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## Article

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# The Development of the Job Satisfaction Scale for Hospital Staff in Taiwan

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The current study attempts to construct a valid and applicable job satisfaction scale for measuring the contentment level of hospital staff in Taiwan. The job description inventory (JDI) and Job Satisfaction Index (JSI) were adopted as the foundation of the job satisfaction measure for hospital staff in a selected hospital. To verify and validate the scale, data collected in 2012 and 2013, were analyzed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), respectively. Subsequently, Pearson correlations analysis was used to examine the strength and direction of the relationships between job satisfaction dimensions. Overall, the job satisfaction scale developed in this research illustrated valid and accurate measure for assessing hospital staffs' satisfaction. Both EFA and CFA results demonstrated that items consistently emerged six dimensions i.e. work environment, work achievement, compensation and benefits, education and training, promotion and evaluation, and management system. The findings also highlight that management support, work achievement, and promotion and evaluation are three critical factors that significantly contribute to high levels of job satisfaction for hospital staff.

**Keywords:** Job satisfaction scale, health organizations, Exploratory Factor Analysis, Confirmatory Factor Analysis, Pearson Correlations Analysis

JEL: D23, C38, I11

Nowadays, the health care business is becoming more and more competitive; every advantage is essential to the business strategy for future sustainable development. Many organizations have recognized this development trend and have started finding their competitive advantages, as the health care industry will continue to change and evolve in the coming decades (Ginsburg,

2005; Huang *et al.*, 2012). Some of these companies believe that new technology and treatment seem to be a good solution to increase efficiency, reduce costs, and improve the quality of the health care system (Omachonu and Einspruch, 2010; Dutton, Starbuck and Krippendorff, 2002). Advanced technology does indeed play an important role in system operation; however, it is just one key part of a total strategy. With the understanding of future

development in mind, health care administrators are increasingly facing challenges to manage costs, providing good services and better outcomes for patients (Porter and Lee, 2013). In a service industry where success is contributed to by patient satisfaction (Yee *et al.*, 2008), engaged and satisfied employees are a key factor to meet the demand for quality patient care. Therefore, the most significant impact on the health care industry will be a result of the people who work in it (Yee *et al.*, 2008; Cohen and Levinthal, 2001).

Job satisfaction has become an increasingly important issue in almost all industries. Many hospitals have also begun to conduct internal employee satisfaction surveys, which are considered an important reference for management. The first Job Satisfaction Index (JSI) survey was developed by Brayfield and Rothe (1951) and is an index of job satisfaction constructed by a combination of Thurstone and Likert scaling methods. Then there were a variety of different scale forms developed and modified by JSI. Up to now the most commonly used techniques for measuring job satisfaction have been the Minnesota Satisfaction Questionnaire (Weiss *et al.*, 1967) and the Job Description Index (JDI) (Smith, Kendall and Hulin, 1969). However, job satisfaction is subjective, and these measures do not consider cultural differences. In addition, these surveys were mainly designed for European or American socio-economic and cultural backgrounds. If cultural differences are not taken into consideration, the measures may not be completely suitable for local staff (Tang *et al.*, 2015). Furthermore, Mak and Hong (2010)

indicate that job satisfaction scales should be assessed periodically, because factors leading to job satisfaction change over time. In order to solve these problems, the current study aims to reconstruct a valid and applicable job satisfaction scale for hospital staff through a review and analysis of scale development procedures.

## LITERATURE REVIEW

Job satisfaction in healthcare organizations has become an increasingly important part of creating the working environment that staff members want. Previous studies suggest that better job satisfaction would lead to positive outcomes, such as higher performance, improved processes, increased productivity, and enhanced commitment (Chaulagain and Khadka, 2012; Ganu and Kogutu, 2014). In contrast, a low level of job satisfaction would create negative behaviors, including inefficiency, absences, turnover, lack of patient care, slowness, grievances, and medication errors (Chaulagain and Khadka, 2012; Pietersen, 2005; Albattat, Som and Saleh, 2014).

Providing employees with a superior internal working environment is likely to lead to satisfied employees who are both loyal to the organization and able to provide the customer with an excellent service experience. Customers will recognize and value the outstanding service offered to them. Over time the employees will increase customer loyalty and create a positive word-of-mouth effect. These loyalty behaviors will benefit both market share and profitability for the service firm (Heskett *et al.*, 1994, 1997). On the contrary, if employees are unhappy or

dissatisfied, it is difficult for them to engage in and respect their jobs when interacting with customers and other staff members. Many health care providers feel frustrated in jobs due to stress, time pressure, work overload, work pace, uncertainty, etc. These circumstances lead to low morale, staff turnover, and low efficiency. Therefore, assessing employee satisfaction is a critical component in retaining quality health care.

Job satisfaction is commonly defined as the extent to which employees enjoy their work (Suzuki *et al.*, 2006; Lambrou, Kontodimopoulos and Niakas, 2010); it describes an attitude or feeling employees have towards their jobs (Price, 2001; Robbins, 2001). Most researchers demonstrate that job satisfaction consists of employees' attitudes towards different facets of work; however, different determinants of job satisfaction have been suggested in a wide variety of studies (Mak and Hong, 2010).

One of the most popular ways to access employees' attitude toward their jobs is the use of job satisfaction questionnaires. Various scales have been designed to measure healthcare staff job satisfaction. Weiss *et al.* (1967) developed the Minnesota Satisfaction Questionnaire (MSQ) to assess employees' satisfaction with their jobs. Three forms of this questionnaire have been developed, consisting of two long forms with 100 items each and a short form with 20 items. The Job Description Inventory (JDI) was developed by Smith *et al.* (1969) and included 72 items that construct five dimensions. The Job Satisfaction Index (JSI) was developed by Brayfield and Rothe (1951). The questionnaire consists of 18 items

regarding the individual's attitude toward his or her job.

There are also different views on the structure of job satisfaction dimensions. Some scholars believe that job satisfaction is one dimensional (Nagy, 2002; Shah *et al.*, 2011; Vukonjanski, Terek and Gligorović, 2014; Meyerding, 2015), and others think it is multi-dimensional (Oshagbemi, 1999; Miner, Dowson and Sterland, 2010; Johnson, 2012; Kam and Meyer, 2015). Those who agree with the multi-dimensional theory have varying opinions about the number of dimensions that exist. The differences in the amount of dimensions range from 2 to 20. Moreover, the measurement scales represent the different perceptions, ranging from the three-point Likert scale to seven-point Likert scale. These problems could cause the questionnaire to lack reliability and validity by using different scales to measure the same group of people. In this research we attempt to rebuild a truly suitable questionnaire that hospitals can use to measure employee satisfaction.

## METHODOLOGY

### Scale Development Procedure

The primary objective of this research was to develop a valid and reliable instrument that can measure employee job satisfaction for hospitals in Taiwan. One of the best general and teaching hospitals in Taiwan (see MOHW, 2015a) has been chosen as a representative example for a single case study. The hospital contains more than 35 divisions, has 1500 total staff members, and provides clinical education and training to health care professionals. Following Lings and

Greenley's (2005) instructions, the scale development and validation procedures were adapted to verify its validity. The first step in the scale development procedure was to create items designed to evaluate the dimensions of the hospital employee job satisfaction scale. Items from prior research were used as the basis of measurement. Weiss *et al.*'s (1967) short form for the MSQ and Brayfield and Rothe's (1951) JSI were used to measure the hospital staff's job satisfaction. In addition, several items were adapted to fit the selected hospital. Second, the item pool was then reviewed by a panel of participants who were informed that the questionnaire is still being developed and asked to comment on it (Coverse and Presser, 1986). A panel of 12 respondents was formed (four academic healthcare researchers, four staff members, and four managers) to discuss potential problems with the questionnaire. Consequently, a total of 44 items were generated for the initial survey instrument (see Appendix-I). All items were measured using a five-point Likert scale anchored at strongly disagree and strongly agree.

### **Pretesting**

As suggested by Churchill (1979) and Hair *et al.* (2006), a semi-structured questionnaire and a small-scale pretest were conducted to demonstrate the accuracy and comprehensiveness of the questionnaires. A semi-structured questionnaire was firstly presented to five respondents (two academic experts and three hospital managers) to discuss potential problems with the questionnaire (see Diamantopoulos, Reynolds and Schlegelmilch,

1994). To confirm the accuracy of the questionnaire, the second pretest involved a survey of 50 hospital staff members (Malhotra *et al.*, 2006).

### **Characteristics of Respondents**

In 2012, after pretesting procedures, the main survey was sent via an intra-organizational online survey to a sample of hospital staff in Taichung City, Taiwan. All respondents received an email explaining the purpose of the study and the link to the questionnaire. Reminder notices were sent two weeks after the initial email. Of the 500 questionnaires sent, 385 were returned (response rate 77%), however, 370 questionnaires were useable. The respondents were mostly female (81.4%); the respondents' ages were distributed mostly across three groups—31–35 (30.5%), 36–40 (23.0%), and 41–45 (16.8%); the majority of respondents (86.2%) had completed a Bachelor's degree; more than three-quarters of respondents (75.5%) reported over six years of working experience in their respective organizations. To accurately examine the validity of the measures and compare the data differences between two time frames, the surveys were also collected in 2013, following the same procedure used in 2012. A total of 500 questionnaires were sent, and 388 questionnaires were returned. There were 369 useable questionnaires, yielding an effective response rate of 73.8 percent. Again, most respondents were female (80.2%); the respondents' ages were distributed mostly across four groups—26–30 (14.4%), 31–35 (27.1%), 36–40 (23.6%), and 41–45 (14.1%); most respondents (81.8 %) had completed a Bachelor's degree; nearly three-quarters of the

respondents (74.8%) reported more than six years of work experience in their respective organizations.

### Items Reduction

This following section outlines the assessment of the measures used to evaluate the employee job satisfaction scale in 2012 and 2013. Strictly speaking, all of the scales have been previously tested and used in different contexts in different countries. However, there may have been contextual influences and previous studies suggest that cultural differences influence the way people behave (Laroche *et al.*, 2001). Additionally, Mak and Hong (2010) suggest that job satisfaction scales should be assessed periodically, because factors leading to job satisfaction change over time. Thus, the scales may not be completely suitable for the selected hospital. Under these concerns, we decided to first identify the lowest number of factors to account for variance in the data and then to confirm the structure of factors and provide guidance for further model respecification. To do so, data in 2012 and 2013 were first analyzed using exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) was subsequently used to present the assessment of the measures. EFA was performed using SPSS 19.0 to refine the scales. CFA was subsequently performed to verify and validate the scales for each construct. The measurement model tests for the measures were undertaken using AMOS 18.0. The reliability and validity of items measuring job satisfaction were subsequently demonstrated.

### Exploratory Factor Analysis

EFA was performed first to reduce the items and refine the job satisfaction scale. Factor analysis using principal components analysis with varimax rotation was conducted on data in 2012 and 2013, respectively. The lowest number of factors that can account for the common variance in the dataset can be provided (Lings and Greenley, 2005). We adopted a combined criteria method as suggested by Lings and Greenley (2005), and Larose (2006) to identify items and factors for inclusion in the final factor solution. Items that did not have significant factor loadings on any factors ( $<0.5$ ), those with low communalities ( $<0.5$ ), and those with significant loading on two or more factors were considered for deletion (Lings and Greenley, 2005; Larose, 2006).

The Kaiser–Meyer–Olkin (KMO) value for items was .956 and Bartlett's test was significant ( $\chi^2=13968.394$ ,  $df=703$ ,  $p=.001$ ), indicating that there was an adequate sample size for factor analysis (Tabachnick and Fidell, 2001). The results of EFA showed that 36 of the original 44 items measuring 6 factors were identified and explained 75.04 percent of the variance in the data. As shown in Table 1 (see Appendix–II), we named these six factors as follows: working environment, work achievement, compensation and benefits, education and training, promotion and evaluation, and management system.

Similarly, following the procedure used in 2012, the values of Kaiser–Meyer–Olkin (KMO) was .962 and Bartlett's test was significant ( $\chi^2=14614.579$ ,  $df=703$ ,  $p=.001$ ), indicating the data in 2013 meet the basic criteria of sample size for factor analysis. As presented in Table 2 (see Appendix–III), EFA results in 2013 showed

that 38 of the original 44 items (the same 6 items deleted in 2012) measuring 6 factors were identified and explained 76.69 percent of the variance in the data. Similarly, these six factors were named as follows: working environment, work achievement, compensation and benefits, education and training, promotion and evaluation, and management system.

### Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) employing structural equation modelling was used to verify and validate the scale of job satisfaction. Consistent with the approach as suggested by Gerbing and Anderson (1988), data from 2012 and 2013 were subjected to structural equation

generally be .70 or higher (Hair *et al.*, 2006). At this stage, three items were removed to improve the model fit for data from 2012. Two items (WE1 and WE5) were deleted, which were originally shown in Table 1. As a result of this process, 34 items measuring six factors were identified.

The CFA results showed that the initial fit indices meet satisfactory levels of overall goodness of fit. For example, the value of GFI is .90, and most of the values of the three incremental fit indices (CFI, NFI, and TLI) are also higher than their threshold values (Hair *et al.*, 2006; Hu and Bentler, 1999), as presented in Table 3. All fit indices' values are within their

Research constructs	Cronbach's $\alpha$	CR	AVE	Items
Working environment	.87	.91	.66	5
Work achievement	.92	.96	.87	4
Compensation and benefits	.95	.96	.74	9
Education and training	.93	.97	.91	3
Promotion and evaluation	.95	.97	.90	4
Management system	.95	.97	.80	9
Fit statistics $\chi^2$ -value of 1307.68 ( $df=504$ , $p=.001$ ), GFI = .83, CFI = .94, NFI = .90, TLI = .93, RMSEA = .06				

**Table 3: Measurement Model Results for Six Factors of Job Satisfaction in 2012**

analysis in AMOS 19.0 using the maximum likelihood estimation method. Six factors with 36 items were estimated to confirm the dimensionality of the job satisfaction scale in terms of the 2012 dataset.

A model re-specification was applied by purifying measurement items (Byrne, 2001). To do this, the values of indicators' factor loadings on their underlying factors were examined. Items with a weak factor loading may be inappropriate for use and need to be removed from the original scale due to the elevated measurement error (Byrne, 2001). The estimated loadings should

threshold values, indicating a satisfactory goodness of fit for the measurement model to the 2012 data (Hair *et al.*, 2006; Fornell and Larcker, 1981).

On the other hand, on the basis of CFA results in 2013 items WE1 and WE5 were deleted (as originally shown in Table 2). Thirty-six items measuring six factors were identified in this process. As shown in Table 4, the fit indices meet satisfactory levels of overall goodness of fit for the measurement model to the 2013 data.

### Scale Validation

After testing the model fit of the respecified measurement model, the reliability and validity of composite reliability of the scale exceeds the recommended .70 threshold and that the AVE

Research constructs	Cronbach's $\alpha$	CR	AVE	Items
Working environment	.88	.90	.63	5
Work achievement	.92	.96	.86	4
Compensation and benefits	.95	.96	.73	9
Education and training	.93	.94	.81	4
Promotion and evaluation	.95	.97	.87	5
Management system	.96	.97	.80	9
Fit statistics $\chi^2$ -value of 1499.79 ( $df = 576, p = .001$ ), GFI = .81, CFI = .93, NFI = .90, TLI = .93, RMSEA = .06				

**Table 4: Measurement Model Results for Six Factors of Job Satisfaction in 2013**

items measuring factors were assessed. We examined the reliability of the measures employed through CFA and the calculation of Cronbach's  $\alpha$  (Cronbach, 1951), average estimates were above .50, providing evidence of convergent validity (Hair *et al.*, 2006). Discriminant validity was demonstrated by comparing the AVE of each measure with the

	AVE	1	2	3	4	5
1. Working environment	.66					
2. Work achievement	.87	$\phi = .63$ $\phi^2 = .40$				
3. Compensation and benefits	.74	$\phi = .59$ $\phi^2 = .35$	$\phi = .47$ $\phi^2 = .22$			
4. Education and training	.91	$\phi = .52$ $\phi^2 = .28$	$\phi = .54$ $\phi^2 = .29$	$\phi = .57$ $\phi^2 = .32$		
5. Promotion and evaluation	.90	$\phi = .52$ $\phi^2 = .28$	$\phi = .59$ $\phi^2 = .35$	$\phi = .65$ $\phi^2 = .42$	$\phi = .57$ $\phi^2 = .33$	
6. Management system	.80	$\phi = .59$ $\phi^2 = .35$	$\phi = .71$ $\phi^2 = .51$	$\phi = .61$ $\phi^2 = .37$	$\phi = .61$ $\phi^2 = .37$	$\phi = .74$ $\phi^2 = .56$

Note: AVE: average variance extracted;  $\phi$ : interfactor correlations;  $\phi^2$ : square of interfactor correlations

**Table 5: Interfactor Correlations and Squares of Interfactor Correlations for Factors in 2012**

variance extracted (AVE), and composite square of correlations between constructs (see reliability (CR). Table 3 shows that all the Fornell and Larcker, 1981). Both 2012 and 2013 Cronbach  $\alpha$  coefficients range between .87 dataset results indicated that all of the constructs' (e.g. working environment) and .95 (e.g. AVE was greater than the square of the inter-compensation and benefits, promotion and factor correlations between any two constructs of evaluation, and management system) for the the six dimensions, supporting the discriminant 2012 dataset and thus exceed the suggested validity of the measures.

threshold of .70 (Nunnally, 1978). Similarly, all Additionally, the results of Pearson the Cronbach  $\alpha$  coefficients are higher than Correlations Analysis and the square of inter-factor correlations are reported in Table 5 and .80 for 2013 dataset (see Table 4). CFA results Table 6. for 2012 and 2013 data both revealed that the



	AVE	1	2	3	4	5
1. Working environment	.63					
2. Work achievement	.86	$\phi=.58$ $\phi^2=.34$				
3. Compensation and benefits	.73	$\phi=.57$ $\phi^2=.33$	$\phi=.42$ $\phi^2=.18$			
4. Education and training	.81	$\phi=.56$ $\phi^2=.31$	$\phi=.54$ $\phi^2=.29$	$\phi=.60$ $\phi^2=.37$		
5. Promotion and evaluation	.87	$\phi=.55$ $\phi^2=.30$	$\phi=.53$ $\phi^2=.28$	$\phi=.57$ $\phi^2=.33$	$\phi=.64$ $\phi^2=.41$	
6. Management system	.80	$\phi=.66$ $\phi^2=.44$	$\phi=.71$ $\phi^2=.51$	$\phi=.60$ $\phi^2=.36$	$\phi=.73$ $\phi^2=.53$	$\phi=.74$ $\phi^2=.55$

Note: AVE: average variance extracted;  $\phi$ : interfactor correlations;  $\phi^2$ : square of interfactor correlations

**Table 6: Interfactor Correlations and Squares of Interfactor Correlations for Factors in 2013**

## DISCUSSION

This research aims to develop a valid and reliable instrument that can measure employee job satisfaction for hospitals in Taiwan. The following are the discussions of this study. First, the EFA results in 2012 and 2013 demonstrated that items consistently constructed six dimensions, including working environment, work achievement, compensation and benefits, education and training, promotion and evaluation, and management system. CFA results indicated satisfactory goodness of fit for the measurement model to the data from 2012 and 2013. Overall, the job satisfaction scale developed in this research illustrates valid and accurate measures for assessing hospital staffs' satisfaction level with their work.

Second, based on the results of Pearson Correlations Analysis of the six dimensions in 2012 and 2013, management system is highly significant to work achievement, and promotion and evaluation. Management system reflects what the hospital does to manage its processes and actions, which is important for inspiring the

degree of achievement demonstrated by employees as well as the levels of promotion and evaluation provided by a hospital. It appeared likely that hospital staff would have a greater desire for work achievement if more resources and support were provided by the hospital. In line with Shain and Kramer's (2004) study, the current research indicated that greater management support should help hospital managers to establish a systematic approach regarding promotion and evaluation of hospital staff. Management support contributes significantly to high levels of job satisfaction (Abdou and Saber, 2011; de Carvalho and Cassiani, 2012; Göras *et al.*, 2013). Consequently, we suggest that attention to management system, work achievement, and promotion and evaluation should significantly improve job satisfaction.

## CONCLUSION

Job satisfaction has become a critical issue for healthcare organizations in improving management practices. However, previous studies demonstrate that employee job satisfaction changes over time, and a periodical

assessment of job satisfaction to understand what employees need is essential. Hence, the current research demonstrates the development of a valid and applicable instrument for measuring job satisfaction of a general hospital staff in Taiwan. According to a database from the Ministry of Health and Welfare in Taiwan, the volume of general hospitals in 2014 was 150 (MOHW, 2015b). Job satisfaction scales may vary among different types of hospitals. The modified scale is both valid and reliable in the hospital context of this research, which is recommended for consideration as a baseline to assess satisfaction of other general hospitals employees.

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### Items Used in the Survey

- |  |   |
|--|---|
| 1. Degree of brightness in working environment   | 33. Objective and transparent performance evaluation program                    |
| 2. Control of noise in working environment   | 34. The workload arranged by the hospital ordinarily                            |
| 3. Degree of neat in working environment   | 35. Efficiency of responses by the hospital while proposing advices or problems |
| 4. Degree of ventilation in working environment  | 36. Consideration and encouragement given by supervisors                        |
| 5. Degree of space in working environment  | 37. The competence of supervisors in making decisions                           |
| 6. Cleanness of toilet in the hospital   | 38. Equity of management and monitoring procedures provided by the hospital     |
| 7. Maintenance of equipment in the office  | 39. Proving a channel for employee complaints and grievances                    |
| 8. Working atmosphere inside the department  | 40. Providing a clear job instruction   |
| 9. Working atmosphere across departments   | 41. Excellent employment regulation of the hospital                             |
| 10. Clearness of cafeteria in the hospital   | 42. Clear division of authorities and responsibilities in the hospital          |
| 11. Parking space for staff in the hospital  | 43. Appropriate work autonomy provided by the hospital                          |
| 12. Self-development at work   | 44. The participation of policy making in the hospital                          |
| 13. Recognition and affirmation from work  |   |
| 14. Capacity of will at work   |   |
| 15. The freedom to do oneself justice at work  |   |
| 16. Subsidies from the hospital (e.g. cash gift, meals subsidy, welfare of weddings and funerals, etc.)            |   |
| 17. Salary structure of the hospital   |   |
| 18. Salary review system of the hospital   |   |
| 19. Performance bonus of the hospital  |   |
| 20. Retirement system of the hospital  |   |
| 21. Scale of working contribution and salary   |   |
| 22. Standard of year-end bonus   |   |
| 23. Company trips provided by the hospital   |   |
| 24. Leisure activities provided by the hospital  |   |
| 25. Employee training arranged by the hospital   |   |
| 26. Reading space provided by the hospital   |   |
| 27. Reading devices supplied by the hospital   |   |
| 28. Sufficient resources provided by the hospital (e.g. library, electronic database, platform of E-leading, etc.) |   |
| 29. Promotion opportunities provided by the hospital   |   |
| 30. Getting promoted based on personal ability   |   |
| 31. A multi-channel promotion provided by the hospital   |   |
| 32. Actual benefits of performance evaluation  |   |

## Appendix-II

Factors							
Code	Items	1	2	3	4	5	6
Factor 1: Working environment							
WE1	Degree of brightness in working environment <sup>a</sup>	.610					
WE2	Control of noise in working environment	.742					
WE3	Degree of neat in working environment	.749					
WE4	Degree of ventilation in working environment	.680					
WE5	Degree of space in working environment <sup>a</sup>	.654					
WE6	Cleanness of toilet in the hospital	.682					
WE7	Maintenance of equipment in the office	.603					
Factor 2: Work achievement							
WA1	Self-development at work		.686				
WA2	Recognition and affirmation from work		.674				
WA3	Capacity of will at work		.761				
WA4	The freedom to do oneself justice at work		.768				
Factor 3: Compensation and benefits							
CB1	Subsidies from the hospital (e.g. cash gift, meals subsidy, welfare of weddings and funerals, etc.)			.796			
CB2	Salary structure of the hospital			.817			
CB3	Salary review system of the hospital			.832			
CB4	Performance bonus of the hospital			.823			
CB5	Retirement system of the hospital			.713			
CB6	Scale of working contribution and salary			.791			
CB7	Standard of year-end bonus			.779			
CB8	Company trips provided by the hospital			.622			
CB9	Leisure activities provided by the hospital			.604			
Factor 4: Education and training							
ET1	Reading space provided by the hospital				.780		
ET2	Reading devices supplied by the hospital				.800		
ET3	Sufficient resources provided by the hospital (e.g. library, electronic database, platform of E-leading, etc.)				.743		
Factor 5: Promotion and evaluation							
PE1	Promotion opportunities provided by the hospital					.714	
PE2	Getting promoted based on personal ability					.693	
PE3	A multi-channel promotion provided by the hospital					.744	
PE4	Actual benefits of performance evaluation					.661	
Factor 6: Management system							
MS1	Consideration and encouragement given by supervisors						.686
MS2	The competence of supervisors in making decisions						.782
MS3	Equity of management and monitoring procedures provided by the hospital						.766
MS4	Proving a channel for employee complaints and grievances						.719
MS5	Providing a clear job instruction						.757
MS6	Excellent employment regulation of the hospital						.683
MS7	Clear division of authorities and responsibilities in the hospital						.651
MS8	Appropriate work autonomy provided by the hospital						.645
MS9	The participation of policy making in the hospital						.569

Note: <sup>a</sup> : Item deleted in subsequent confirmatory factor analysis in 2012

**Table 1: Factor Structure for Job Satisfaction Scale in 2012**

Factors		1	2	3	4	5	6
Code	Items						
Factor 1: Working environment							
WE1	Degree of brightness in working environment <sup>b</sup>	.530					
WE2	Control of noise in working environment	.704					
WE3	Degree of neat in working environment	.751					
WE4	Degree of ventilation in working environment	.749					
WE5	Degree of space in working environment <sup>b</sup>	.649					
WE6	Cleanness of toilet in the hospital	.659					
WE7	Maintenance of equipment in the office	.518					
Factor 2: Work achievement							
WA1	Self-development at work		.746				
WA2	Recognition and affirmation from work		.708				
WA3	Capacity of will at work		.846				
WA4	The freedom to do oneself justice at work		.811				
Factor 3: Compensation and benefits							
CB1	Subsidies from the hospital (e.g. cash gift, meals subsidy, welfare of weddings and funerals, etc.)			.772			
CB2	Salary structure of the hospital			.842			
CB3	Salary review system of the hospital			.837			
CB4	Performance bonus of the hospital			.814			
CB5	Retirement system of the hospital			.788			
CB6	Scale of working contribution and salary			.837			
CB7	Standard of year-end bonus			.818			
CB8	Company trips provided by the hospital			.574			
CB9	Leisure activities provided by the hospital			.603			
Factor 4: Education and training							
ET1	Employee training arranged by the hospital <sup>a</sup>				.577		
ET2	Reading space provided by the hospital				.766		
ET3	Reading devices supplied by the hospital				.773		
ET4	Sufficient resources provided by the hospital (e.g. library, electronic database, platform of E-leading, etc.)				.734		
Factor 5: Promotion and evaluation							
PE1	Promotion opportunities provided by the hospital					.782	
PE2	Getting promoted based on personal ability					.804	
PE3	A multi-channel promotion provided by the hospital					.800	
PE4	Actual benefits of performance evaluation					.753	
PE5	Objective and transparent performance evaluation program <sup>a</sup>					.729	
Factor 6: Management system							
MS1	Consideration and encouragement given by supervisors						.642
MS2	The competence of supervisors in making decisions						.748
MS3	Equity of management and monitoring procedures provided by the hospital						.734
MS4	Proving a channel for employee complaints and grievances						.585
MS5	Providing a clear job instruction						.628
MS6	Excellent employment regulation of the hospital						.541
MS7	Clear division of authorities and responsibilities in the hospital						.579
MS8	Appropriate work autonomy provided by the hospital						.590
MS9	The participation of policy making in the hospital						.518

Note: <sup>a</sup>: Item deleted in exploratory factor analysis in 2012

<sup>b</sup>: Item deleted in subsequent confirmatory factor analysis in 2013

**Table 2: Factor Structure for Job Satisfaction Scale in 2013**