

# BMJ Open Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China

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## ABSTRACT

**Objectives:** This cross-sectional study aimed to explore job satisfaction among healthcare staff in Guangdong following the health system reforms in 2009, and to investigate the association between job satisfaction and work stress, work–family conflict and doctor–patient relationship.

**Design:** Cross-sectional survey.

**Setting:** The Fifth National Health Service Survey was carried out in Guangdong, China.

**Participants:** All participants in this study were healthcare staff including physicians, nurses and public health staff from hospitals, health service centres and health clinics. A total of 6583 questionnaires were distributed and collected. After excluding the incomplete questionnaires, 5845 questionnaires were included for the analysis.

**Outcome measures:** Sociodemographic information and scores for evaluating job satisfaction, work stress, work–family conflict and doctor–patient relationship were obtained using the questionnaire developed by the National Health and Family Planning Commission of the People's Republic of China. To assess the significantly associated factors on job satisfaction of the healthcare staff in Guangdong, a binary logistic regression model was used.

**Results:** Based on the 5845 valid responses of the healthcare staff who worked in Guangdong, the mean score of overall perception of job satisfaction was 3.99 on a scale of 1–6. Among the sociodemographic variables, occupation, educational background, professional status, years of service, annual income and night shift frequency significantly influenced the level of job satisfaction. Work stress, work–family conflict and doctor–patient relationship also had significant effect on job satisfaction.

**Conclusions:** The overall job satisfaction exceeded slightly dissatisfied (score 3) and approached slightly satisfied (score 4). Measures to enhance job satisfaction include the reduction of workload, increase of welfare, maintaining moderate stress and balancing work–family conflict. Moreover, relevant laws should be issued to protect the healthcare staff from violent acts.

## BACKGROUND

Job satisfaction is used to measure how content an employee is with the job.<sup>1</sup> High

## Strengths and limitations of this study

- This was a large study including 5845 healthcare professionals who were working in Guangdong, China.
- This study was the first investigating job satisfaction of healthcare staff in relation to work stress, work–family conflict and doctor–patient relationship since the major health system reforms in 2009.
- The questionnaire used in this study had only been used in China and it might not be suitable for other countries.
- This was a cross-sectional study, in which the causal effects of job satisfaction could not be determined.

job satisfaction can improve the enthusiasm of the staff and is beneficial to the success and progress of the organisation. It can lead to lower turnover<sup>2</sup> and high quality service.<sup>3</sup> Healthcare staff with low job satisfaction may suffer from medical problems themselves<sup>4</sup> and individual employee health may influence the overall stability of the healthcare staff.<sup>5</sup> Dissatisfied employees are more likely to leave the organisation, and as a result, the remaining employees may engage in counter-productive activities such as low-quality service and cause damage to equipment.<sup>6</sup>

There are several factors are associated with job satisfaction. A survey conducted by Maissiat *et al*<sup>7</sup> indicated that job satisfaction was associated with professional accomplishment, freedom of expression and appreciation. An investigation undertaken by Atif *et al*<sup>8</sup> revealed that age, educational background, years of service and income were significantly associated with job satisfaction among doctors. Other studies also mentioned that general outlook on the industry, gender, occupation, areas of work, urban versus rural setting, professional knowledge and sufficient number of staff significantly affect job satisfaction.<sup>9–13</sup> Although work

stress,<sup>14–16</sup> work–family conflict<sup>17–18</sup> and doctor–patient relationship<sup>19–22</sup> have each been found to be associated with job satisfaction, there is little literature exploring the relationship of job satisfaction with these factors when taken together. In this study, we will analyse the impact of sociodemographic factors, work stress, work–family conflict and doctor–patient relationship on job satisfaction among the healthcare staff in Guangdong Province.

In 2012, Guangdong Province in China had a population of 106.44 million and was ranked eighth in terms of the gross domestic product (GDP) per capita among the total 31 provinces/municipalities in mainland China. Guangdong also had the second highest number of medical personnel compared with any province in China.<sup>23</sup> Previous studies carried out in different areas of Guangdong on job satisfaction of the healthcare staff have shown varied results. Huang *et al*<sup>24</sup> indicated that the job satisfaction of grass-root core doctors who worked in the underdeveloped areas of Guangdong was not high. Risk of responsibility was the factor associated with the highest level of dissatisfaction. The development prospects, achievements, job setting, leadership, work stability, working environment and the salary system were the main influential factors on job satisfaction. A study conducted by Wei *et al*<sup>25</sup> revealed that gender, age, educational background, professional status, occupation and years of service were significant influential factors on doctors who worked in health clinics in towns and townships.

So far, no study has been undertaken in Guangdong Province on job satisfaction of healthcare professionals after the health system reforms started in 2009. The aim of the reforms is to provide safe, effective, convenient and affordable medical and health services through the establishment and improvement of basic healthcare systems covering urban and rural residents. Since the reforms, people have been using health resources at a higher rate, leading to increased workloads for the healthcare staff. The reforms also introduced new regulations and requirements for the healthcare staff, such as the essential drug list for primary care. These regulations are designed to improve quality of health but have led to reduced autonomy among the healthcare staff, with the staff reporting decreased job satisfaction as a result.<sup>26–29</sup> It is necessary to investigate the job satisfaction of the healthcare staff under the new policy.

The objectives of this study were: (1) to explore the job satisfaction in Guangdong following the health system reforms in 2009 among the healthcare staff and (2) to investigate the association between job satisfaction and work stress, work–family conflict and doctor–patient relationship.

## METHODS

### Settings and participants

The data of this study was provided by the Fifth National Health Service Survey in Guangdong which was

conducted from August to October 2013. The samples were obtained using multistage stratified cluster random sampling. In the first stage, 40 sample districts and counties were randomly selected from 21 prefecture-level cities. In the second stage, all tertiary hospitals and some of the secondary hospitals were selected and 200 towns (streets) and 400 villages (neighbourhoods) were randomly selected. All community health service centres and health clinics in these selected towns (streets) and villages (neighbourhoods) were included in the medical institutions. In the third stage, the sample group was selected from the medical institutions by simple random sampling, that is, randomly selected 20 medical staff and 10 nurses per hospital, 7 medical staff and 3 nurses per community health service centre/health clinics. Medical staff included physicians and public health staff. If the actual number of healthcare staff was insufficient, all healthcare staff members were selected.

Staff members filled out their own questionnaires. Each health bureau was responsible for organising the investigation. All participants in the study were voluntary and provided written informed consent before participating in this survey.

### Methods of measurements

The questionnaire was developed by the National Health and Family Planning Commission of the People's Republic of China. This study involved the following five parts of the questionnaire: sociodemographic information, job satisfaction, work stress, work–family conflict and doctor–patient relationship.

The sociodemographic measures include gender, age, marital status, educational background, professional status, occupation, years of service, type of institution, employment status, administrative duties, department, hours worked per week, night shift frequency (per month), annual income, urban or rural, professional qualification and working in Pearl River Delta or not. Owing to the imbalance of economic development in Guangdong, the regions in the Pearl River Delta are considered more prosperous than the other regions. The professional status in Chinese medical institutions can be divided into four classes, that is, senior/deputy senior, intermediate, primary, lower than primary.<sup>30</sup> The senior/deputy senior staff member is equivalent to the manager or the supervisor. The intermediate staff member is a team leader, whereas the primary staff member is a normal staff member. The staff member with a status lower than primary professional is a trainee.

The job satisfaction portion in the questionnaire includes eight items which evaluate satisfaction with colleagues, the work itself, promotions, remunerations, environment, facility, current job and superiors. They were adapted from the Job Descriptive Index (JDI).<sup>31</sup> The presentation of the item was as such: 'I'm very satisfied with my colleagues'. The work stress portion includes four items: feel great pressure from work, feel a high level of tension from work, trouble falling asleep

because of work and feel nervous because of work. These items were selected based on the report in ref. 32. Job satisfaction and work stress factors were measured using a six-point Likert scale, where 1—strongly disagree, 2—disagree, 3—slightly disagree, 4—slightly agree, 5—agree and 6—strongly agree. The work–family conflict assessment includes nine items, which were evaluated using a five-point Likert scale, where 1—strongly disagree, 2—disagree, 3—undecided, 4—agree and 5—strongly agree.<sup>33</sup> Items one to three are time-based work–family conflict, items four to six are behaviour-based work–family conflict and items seven to nine are strain based. The doctor–patient relationship has four items: degree to which patients respect physicians, degree to which society respects the career of physicians, degree of trust in services provided by physicians and recent doctor–patient relationship. All the participating healthcare professionals evaluated the doctor–patient relationship. Each measure was evaluated using a five-point Likert scale, where 1—strongly respectful/very good, 2—respectful/good, 3—neutral, 4—disrespectful/bad and 5—strongly disrespectful/very bad. The score of each

item and the mean score in each dimension were used in the analysis.

In order to evaluate the construct validity of the questionnaire, exploratory factor analysis was applied to the above 25 items from job satisfaction, work stress, work–family conflict and doctor–patient relationship. The factor loadings of items on each dimension are tabulated in table 1. The results showed that the loading values of items to the corresponding dimensions were larger than 0.500, so four factors were extracted and they were in accordance with the four dimensions. The results indicated that the questionnaire had good construct validity.

Moreover, the reliability of the questionnaire was measured by Cronbach's  $\alpha$  coefficients,<sup>34</sup> which are also presented in table 1. The value of Cronbach's  $\alpha$  reflects the internal consistency of the questionnaire and a value above 0.9 is generally regarded as excellent, above 0.8 is good and above 0.7 is acceptable. The Cronbach's  $\alpha$  coefficients for the four dimensions ranged from 0.793 to 0.929. The results also demonstrated a good level of reliability.

**Table 1** Factor loading of items using the exploratory factor analysis and Cronbach's  $\alpha$  of difference dimensions

Items	Job satisfaction	Work stress	Work–family conflict	Doctor–patient relationship
Colleagues	0.590			
The work itself	0.745			
Promotions	0.766			
Remunerations	0.763			
Environment	0.769			
Facility	0.765			
Current job	0.846			
Superiors	0.653			
Feel great pressure from work		0.846		
Feel a high level of tension from work		0.866		
Trouble falling asleep because of work		0.856		
Feel nervous because of work		0.858		
Work keeps me from family activities			0.792	
Time I devote to job keeps me from participating in household activities			0.832	
Miss family activities due to work			0.840	
Problem-solving behaviours make no sense at home			0.754	
Behaviour that is effective and necessary at work would be counterproductive at home			0.687	
Behaviours that make me effective at work do not help me to be a better parent or spouse			0.768	
Too frazzled to participate in family activities			0.841	
Drain prevents me from contribution to family			0.859	
Owing to the pressures from work, I do not want to do favourite things at home			0.799	
Degree to which patients respect physicians				0.808
Degree to which the society respects the career of physicians				0.791
Degree of trust in services provided by physicians				0.779
Recent doctor–patient relationship				0.775
AVE	54.924	73.369	63.792	62.174
Cronbach's $\alpha$	0.882	0.875	0.929	0.793

AVE, average variance extracted.

## Statistical analysis

The sociodemographic factors of the investigated health-care staff were summarised using a descriptive statistical analysis method. Age was divided into three groups: 19–34 years, 35–44 years and 45 years or older. Years of service was divided into four groups: 0–4 years, 5–9 years, 10–19 years and 20 years or more. Hours worked per week were divided into three groups: 0–40 hours, 41–56 hours and 57 hours or more. Night shift frequency (per month) was divided into two groups: 0–4 times and 5 times or more.

Job satisfaction of the healthcare staff was divided into two groups: satisfied and dissatisfied. The overall perception of job satisfaction for each respondent was calculated by taking the average scores of the eight items in job satisfaction. Using this mean score, individuals with a score higher than 3.5 were placed in the satisfied group (1), and the rest were placed in the dissatisfied group (0). Binary logistic regression was used to judge the factors significantly associated with the two levels of job satisfaction.

The sociodemographic information, subscales of work stress, work–family conflict and doctor–patient relationship were applied to the binary logistic regression model using the stepwise selection method.<sup>35</sup> All the item scores were treated as continuous variables. OR and 95% CI of the variables were reported. All tests were conducted at the 0.05 level of statistical significance. SPSS V.20.0 was used for statistical data analysis in this study.

## RESULTS

### Sociodemographic information of participants

A total of 6583 printed questionnaires were distributed and collected. After reviewing the questionnaires, 738 (11.2%) copies had missing values and were regarded as invalid, resulting in 5845 valid responses, an effective response rate of 88.8%. The sociodemographic information of both the invalid and valid questionnaires was analysed using a  $\chi^2$  test, and the results indicated that there was no significant difference between them. The final number of questionnaires considered was 5845.

The sociodemographics of the participants are tabulated in table 2 with the number (N) and the corresponding percentages. In this sample, 41.7% of the respondents were female and 58.3% were male. The largest proportion of respondents (49.9%) was in the 19–34 age group, and the second largest proportion (33.5%) was in the 35–44 age group. The average age of the respondents was 35.7±8.7 years. Respondents' average years of service were 13.4±9.2 years. Most of the respondents had received a bachelor's degree (46.6%), followed by junior college (30.9%). Most respondents had primary professional status (39.0%), followed by intermediate professional status (26.8%). The majority of respondents were physicians (59.0%), while 31.3% were nurses and 9.7% were public health workers. Most of the respondents worked in hospitals (60.3%), while 21.3% worked in community health service centres and the remaining

18.4% worked in health clinics. Additionally, 61.2% of respondents worked for more than 40 hours per week.

### Job satisfaction of the healthcare staff

Table 3 shows the degree of job satisfaction of all respondents. The mean and the SD of the scores of the eight items were calculated. The items with the highest levels of satisfaction were those with the highest mean scores: colleagues (4.77±1.09), superiors (4.72±1.24) and the work itself (4.44±1.32). The healthcare staff members were most dissatisfied with remunerations (3.10±1.49), environment (3.15±1.46) and facility (3.50±1.39).

A majority of respondents (87.2%) reported that they were satisfied with their colleagues, while 84.9% were satisfied with their superiors and 78.0% were satisfied with the work itself. However, only 40.5% respondents were satisfied with remunerations, and only 56.2% and 51.5% primary care physicians were satisfied with their working environment and facility, respectively.

For analysis, we calculated the overall perception of job satisfaction by averaging the eight factors associated with job satisfaction. However, it is worth noting that one of the measures was satisfaction with current job (eg, 'Overall, I'm very satisfied with my current job'). Our calculation for overall perception of job satisfaction (3.99±1.31) was similar to the respondents' who reported satisfaction with current job (3.99±0.99).

### Effect of sociodemographic factors, work stress, work–family conflict and doctor–patient relationship on job satisfaction

The data was further subjected to binary logistic regression using a stepwise selection and using high and low job satisfaction as the two explained variables; work stress, work–family conflict and doctor–patient relationship were taken as potential predictors; sociodemographic characteristics were used as controlled variables.

Table 4 shows the relationship between individual factors and job satisfaction. Occupation, educational background, professional status, years of service, annual income and night shift frequency (per month) were the sociodemographic factors that had significant impact on job satisfaction. The factors gender, age, marital status, type of institution, working in Pearl River Delta or not, employment status, having administrator duties, department, hours worked per week, urban or rural and professional qualification did not have significant influence on job satisfaction.

Nurses were 1.42 times more likely to be satisfied with their job than physicians (OR=1.42, 95% CI 1.21 to 1.67,  $p<0.01$ ). Healthcare staff with a bachelor's or junior college degree were less likely to be satisfied with their job than those with an educational background below junior college (OR=0.75, 95% CI 0.58 to 0.97,  $p=0.03$ ; OR=0.76, 95% CI 0.60 to 0.95,  $p=0.02$ ). Employees with a higher professional status were less likely to be satisfied with their job than those with lower status (OR=0.57, 95% CI 0.41 to 0.78,  $p<0.01$ ; OR=0.57, 95% CI 0.45

**Table 2** Sociodemographic information of participants

Sociodemographic information	N (%)	Sociodemographic information	N (%)
Gender		Employment status	
Female	2437 (41.7)	Permanent	4084 (69.9)
Male	3408 (58.3)	Temporary	1761 (30.1)
Age		Having administrator duties	
19–34	2914 (49.9)	Yes	1320 (22.6)
35–44	1957 (33.5)	No	4525 (77.4)
≥45	974 (16.7)	Department	
Marital status		Internal medicine	1610 (27.5)
Unmarried	1282 (21.9)	Surgery	959 (16.4)
Married	4563 (78.1)	Gynaecology and obstetrics paediatrics	765 (13.1)
Educational background		Traditional Chinese medicine	225 (3.8)
Doctor/master	512 (8.8)	Prevention and care	599 (10.2)
Bachelor	2725 (46.6)	Other	1687 (28.9)
Junior college	18.9 (30.9)	Hours worked per week	
Lower than junior college	799 (13.7)	0–40	2271 (38.9)
Professional status		41–56	2452 (42.0)
Senior/deputy senior	834 (14.3)	≥57	1122 (19.2)
Intermediate	1565 (26.8)	Night shift frequency (per month)	
Primary	2277 (39.0)	0–4	2857 (48.9)
Lower than primary	1169 (20.0)	≥5	2988 (51.1)
Occupation		Annual income (RMB)	
Physician	3450 (59.0)	10 000–19 999	420 (7.2)
Nurse	1827 (31.3)	20 000–39 999	1649 (28.2)
Public health staff	568 (9.7)	40 000–59 999	1323 (22.6)
Years of service		60 000–79 999	916 (15.7)
0–4	1110 (19.0)	≥80 000	1537 (26.3)
5–9	1298 (22.2)	Urban or rural	
10–19	1907 (32.6)	Urban	3502 (59.9)
≥20	1530 (26.2)	Rural	2343 (40.1)
Type of institution		Professional qualification	
Hospital	3524 (60.3)	Certified doctor	2664 (45.6)
Community health service centre	1245 (21.3)	Licensed (assistant) doctor	468 (8.0)
Health clinics	1078 (18.4)	Professional traditional Chinese medicine doctor	431 (7.4)
Pearl River Delta or not		Registered nurse	1884 (32.2)
Yes	3240 (55.4)	Other	398 (6.8)
No	2605 (44.6)		

**Table 3** Scores and percentages of satisfaction levels for items in job satisfaction

Serial number	Items	Scores		
		Mean±SD	Satisfied (%)	Dissatisfied (%)
1	Colleagues	4.77±1.09	87.2	12.8
2	The work itself	4.44±1.32	78.0	22.0
3	Promotions	3.76±1.43	59.8	40.2
4	Remunerations	3.10±1.49	40.5	59.5
5	Environment	3.15±1.46	56.2	43.8
6	Facility	3.50±1.39	51.5	48.5
7	Current job	3.99±1.31	68.3	31.7
8	Superiors	4.72±1.24	84.9	15.1
Overall perception*		3.99±0.99	71.6	28.4

\*The overall perception of job satisfaction for each respondent was the average scores of the eight items.

to 0.73,  $p < 0.01$ ). Healthcare staff who served for 10–19 years were 1.27 times more likely to be satisfied with their job than employees who had worked for 20 years or more (OR=1.27, 95% CI 1.06 to 1.52,  $p = 0.01$ ). Employees with higher income were more

likely to be satisfied with their job (OR=0.33, 95% CI 0.25 to 0.45,  $p < 0.01$ ; OR=0.47, 95% CI 0.38 to 0.58,  $p < 0.01$ ; OR=0.63, 95% CI 0.52 to 0.77,  $p < 0.01$ ; OR=0.71, 95% CI 0.57 to 0.87,  $p < 0.01$ ). Healthcare staff who worked on night shift more than or equal to 5

**Table 4** Binary logistic regression examining factors associated with job satisfaction

	B	p Value	OR	95% CI	
				Lower	Upper
Occupation (reference: Physician)					
Nurse	0.35	<0.01	1.42	1.21	1.67
Public health staff	0.22	0.09	1.24	0.96	1.60
Educational background (reference: Lower than junior college)					
Doctor/master	-0.06	0.72	0.94	0.66	1.34
Bachelor	-0.29	0.03	0.75	0.58	0.97
Junior college	-0.28	0.02	0.76	0.60	0.95
Professional status (reference: Lower than primary)					
Senior/deputy senior	-0.56	<0.01	0.57	0.41	0.78
Intermediate	-0.56	<0.01	0.57	0.45	0.73
Primary	-0.18	0.07	0.84	0.69	1.02
Years of service (reference: $\geq 20$ )					
0–4	0.10	0.42	1.11	0.86	1.43
5–9	0.02	0.90	1.02	0.81	1.27
10–19	0.24	0.01	1.27	1.06	1.52
Annual income(RMB) (reference: $\geq 80\ 000$ )					
10 000–19 999	-1.11	<0.01	0.33	0.25	0.45
20 000–39 999	-0.75	<0.01	0.47	0.38	0.58
40 000–59 999	-0.46	<0.01	0.63	0.52	0.77
60 000–79 999	-0.35	<0.01	0.71	0.57	0.87
Night shift frequency (per month) (reference: 0–4)					
$\geq 5$	-0.20	0.01	0.82	0.71	0.94
Work stress					
Feel a high level of tension from work	0.22	<0.01	1.25	1.17	1.34
Feel nervous because of work	-0.21	<0.01	0.82	0.77	0.86
Work–family Conflict					
Problem-solving behaviours make no sense at home	-0.21	<0.01	0.81	0.75	0.87
Drain prevents me from contribution to family	-0.14	<0.01	0.87	0.81	0.93
Doctor–patient relationship					
Degree to which patients respect physicians	-0.25	<0.01	0.78	0.71	0.86
Degree to which the society respects the career of physicians	-0.19	<0.01	0.82	0.76	0.89
Degree of trust in services provided by physicians	-0.18	<0.01	0.83	0.76	0.92
Recent doctor–patient relationship	-0.30	<0.01	0.75	0.69	0.81
Constant	5.80	<0.01	329.30		

times a month were less likely to be satisfied with their job than other healthcare staff (OR=0.82, 95% CI 0.71 to 0.94,  $p=0.01$ ).

Analysis of the work stress measurement indicated that when the score of the item ‘feel a high level of tension from work’ was increased, healthcare staff were more likely to be satisfied with their job (OR=1.25, 95% CI 1.17 to 1.34,  $p<0.01$ ). When the score of the item ‘feel nervous because of work’ increased, healthcare staff were less likely to be satisfied with their job (OR=0.82, 95% CI 0.77 to 0.86,  $p<0.01$ ). In the work–family conflict dimension, when the scores of ‘problem-solving behaviours make no sense at home’ and ‘drain prevents me from contribution to family’ were increased, healthcare staff were less likely to be satisfied with their job (OR=0.81, 95% CI 0.75 to 0.87,  $p<0.01$ ; OR=0.87, 95% CI 0.81 to 0.93,  $p<0.01$ ). Note that the item score in the doctor–patient relationship dimension was from 1—strongly respectful/very good to 5—strongly disrespectful/very bad. In the doctor–patient relationship dimension, when the scores of ‘degree to which patients

respect physicians’, ‘degree to which the society respects the career of physicians’, ‘the degree of trust in services provided by physicians’ and ‘recent doctor–patient relationship’ decreased, healthcare staff were more likely to be satisfied with their job (OR=0.78, 95% CI 0.71 to 0.86,  $p<0.01$ ; OR=0.82, 95% CI 0.76 to 0.89,  $p<0.01$ ; OR=0.83, 95% CI 0.76 to 0.92,  $p<0.01$ ; OR=0.75, 95% CI 0.69 to 0.81,  $p<0.01$ ).

The binary logistic regression model in table 4 had goodness-of-fit under the Hosmer-Lemeshow test ( $\chi^2=6.11$ ,  $p=0.64$ ). The sociodemographic factors, work stress, work–family conflict and doctor–patient relationship were taken into the binary logistic model one by one. The values of the Cox-Snell  $R^2$  and Nagelkerke  $R^2$  of each step are shown in table 5. The results revealed that when considering more dimensions, the ability to explain the variance of job satisfaction was higher. Based on the values of Nagelkerke  $R^2$ , the sociodemographic factors, work stress, work–family conflict and doctor–patient relationship could explain 5.8%, 5.1%, 4.4% and 6.6% variance in job satisfaction, respectively.

**Table 5** Cox-Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup> of each step

	Step 1	Step 2	Step 3	Step 4
Cox-Snell R <sup>2</sup>	0.040	0.076	0.106	0.152
Nagelkerke R <sup>2</sup>	0.058	0.109	0.153	0.219
ΔNagelkerke R <sup>2</sup>	–	0.051	0.044	0.066

## DISCUSSION

### Job satisfaction

The mean score of overall perception of job satisfaction of healthcare staff who worked in Guangdong was 3.99 on a one to six scale. The overall perception of job satisfaction exceeded slightly dissatisfied (score 3) and approached slightly satisfied (score 4).

The item associated with the highest levels of dissatisfaction was remuneration. The importance of remuneration has also been discussed in other studies.<sup>27 28</sup> A study conducted at three teaching hospitals in Karachi showed that most doctors were not satisfied with their work and the lowest satisfaction was reported for wages and benefits.<sup>27</sup> The health system reforms in China in 2009 had an unintended impact on the income of healthcare staff. According to the investigation made by Zhou *et al*,<sup>26</sup> the introduction of the basic drug list of primary healthcare, which was designed to reduce the inappropriate use of drugs, reduced the autonomy of physicians and their income. The loss of income from the mark-up of primary care was replaced by fixed wages, and in some places in the form of a performance-based bonus, but in most cases, the resulting income was lower than it had been before the reforms.<sup>36</sup> The monetary issue and salary have been described as the most negative aspect of the work.<sup>37 38</sup> Our results are consistent with the findings in these studies. Healthcare professionals were most sensitive to income because it has a direct impact on their lives.

The items that recorded the highest levels of satisfaction among healthcare staff in Guangdong were colleagues and superiors. This finding was in line with other recent studies.<sup>11 39</sup> Good relationships with colleagues and support from superiors and subordinates help to improve job satisfaction. Research on social networks also showed that social support from colleagues served as a resource that affected job satisfaction.<sup>40 41</sup>

### Sociodemographic characteristics

The result that nurses were more satisfied with their job than physicians was in line with other studies conducted in China.<sup>42</sup> Physicians' work risk is generally higher than that of nurses, which may contribute to lower job satisfaction.<sup>43</sup> Although some studies revealed that higher educational level was associated with higher level of job satisfaction,<sup>44 45</sup> in our study there was no clear trend between educational background and job satisfaction. Healthcare staff holding a doctorate/master's degree or with an educational background lower than junior college had higher job satisfaction than healthcare staff who held a bachelor's degree or junior college degree.

High job satisfaction among staff with the lowest academic qualifications might be related to opportunities to receive continuing education.<sup>14</sup> Healthcare staff members with the highest educational background were more satisfied with their autonomy and promotion opportunities, including the sense of professional achievement and colleagues. Their high level of education helped them seek and gain positions with less stress.<sup>44 46</sup> In our study, healthcare staff members with a lower professional status were more satisfied with their job than those with a higher professional status. Similar results were obtained by Liu and Wang.<sup>47</sup> Healthcare staff with a higher professional status must live up to many expectations including the demands for interpersonal relationships and work responsibilities. They also need to undertake teaching and scientific research tasks. This greater pressure contributes to lower job satisfaction.<sup>47</sup> The trend between years of service and job satisfaction was not clear. In our study, satisfaction with income played a significant role on job satisfaction, which was consistent with the findings of previous studies.<sup>41 48 49</sup> Annual income showed positive and significant correlation with the overall job satisfaction. The results also revealed that more night shifts reduced job satisfaction of healthcare staff. Similar results were also found by researchers in Germany and India.<sup>50 51</sup> Some of the factors contributing to job dissatisfaction such as occupation, educational background, professional status and years of service cannot be addressed by policy reform or interventions. However, workload reduction (eg, night shifts) and increased compensation might be effective methods for increasing the job satisfaction of healthcare staff.

### Work stress

Our results are in accordance with a number of studies that job satisfaction was significantly correlated with stress from work.<sup>52</sup> According to previous studies by Meng,<sup>53</sup> work stress was not a single concept but could be divided into good stress and bad stress. The good stress was closely related to the job itself or the motivation of the workers. Good stress made workers feel confident, energetic and positive. On the other hand, bad stress was harmful to someone's physical and mental health. In our study, feeling a high level of tension from work was positively correlated with job satisfaction, but feeling nervous because of work had a negative impact. The healthcare staff in Guangdong regarded tension from work as good stress, but nervousness caused by work as bad stress. Therefore, in the process of healthcare staff management, good stress should be appropriately increased and kept at a certain level for enhancing working ability and pressure regulation. For bad stress, contributing factors should be identified in an effort to reduce the adverse effects of bad stress.

### Work-family conflict

In accordance with prior research,<sup>54 55</sup> our study found that work-family conflict had a negative influence on

job satisfaction. The relationship between work–family conflict and job satisfaction was explained in this study using role stress theory,<sup>56</sup> which assumed a disagreement between the requirements and values of an individual's work role and family role. Pressure from this disagreement would impact organisational attitudes, especially when the work was a threat to the family role.<sup>57</sup> For example, when a nurse thought scheduling demands or the working environment affected her time and energy to participate in family activities, he or she might develop a feeling of unhappiness, reducing job satisfaction. Therefore, we assumed that we would observe reduced job satisfaction when employees experienced work–family conflict.

### Doctor–patient relationship

In our study, doctor–patient relationship had the greatest impact on healthcare staff's job satisfaction. Similar to the previous studies,<sup>22</sup> a better doctor–patient relationship was correlated with higher job satisfaction and vice versa. In recent years, the tenuous relationship between doctors and patients in China has become a major concern in society. The most visible manifestation of tension in doctor–patient relationship is violence against healthcare staff, but it can also be seen in the disruption of medical equipment.<sup>58</sup> A study of 12 hospitals in 2009 indicated that, of 2464 medical professionals, 50% had experienced workplace violence over the past 12 months, in which 20% had physical violence at least once.<sup>59</sup> Unsafe working environment affects the job satisfaction of healthcare staff.

### Strengths and limitations

The Fifth National Health Service Survey in Guangdong was a large study, including 5845 healthcare professionals who were working in Guangdong, China. To the best of our knowledge, this study was the first investigating job satisfaction of healthcare staff in Guangdong since the major health system reforms in 2009. Job satisfaction and its influencing factors were explored and the associations of job satisfaction between work stress, work–family conflict and doctor–patient relationship were investigated.

Our study has several limitations. First, the questionnaire used in this study has only been used in China. However, it was a scientific questionnaire which was developed in line with the national conditions of China. Our results also indicated that the questionnaire had good construct validity and reliability. Second, the results only reflected the situations in Guangdong Province, and might not adapt to other regions in China due to differing implementation of policy and health system reforms across regions. However, the results were useful for evaluating the effectiveness and influence of the reforms in Guangdong. A comparison of the survey in Guangdong with the other provinces in China should be explored in future studies. Third, as the study was a cross-sectional design, the causal effects of job

satisfaction could not be determined. Further study is perhaps needed for measuring the effects.

### Conclusions

Healthcare staff in Guangdong Province, China reported a mean score of 3.99 for overall perception of job satisfaction on a one to six scale. The overall job satisfaction exceeded slightly dissatisfied (score 3) and approached slightly satisfied (score 4). The greatest factors of dissatisfaction and satisfaction were remunerations and colleagues, respectively. Healthcare staffs' job satisfaction was significantly associated with work stress, work–family conflict, doctor–patient relationship and sociodemographic factors, including occupation, educational background, professional status, years of service, annual income and night shift frequency (per month). Based on the results, we recommend the following measures for enhancing job satisfaction of healthcare staff in Guangdong—a reduction of employees' workload, an increase in compensation, maintaining moderate stress and balancing work–family conflict. Moreover, relevant laws should be issued to protect healthcare staff from violent acts.

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