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Original Article

The role of social support on occupational stress among hospital nurses

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Abstract: Stress is a nonspecific reaction to everything the body needs. Although occupational stress exists in every occupation, it is seen with more frequency and intensity amongst those occupations related to human health. In this study, we aimed to investigate the relationship between occupational stress and social support (SS) among hospital nurses. A cross-sectional survey was conducted among 1144 hospital nurse in China. They were investigated with a self-administered questionnaire about socio-demographic characteristics, occupational stress and social support. A validated version of the revised Occupational Stress Inventory (OSI-R) was applied to evaluate occupational stress; SS was measured by nine questions. Logistic regression analysis was used to study the association between occupational stress and SS and adjusted for income, gender, marital status, working years, educational level, and profession. Of 1144 nurses, the majority age group was less than 30 years, and the mean age across participants was 31.8 years. Further correlation analysis indicated that score of ORQ and PSQ had a significant negative correlation with score of SS ($P<0.05$), and a significant positive correlation was found between Score of PRQ and score of SS ($P<0.05$). The univariate analysis and multivariate analysis results also revealed that high SS increased significantly with decreasing ORQ score and increasing PRQ score after controlling for income, gender, marital status, working years, educational level and job title. SS significantly influences occupational stress in hospitals nurse. We also should pay more attention to occupational stress of married and long working years nurse.

Keywords: Social support, occupational stress, nurses

Introduction

Stress is a nonspecific response of the body to everything it needs. Bad stress or distress stimulates negative responses and disorders of physiologic and psycho-cognitive activities of the individuals, and ultimately leads to disease or disability [1]. "Occupational stress" is a relatively modern subject, which frequently has been discussed as a major health-related concern, especially during the recent decades [2, 3].

Although there is occupational stress in all occupations, those in relation with human health are of great importance [4]. The results conducted by Casado, et al. [5] showed that working evening and night shifts increases oxidative and burnout levels. higher level exposure to work stress factors lowers the psychological welfare among nursing staff [6]. Hospital nurses play critical roles in providing healthcare services and the management of patient care in the hospitals. However, nursing is a high-risk and stressful profession. Nurses are often confronted with critical incidents or acute stressors. Some research showed that lessening occupational stress and strengthening social support (SS) and rational coping could decrease depressive symptoms among Chinese female nurses [7].

In this study, we aimed to investigate the level of occupational stress in hospitals nurse in China and its association with social support.

Materials and methods

This is a cross-sectional study was performed based on a convenience sample of 1144 individuals aged from 21 to 58 years. The data were collected by a questionnaire including personal information, occupational stress invento-

Table 1. Characteristics of participants

Variable		High SS	Low SS
		n (%)	n (%)
Gender	Male	9 (1.8)	15 (2.8)
	Female	495 (98.2)	525 (97.2)
Monthly income (¥)	≤1500	114 (22.6)	124 (23.0)
	1501	284 (56.3)	324 (60.0)
	>3000	106 (21.0)	92 (17.0)
Marital status	Single/widow (er)	209 (41.5)	259 (48.0)
	Married	295 (58.5)	281 (52.0)
Age (years)	<30	299 (59.3)	367 (68.0)
	30-	147 (29.2)	122 (22.6)
	>40	58 (11.5)	51 (9.4)
working years	<5	205 (40.7)	269 (49.8)
	5-	171 (33.9)	181 (33.5)
	>15	128 (25.4)	90 (16.7)
Educational level	High school or lower	80 (15.9)	85 (348)
	College	333 (66.1)	348 (64.4)
	University or above	91 (18.1)	107 (19.8)
Profession	Nurses	235 (46.6)	326 (60.4)
	Senior nurse	167 (33.1)	131 (24.3)
	Nurse-in-charge or above	102 (20.2)	83 (15.4)

ry and SS scale. A validated version of the revised Occupational Stress Inventory (OSI-R) was applied to evaluate occupational stress in subjects. The OSI-R consists of three scales that were developed to assess work role stressors, the impact of those stressors, and the personal resources available to cope. These scales were evaluated respectively by the Occupational Roles Questionnaire (ORQ), Personal Strain Questionnaire (PSQ), and Personal Resources Questionnaire (PRQ). The ORQ measures work-related stresses including Role Overload (RO), Role Insufficiency (RI), Role Ambiguity (RA), Role Boundary (RB), Responsibility (R), and Physical Environment (PE). The PSQ measures the affective strains in four major categories: Vocational Strain (VS), Psychological Strain (PSY), Interpersonal Strain (IS) and Physical Strain (PHS). The PRQ assesses coping resources that comprise four scales: Recreation (RE), Self-Care (SC), SS and Rational/Cognitive Coping (RC). They can be scored independently or scored together. Each scale includes 10 subscales, each of which has 10 items on a 5-point Likert scale ranging from 1 (rarely or never) to 5 (most of time). For the ORQ and PSQ scales, higher scores are associated with higher levels of occupational stress. In this study, we scored the ORQ and PSQ together as a total occupational stress score. In addition, the reliabilities of the ORQ and PSQ were examined by using Cronbach's alphas, which were 0.899 and 0.858, respectively.

Family and friend: SS was measured by nine questions as below, namely (1) How many people in your leader try their best to help you, to make your job easier? (2) How many people in your colleague try their best to help you, to make your job easier? (3) How many people in your spouses, relatives and friends try their best to help you, to make your job easier? (4) In your leader, how many people you can talk easily with them? (5) In your colleague, how many people you can talk easily with them? (6) In your spouses, relatives and friends, how many people you can talk easily with them? (7) In your leader, how many people are willing to listen to your personal problems? (8) In your colleague, how many people are willing to listen to your personal problems? (9) In your spouses, relatives and friends, how many people are willing to listen to your personal problems? Questions were rated on a 5-point Likert scale, ranging from 1 (no) to 5 (many). Participants without spouse or children rated as 0 (not available) in questions regarding to spouse or children support respectively. In this study, SS was represented as the total of these nine questions. The total scores of 0-35 indicated low social support; 35-45 indicated high social support.

Data analysis

Pearson's partial correlation coefficient was used to determine an association between SS and occupational stress. because 100 subjects information of social support is missed, only 1044 subjects is included when compare the relationship among SS (high vs. low) and monthly income, gender, marital status, working years, educational level, profession and occupational stress. The data were analyzed through R software programming language. The statistical tests of Pearson correlation,

Table 2. Correlation between score of SS and occupational stress

Item	Score of social support	
	r	*P* value
ORQ score	-0.254	0.000
PSQ score	-0.253	0.000
PRQ score	0.300	0.000

variance analysis, and independent t-test were employed to analyze the data (P<0.05 was considered significant).

Results

Characteristics of participants

The characteristics of subjects are summarized in **Table 1**. The participants were female dominant (97.8%). The majority age group was less than 30 years, and the mean age across participants was 31.8 years. Most medical professionals were married (55.5%) and graduated with a 3-year college degree (65.2%) at the time of study. More than half of the participants have a profession of nurse. The majority average monthly income was 1500-3000 RMB, and 45.5% of the medical professions worked less than 5 years.

Table 2 shows the correlation between occupational stress and SS after adjusting to income, gender, marital status, working years, educational level and profession. Score of ORQ and PSQ had a significant negative correlation with score of SS (P<0.05). However, a significant positive correlation was found between Score of PRQ and score of SS (P<0.05).

The univariate analysis of social support-related factors and occupational stress is shown in **Table 3**. The prevalence of high SS increased significantly with decreasing ORQ score and PSQ score quartiles but PRQ score. ORs (95% CIs) for high SS from the highest to lowest ORQ score quartiles, Q4 to Q1, were 0.291 (0.203, 0.417), 0.527 (0.367, 0.757), 0.589 (0.414, 0.837), and 1 (Ref) for the Q1 group. The highest versus the lowest quartile were 0.364 (0.255, 0.520) in PSQ score and 3.107 (2.178, 4.432) in PRQ score, respectively. Single nurse and those with shorter working time have a higher rate of social support, but gender, income, age, and job title did not have a significant association with social support.

The multivariate analysis results revealed that the prevalence of high SS increased significantly with decreasing ORQ score and increasing PRQ score after controlling for income, gender, marital status, working years, educational level, and job title. Compared with lowest ORQ score quartiles, the ORs for Q2, Q3 and Q4 were 0.656 (0.447, 0.963), 0.673 (0.437, 1.038), and 0.406 (0.254, 0.647). We also compared with lowest PRQ score quartiles, the ORs for Q2, Q3 and Q4 were 1.356 (0.922, 1.922), 1.579 (1.086, 2.295), and 2.502 (1.671, 3.747).

Discussion and conclusion

The present study showed that score of ORQ and PSQ had a significant negative correlation with score of social support, also the prevalence of high SS increased significantly with decreasing ORQ score and increasing PRQ score after controlling for income, gender, marital status, working years, educational level, and job title. The results of our study suggested that better SS is good way to reduce the occupational stress of nurse, which is consistent with previous study, high levels of perceived SS are associated with low levels of perceived occupational stress [8]. Another researcher documented that there are no significant correlation between work stress, organizational support, and the nurses' age, sex, or level of education [9]. Thus, we should explore what kind of SS (family support, organizational support, and so on) is more important to reduce occupational stress. to reduce the occupational stress, to enhancing social support and improving work condition for nurses [10].

The inverse significant association of score of SS and working experience (obtained in the present study) can be due to the fact that those who work shorter have more SS. Results also showed high frequency of SS of nurse when compared with senior nurse and supervisor of nurse. The results suggested the senior nurses and supervisor may encounter more vocational stress and less SS. Because nurses are engaged in a dynamic process of struggling to cope with job stressors [11]. In future study, we should pay more attention to the job stress of senior nurse. Other findings are also presented [12].

The results in the present study showed a significant inverse association between work experience and SS. In other words, based on

Table 3. Association between SS (high vs. low) and income, gender, marital status, working years, educational level, profession and occupational stress (n = 1044)

Variable	Bivariate analysis			Multivariate analysis		
	Crude OR (95% CI)		P	Adjusted OR (95% CI)		P
ORQ score						
Q1	1.0			1.0		
Q2	0.589	0.414, 0.837	0.000	0.656	0.447, 0.963	0.031
Q3	0.527	0.367, 0.757	0.000	0.673	0.437, 1.038	0.073
Q4	0.291	0.203, 0.417	0.000	0.406	0.254, 0.647	0.000
PSQ score						
Q1	1.0			1.0		
Q2	0.832	0.588, 1.176	0.297	1.240	0.833, 1.844	0.289
Q3	0.562	0.393, 0.805	0.002	1.020	0.656, 1.586	0.929
Q4	0.364	0.255, 0.520	0.000	0.829	0.507, 1.355	0.455
PRQ score						
Q1	1.0			1.0		
Q2	1.568	1.092, 2.251	0.015	1.356	0.922, 1.922	0.122
Q3	2.108	1.494, 2.976	0.000	1.579	1.086, 2.295	0.017
Q4	3.107	2.178, 4.432	0.000	2.502	1.671, 3.747	0.000
Gender						
Female	1.0					
Male	1.768	(0.743, 4.206)	0.198			
Income (¥)						
>3000	1.0					
1501-	1.314	(0.953, 1.813)	0.873			
<1500	1.253	(0.859, 1.828)	0.241			
Marital status						
Married	1.0					
Single/widow (er)	1.301	(1.019, 1.662)	0.035			
Age						
<30	1.396	(0.930, 2.095)	0.107			
30-	0.994	(0.604, 1.475)	0.800			
<40	1.0					
Working experience						
<5	1.866	(1.348, 2.583)	0.000			
5-	1.505	(1.070, 2.117)	0.019			
>15	1.0					
Education background						
High school or lower	0.904	(0.597, 1.367)	0.631			
College	0.889	(0.647, 1.221)	0.466			
University or above	1.0					
Job title						
Nurses	1.705	1.220, 2.383	0.002			
Senior nurse	0.964	0.666, 1.394	0.846			
Supervisor of nurse	1.0					

Note: Adjusted for income, gender, marital status, working experience, educational level, and job title.

the findings, the SS is reduced by increase of work experience. This finding is justifiable as SS is reduced through time and acquiring skills and occupational and social experiences.

With regard to the SS among single and married individuals, although based on the findings of the present study, mean score of SS is lower for the married subjects compared to the single ones, this difference is not significant. In other words, there is no significant association between marital status and SS.

Based on the findings, there was no significant association between SS and the level of education, monthly income and job title.

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Disclosure of conflict of interest

None.

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