle scale was a 40-item questionnaire. Health-promoting lifestyle scale was measured with a 4-point Likert scale ranging from 0 (never) to 3 (always). According to Chen¹⁷⁾, six subscales were extracted from the 40 items. Alpha reliability coefficients of the six health promoting life styles subscales were 0.90. These subscales included nutritional aspects (5 items), health responsibility (8 items), self-actualization (8 items), supports (6 items), exercise (4 items), and stress management (9 items). The alpha reliability coefficients of the six subscales of the health-promoting lifestyle were 0.92.

The data obtained from the completed questionnaires were analyzed by using SPSS version 15.0. Descriptive statistics, the independent t test, analysis of variance (ANOVA), and Pearson's correlation coefficients were used to determine correlations among work stress level perceptions, stress-coping strategies, and health-promoting lifestyle. The level of significance was chosen as 0.05 for this study.

Work stress was dichotomized into two levels (high and low) using the mean. Nurses work stress further

			Ι	II	III	IV	V	VI	VII	VIII
Variable	n	%	M t/F	M t/F	M t/F	M t/F	M t/F	M t/F	M t/F	M t/F
Educationbackground			0.42*	2.4	3.32*	2.41	1.39	4.72**	0.23	0.81
Junior college	145	40.3	4.16	3.75	4.65	4.19	4.09	4.02	4.13	4.28
②Undergraduate	204	56.7	4.26	3.89	4.73	4.19	4.19	4.19	4.13	4.23
③Graduate school	11	3.1	4.02	3.81	4.24	4.52	4.29	4.27@>1	4.23	4.34
Workplace			1.18	2.78*	3.76**	1.14	1.34	2.63*	0.46	1.35
Medical	120	33.3	4.2	3.84	4.72	4.17	4.11	4.13	4.12	4.23
②Surgical	121	33.6	4.17	3.84	4.61	4.22	4.2	4.08	4.17	4.3
③Maternity	33	9.2	4.17	3.8	4.4	4.11	4.08	3.93	4.07	4.19
④Pediatric	25	6.9	4.35	3.96	4.94	4.37	4.22	4.3	4.14	4.37
⑤Special	61	16.9	4.27	3.96	4.81@>3	4.21	4.24	4.23	4.18	4.2
Age (yr)	Ν	%	0.35	0.41	1.68	2.15	1.27	3.86**	1.34	0.78
①20-25	126	35	4.2	3.85	4.65	4.29	4.17	4.14	4.18	4.24
@26-30	138	38.3	4.23	3.87	4.69	4.16	4.18	4.02	4.17	4.3
331-35	56	15.6	4.15	3.85	4.56	4.09	4.23	4.18	4.13	4.23
④36–39	30	8.3	4.23	3.92	4.92	4.25	4.05	4.41	3.97	4.17
(5)>40	10	2.8	4.25	3.84	4.8	4.12	3.95	4.23@>@	4	4.2

Table 1. Nurse demographic data and work stress variables

* *p*<0.05; ** *p*<0.01; ****p*<0.001. I: Workload; II: Relationships; III: Home/work balance; IV: Managerial role; V: Personal responsibility; VI: Hassles; VII: Recognition; VIII: Organizational climate.

categorized into high stress, medium stress and low stress groups based on tertiles.

Results

Demographic data and work stress variables for the 360 nurses who participated in this study are shown in Table 1. All the participants were female with the mean age of 27 yr (SD=5.15 yr, range=20–49). A majority was unmarried (60.3%). No children (46.4%); 56.7% were registered nurses, and received a basic education in undergraduation (56.7%). Most of them (66.9%) work in medical and surgical ward.

Work stress

The mean score of work stress level perception was 4.15. Among the eight work-stress subscales, home/work balance was rated highest (M=5.68, SD=0.65), followed by organizational climate (M=5.25, SD=0.44), workload (M=5.21, SD=0.46), managerial role (M=5.20, SD=0.50), personal responsibility (M=5.17, SD=0.47), recognition (M=5.14, SD=0.51), hassles (M=5.13, SD=0.53), and relationships (M=3.86, SD=0.31).

According to the results of one-way ANOVA of stress level perception of the eight work-stress factors and each of the demographic items and work-related variables, workplace showed a significant difference in terms of stress (F=2.62, p=0.05), education background showed a significant difference in terms of workload (F=0.42, p=0.05), and workplace (F=2.78, p=0.05) showed a significant difference in terms of relationships. Education background (F=3.32, p=0.05) and workplace (F=3.76, p=0.01), each showed a significant difference in terms of home/work balance. Age (F=3.86, p=0.01), education background (F=4.72, p=0.01) and workplace (F=2.63, p=0.05), each showed a significant difference in terms of hassles.

Using a Scheffe's test, we found that the pediatric ward nurses perceived more stress than maternity ward nurses in terms of home/work balance. The nurses aged 36–39 yr, perceived greater hassles and stress than those aged 26–30 yr. Nurses who had an undergraduate education perceived hassles and stress to be higher than those who attended junior college.

Stress-coping strategies

Most of the staff had 1–5 yr nursing experience (48.1%) and the mean score of stress-coping strategies was 3.39. The control stress-coping strategy was 3.39 (SD=0.66). The support stress- coping strategy was 3.37 (SD=0.63). According to the results of one-way ANOVA of stresscoping strategies for each of the demographic items and work-related variables, educational background (F=3.23, p=0.05), years employed in nursing (F=2.65, p=0.05), and workplace (F=2.63, p=0.05) showed significant variances in terms of the control stress-coping strategy. Years employed in nursing (F=2.66, p=0.05) and workplace (F=4.91, p=0.001) showed significant variances in terms of the support stress-coping strategy. Using Scheffe's test, we found that nurses posted to the pediatric ward adopted a support stress-coping strategy more often than the others

	n	%	Con	ıtrol	Sup	port
Variable			М	t/F	М	t/F
Education background				3.23*		2.17
①Junior college	145	40.3	2.3		2.32	
②Undergraduate	204	56.7	2.47		2.42	
③Graduate school	11	3.1	2.21		2.09	
Years employed in nursing				2.65*		2.66*
0.5–1.0	71	19.7	2.33		2.33	
1–5	173	48.1	2.42		2.35	
5–10	96	26.7	2.49		2.52	
10–20	17	4.7	2.03		2.04	
>20	3	0.8	1.83		2.25	
Workplace				2.63*		4.91***
①Medical	120	33.3	2.34		2.35	
②Surgical	121	33.6	2.38		2.32	
③Maternity	33	9.2	2.25		2.13	
④Pediatric	25	6.9	2.74		2.8	
5 Special	61	16.9	2.47		2.47@)>123

Table 2. Nurse demographic data and coping variables

* *p*<0.05; ** *p*<0.01; ****p*<0.001.

did (Table 2). We found nurses who were posted to pediatric wards perceived more stress than those posted to maternity wards in term of home/work balance, but they adopted a support stress-coping strategy more often than the others.

Health-promoting lifestyle

The mean score for health-promoting lifestyle was 2.46. Among the six health-promoting lifestyle subscales (see Table 3), health responsibility was rated highest (M=2.56, SD=0.29), followed by nutrition (M=2.52, SD=0.32), support (M=2.42, SD=0.21), exercise (M=2.42, SD=0.30), stress management (M=2.40, SD=0.21), and selfactualization (M=1.97, SD=0.21). According to the results of one-way ANOVA and the t-test for health-promoting lifestyle and each of the demographic items and workrelated variables, exercise (F=2.67, p=0.05) showed a significant variance in terms of age; and stress management (t=-2.62, p=0.01) showed a significant variance in terms of professional title. Nutrition (F=3.91, p=0.01) showed a significant variance in terms of workplace. Using Scheffe's test, we found that nurses posted to surgical wards perceived nutrition to be more important for healthpromoting lifestyle than nurses posted to maternity wards.

We examined relationships among work-stress, stresscoping strategies, and health promoting lifestyle using Pearson correlation coefficients test. We found all eight of the subscale of work-stress positively correlated with the stress-coping strategies (see Table 4). This result indicates the greater the work stress, the better the adaptive strategy was.

Among the six subscales of the health-promoting lifestyle, health responsibility correlated negatively with work stresses of relationships, managerial role, personal responsibility, and recognition; self-actualization negatively correlated with work-stresses of managerial role, personal responsibility, recognition, and organizational climate; Stress management negatively correlated with work stress of recognition (Table 5).

We also found that the control subscale negatively correlated with health responsibility and self-actualization of health-promoting lifestyle, and the support subscale negatively correlated with nutrition, health responsibility, and self-actualization of health-promoting lifestyle (Table 5). These results indicated that the majority of those showing greater nutrition, health responsibility, and selfactualization, subscales of health-promoting lifestyle, did not use a support-coping strategy.

The nurses were grouped by the work stress into high stress, medium stress and low stress groups (Table 6). Having a stress-coping strategy was found to significantly differ among the high stress, medium stress and low stress group. Health-promoting lifestyle was found to significantly differ in the high stress and low stress groups.

Discussion

Demographic data and work stress variables

Our results show the nurses with undergraduate education perceived hassles, a subscale of work-stress more often than those who attended only junior college.

	n	%	HI	P1	HP	2	HP	3	Н	P4	Н	Р5	HF	P 6
Variable			М	t/F	М	t/F	Μ	t/F	Μ	t/F	М	t/F	М	t/F
Age (yr)				0.96		1.00		0.8		0.67		2.67*		0.23
20-25	126	35	2.46		2.56		2.51		2.4		2.4		2.38	
26-30	138	38.3	2.45		2.55		2.5		2.39		2.41		2.37	
31-35	56	15.6	2.50		2.58		2.44		2.42		2.38		2.36	
36–39	30	8.3	2.40		2.50		2.45		2.47		2.33		2.35	
>40	10	2.8	2.58		2.70		2.51		2.45		2.15		2.39	
Professional title				0.12		0.74		0.11		-0.06		-1.14	-	-2.62**
LPN	156	43.3	2.46		2.57		2.49		2.4		2.37		2.34	
RN	204	56.7	2.45		2.55		2.48		2.41		2.4		2.4	
Workplace				3.91**		2.36		0.88		1.07		0.41		0.51
Medical	120	33.3	2.42		2.53		2.52		2.39		2.38		2.37	
②Surgical	121	33.6	2.53		2.60		2.49		2.39		2.4		2.36	
③Maternity	33	9.2	2.35		2.49		2.44		2.5		2.41		2.37	
④Pediatric	25	6.9	2.4		2.47		2.48		2.41		2.37		2.4	
⑤Special	61	16.9	2.48 @	2>3	2.6		2.46		2.42		2.36		2.4	

 Table 3.
 Nurse demographic data and health promoting lifestyle variables

* p<0.05; ** p<0.01; ***p<0.001. HP1: Nutrition; HP2: Health responsibility; HP3: Self-actualization; HP4: Support; HP5: Exercise; HP6: Stress management.

Table 4.	Pearson correlation coefficients for work stress and
	stress-coping strategies

Item	Stress-coping strategies					
Work stress	Control	Support				
	r					
Workload	0.46***	0.59***				
Relationships	0.49***	0.60***				
Home/work balance	0.69***	0.62***				
Managerial role	0.70***	0.61***				
Personal responsibility	0.62***	0.53***				
Hassles	0.29***	0.33***				
Recognition	0.64***	0.47***				
Organization climate	0.62***	0.47***				

****p*<0.001.

This finding is similar to that of Chang and Wang¹⁸⁾. Our study had more undergraduate nurses than graduates from junior college. Pediatric nurses perceived more home/ work balance stress than maternity ward nurses. Meaning pediatric ward nurses were more likely to report "taking things hard". A reason for pediatric ward nurses' response may be rotating work shifts. Nurses have previously attributed their stress to employment status, the care of young children, marital relationships, and susceptibility rooted in personality factors^{19–21}. Night shift nurses are easily prone to ill health because of the lack of domestic support and lack of relaxation²². However, our results indicate that pediatric nurses adopted stress-coping

strategies more often than the others, viewing support systems as important when they were in a demanding job in a highly stressed environment

We found that surgical nurses had better nourishment than maternity ward nurses. The surgical staff probably maintained a healthier diet when on duty because many of the surgical procedures are scheduled and pre-planned. Therefore, they can balance work and break time. The professional title of registered nurse was associated with a significantly (p<0.01) higher level of health-promoting lifestyle than licensed practical nurses. The registered nurses reduced and coped with stress by discussing problems with friend or family to promote job satisfaction and quality of life²¹).

Work-stress was also mentioned to be positively related to the stress-coping strategies. This findings is consistent to those of previous studies^{21,23)}. A possible reason for this may be the combination of job and family, which implies role overload and conflict. However, the registered nurses Scored lower on self-actualization and higher on health responsibility, items which might provide protection against the effects of stress.

In this study, the health responsibility, a subscale of health-promoting lifestyle, was significantly and negatively correlated with relationship, managerial role, personal responsibility, self-recognition and organizational climate, subscales of work-stress. Self-actualization, a subscale of health- promoting lifestyle, was significantly and negatively correlated with managerial role, personal responsibility, and recognition, and organizational climate. Stress management, a subscale of health-promoting

Item		Work stress							Stress-coping strategies	
	Ι	II	III	IV	V	VI	VII	VIII	Control	Support
Health promoting lifes	tyle			r						r
Nutrition	-0.03	-0.04	-0.07	-0.10	-0.00	0.04	-0.04	0.02	-0.09	-0.11*
Health responsibility	-0.06	-0.11*	-0.10	-0.15 *	-0.11 *	-0.07	-0.12 *	-0.09	-0.14**	-0.17**
Self-actualization	-0.06	-0.07	-0.10	-0.11*	-0.13 *	-0.03	-0.11*	-0.12*	-0.11*	-0.16**
International support	-0.09	-0.02	-0.08	-0.04	-0.04	0.02	-0.05	-0.06	-0.03	-0.10
Exercise	-0.06	0.00	-0.07	-0.01	0.04	0.02	-0.03	0.02	0.03	-0.03
Stress management	-0.08	-0.09	-0.06	-0.08	-0.07	-0.07	-0.11*	-0.09	-0.02	-0.08

Table 5. Pearson correlation coefficients for health promoting lifestyle and work stress and stress-coping strategies

* *p*<0.05; ** *p*<0.01; ****p*<0.001. I: Workload; II: Relationships; III: Home/work balance; IV: Managerial role; V: Personal responsibility; VI: Hassles; VII: Recognition; VIII: Organization climate.

Table 6. Stress-coping strategies and health-promoting lifestyle among work stress (high-low) group

Item n		Stress-coping strategies	Health- promoting lifestyle
Work stress			
Low	92	18.99 (3.60) ***	99.16 (4.60) ***
Medium	182	24.45 (4.21) ***	98.07 (6.29)
High	79	30.65 (3.92) ***	96.47 (5.61) ***

***p<0.001, significantly different from the low group by Scheffe's test.

lifestyle, was significantly and negatively correlated with recognition. It would be reasonable to assume that stressful events can influence the health status and healthpromoting lifestyle for healthcare workers in Taiwan's district hospitals, though we do not know to what extent this occurs. A reason why the participants had higher health responsibility, self-actualization and Stress management, might have been to protect themselves from the effects of work stress.

Nurses' control-coping strategies were associated with both health responsibility and self-actualization had a negatively affected health-promoting lifestyle. The support-coping strategies were associated with health responsibility, self-actualization, and nutrition negatively affected their health-promoting lifestyle. This was possibly due to the health promotional lifestyle, which helped the nurses' with health responsibility, selfactualization and nutrition. Therefore, nurses require health promoting lifestyles, to protect them from the effects of work stress.

Higher perceived work stress was associated with better coping strategies and lower health- promoting lifestyle scores. Work stress has been related to health outcomes in the literature⁸). In addition, we found higher work stress and better coping strategies associated with lower health- promoting lifestyle scores. as was reported by Lu *et al.*^{8, 11, 12}.

Our study had some limitations. First, the crosssectional nature of the data restricts us from drawing any conclusions in terms of causality. It would be interesting to collect longitudinal data concerning the variables studied. Second, we regret that we were unable to gather data from employers who may also experience work stress, health promoting lifestyle. Finally, the results were based on a sample from district hospitals in Taiwan. Therefore, the particular work conditions and night shift hours may not be generalized to other healthcare workers in the private health care sector or to healthcare work outside Taiwan.

Conclusion

Our study demonstrated the experiences of nurses should be utilized in coping strategies to boost healthpromoting lifestyle. The home/work balance gives nurses extra stress, with the "double burden" for combining a salaried job with domestic life, together influencing health risks. Pediatric nurses perceived more home/work balance stress than maternity nurses. We found nurses of 36–39 yr of age perceived greater stress than those of 26–30 yr of age. Nurses who had undergraduate educational qualifications perceived higher stress than those who attended junior college. Pediatric ward nurses adopted more stress-coping strategies than the others. Surgical ward nurses adopted better nutrition than maternity ones, and showed a significant variance in terms of professional title.

The health responsibility subscale was negatively correlated with work stresses of relationships, managerial

role, personal responsibility and recognition. The selfactualization subscale correlated negatively with work stresses of managerial role, personal responsibility, recognition and organizational climate. The control stresscoping strategy, because of both health responsibility and self-actualization, negatively affected health-promoting lifestyle. The support stress-coping strategy associated with health responsibility, self-actualization, and nutrition positively affected nurses' health-promoting lifestyle.

We recommend that nurses with high work stress should maintain high coping strategies. In general, the nurses tended to have low coping strategies in work that had higher health-promoting lifestyles, considering the important aspects of health responsibility, self-realization and nutrition. It is hoped that these findings draw the attention of hospital administrations and appointed officials so they can provide a healthy and harmonious atmosphere in the work place and formulate suitable policies for all.

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