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The Effect of the Characteristics of Work and Stress on Job Satisfaction: A Case Study on Community Pharmacies and Registered Pharmacists in Hospitals

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Abstract— Background: *This study focused on the evidence-based research investigating the correlations between the job characteristics, work stress and job satisfaction of the pharmacists serving in the hospitals and the community pharmacies.*

Methods: *The subjects were mainly drawn from pharmacists who served in regional hospitals and community pharmacies in Taiwan, the total valid questionnaires were 190 copies. Regression analysis was adopted for inferential statistics to investigate the correlation between the job characteristics, work stress and job satisfaction of the pharmacists who served in community pharmacies.*

Results: *We concluded that four factors significantly affected job satisfaction of the pharmacists in the community pharmacies ($p < 0.01$); in the meantime, the educational background and job characteristics markedly affected job satisfaction of the pharmacists in the hospital pharmacy ($p < 0.01$).*

Conclusion: *Our study results can be the references for relevant entities during the management of human resources in order to provide a reasonable working environment to the pharmacists.*

Keywords— Job Characteristics, Working Stress, Job Satisfaction.

I. INTRODUCTION

Due to the convenience of medical visits in Taiwan, the

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frequency of medical visits hits new highs all the time so that the pharmacists worked in the medical institutes not only are responsible for huge formulation dispensing, but are also required to cover administrative assignments (*e.g.* hospital accreditation). Such huge workload increasing with time has negative impact on the safe medication of the patients. According to the statistics of the medical institution's status and the hospital's utilization published by the Ministry of Health and Welfare, R.O.C. (Taiwan), among the number of registered workforce in hospitals and clinics per 10,000 persons in 2016, the Western medicine physicians accounted for 19.05 persons, the pharmacists accounted for 11.78 persons (Ministry of Health and Welfare, 2017), suggesting that the ratio between the physician and the pharmacist was 1.61:1. The distribution of pharmacist employment under medical entities are as follows: 35.57% of the pharmacists worked in the pharmacies of a public hospital or a medical care corporation hospital, 38.02% of them worked in the community pharmacies, and 26.41% of them worked in the physician-owned pharmacies. When compared to the employment distribution in Taiwan, approximately 23% of the U.S. pharmacists worked in the hospitals or medical institutes and 62% of them worked in the community pharmacies, suggesting that the employment market for pharmaceutical affairs personnel is greatly different between Taiwan and the U.S.

The job contents and characteristics of the pharmacists serving in the community pharmacies are slightly different from those working in the hospitals. In addition to dispensing prescriptions, the sales of medicinal products, healthcare products, skin care products and cosmetics, some of the community pharmacies also consider the sale of cheap daily supplies such as milk powder and diapers as a primary service scope. For pharmacists serving in the community pharmacies, they can serve either as the first-line pharmacists or the logistic managers at the headquarters if it were a large-scale chain community pharmacy. For those owning self-businesses, the pharmacists are required to cover the management duties at the same time. For hospital pharmacists, due to the implementation of the global budget payment system and the changes in the labor laws, part of the medical institutes sought to reduce the costs of medicinal products, acquire profits and enhance the efficiency of the drug management by implementing drug control programs. Some of the hospitals released the items of the bulk medicinal products for pharmaceutical companies to offer optimum drug prices and controlled the prescriptions of the physicians to reduce the costs of medicinal products. Therefore, regardless of the undergraduate education or the post-graduate training, the required concepts, knowledge and skills of a pharmacist in the hospital or the community pharmacy still may vary due to the different job nature.

In summary, this study focused on the evidence-based research investigating the correlations between the job characteristics, work stress and job satisfaction of the pharmacists serving in the hospitals and the community pharmacies. The study results not only provide references to compensate for the insufficiency of relevant studies, but are also expected to be substantially helpful to the manager of the medical institutes.

II. LITERATURE REVIEW

Job characteristics refer to various factors or attributes relevant to work, *i.e.* the nature of the job itself (Steer and Porter, 1977). Seashore and Tabor (1975) believed that job characteristics comprised the nature, working environment,

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payroll and benefits, sense of security, inter-personal relationships, job-required skills, opportunities for career development and the inner rewards obtained from the job (e.g. satisfaction, accomplishment, sense of honor and self-achievement). Bhuian and Menguc (2002) gave the scope of the job a more comprehensive overview and descriptions and indicated that job characteristics referred to four features including autonomy, diversity, feedback and completeness.

The impact of work stress not only has profound academic meanings, it is also urgently needed in practical management. According to the statistics, the working stress has cost American companies over US$300 billion annually, including the costs of absence, turnover, poor performance, and the expenses for medical care, legal assistance and the insurance premium (Desa, Yusoof, Ibrahim, Kagir and Rahman, 2014). From the point of view of the organizational behavior, although the job itself will decide the attitude and performance of the employee, whether the employee is capable of responding to the job requirements is also critical. Each of the employees plays different roles in the organization to meet the expectations of the corresponding persons. However, if a person carries too much workload, the problems occur correspondingly (Cooper *et al.*, 1988; Kahn *et al.*, 1964). Normally the working stress can be divided into two types: challenging stress and obstructive stress (Cavanaugh, Boswell, Roehling and Boudreau, 2000). The former referred to the active stress source affecting work attitude and work-related behavior while the latter referred to the passive stress source (Beehr and Newman, 1978). Early studies in Taiwan mostly focused on medical staff (Lu, Lee and Shieh, 2005), information technology employees (Chou, Chang and Lee, 2012), etc. However, with the changes in manpower demands in the healthcare market, the types and impacts of the working stress had varied greatly. In this case, the working stress of the pharmacists shall be followed closely based on health occupational psychology policies.

Since job satisfaction refers to the satisfaction level of a person toward the job itself as well as the working environment (Huber et al., 2000), and the core concept of a satisfactory job is to build personal beliefs, the person who has a higher confidence in achieving self-values and job goals will acquire higher job satisfaction. In addition, employees with higher job satisfaction often have higher working performance than those with low job satisfaction (Judge, Thoresen, Bono and Patton, 2001; Ravari, Bazargan, Vanaki, and Mirzaei, 2012). However, the behavior at work reflects the job satisfaction; *i.e.* employees with low job satisfaction may be frequently absent, have a high turnover rate or show symptoms of occupational burnout (Lu, Barriball, Zhang, and While, 2012). There are plenty of research investigating job satisfaction of the nurses (Lin, Chou and Tsai, 2017), medical laboratory scientists (Chen, See, Chiou and Lin, 2014) or dietitians (Lai, Liao, Hsieh and Lee, 2014), but studies discussing job satisfaction of pharmacists are still scarce.

The pharmacists can discover and prevent medicinal products-derived damage to the patients in clinical practice by providing patient counseling services. The distribution of pharmaceutical manpower in Taiwan and the employment market in the U.S. is quite different. As the turnover rate and retention rate of the pharmacists have become the largest management issues in the Department of Pharmacy of the hospital, the services provided by the pharmacists in the hospitals and the community pharmacies may also vary. To increase the retention rate of the hospital

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pharmacists, it is necessary to conduct a research investigating the job characteristics, work stress and job satisfaction of the pharmacists in the hospitals and the community pharmacies.

III. METHODS

I. Study Design and Subjects

The study has been reviewed and approved by the Institutional Board (IRB No. 1060810, date of approval: October 12, 2017). Purposive sampling was adopted in the study. The subjects were mainly drawn from pharmacists who served in regional hospitals and community pharmacies in Taiwan. A study participation survey was sent out to consult with the subjects' willingness of study participation, and all pharmacists gave consents to take part in the study voluntarily. A total of 205 copies of questionnaires were released, and 191 copies were returned (93.1%). Except for one incomplete copy, the total valid questionnaires were 190 copies. The formal release period of the questionnaire was from January 2 to January 31, 2018.

II. Research Tools

This research employed a four-domain questionnaire as the research tool, including personal properties, job characteristics, work stress and job satisfaction. The questionnaire was formed based on the practical experience and the research background of the research staff involved in administrative medical affairs, and the relevant studies conducted by national and international experts. All questionnaire domains, including the necessity, comprehensiveness and the adequacy of wordings, had been verified and evaluated by three experienced senior pharmacists using expert validity tests along with recommendations for amendments.

(1) The 6 items in personal property domains comprise sex, age, educational background, marital status, work experience and salary.

(2) A total of 63 questions divided into three different domains (*i.e.* job characteristics, work stress and job satisfaction) were developed based on the relevant literature review (*i.e.* mainly from the study design of Seashore and Tabor (1975), Desa, Yusoof, Ibrahim, Kagir and Rahman(2014); Judge, Thoresen, Bono & Patton (2001); Ravari, Bazargan, Vanaki & Mirzaei (2012) *et al*). The five-level Likert scale was adopted in the study and the respondents were requested to assign 1~5 points for individual questions, *i.e.* 5 points for strongly agree; 4 points for agree; 3 points for neither agree nor disagree; 2 points for disagree and 1 point for strongly disagree. After data collection from the returned questionnaires, the items from individual domains and the values of Cronbach's α were as follows: 7 items in the job characteristics domain with α = 0.816; 8 items in the working stress domain with α = 0.808; 12 items in the job satisfaction domain with α = 0.892. The overall reliability (Cronbach's α) of the evidence-based data was 0.805, suggesting that the evidence-based data in this study showed a certain reliability (as shown in Table 1).

III. Analytical Methods

The package software version SPSS for Windows 18.0 was used for questionnaire data collection. Descriptive statistics (data were expressed in percentage and analyzed using the Chi-square test) was utilized to describe personal properties of the subjects (respondents). Regression analysis was adopted for inferential statistics to investigate the correlation between the job characteristics, work stress and job satisfaction of the pharmacists who served in community pharmacies.

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IV. RESULTS AND DISCUSSION

I. Personal property distributions

Among all respondents, 112 persons were females (58.9%). Most of the respondents, aged between 31-50 years (n=110, 57.9%), had educational background at the university level (n=134, 70.5%) and were married (n=111, 58.45%). As to work experience, 36 persons (18.9%) were at the management level. Most of the respondents had 1-3 years of work experience (31%), followed by those with more than 10 years of work experience (29.5%). For the salary level, most of the respondents earned NT$50,000~69,999 per month (n=119, 62.6%). A hundred of the respondents served as community pharmacy pharmacists (52.63%) while 90 persons were hospital pharmacists (47.37%). The statistical results for different items such as sex ($p=0.147$), age ($p<0.001$), educational background ($p<0.001$), marital status ($p<0.001$), job title ($p<0.001$), work experience ($p=0.927$) and salary ($p<0.001$) using the Chi-square test are shown in Table 2.

II. The Analysis of Job Characteristics, Work Stress and Job Satisfaction

The study further analyzed the effects of job satisfaction of the pharmacists serving in the community pharmacies and hospitals on the innovations in nursing. Since collinearity occurred during the regression analysis on control variables and independent variables, variables with a variance inflation factor (VIF) <10 and condition index (CI) <10 were screened in advance to avoid collinearity. The study results showed that for the job satisfaction of the pharmacists in the community pharmacy regression model, the F statistics was 1.978 ($p <0.05$) while that in the hospital pharmacy regression model, the F statistics was 4.316 ($p <0.001$). From the regression models showed in Table 3, we concluded that four factors [*i.e.* marital status, working experience (length of service), job characteristics and work stress] significantly affected job satisfaction of the pharmacists in the community pharmacies ($p <0.01$); in the meantime, the educational background and job characteristics markedly affected job satisfaction of the pharmacists in the hospital pharmacy ($p <0.01$).

V. DISCUSSION

I. Study Findings and Discussion

In general, according to the analysis of the personal properties, it was found that pharmacists serving in the community pharmacies were older than those serving in the hospital, and most of the pharmacists serving in the community pharmacies were married. On the other hand, pharmacists serving in the hospitals had a higher payroll as well as educational background since they were frequently required to work for three shifts in the hospital pharmacies while pharmacists serving in the community pharmacies mostly work on day and evening shifts only. In this case, most married pharmacists who were unable to work for three shifts were inclined to serve in the community pharmacies. Besides, the Ministry of Health and Welfare, R.O.C. (Taiwan) promulgated a teaching cost subsidy program in the hospitals so that a complete pharmacist training program covered at least basic pharmaceutical affairs training as well as professional pharmaceutical training. As a result, graduates from the Department of Pharmacy required receiving 2 additional years of clinical training right after completing the clinical practice. In this case, pharmacists serving in the hospital were younger and most of them were single.

Moreover, the study results also revealed that for unmarried pharmacists serving in the community pharmacies with 4-7

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years of work experience, the work stress was negatively correlated with the job satisfaction due to the job characteristics. In other words, in addition to the original work assignments such as the sales and promotion of medicinal products, healthcare products, skin care products and cosmetics, pharmacists serving in the community pharmacies were also required to address an extra working stress coming from the policy of "Separation of Dispensing Practice from Medical Practice" in Taiwan. Therefore, programs to improve the professional abilities of the pharmacists will be helpful to enhance the job satisfaction of the pharmacists.

Additionally, among pharmacists serving in the hospitals, the university educational background was negatively correlated with the job satisfaction level while the job characteristics were positively correlated with the job satisfaction. Since the referral system in Taiwan is still incomplete plus the non-gate-keeping healthcare system, not only the prescriptions in hospitals are loaded and complicated, but additional teaching duties as well as the administrative accreditation assignments are also accompanied, suggesting that the work load of individual pharmacists working in the hospital is increased thus has a negative impact on the job satisfaction.

Furthermore, since the director of the Department of Pharmacy in hospitals are facing several challenges such as manpower control, the changes in hospital accreditation policies, and the improvement of patient care outcomes, he/she must have the abilities for leadership and strategic planning to create an effective and professional working environment. Our study results can be the references for relevant entities during the management of human resources in order to provide a reasonable working environment to the pharmacists. As the demographic structure in Taiwan has officially been classified as an "ageing society," the Government is committed to promoting a new, community-based core concept "The Holistic and Comprehensive Healthcare" to meet the mainstream of the 21st century. In addition to facing the new-era stress (*e.g.* the initiation of a community patient-centered self-care, the improvement of a patient's health management and the development of diversified services), how the pharmacists serving in the community pharmacies improve their professional knowledge while complying with the Governmental policies has become a great challenge for the pharmacists at present.

II. Study Limitations

With limited manpower, resources and study period, the pharmacists were drawn from certain regional hospitals and community pharmacies. In this case, the study results may not be generalized against the national situation. In addition, this study only enrolled active pharmacists; those who were currently not practicing due to excessive work stress were not included in this study. Therefore, the study results cannot reflect the situation of the pharmacists who are currently not practicing.

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Table.1: Validity and average variable extracted

Construct	**Mean**	**SD**	**Cronbach's α**	**CV**	**AVE**
Job Characteristics	3.939	0.546	0.816	0.8509	0.4529
Working Stress	2.870	0.581	0.808	0.8525	0.4213
Job Satisfaction	3.743	0.555	0.892	0.9075	0.4512

Table.2: Descriptive Statistics (n=190)

Characteristics	Community Pharmacy		Hospital		X^2
	n	%	n	%	
Gender					.147
Male	37	19.47	41	21.58	
Female	63	33.16	49	25.79	
Age(years)					.001***
<30	13	6.84	30	15.79	
31-50	57	30.00	53	27.89	
>51	30	15.79	7	3.68	
Education Level					.001***
Associate Degree	32	16.84	1	0.53	
Bachelor Degree	62	32.63	72	37.89	
Master Degree	6	3.16	17	8.95	
Marital Status					.001***
Not Married	23	12.11	56	29.47	
Married	77	40.53	34	17.89	
Job title					.001***
Management	24	12.63	12	6.32	
Not Management	76	40.00	78	41.05	
Years of Employment					.927

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≤1 Years	8	4.21	9	4.74	
1~3 Years	31	16.32	28	14.74	
4-7 Years	19	10.00	13	6.84	
8-10Years	13	6.84	13	6.84	
>10Years	29	15.26	27	14.21	
Salary (NT)					.001***
<NT49,999	44	23.16	12	6.32	
NT50,000-69,999	42	22.11	77	40.53	
>NT70,000	14	7.37	1	0.53	

Table.3: Regression model

Measure	Job Satisfaction	
Control variable	Community Pharmacy	Hospital
Gender (Reference group: Female)	-.936	-.488
Age(years) (Reference group: 40-50)		
<40	-1.576	-.601
>50	-.075	-.428
Education Level(Reference group: Associate Degree)		
Bachelor Degree	-.719	-1.708*
Master Degree	-1.505	1.332
Marital Status(Reference group: Married)	1.836*	1.182
Job title(Reference group: Not Management)	-.528	.884
Years of Employment(Reference group: 1-3Years)		
≤1 Years	-1.220	1.669
4~7 Years	1.704*	.028
8-10Years	.783	-.764
>10Years	.010	-.316
Salary (NT) (Reference group: <NT49,999)		
NT50,000-69,999	-1.114	-.655
>NT70,000	-.274	.805
Independent variable		
Job Characteristics	3.026**	6.545***

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Working Stress	-3.150**	-1.406
R^2	.320	.522
Adj. R^2	.158	.401
F values	1.978	4.316
P values	0.019**	0.001***

Note: *** p<0.01, **p<0.05, *p<0.001