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# Job satisfaction and its related factors: A questionnaire survey of hospital nurses in Mainland China

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## Abstract

**Background:** The widespread nursing shortage is of concern in Mainland China and globally. Factors underpinning the increased mobility of the nursing workforce and their contribution to nurses' turnover thus merit attention. Understanding nurses' job satisfaction is important, as this is a key factor in nurses' turnover.

**Objective:** The study aimed to explore nurses' views and experience regarding different components of their working lives in Mainland China.

**Methods:** A cross-sectional survey design was selected and 512 nurses working in the medical and surgical departments in two teaching hospitals in Beijing completed questionnaires yielding a response rate of 81%.

**Results:** More than half of nurses (53.7%;  $n = 275$ ) were satisfied or very satisfied with their jobs and 15% ( $n = 77$ ) felt moderate to extreme occupational stress. The majority of the sample reported a high level of organizational commitment (63.7%;  $n = 326$ ) and professional commitment (85.9%;  $n = 440$ ) and only 5.9% ( $n = 30$ ) and 10.0% ( $n = 51$ ), respectively reported role conflict and role ambiguity often or very often. Nurses with a diploma or associate degree reported greater professional commitment and a lower level of role conflict than those with a bachelor degree ( $p < 0.05$ ), but there were no significant differences in job satisfaction, organizational commitment, occupational stress and role ambiguity by educational programme ( $p > 0.05$ ).

**Conclusions:** Hospital nurses' positive feelings regarding their working lives may be influenced by developments in the health care system and the nursing profession in Mainland China. Nurses' educational level is an influencing factor on nurses' views and experiences of their working lives with the findings suggesting the need to develop a clinical career ladder for nursing staff in Mainland China.

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**Keywords:** Job satisfaction; Nurse shortage; Nurse turnover; Nursing education; Role perception

## What is already known about the topic?

- The current worldwide shortage of nurses is of great concern and job satisfaction among nurses has been identified as a key factor in nurses' recruitment and retention.

- Several major factors are associated with job satisfaction of nurses, such as organizational commitment, occupational stress, professional commitment, role conflict and role ambiguity.
- Much research has been conducted on nurses' job satisfaction and related factors in western countries and some Asian countries.

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## What this paper adds

- The developments in the health care system and nursing profession could influence nurses' feelings towards their working lives.
- National culture should be considered in understanding nurses' views and experiences regarding different components of their working lives.

## 1. Introduction

The widespread nursing shortage and nurses' high turnover has become a global issue (Kingma, 2001). The nursing workforce in Mainland China also faces similar challenges in recruitment and retention as a consequence of China entering the World Trade Organization, which has opened their labour market. Job mobility has also been fuelled by more relaxed immigration policies which has meant an increase in the number of Chinese nurses being recruited to western countries where salaries and opportunities are better (Ho, 1995). Recruitment and retention of nurses are persistent problems associated with job satisfaction. There is an urgent need for rigorous research regarding job satisfaction and related factors to inform the development of good nurse employment strategies in Mainland China.

## 2. Background and literature review

### 2.1. Job satisfaction and its relating factors

Job satisfaction is defined as all the feelings that an individual has about his/her job (Spector, 1997). Researchers have attempted to identify the various components of job satisfaction, measure the relative importance of each component of job satisfaction and examine what effects these components have on workers' productivity (Lu et al., 2005).

A range of findings derived from quantitative as well as qualitative studies has been reported in the literature regarding sources of job satisfaction among nurses. These sources include working conditions (Adamson et al., 1995; Nolan et al., 1995), interactions with patients/co-workers/managers (Lee, 1998; Aiken et al., 2001), work itself (Lundh, 1999; Adams and Bond, 2000), remuneration (Price, 2002; Wang, 2002), self-growth and promotion (Tzeng, 2002a, b), praise and recognition (Nolan et al., 1995; Lundh, 1999), control and responsibility (Lee, 1998; Price, 2002), job security (Nolan et al., 1995, 1998) and leadership styles and organizational policies (Lee, 1998; Tzeng, 2002a, b).

Job satisfaction among nurses has been identified as a key factor in nurses' turnover with the empirical

literature suggesting that it is related to a number of organizational, professional and personal variables (Lu et al., 2005). Organizational commitment refers to identification with and loyalty to the organization and its goals (Blau and Boal, 1987). Organizational commitment has been found to be positively related to job satisfaction of hospital nurses (Blegen, 1993; Al-Aameri, 2000) and could explain 41% of the variance in job satisfaction (Knoop, 1995).

Professional commitment is a person's involvement, pledge, promise or resolution towards his/her profession (Fang, 2001). It has an incremental effect on a person's intention to leave the organization (Blau and Lunz, 1998) and is positively associated with the job satisfaction of nurses (Lu et al., 2000; Jones, 2000).

Occupational stress has also been found to be a major factor related to the job satisfaction of nurses (Blegen, 1993) as well as role conflict and role ambiguity (Tovey and Adams, 1999). Role conflict occurs as the nurse attempts to satisfy a number of incompatible demands arising from other people's expectations of his/her role (Rosse and Rosse, 1981). Inadequate or confused information about what work the nurse should cover, the limits of the role and other people's expectations of how the nurse's role fits in with their expectations produce role ambiguity (Hingley and Cooper, 1986).

### 2.2. Nursing in Mainland China

#### 2.2.1. Changes in health care policies

With ongoing economic reform, China has made some major policy changes in health care. The government has liberalized the private ownership of health facilities and private clinical practices and public hospitals have been partially freed from strict governmental labour market controls (Ho, 1995; Hsiao, 1995). Job mobility has become a reality and pressures are building for higher rewards for the country's health care professional workforce (Ho, 1995).

Additionally, nursing model reforms have impacted on the delivery of health care. The patient-centred holistic nursing care model has gradually replaced the traditional disease-centred nursing care model. However, primary nursing has only been introduced in leading hospitals because of the nurse shortage and a lack of appropriate knowledge and skills in the nursing workforce (Ministry of Health, China, 2003).

These developments have coincided with a growing recognition of the professional status of nurses. In the 1980s, the Government reaffirmed that like medicine nursing was an independent profession that required well-qualified personnel with nurses being awarded a protected title by the National Ministry of Health (Li, 2001). At present, there are three levels of basic nursing education in Mainland China: diploma programmes

delivered by health schools, associate degree programmes mainly provided by colleges of nursing and bachelor degrees through university-based education.

### 2.2.2. Nursing shortage and turnover

A nursing shortage has been reported in Mainland China for many years, but in recent years it has become greater. According to the [Ministry of Health, China \(2003\)](#), the number of registered nurses was 10:10,000 of the population 1997–2002. Further, the turnover of nurses with an associate degree or a bachelor degree is more serious than that of nurses with a diploma ([Wu, 1999](#)). It suggests that Mainland China needs to increase the number of nurses, especially well-educated nurses, however, the increased mobility of the nursing workforce is exacerbating the situation and highlights the need to identify factors which contribute to nurses' turnover ([Lu et al., 2005](#)).

While the literature indicates common issues across the world, it is possible that different issues have greater significance in different countries due to the social context of particular labour markets. The current shortage of nurses in Mainland China highlights the importance of understanding nurses' job satisfaction and related factors so that health care organizations can implement effective interventions to improve the retention of their nursing workforce. The little available research has significant methodological limitations and no research which directly addresses the topic has been conducted in Mainland China ([Yang and Cheng, 2004](#)). In consequence, this study addressed an important gap in the available literature.

## 3. Methods

### 3.1. Aim and objectives

The study aimed to explore nurses' views and experiences regarding different components of their working lives in Mainland China. The following objectives were set:

- To describe job satisfaction, organizational commitment, professional commitment, occupational stress, role conflict and role ambiguity of nurses;
- To compare job satisfaction, organizational commitment, professional commitment, occupational stress, role conflict and role ambiguity of nurses across the three educational programmes (diploma, associate degree and bachelor degree programmes).

### 3.2. Research design and sample

A cross-sectional survey design utilizing questionnaires was selected to fulfil the research objectives.

A total population of 632 nurses working in the medical and surgical departments in two teaching hospitals in Beijing were surveyed. Five hundred and twelve nurses completed and returned a self-completed questionnaire representing a response rate of 81% (diploma:  $n = 230$ , a response rate of 77.4%; associate degree:  $n = 232$ , a response rate of 82.6%; bachelor degree:  $n = 50$ , a response rate of 92.6%).

### 3.3. Instruments

The following instruments were utilized:

*Job Satisfaction Scale* ([Warr et al., 1979](#)): a five-point Likert type scale (1 = very dissatisfied, 5 = very satisfied) with 15 items. The coefficient alpha was 0.85–0.88 and test–retest correlation coefficient was 0.63 for 6-month period ([Warr et al., 1979](#)). The Cronbach's alpha was 0.89 in this study.

*Organisational Commitment Scale* ([Mowday et al., 1979](#)): a five-point Likert type scale (1 = strongly disagree, 5 = strongly agree) with 15 items. Coefficient alphas ranged from 0.82 to 0.93 with a median of 0.90 and test–retest reliability coefficients were 0.53, 0.63 and 0.75 for 2-, 3- and 4-month periods, respectively ([Mowday et al., 1979](#)). The Cronbach's alpha was 0.85 in this study.

*Nurses' Occupational Stress Scale* ([Hingley & Cooper, 1986](#)): a five-point Likert type scale (1 = no pressure, 5 = extreme pressure) with 24 items. The Cronbach's alpha was 0.92 in this study.

*Professional Identification Scale* ([Brown et al., 1986](#)): a five-point Likert type scale (1 = never, 5 = very often) with 10 items. Items analysis of the scale yielded a Cronbach's alpha of 0.71 and factor analysis yielded an oblique solution ([Brown et al., 1986](#)). The Cronbach's alpha was 0.82 in this study.

*Role Conflict and Ambiguity Scale* ([Rizzo et al., 1970](#)): a five-point Likert type scale (1 = never, 5 = very often) with 14 items. Cronbach's alphas were reported 0.816–0.82 for role conflict and 0.78–0.808 for role ambiguity ([Rizzo et al., 1970](#)). In this study the Cronbach's alphas were 0.81 and 0.85 for role conflict and ambiguity, respectively.

Biographical details were collected regarding personal profile and included nursing qualifications, length of time working in current hospital and educational level.

#### 3.3.1. Instrument translation

In order to avoid the problems inherent in translation, this study used a combination of [Brislin \(1970\)](#) model for translating and back-translating instruments and committee approach. One bilingual expert translated the instruments from English to Chinese and a second bilingual expert back-translated blindly. A panel of three experts in

the area of health care workforce management measured the face validity of the translated questionnaire.

### 3.4. Ethical considerations and negotiation of access

Ethical approval was gained from the Peking University's Research Ethics Committee. The main ethical issues were respondents' right to self-determination, anonymity and confidentiality. The questionnaires with a participant information sheet on the nature of the study and a separate envelope were distributed to staff nurses working in medical and surgical departments in two teaching hospitals of Peking University. Completed questionnaires were recruited in sealed envelopes via a collection box places in ward offices. The questionnaire data were kept confidential and respondents were assured of their right to withdraw at any time. The names of the respondents were not recorded on the questionnaire, thus rendering the data anonymous.

### 3.5. Analysis of data

Data were entered and processed using the Statistical Package for the Social Sciences (SPSS) software, the English version 11.5. This study used descriptive statistics,  $\chi^2$ -test and Kruskal–Wallis test to analyse the data.

## 4. Findings

### 4.1. Characteristics of respondents

All respondents were female and were predominately between 21 and 35 years old ( $n = 463$ , 90.4%), with half being married ( $n = 256$ , 50.0%). The majority of respondents had a diploma or associate degree ( $n = 230$ , 44.9%,  $n = 232$ , 45.3%, respectively) while less than 10.0% held a bachelor degree ( $n = 50$ , 9.8%). Slightly more respondents worked in medical wards ( $n = 272$ , 53.1%) compared with surgical wards ( $n = 240$ , 46.9%). Half of respondents had worked in their current hospital for 5 years or more ( $n = 324$ , 63.3%). In addition, more than two-thirds of respondents expressed their intention to leave the current hospitals ( $n = 368$ , 71.9%), with half reporting that nursing was their first choice of career ( $n = 278$ , 54.3%).

More than half of respondents reported that a system of primary care delivery was conducted in their wards ( $n = 300$ , 58.6%) while about a quarter reported that team nursing was used ( $n = 127$ , 24.8%). The majority of respondents had individualized written nursing care plans for each patient ( $n = 471$ , 92.0%) and for common nursing care problems/nursing diagnoses ( $n = 438$ , 85.5%). Almost all respondents reported that their hospitals had clearly stated standards and policies for

nursing practice ( $n = 506$ , 98.8%) while over three-quarters thought that the Ministry of Health also produced such standards and policies ( $n = 398$ , 77.7%) and had regulatory power over nurses ( $n = 389$ , 76.0%).

Regarding respondents' characteristics across the three educational programmes, there was a significant difference in age ( $p < 0.001$ ). Bachelor degree nurses were oldest (mean = 32.2 years, SD = 5.5), followed by associate degree nurses (mean = 28.2 years, SD = 5.1), with diploma nurses having the lowest mean age (mean = 26.5 years, SD = 5.6). Similarly, bachelor degree nurses (mean = 11.2 years, SD = 6.3) had worked longer in current hospitals ( $p < 0.001$ ) than associate degree or diploma nurses (mean = 8.0 years, SD = 5.6; mean = 7.0 years, SD = 5.6, respectively). Furthermore, the proportion of married nurses in the bachelor degree group (72.0%) was significantly more than that in the associate degree or diploma groups ( $p < 0.001$ ). More than half of diploma nurses (62.2%) considered nursing as their first career choice, which was significantly higher than that of associate degree (49.1%) or bachelor degree nurses (42.0%). There was no significant difference in nurses' intention to leave across the three nursing educational programmes ( $p > 0.05$ ) (see Table 1).

### 4.2. Respondents' job satisfaction

Regarding overall job satisfaction, more than half of respondents were satisfied ( $n = 275$ , 53.7%). Most respondents were satisfied or very satisfied with their immediate manager ( $n = 416$ , 81.2%) and their fellow workers ( $n = 413$ , 80.7%). On the other hand, almost three quarters of the sample felt dissatisfied or very dissatisfied with the rate of pay for nurses ( $n = 373$ , 72.9%) (see Table 2).

Although nurses with a bachelor degree (mean rank = 234.92) reported a lower level of job satisfaction compared to those with an associate degree (mean rank = 259.98) or diploma (mean rank = 257.68), there was no significant difference in total job satisfaction of respondents from the different educational programmes ( $p > 0.05$ ). However, nurses with a diploma (mean rank = 264.05) were more likely to be satisfied with their fellow workers ( $\chi^2 = 10.005$ ,  $p < 0.01$ ) than those with an associate degree (mean rank = 259.73) or bachelor degree (mean rank = 204.72). Regarding other items of job satisfaction, there were no significant differences across the three nursing programmes ( $p > 0.05$ ).

### 4.3. Respondents' organizational commitment

Almost two-thirds of respondents reported a high-level of organizational commitment ( $n = 326$ , 63.7%). More than two-thirds of the sample agreed or strongly

Table 1  
Comparisons of characteristics of respondents by educational programme

Items	<i>Educational Level</i>						<i>ANOVA</i>		$\chi^2$	
	Diploma ( <i>n</i> = 230)		Associate degree( <i>n</i> = 232)		Bachelor degree( <i>n</i> = 50)		<i>F</i>	<i>p</i>	Pearson $\chi^2$	<i>p</i>
	Mean/ <i>n</i>	SD/%	Mean/ <i>n</i>	SD/%	Mean/ <i>n</i>	SD/%				
Age (years)	26.5	5.6	28.2	5.1	32.2	5.5	23.083	<0.001**		
Length of time working in the current hospital (years)	7.0	5.6	8.0	5.6	11.2	6.3	11.281	<0.001**		
Marital status										
Married	94	40.9	126	54.3	36	72.0			20.496	<0.001**
Single	136	59.1	105	45.3	14	28.0				
Divorce	0	0.0	1	0.4	0	0.0				
Is nursing your first choice of career?										
Yes	143	62.2	114	49.1	21	42.0			11.286	0.004*
No	87	37.8	118	50.9	29	58.0				
Intention to leave the current hospital										
Yes	171	74.3	165	71.1	32	64.0			2.295	0.317
No	59	25.7	67	28.9	18	36.0				

\**p* < 0.01, \*\**p* < 0.001.



Table 2  
Frequency and percentage of each item in the job satisfaction scale

Items	Very dissatisfied		Dissatisfied		Neither satisfied nor dissatisfied		Satisfied		Very satisfied	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
The physical conditions in which you work	61	11.9	138	27.0	165	32.2	117	22.9	31	6.1
Freedom to chose your own working methods	38	7.4	145	28.3	253	49.4	69	13.5	7	1.4
Your fellow workers	0	0.0	4	0.8	95	18.6	343	67.0	70	13.7
The recognition you get for good work	5	1.0	40	7.8	231	45.1	210	41.0	26	5.1
Your immediate manager	3	0.6	14	2.7	79	15.4	319	62.3	97	18.9
The amount of responsibility you are given	10	2.0	50	9.8	231	45.1	205	40.0	16	3.1
The rate of pay for nurses	193	37.7	180	35.2	113	22.1	23	4.5	3	0.6
The opportunity to use your abilities	19	3.7	74	14.5	304	59.4	108	21.1	7	1.4
Relations between management and staff	6	1.2	12	2.3	173	33.8	269	52.5	52	10.2
Future chance of promotion	34	6.6	86	16.8	329	64.3	59	11.5	4	0.8
The way the hospital is managed	59	11.5	185	36.1	215	42.0	49	9.6	4	0.8
The attention paid to your suggestions	36	7.0	114	22.3	254	49.6	99	19.3	9	1.8
The hours of work	27	5.3	114	22.3	247	48.2	117	22.9	7	1.4
The amount of variety in your job	19	3.7	105	20.5	316	61.7	67	13.1	5	1.0
Your job security	13	2.5	43	8.4	280	54.7	164	32.0	12	2.3

agreed that they really cared about the fate of their current hospitals ( $n = 369$ , 72.1%) and reported that they were willing to put in a great deal of effort beyond that normally expected in order to help their hospitals be successful ( $n = 366$ , 71.5%). Although more than half of the respondents disagreed or strongly disagreed that it would take very little change in their present circumstances to cause them to leave their current hospitals ( $n = 301$ , 58.8%) or to decide that working for these hospitals was a definite mistake on their part ( $n = 297$ , 58.0%), more than half agreed or strongly agreed that they could just as well be working for a different hospital as long as the type of work was similar ( $n = 271$ , 52.9%) (see Table 3).

There were no significant differences in total organizational commitment ( $p > 0.05$ ) although nurses with a bachelor degree reported a lower level (mean rank = 242.46) compared to those with an associate degree (mean rank = 260.51) or diploma (mean rank = 255.51). However, diploma nurses (mean rank = 272.87) were more likely to agree that they would accept almost any type of job assignment in order to keep working for their current hospitals ( $\chi^2 = 6.378$ ,  $p < 0.05$ ) than those with an associate degree (mean rank = 246.13) or bachelor degree (mean rank = 229.34). In addition, diploma nurses (mean rank = 240.40) were more likely to report that it would take very little changes in their present circumstances to cause them to leave their current hospitals ( $\chi^2 = 7.171$ ,  $p < 0.05$ ) compared to associate degree (mean rank = 273.23) or bachelor nurses (mean rank = 252.91). There were no significant differences in

other items of organizational commitment across the three educational programmes ( $p > 0.05$ ).

#### 4.4. Respondents' occupational stress

Just under two-thirds of respondents reported experiencing light to moderate stress at work ( $n = 311$ , 60.8%) while one-quarter reported no to light stress ( $n = 124$ , 24.2%), followed by less than one-sixth reporting moderate to extreme stress ( $n = 77$ , 15.0%). Scores of moderate to extreme stress reported by respondents related to workload ( $n = 398$ , 77.8%), time pressures and deadlines ( $n = 335$ , 65.4%), difficult patients ( $n = 309$ , 60.4%), staff shortages ( $n = 308$ , 60.1%) and involvement with life and death situations ( $n = 276$ , 53.9%) (see Table 4).

There were no significant differences in total occupational stress across the three educational programmes ( $p > 0.05$ ), although nurses with an associate degree (mean rank = 260.05) reported experiencing more stress than those with a bachelor degree (mean rank = 253.52) or diploma (mean rank = 253.57). However, bachelor degree nurses (mean rank = 292.63) were more likely to report experiencing stress regarding time pressures and deadlines ( $\chi^2 = 6.738$ ,  $p < 0.05$ ) than diploma (mean rank = 263.78) or associate degree nurses (mean rank = 241.50). Similarly, bachelor degree nurses (mean rank = 284.05) were more likely to report experiencing stress regarding uncertainty about the degree or area of their responsibilities ( $\chi^2 = 10.259$ ) than associate degree

Table 3  
Frequency and percentage of each item in the organizational commitment scale

Items	Strongly disagree		Disagree		Neither disagree nor agree		Agree		Strongly agree	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>N</i>	(%)
I am willing to put in a great deal of effort beyond that normally expected in order to help this hospital be successful.	3	0.06	13	2.5	130	25.4	292	57.0	74	14.5
I talk up this hospital to my friends as a great organization to work for.	13	2.5	62	12.1	202	39.5	192	37.5	43	8.4
I feel very little loyalty to this hospital.	74	14.5	263	51.4	143	27.9	31	6.1	1	0.2
I would accept almost any type of job assignment in order to keep working for this hospital.	36	7.0	212	41.4	176	34.4	80	15.6	8	1.6
I find that my values and this hospital's values are very similar.	17	3.3	145	28.3	267	52.1	80	15.6	3	0.6
I am proud to tell others that I am part of this hospital.	13	2.5	51	10.0	228	44.5	189	36.9	31	6.1
I could just as well be working for a different hospital as long as the type of work was similar.	6	1.2	82	16.0	153	29.9	250	48.8	21	4.1
This hospital really inspires the very best in me in the way of job performance.	29	5.7	142	27.7	259	50.6	73	14.3	9	1.8
It would take very little changes in my present circumstances to cause me to leave this hospital.	19	3.7	282	55.1	167	32.6	39	7.6	5	1.0
I am extremely glad that I chose this hospital to work for over others I was considering at the time I joined.	20	3.9	90	17.6	259	50.6	130	25.4	13	2.5
There's not too much to be gained by sticking with this hospital indefinitely.	7	1.4	125	24.4	197	38.5	161	31.4	22	4.3
Often, I find it difficult to agree with this hospital's policies on important matters relating to its employees.	17	3.3	133	26.0	266	52.0	83	16.2	13	2.5
I really care about the fate of this hospital.	4	0.8	11	2.1	128	25.0	302	59.0	67	13.1
For me this is the best of all possible hospitals for which to work.	20	3.9	124	24.2	252	49.2	102	19.9	14	2.7
Deciding to work for this hospital was a definite mistake on my part.	46	9.0	251	49.0	179	35.0	28	5.5	8	1.6



Table 4  
Frequency and percentage of each item in the occupational stress scale

Items	No pressure		Slight pressure		Moderate pressure		Considerable pressure		Extreme pressure	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Time pressures and deadlines	27	5.3	150	29.3	230	44.9	85	16.6	20	3.9
Workload	21	4.1	93	18.2	224	43.8	133	26.0	41	8.0
Work underload (needing to look busy)	144	28.1	148	28.9	160	31.3	52	10.2	8	1.6
Task outside of my competence	205	40.0	154	30.1	118	23.0	30	5.9	5	1.0
Fluctuations in workload	104	20.3	178	34.8	179	35.0	44	8.6	7	1.4
Unrealistically high expectations by others of my role	128	25.0	188	36.7	143	27.9	44	8.6	9	1.8
Coping with new situations	96	18.8	258	50.4	136	26.6	16	3.1	6	1.2
Uncertainty about the degree or area of my responsibility	186	36.3	192	37.5	106	20.7	21	4.1	7	1.4
Security of employment	88	17.2	175	34.2	147	28.7	70	13.7	32	6.3
Involvement with life and death situations	60	11.7	176	34.4	168	32.8	79	15.4	29	5.7
Coping with new technology	105	20.5	241	47.1	138	27.0	24	4.7	4	0.8
Exposure to death	90	17.6	209	40.8	152	29.7	48	9.4	13	2.5
Staff shortages	49	9.6	155	30.3	169	33.0	99	19.3	40	7.8
Poor physical working conditions	85	16.6	139	27.1	172	33.6	91	17.8	25	4.9
Lack of support from senior staff	130	25.4	234	45.7	109	21.3	31	6.1	8	1.6
Lack of privacy	147	28.7	195	38.1	126	24.6	34	6.6	10	2.0
Shortage of essential resources	77	15.0	170	33.2	185	36.1	65	12.7	15	2.9
Poor quality of supporting staff	77	15.0	197	38.5	165	32.2	55	10.7	18	3.5
Unsocial hours	65	12.7	161	31.4	141	27.5	104	20.3	41	8.0
Lack of specialized training for present work	110	21.5	233	45.5	125	24.4	34	6.6	10	2.0
Lack of participation in planning/decision making	133	26.0	219	42.8	132	25.8	20	3.9	8	1.6
Difficult patients	28	5.5	175	34.2	197	38.5	80	15.6	32	6.3
Dealing with relatives	70	13.7	192	37.5	149	29.1	73	14.3	28	5.5
Bereavement counselling	107	20.9	237	46.3	124	24.2	27	5.3	17	3.3

(mean rank = 271.92) or diploma nurses (mean rank = 234.95).

In addition, regarding poor quality of supporting staff bachelor degree nurses (mean rank = 281.30) were also more likely to report experiencing stress ( $\chi^2 = 6.522$ ,  $p < 0.05$ ) than associate degree (mean rank = 268.10) or diploma nurses (mean rank = 239.41). However, bachelor degree nurses (mean rank = 189.45) were less likely to report experiencing stress regarding security of employment ( $\chi^2 = 17.889$ ,  $p < 0.001$ ) than associate degree (mean rank = 248.08) or diploma nurses (mean rank = 279.57). Regarding other aspects of stress, there were no significant differences across the three programmes ( $p > 0.05$ ).

#### 4.5. Respondents' professional commitment

Most respondents reported a high-level of professional commitment ( $n = 440$ , 85.9%). The majority of respondents reported that they never or seldom: tried to hide belonging to the nursing profession ( $n = 466$ , 91.0%), were annoyed to say that they were members of the nursing profession ( $n = 416$ , 81.3%) or criticized the nursing profession ( $n = 398$ , 77.8%). However, only one-third reported that they were glad to belong to the nursing profession often or very often ( $n = 167$ , 32.6%) (see Table 5).

Nurses with a bachelor degree (mean rank = 204.30) reported a lower level of professional commitment ( $\chi^2 = 8.323$ ,  $p < 0.05$ ) compared to those with an associate degree (mean rank = 254.03) or diploma (mean rank = 270.33). Bachelor degree nurses (mean rank = 190.11) were more likely to criticize the nursing profession ( $\chi^2 = 12.788$ ,  $p < 0.01$ ) than associate degree (mean rank = 262.76) or diploma nurses (mean rank = 264.62). In contrast, diploma nurses (mean rank = 268.27) were more likely to be glad to belong to the profession ( $\chi^2 = 7.765$ ,  $p < 0.05$ ) than associate degree (mean rank = 255.57) or bachelor degree nurses (mean rank = 206.69). There were no other significant differences relating to other items of professional commitment across the three programmes ( $p > 0.05$ ).

#### 4.6. Respondents' role conflict and role ambiguity

The majority of respondents reported a low-level of role conflict and role ambiguity ( $n = 482$ , 94.1%;  $n = 461$ , 90.0%, respectively). More than three-quarters of respondents never or seldom had to 'buck' a rule or policy in order to carry out an assignment ( $n = 439$ , 85.7%), had worked with two or more groups who operated quite differently ( $n = 391$ , 76.4%) or received incompatible requests from two or more people ( $n = 380$ , 74.2%). Almost four-fifths of respondents

Table 5  
Frequency and percentage of each item in the professional commitment scale

Items	Never		Seldom		Sometimes		Often		Very often	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
I am a person who identifies strongly with the nursing profession.	23	4.5	64	12.5	181	35.4	191	37.3	53	10.4
I am a person who makes excuses for belonging to the nursing profession.	182	35.5	150	29.3	128	25.0	39	7.6	13	2.5
I am a person who feels held back by the nursing profession.	180	35.2	159	31.1	124	24.2	39	7.6	10	2.0
I am a person who considers the nursing profession to be important.	22	4.3	44	8.6	110	21.5	233	45.5	103	20.1
I am a person who criticizes the nursing profession.	220	43.0	178	34.8	85	16.6	25	4.9	4	0.8
I am a person who is glad to belong to the nursing profession.	42	8.2	106	20.7	197	38.5	125	24.4	42	8.2
I am a person who sees myself as belonging to the nursing profession.	61	11.9	92	18.0	122	23.8	169	33.0	68	13.3
I am a person who is annoyed to say that I am a member of the nursing profession.	324	63.3	92	18.0	66	12.9	22	4.3	8	1.6
I am a person who tries to hide belonging to the nursing profession.	406	79.3	60	11.7	35	6.8	4	0.8	7	1.4
I am a person who feels strong ties with other members of the nursing profession.	39	7.6	71	13.9	140	27.3	200	39.1	62	12.1

Table 6  
Frequency and percentage of each item in the role conflict and role ambiguity scale

Items	Never		Seldom		Sometimes		Often		Very often	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
I have to do things that should be done differently.	178	34.8	181	35.4	117	22.9	31	6.1	5	1.0
I receive an assignment without the manpower to complete it.	185	36.1	183	35.7	113	22.1	27	5.3	4	0.8
I have to 'buck' a rule or policy in order to carry out an assignment.	294	57.4	145	28.3	58	11.3	11	2.1	4	0.8
I work with two or more groups who operate quite differently.	220	43.0	171	33.4	87	17.0	25	4.9	9	1.8
I receive incompatible requests from two or more people.	164	32.0	216	42.2	99	19.3	30	5.9	3	0.6
I do things that are likely to be accepted by one person and not accepted by others.	61	11.9	248	48.4	166	32.4	31	6.1	6	1.2
I receive an assignment without adequate resources and materials to execute it.	147	28.7	201	39.3	125	24.4	32	6.3	7	1.4
I work on unnecessary things.	126	24.6	152	29.7	134	26.2	82	16.0	18	3.5
I feel certain about how much authority I have.	19	3.7	31	6.1	71	13.9	241	47.1	150	29.3
I have clear, planned goals and objectives for my job.	12	2.3	27	5.3	99	19.3	265	51.8	109	21.3
I know that I have divided my time properly.	12	2.3	34	6.6	120	23.4	246	48.0	100	19.5
I know what my responsibilities are.	10	2.0	11	2.1	44	8.6	248	48.4	199	38.9
I know exactly what is expected of me.	31	6.1	50	9.8	127	24.8	235	45.9	69	13.5
I get clear explanations of what has to be done.	19	3.7	50	9.8	133	26.0	232	45.3	78	15.2

reported that they knew often or very often what their responsibilities were ( $n = 447$ , 87.3%). Around three-quarters of respondents reported feeling certain about how much authority they had and felt that they had clear, planned goals and objectives for their jobs ( $n = 391$ , 76.4%;  $n = 374$ , 73.1%, respectively) (see Table 6).

Nurses with a bachelor degree (mean rank = 298.81) reported greater role conflict ( $\chi^2 = 6.174$ ,  $p < 0.05$ ) compared to those with an associate degree (mean rank = 260.63) or diploma (mean rank = 243.13). There were no significant differences in role ambiguity across the three programmes ( $p > 0.05$ ). Bachelor degree nurses (mean rank = 286.26) were more like to report receiving incompatible requests from two or more people ( $\chi^2 = 6.568$ ,  $p < 0.05$ ) than associate degree (mean rank = 266.22) or diploma nurses (mean rank = 240.22). Bachelor degree nurses (mean rank = 294.57) were also more likely to report doing things that were likely to be accepted by one person and not accepted by others ( $\chi^2 = 7.591$ ,  $p < 0.05$ ) than associate degree (mean rank = 263.82) or diploma nurses (mean rank = 240.84).

In addition, bachelor nurses (mean rank = 307.08) were more likely to report receiving an assignment without adequate resources and materials to execute it ( $\chi^2 = 10.810$ ,  $i < 0.01$ ) than associate degree (mean rank = 263.41) or diploma nurses (mean rank = 238.54). Regarding other items of role conflict and role ambiguity, there were no differences across the three programmes ( $p > 0.05$ ).

## 5. Discussion

The sample in this local questionnaire survey was limited to nurses working in teaching hospitals in Beijing. Thus, the generalization of the findings needs to be treated with caution.

### 5.1. Hospital nurses' job satisfaction

In contrast to Wang's (2002) survey of nurses working in a hospital in Beijing where nurses reported more dissatisfaction than satisfaction, the study found that

more than half of respondents were satisfied with their jobs ( $n = 275$ , 53.7%). Interestingly, this study's findings are similar to those of other studies of the job satisfaction of nurses in the USA (Blau and Lunz, 1998; Aiken et al., 2001), the UK (Price, 2002), Singapore (Fang, 2001), Hong Kong (Siu, 2002) and Taiwan (Lu et al., 2002; Tzeng, 2002a) despite the health care systems being very different from that of Mainland China.

A possible explanation for such similarity may lie with changes in the labour market in Mainland China, which has become more open during the last 5 years and increasingly similar to that in western countries. An open labour market has brought new pressures and challenges for hospital managers. Nurses' job satisfaction has received increasing attention and enhancing nurse job satisfaction has been emphasized as a major strategy to recruit and retain qualified nurses (Sun et al., 2001; Bao et al., 2004).

It is also possible that the development of nursing, particularly the adoption of the patient-centred primary nursing care model has had an effect on nurses' job satisfaction (Bond et al., 1990; Thomas and Bond, 1991). In Mainland China primary nursing has experienced more than 10-years of development mainly in leading hospitals (Ye et al., 1999), which include the data collection sites in the study.

### 5.2. Hospital nurses' organizational commitment

The findings of nurses' strong organizational commitment in the study is inconsistent with Knoop's (1995) survey in Canada, which found that nurses had a low level of organizational commitment. However, most of the study's respondents expressed their intention to leave their current hospitals. Such ambivalent findings might be explained by the influence of culture. Glazer et al. (2004) have suggested that people's understanding of organizational commitment could be affected by their national culture. Chang (1999) further pointed out that employees in Asian countries are more likely than employees in Western countries to expect job security from their employers as part of their psychological contract of employment. These employees, in turn, are more committed when they feel that their employers have fulfilled this commitment.

Therefore, nurses' high level of commitment to their hospitals does not remove the potential of turnover. Indeed, organizational commitment due to the communal nature of a culture may not contribute to nurses' retention, as nurses are encouraged to build up an equally strong commitment to their new organization following a job change.

### 5.3. Hospital nurses' occupational stress

Two-thirds of respondents reported slight to moderate pressure relating to occupational stress ( $n = 311$ ,

60.8%), which is similar to the findings in Dailey's (1990) study in the USA and Fang's (2001) study in Singapore. Cox (1987) suggested that stress resides in the person's perception of the balance or transaction between the demands on him/her and his/her ability to cope with these. Thus occupational stress exists in people's recognition of their inability to cope with demands relating to work (Cox, 1985) and the findings suggest that the majority of the sample had the abilities to cope with the work demands placed upon them.

Hingley and Cooper (1986) pointed out that for all individuals competence is a primary need at work, with incompetence being a major source of job stress due to its thwarting the individual to perform effectively or to feel effective. Nurses' improved professional competence might therefore be associated with their lower occupational stress. In this study, some characteristics of the respondents including age, length of working time and educational level may be a proxy of their higher professional competence. For example, half of respondents had worked in their current hospital for 5 years or more ( $n = 324$ , 63.3%). In general, they were proficient in nursing techniques and skills and were able to resolve problems independently at work. Further, most respondents were 35 years old or younger ( $n = 473$ , 92.4%) and half had an associate degree or bachelor degree ( $n = 282$ , 55.1%). Therefore, it is possible that they had abilities to cope with new situations and technology.

Another possible explanation lies with respondents' good interpersonal relationships at work. For example, most respondents reported that they were satisfied or very satisfied with their fellow workers ( $n = 413$ , 80.7%) and immediate manager ( $n = 416$ , 81.2%). The nature and quality of relationships at work has been identified as a major source of occupational stress (Greenburg, 1980). Hingley and Cooper (1986) also suggested that poor relationships with colleagues and superiors are an important source of stress for nurses. This was highlighted in Bradley and Cartwright (2002) study which found that nurses who perceived more support from managers were less likely to experience job stress ( $r = -0.12$ ,  $p < 0.05$ ) although the extent to which this applies to Mainland China is uncertain as no equivalent research has been published regarding Chinese nurses.

Regarding the main stressors, such as workload, time pressures and deadlines and staff shortages, the findings are consistent with previous studies in China (He et al., 2001; Dai and Wang, 2002; Zhao et al., 2002). Furthermore, nurses' workload has also been emphasized as a major work-related stressor in similar studies conducted in other countries (Aiken et al., 2001; Lambert et al., 2004; Khowaja et al., 2005). It is possible that the current global nursing shortage might increase nurses' workload and China is not an exemption from this challenge (Gong, 1996).

#### 5.4. Hospital nurses' professional commitment

The finding of the respondents' strong commitment to the nursing profession is consistent with that in Taiwan (Lu et al., 2002). This is possibly associated with a number of factors, including: recognition of the value of the nursing profession, increasing professional status and increasing academic professional activities.

People can develop devotion to their profession if they think that the profession is valuable (Altschul, 1979). Nurses, in some respects, embody the absolute moral worth of the person who gives unselfish and devoted care and in return receives a high regard in society. In Mainland China nurses are often referred to as 'White Angels' for their contributions to human health with nurses' work during the period of the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003 reaffirming the value and importance of the nursing profession (Liu et al., 2004).

Additionally, the Chinese government's recognition of nursing as an independent profession and the development of university degree nursing programmes have undoubtedly facilitated an increasing professional status (Li, 2001). Increased academic activities such as seminars or workshops also enhance nurses' engagement in their professional roles and influence their attitude towards the nursing profession, which in turn can promote a stronger professional commitment (Lu and Chiou, 1998).

#### 5.5. Hospital nurses' role conflict and role ambiguity

The majority of the respondents reported a low level of role conflict and role ambiguity, which is similar to Seo et al.'s (2004) findings in South Korea, but contrasts with Dailey's (1990) study in the USA. Such findings in the study may reflect compatible demands from nurse educators, colleagues and nursing managers resulting in clear and sufficient information about working responsibilities. It is possible that the majority of respondents graduated from the same educational institution to which their hospitals were affiliated so that the nurse educators, colleagues and hospital managers of the respondents held similar values and principles regarding nurses' roles, thus reducing the potential for role conflict (Hingley and Cooper, 1986). In addition, in 1982, the Ministry of Health, China published 'Working Responsibilities of Health Care Personnel in Hospitals' which set out the working roles of staff nurses, health care assistants, doctors and other health care personnel. Although some reforms in nursing have occurred, this guide has not been modified and has been widely implemented in hospitals across Mainland China so that the opportunities for role overlap and conflict may be minimized in consequence.

#### 5.6. The impact of nurses' educational level upon their working lives

The findings of significant differences in nurses' role conflict and professional commitment across the three educational programmes (diploma, associate degree and bachelor degree) suggest primary differences arising from the impact of education ( $p < 0.05$ ). Such findings may be explained by the bachelor degree nurses' higher role expectations. The knowledge enrichment of the university-educated nurses may yield a broader perspective and a higher expectation of their working roles compared to that of diploma and associate degree nurses (Wetzel et al., 1989). However, the bachelor degree nurses' role perception is not dominant in a nursing workforce as they only represent a minority with about 5% of registered nurses in 2002 having a bachelor degree in China (Jiang et al., 2004). This study found even in the teaching hospitals in Beijing, as the highest health care institutes, less than 10% of nurses had a bachelor degree. Additionally, in hospitals, the bachelor degree staff nurses assume the same roles and tasks as those with a diploma or associate degree (Yang and Cheng, 2004), which may increase the bachelor degree nurses' role conflict arising from the different role expectations and task requirements from universities, hospitals, peers and themselves.

The bachelor degree nurses' weaker professional commitment is similar to Lu and Chen's (1999) local survey. One possible explanation is that well-educated nurses are more likely to experience the conflict between their role expectations and actual working roles. Indeed, Jing (2000) has suggested that such a conflict could result in bachelor degree nurses not feeling that they belong to the nursing profession.

Another possible explanation is that the bachelor degree nurses may have a stronger intention to leave the nursing profession. Bartlett et al. (1999) found that graduates were less confident in their initial decision to enter the nursing profession compared with diplomats. Similarly, Lu and Chen (1999) found that half of nursing undergraduates disliked or strongly disliked the nursing profession with most of them reporting that they intended to change to another career.

The findings indicate that there were no significant differences in total job satisfaction of nurses across the three educational programmes ( $p > 0.05$ ). This finding is inconsistent with previous studies, which found that nurses with a higher educational level were less likely to be satisfied with their job (Lu et al., 2002; Chu et al., 2003).

Part of the explanation for this finding may rest with the interrelationships between age, working years, marital status and job satisfaction. For example, Blegen's (1993) meta-analysis found that nurses who were older and had longer working experiences were

more likely to be satisfied with their job. Yin and Yang (2002) also found that married nurses were more satisfied with their job than those who were unmarried. In this study, nurses with a bachelor degree were significantly older and had more working experience than nurses with a diploma or associate degree ( $p < 0.001$ ). Additionally, most of the nurses with a bachelor degree were married ( $p < 0.001$ ). It is possible that these respondent characteristics had an impact on the relationship between job satisfaction and educational level.

The findings indicate that there were no significant differences in organizational commitment, occupational stress and role ambiguity across the three educational programmes ( $p > 0.05$ ). This may be the result of the limited sample size of bachelor degree nurses ( $n = 50$ ) so that further research with a larger sample with different educational background is needed to explore these issues. Another possibility is that regardless educational level, the staff nurses in the study assumed similar roles and responsibilities, which were clearly described in hospital guideline. In these circumstances a significant difference in nurses' role ambiguity across the three educational programmes would not be expected.

## 6. Conclusion

The findings in the study indicate that the hospital nurses in this study had a positive feeling towards their working lives in Mainland China. This may be a reflection of the developments in the health care system and nursing profession. But it is worthwhile to note that nurses' intention to leave is still a serious problem and warrants more attention. International migration of nurses has increased as nurses pursue opportunities for improved pay and opportunities in the wake of global liberalization of trade spurred on by developed countries increasing their international recruitment to meet their health care workforce needs and in doing so creating a 'skills drain' in many developing countries (Kingma, 2001). One might expect to observe dissatisfaction with changes in education with the influence of American curricula and higher education and limited changes to the nurse's role in the guideline established by the Ministry of Health, China, but it is likely that those experiencing greatest dissonance between the expectations and reality of their role will have entered the global labour market and such individuals would not have been recruited to this study. Further research is needed to test the impact of educational level upon job satisfaction, occupational commitment, occupational stress and role ambiguity using other samples.

The study also indicates that the bachelor degree nurses had weaker professional commitment and a higher level of role conflict. It is suggested that nurses'

educational background should be considered an important factor in understanding nurses' working lives and may indicate the need for a clinical career ladder for nursing staff in Mainland China. Such a ladder, which uses a grading structure to facilitate career progression by defining different levels of clinical and professional practice in nursing, has been successfully introduced in other countries such as the UK (Buchan, 1999). Further, Krugman et al.'s (2000) work in the USA found that the use of a clinical ladder facilitated nurses' professional development, strengthened their organizational commitment and increased their job satisfaction in a study evaluating 10 years of progressive change.

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