


# Doctors' Job Satisfaction and Its Relationships With Doctor-Patient Relationship and Work-Family Conflict in China: A Structural Equation Modeling

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## Abstract

The objective of this study was to evaluate the relationship of doctors' job satisfaction with doctor-patient relationship and work-family conflict in China. The data came from a cross-sectional survey in Hubei province, which was part of China's Fifth National Health Services Survey conducted in 2013. The survey in Hubei covered 54 secondary and tertiary general hospitals distributed in 20 counties. Of the 1080 questionnaires, 908 were included into our analysis. After surviving from reliability and validity tests, structural equation modeling was applied for further analysis with SPSS 20.0 and Mplus 7.0. The results showed that the average score of job satisfaction is 19.61 out of 30 points, indicating a relatively low level of doctors' job satisfaction in Hubei province. Work-family conflict was found to have negative impact on doctors' job satisfaction, and good doctor-patient relationship was found to have positive impact on their job satisfaction. Therefore, hospital administrators and policy makers should make effort to design and implement strategies that focus on meliorating doctor-patient relationship and balancing doctors' work and family life to further improve their job satisfaction.

## Keywords

doctors, job satisfaction, doctor-patient relationship, work-family conflict, questionnaire, Fifth National Health Services Survey, China

### What do we already know about this topic?

Previous studies found many factors related to doctors' job satisfaction, but there are very limited researches to study the impact of both doctor-patient relationship and work-family conflict on doctors' job satisfaction, especially for Chinese doctors.

### How does your research contribute to the field?

The results of this study contribute to better understanding the impacts of doctor-patient relationship and work-family conflict on doctors' job satisfaction by using structural equation modeling.

### What are your research's implications toward theory, practice, or policy?

Our findings provide hospital administrators and policy makers with empirical evidences to meliorate doctor-patient relationship and balance doctors' work and family conflict, so as to further improve doctors' job satisfaction in practice.

## Introduction

Doctors in China have been confronted with many challenges for years. On one hand, the number of violent incidents against medical staff has risen in many hospitals and some doctors were attacked, injured, and even killed. On the other hand, there is serious imbalance between doctors' low income and heavy workload.<sup>1</sup> Working in a climate of high workload, tension, and risks, their job satisfaction is found to be low and declining.<sup>2</sup> Job satisfaction can be defined as a

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pleasurable or positive emotional state, which can be reflected from the appraisal of one's job or job experiences.<sup>3</sup> The level of job satisfaction is often viewed as an "outcome" that relates to organizational effectiveness and performance within the work setting.<sup>4,5</sup> It has a positive impact on the level of intention to stay at work, which can be helpful when solving problems in recruitment and retention of doctors.<sup>2,6</sup> Doctors' job satisfaction would inevitably affect both their personal emotions<sup>7</sup> and work-to-family relationship.<sup>8</sup> Besides, doctors with low job satisfaction are more likely to suffer from physical and mental illness, such as depression, burnout, and so forth.<sup>9</sup> Consequently, it is important to explore the relationship of their job satisfaction with other factors, so as not only to improve patient safety and health care quality,<sup>10,11</sup> but also to help doctors to better balance their work and family life.

Doctors' job satisfaction has increasingly gained research attentions over the past two decades.<sup>12</sup> There are a number of researches on doctor's job satisfaction worldwide.<sup>13-16</sup> Kaur et al<sup>17</sup> and Atif et al<sup>18</sup> found that age, educational background, and salary were related to job satisfaction. Kuburović et al<sup>19</sup> found that the main causes of health care professionals' dissatisfaction in Serbia were wages, equipment, possibility of continuous medical education or training, and the opportunities for professional development. Despite considerable international literature on doctors' job satisfaction, few of these studies were about Chinese doctors before 2013,<sup>20</sup> while the working climate and cultural background of Chinese doctors are significantly different from those of Western doctors. In the early 1990s, state subsidies for public hospitals in China were dramatically reduced as part of the liberalization of the economy.<sup>21</sup> During the following decades, hospitals have been generating their own revenues for survival, and doctors have been motivated to supplement their income by kick-backs from prescribing drugs. As a result, Chinese doctors have been in a constant balancing act between occupational ethics and gray income.<sup>22</sup> Although the health system reforms have been implemented in China for many years, mistrust from patients toward current medical system has been accumulating and even exacerbated by media reports when doctors tried to make profits from their patients.<sup>21</sup>

On the contrary, in the new round of health system reform launched in 2009, changes to health insurance have made health care more affordable at all levels, resulting in an increased workload for doctors, especially at secondary and tertiary hospitals, even for minor illness.<sup>2</sup> Under this situation, in secondary and tertiary hospitals, time for conversation and diagnosis is very short and doctor-patient communication is far from sufficient. Although forbidden, there are still cases when patients give red envelopes (monetary gifts) with the hope to receive better medical treatment.<sup>23</sup> Giving and taking red envelopes is a common phenomenon and has become a serious problem in doctor-patient relationship.<sup>24</sup> Doctors from diverse cultures are certain to face difference problems and be confronted with distinct doctor-patient relationship.

Exploring factors based on different cultural backgrounds help gain a deeper understanding of doctors' job satisfaction. Du et al<sup>25</sup> and Han et al<sup>26</sup> demonstrated that payback is the main influencing factor on Chinese doctors' job satisfaction, and showed how factors like wage, welfare, social status, equipment, patients' trust, and so forth, have impact on it. There are very limited studies on the impact of both doctor-patient relationship and work-family conflict on doctors' job satisfaction, especially for Chinese doctors, calling for more research to explore their relationship.

In general, past relevant researches on job satisfaction have mostly used methods of *t* test, chi-square test, and multifactor logistic regression for analysis. Compared with the above methods, Structural Equation Model (SEM) can compensate for the flaws of not being able to evaluate the effect size of factors and calculate the error of measured variables. It is a confirmatory statistical method and can be used to test whether the hypothesis model based on construct theories is appropriate or not. It is also referred to as causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structures, and path analysis.<sup>27</sup> In this study, we aimed to explore the relationship of doctors' job satisfaction with doctor-patient relationship and work-family conflict by using SEM, and try to identify each of their potential influential factors for better improvement of their relationship.

## Conceptual Framework and Hypothesis

Herzberg (1966) proposed a "two-factor theory" of job satisfaction, which has been one of the most recognized theories to explore and understand job satisfaction.<sup>28</sup> The theory is also known as the motivation-hygiene theory or dual-factor theory, because it provides a set of motivation and hygiene factors which have impacts on both job satisfaction and dissatisfaction.<sup>29</sup> According to this theory, job satisfaction depends on a set of "motivational factors" which are intrinsic to the job, such as opportunity for personal growth, recognition for one's achievement, career advancement, and so forth.<sup>30,31</sup> In contrast, another set of factors causing dissatisfaction of the job are referred to as "hygiene factors," which are extrinsic to the job, including organizational policies, relationship with others, personal life, pay and job security, and so forth.<sup>32</sup> Even though the two-factor theory was proposed in 1966, many scholars<sup>28,33-36</sup> contend that the theory is still valid today and they have applied it to better understand and interpret health care professionals' job satisfaction.

Work and family life are the two most important domains in a person's life. Lack of balance between the two can lead to adverse consequences, such as psychological distress,<sup>37,38</sup> low morale, harm to well-being, and so forth.<sup>39</sup> According to the two-factor theory, family life plays a major role in personal life, which is a hygiene factor leading to job dissatisfaction. In contrast, work-family conflict is a source of stress that many individuals experience.<sup>40</sup> It is defined as the work of an employed person interfering with his or her family life, and is

a form of interrole conflict that will appear when it is difficult to balance the pressure of work and family life.<sup>41,42</sup> There are three main types of work-family conflict, which are time based, strain based, and behavior based. Time-based conflict may occur when time devoted to one role makes it difficult to participate in another role. Strain-based conflict suggests that strain experienced in one role intrudes into and interferes with participation in another role, and behavior-based conflict occurs when specific behaviors required in one role are incompatible with behavioral expectation in another role.<sup>42</sup> Some cross-sectional studies<sup>43-47</sup> worldwide have indicated that work-family conflict is significantly related to doctors' job satisfaction. Based on the above literature, hypothesis 1 is proposed as below in the Chinese context:

**Hypothesis 1 (H1):** Work-family conflict would have negative influence on job satisfaction of Chinese doctors.

Good doctor-patient relationship is beneficial to work climate and medical environment. It can reduce psychological pressure of doctors during work, improve doctor-patient communication, and alleviate the extent of medical disputes. According to the two-factor theory, a good medical environment can prevent doctors from being violated of their personal dignity,<sup>48</sup> and ensuring enough job security may help reduce job dissatisfaction. However, patient-doctor mistrust has become a crisis in Chinese hospitals,<sup>49,50</sup> and their relationship has become more and more tensional.<sup>51</sup> Both doctors and patients are suffering from present medical environment in China.<sup>1</sup> A study in Henan Province of China<sup>52</sup> indicated that 80.1% doctors thought their work environment is not good, and many of them are worried about it. An investigation on social satisfaction to current doctor-patient relationship in China also revealed that the medical personnel have the lowest satisfaction compared with other professions.<sup>53</sup> Therefore, hypothesis 2 is proposed as below:

**Hypothesis 2 (H2):** Doctor-patient relationship would have positive influence on job satisfaction of Chinese doctors.

According to the physician-patient cycle model proposed by Eric S. Williams et al,<sup>54</sup> when doctors successfully manage their stress, they may interact more effectively with their patients.<sup>55</sup> However, when stress is too serious and coping mechanisms are overwhelmed, it would be hard to ensure a harmonious medical encounter, and patients' normal health care demands may add to the stress of doctors who experience much work-family conflict, resulting in poor doctor-patient relationship perceived by doctors.<sup>54</sup> On the contrary, a study suggested that lacking reward from patients would lead to doctors' high work-family conflict.<sup>56</sup> As theorized by the stress-as-offense-to-self model developed by Semmer et al,<sup>57</sup> a particularly important reward is appreciation and esteem. So

doctor who feels less respect and truth, namely, perceives worse doctor-patient relationship, would be inclined to suffer from more work-family conflict. Therefore, hypothesis 3 is proposed as below:

**Hypothesis 3 (H3):** Doctor-patient relationship would be correlated with work-family conflict.

## Methods

### Setting, Sample, and Data Source

In September-October 2013, a cross-sectional survey was conducted in Hubei province as part of China's Fifth National Health Services Survey (NHSS). The NHSS is carried out every five years and its main purpose is to provide basic information for the implementation and assessment of the new round of health system reform in China. Multistage stratified cluster random sampling was applied by the implementation teams commissioned by each of the Provincial governments of China. Similar to Guangdong province,<sup>45</sup> in the first stage, 20 sample districts and counties were randomly selected from 17 prefecture-level cities. In the second stage, all tertiary hospitals and some secondary hospitals were selected. In the third stage, 20 doctors were selected from all the clinical departments of each of the selected hospitals. The data in our study were from the Medical Staff Survey, which is part of the fifth NHSS, including participants of 1080 doctors in Hubei province.

### Instruments

The NHSS questionnaire was developed by the National Health and Family Planning Commission of the People's Republic of China (NHFPC). In this study, we extracted questions from the Medical Staff Survey of the NHSS, which includes four sections: (1) doctors' demographics, (2) perceived job satisfaction, (3) perceived work-family conflict, and (4) perceived doctor-patient relationship. Section 1 consists of basic sociodemographic information: gender, age, marital status, education background, professional title, clinical department, and so forth. Sections 2 to 4 include variables that we use for measurement (refer to Supplemental Appendix). A 5-point Likert scale was applied, with questions scaled from "strongly disagree" to "strongly agree."

As is shown in Supplemental Appendix, job satisfaction was measured by 6 items of questions, including colleagues, supervisors, promotion opportunities, remunerations, hospital environment, and equipment conditions. These questions were extracted from the Job Descriptive Index, e.g. "I'm very satisfied with my colleagues."<sup>58</sup> Doctors with higher scores would indicate higher level of job satisfaction.

Work-family conflict was measured by 9 items composed of 3 subdimensions, namely, the time-based, behavior-based

**Table 1.** Factor Loading of Items Using the Exploratory Factor Analysis and Cronbach  $\alpha$  of Difference Dimensions.

Items	Job satisfaction	Work-family conflict	Doctor-patient relationship
J1 I'm very satisfied with my colleagues	0.624		
J2 I'm very satisfied with my direct superior	0.619		
J3 I'm very satisfied with promotion opportunity	0.786		
J4 I'm very satisfied with my remunerations	0.785		
J5 I'm very satisfied with hospital environment	0.830		
J6 I'm very satisfied with equipment conditions in hospital	0.829		
T1 Work keeps me from family activities		0.829	
T2 Time I devote to job keeps me from participating in household activities		0.841	
T3 Miss family activities due to work		0.849	
B1 Problem-solving behaviors make no sense at home		0.786	
B2 Behavior that is effective and necessary at work would be counterproductive at home		0.716	
B3 Behaviors make me effective at work do not help me to be a better parent or spouse		0.775	
S1 Too frazzled to participate in family activities		0.846	
S2 Drain prevents me from contributing to family		0.857	
S3 Owing to the pressures from work, I do not want to do favorite things at home		0.808	
D1 Patients show much respect for me			0.620
D2 The occupation is quite socially respected			0.649
D3 Patients trust me very much			0.598
D4 The current doctor-patient relationship is very good			0.649
Total variance explained	56.379%	66.123%	62.905%
Cronbach's $\alpha$	0.844	0.935	0.801

and strain-based work interference with family.<sup>42</sup> Each type of the work-family conflicts was assessed with 3 items of questions, such as “work keeps me from family activities,” “miss family activities due to work,” and so forth. All the items are consistent to the widely accepted work-family conflict scale developed by Carlson et al.<sup>40</sup> Doctors with higher scores would indicate more work-family conflict.

Doctor-patient relationship refers to the trust built between doctors and patients during the course of treatment.<sup>59</sup> 4 items from the perspective of doctors were used to measure doctor-patient relationship: (1) patients show much respect for me; (2) the occupation is quite socially respected; (3) patients trust me very much; and (4) current doctor-patient relationship is very good. Higher scores would indicate better doctor-patient relationship perceived by doctors.

Cronbach's alpha and exploratory factor analysis based on principal components were used to assess the reliability and construct validity of the scales. The Cronbach's alpha values of each of the 3 scales are 0.844, 0.935, and 0.801, respectively, which are greater than the recommended level of 0.7 and therefore exhibit good reliability. In terms of the construct validity, the explanatory factor analysis indicates that the Kaiser-Meyer-Olkin (KMO) values are greater than 0.7, indicating a rigorous cut-point.<sup>60</sup> The KMOs of the 3 scales were 0.807, 0.916, and 0.745. According to previous studies,<sup>61,62</sup> factor loading values at 0.3 or greater can be

considered acceptable, and factor loading greater than 0.55 can be considered good. Table 1 shows that all the loading values of the items corresponding to the dimensions are greater than 0.55, and the total variances explained by each of the three scales are 56.38%, 66.12%, and 62.91%, respectively, indicating an acceptable and good construct validity.

### Data Processing and Statistical Analysis

After eliminating invalid records with blank, missing data, and duplicates, 908 completed questionnaires were deemed valid, indicating an effective response rate of 84.07%. These 908 doctors formed our final study sample. SPSS 20.0 was used to conduct univariate analysis (*t* test and 1-way analysis of variance) to test the impact of doctors' basic sociodemographic variables on job satisfaction, work-family conflict, and doctor-patient relationship, respectively.

Mplus 7.0 was employed to verify the relationship between job satisfaction, work-family conflict, doctor-patient relationship, and the fitness of the hypothetical model with SEM (maximum likelihood estimation). Specifically, SEM<sup>63</sup> allows simultaneous estimation of all relationships between observed (manifest or unmeasured) and unobserved (or latent) variables of a model. It uses rectangles to represent manifest variables and circles to represent latent



**Table 2.** Results of Descriptive and Univariate Analysis.

	n (%)	Job satisfaction		Work-family conflict		Doctor-patient relationship	
		Mean $\pm$ SD	<i>P</i>	Mean $\pm$ SD	<i>P</i>	Mean $\pm$ SD	<i>P</i>
Total	908	19.61 $\pm$ 4.646		35.04 $\pm$ 8.309		12.10 $\pm$ 2.992	
Gender			.305		.005		.001
Male	612 (67.4)	19.50 $\pm$ 4.550		35.58 $\pm$ 7.849		11.87 $\pm$ 2.942	
Female	296 (32.6)	19.84 $\pm$ 4.837		33.92 $\pm$ 9.100		12.57 $\pm$ 3.043	
Age (years)			.000		.000		.000
$\leq$ 30	214 (23.6)	20.61 $\pm$ 4.813		34.42 $\pm$ 8.494		11.95 $\pm$ 2.789	
31-40	396 (43.6)	19.23 $\pm$ 4.684		36.25 $\pm$ 7.887		11.65 $\pm$ 3.229	
41-50	236 (26.0)	19.05 $\pm$ 4.340		34.27 $\pm$ 8.337		12.65 $\pm$ 2.657	
$\geq$ 51	62 (6.8)	20.73 $\pm$ 4.301		32.40 $\pm$ 9.153		13.37 $\pm$ 2.644	
Marital status			.951		.002		.538
Single/divorced	144 (15.9)	19.63 $\pm$ 4.846		33.11 $\pm$ 8.782		11.96 $\pm$ 2.977	
Married	764 (84.1)	19.61 $\pm$ 4.610		35.40 $\pm$ 8.172		12.13 $\pm$ 2.995	
Education background			.998		.001		.000
Doctor's/master's	203 (22.4)	19.59 $\pm$ 4.320		36.29 $\pm$ 7.280		11.40 $\pm$ 2.966	
Bachelor's degree	580 (63.9)	19.62 $\pm$ 4.716		35.08 $\pm$ 8.397		12.11 $\pm$ 2.996	
Lower education	125 (13.8)	19.61 $\pm$ 4.859		32.82 $\pm$ 9.049		13.21 $\pm$ 2.680	
Professional title			.054		.077		.001
Advanced	270 (29.7)	19.62 $\pm$ 4.687		34.28 $\pm$ 8.757		12.65 $\pm$ 2.990	
Middle	375 (41.3)	19.23 $\pm$ 4.577		35.74 $\pm$ 7.938		11.89 $\pm$ 3.100	
Primary and below	263 (29.0)	20.14 $\pm$ 4.666		34.82 $\pm$ 8.304		11.83 $\pm$ 2.764	
Qualification			.115		.000		.170
Western medicine	766 (84.4)	19.57 $\pm$ 4.664		35.47 $\pm$ 8.126		12.03 $\pm$ 3.032	
Traditional Chinese medicine	104 (11.5)	19.35 $\pm$ 4.446		34.57 $\pm$ 7.879		12.36 $\pm$ 2.936	
Others	38 (4.2)	21.11 $\pm$ 4.678		27.66 $\pm$ 9.691		12.84 $\pm$ 2.112	
Type of labor contract			.005		.022		.531
Permanent	744 (81.9)	19.41 $\pm$ 4.574		35.34 $\pm$ 8.209		12.07 $\pm$ 2.940	
Temporal	164 (18.1)	20.53 $\pm$ 4.866		33.70 $\pm$ 8.647		12.23 $\pm$ 3.221	
Clinical department			.121		.000		.000
Internal medicine	296 (32.6)	19.27 $\pm$ 4.707		35.91 $\pm$ 7.531		12.00 $\pm$ 2.909	
Surgery	251 (27.6)	19.46 $\pm$ 4.481		36.63 $\pm$ 7.564		11.59 $\pm$ 3.056	
Pediatrician/obstetrics/gynecology	102 (11.2)	19.52 $\pm$ 4.511		35.30 $\pm$ 9.113		11.87 $\pm$ 3.079	
Others	259 (28.5)	20.18 $\pm$ 4.757		32.41 $\pm$ 8.922		12.80 $\pm$ 2.872	

variables. An assumed causal path between 2 variables is represented by a 1-way arrow. Path coefficients on the arrows are standardized partial regression coefficients, which indicate the effect of one variable on another, while controlling all other variables in the model. All coefficients without a sign reveal a positive association, whereas those with a minus sign show a negative association.

Model fit was evaluated with several global fit measures, such as the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR).<sup>64</sup> The TLI and the CFI are calculated as measures of incremental model fit. For these measures, values greater than 0.90 are suggested as criteria for an acceptable model fit and greater than 0.95 for a good fit.<sup>65</sup> The RMSEA indicates the proportion of variance-covariance information not

correctly predicted by the model. Values of less than 0.08 or less than 0.05 are deemed to indicate an acceptable or good fit, respectively.<sup>65</sup> In addition, goodness of fit is met when the SRMR is equal to or less than 0.05.<sup>60</sup>

To make the SEM results more convincing, stepwise multiple linear regression was employed as robustness check to further examine whether work-family conflict and doctor-patient relationship could generate similar statistically significant impacts on job satisfaction. Job satisfaction was used as a dependent variable, and work-family conflict and doctor-patient relationship were used as independent variables. The sociodemographic variables were all used as controlled variables. The stepping criteria employed for entry and removal were based on the significance level of the *F*-value and were respectively set at 0.05 and 0.10.

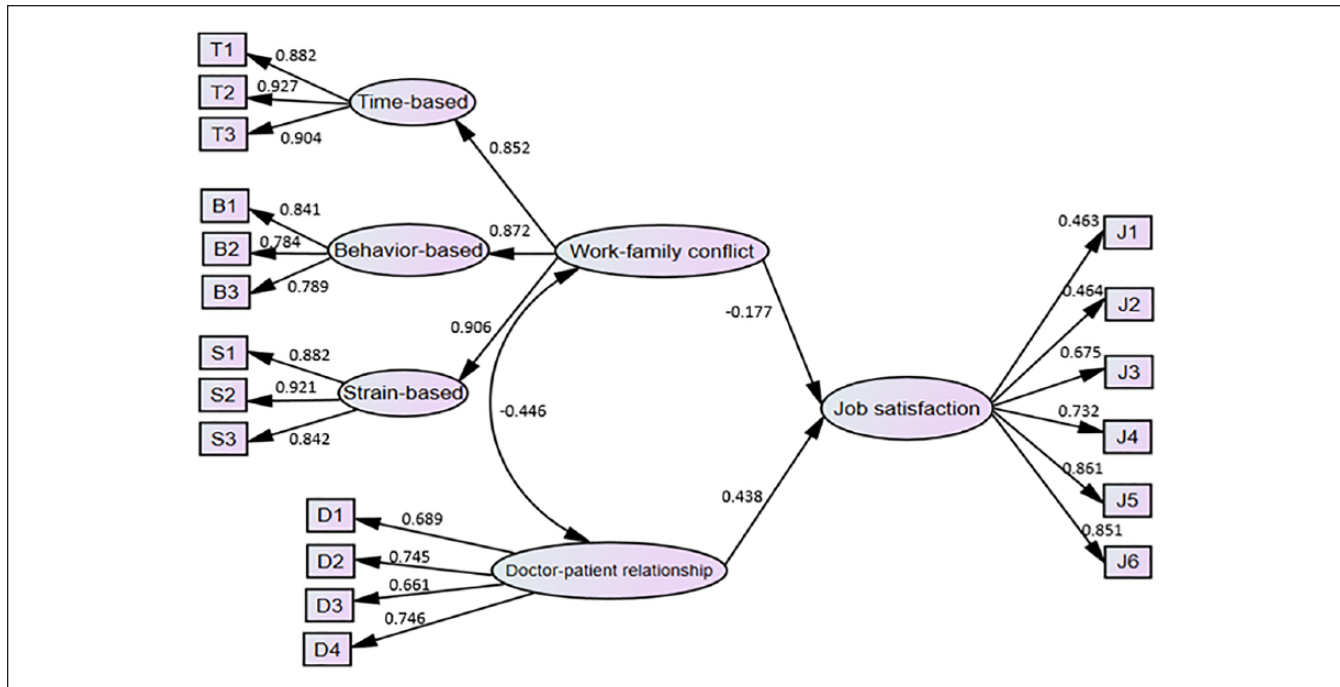


Figure 1. The results of structural equation modeling.

## Results

### *Sociodemographic Characteristics and Univariate Analysis*

Table 2 shows the characteristics of the study subjects and the results of univariate analysis. The mean age of the participants was 37.41 years, ranging from 20 to 63. The number of male doctors was more than twice the number of females. Most of the doctors were married (84.1%). Around 86.2% of them had a bachelor's degree or a higher one. The scores in job satisfaction of all doctors varied from 6 to 30, with an average of 19.61, and a median of 19.

According to the univariate results of Table 2, gender, title, marital status, education background, clinic department, and qualification had insignificant impact on job satisfaction, while both age and type of labor contract had statistically significant impact on job satisfaction. Doctors aged 31-40 (mean = 19.23, SD = 4.684) and 41-50 years old (mean = 19.05, SD = 4.340) had lower level of job satisfaction than doctors under 30 (mean = 20.61, SD = 4.813) and over 50 years old (mean = 20.73, SD = 4.301). In the meantime, doctors aged 31 to 40 years had highest work-family conflict (mean = 36.25, SD = 7.887). Moreover, married doctors (mean = 35.40, SD = 8.172) had experienced more work-family conflict than unmarried ones (mean = 33.11, SD = 8.782). Doctors in different clinical departments showed various levels of work-family conflict and doctor-patient relationship. According to the results, doctors in internal medicine, surgery, gynecology, obstetrics, and pediatrics tended to

suffer from more work-family conflicts than doctors in other clinical departments. Doctors in internal medicine and other clinical departments perceived better doctor-patient relationship than doctors in surgery, gynecology, obstetrics, and pediatrics.

### *Test of Study Models*

SEM was employed to quantify the relationship between job satisfaction, work-family conflict, and doctor-patient relationship. The overall model fit indices of the hypothetical model in Figure 1 were CFI = 0.950, TLI = 0.941, SRMR = 0.044, and RMSEA = 0.064, indicating a good model fit. Figure 1 presents the results and relationship of variables in the SEM analysis. The work-family conflict was measured by 3 subdimensions, among which the strain-based work interference with family contributed mostly to the work-family conflict (coefficient = 0.906). The other 2 subdimensions, namely the behavior-based work and the time-based work interference with family, were also highly associated, with coefficients of 0.872 and 0.852, respectively. Findings based on the path coefficients between job satisfaction, work-family conflict, and doctor-patient relationship, together with their significance in Figure 1, showed that the 3 proposed hypothesis were supported. More specifically, the results showed that work-family conflict had a statistically significant negative impact on doctors' job satisfaction, and doctor-patient relationship perceived by doctor had a statistically significant positive influence on doctors' job satisfaction. Besides, the impact of

**Table 3.** Stepwise Multiple Linear Regression for Various Determinants Affecting Overall Level of Job Satisfaction.

Variables	Unstandardized		Standardized	t	P	95% CI for B	
	B	SE	Beta			Lower limit	Upper limit
Doctor-patient relationship	0.625	0.050	0.402	12.578	.000	0.527	0.722
Work-family conflict	-0.104	0.018	-0.185	-5.765	.000	-0.139	-0.068
Age (years)	-0.031	0.027	-0.055	-1.152	.250	-0.083	0.022
Education background(Ref: Doctor's/master's)							
Bachelor degree	-0.509	0.337	-0.053	-1.508	.132	-1.171	0.153
Lower education	-1.331	0.515	-0.099	-2.582	.010	-2.343	-0.319
Professional title(Ref: Advanced)							
Middle	0.049	0.399	0.005	0.122	.903	-0.735	0.833
Primary and below	0.620	0.562	0.061	1.105	.270	-0.482	1.722
Qualification(Ref: Western medicine)							
Traditional Chinese medicine	-0.492	0.436	-0.034	-1.130	.259	-1.347	0.363
others	0.071	0.715	0.003	0.099	.921	-1.332	1.474
Clinical department(Ref: Others)							
Internal medicine	-0.374	0.363	-0.038	-1.032	.302	-1.086	0.337
Surgery	0.122	0.382	0.012	0.319	.750	-0.628	0.872
Pediatrician/obstetrics/gynecology	-0.060	0.487	-0.004	-0.122	.903	-1.016	0.897

Note. CI = confidence interval.

doctor-patient relationship on job satisfaction (coefficient = 0.438) was greater than the impact of work-family conflict on job satisfaction (coefficient = -0.177). In addition, the correlation coefficient between work-family conflict and doctor-patient relationship was -0.446, which showed that doctor-patient relationship was related to work-family conflict without explicit causality. Job satisfaction was measured by 6 variables (J1-J6); the results showed that all the variables were positively related with job satisfaction. In particular, the last 3 factors contributed more to job satisfaction (coefficients larger than 0.7). The satisfaction with colleagues and superiors contributed least to job satisfaction with a coefficient less than 0.5. All coefficients were significant at  $P < .001$ .

### Robustness Check

Table 3 tabulates the optimal results of our stepwise multiple linear regression model. In this model, job satisfaction was used as dependent variable, and work-family conflict, doctor-patient relationship, and sociodemographic characteristics were used as independent variables. For the sociodemographic variables, only education background contributed significantly to job satisfaction. Besides, the model showed that the coefficients of work-family conflict and doctor-patient relationship were significant ( $P < .001$ ). According to these coefficients, after controlling sociodemographic variables, work-family conflict was negatively related to job satisfaction ( $\beta = -0.185$ ), that is, higher work-family conflict was related to lower level of job satisfaction. Doctor-patient relationship was found to be positively related to job satisfaction ( $\beta = 0.402$ ), indicating that better doctor-patient

relationship was related to higher level of job satisfaction. What's more, the absolute value of doctor-patient relationship coefficient was larger than that of work-family conflict, which meant that the impact of doctor-patient relationship on job satisfaction was greater than the impact of work-family conflict on job satisfaction. The results were consistent with those generated by SEM and provided positive support to our SEM results. Therefore, our SEM results were robust for further analysis.

### Discussion

The mean score of overall job satisfaction perceived by doctors was 19.61 out of 30 points. Compared with the results with previous Chinese studies,<sup>20,66</sup> in our study, doctors' job satisfaction was relatively low and had ample room for improvement. Besides, in our study, age and type of labor contract had statistically significant impact on doctors' job satisfaction, while education background and professional title had no statistically significant impact on job satisfaction. The findings are similar to those of previous study conducted by Chan et al.<sup>49</sup>

In our SEM analysis, work-family conflict was negatively related with job satisfaction, while doctor-patient relationship was positively related, which are consistent with previous studies.<sup>18,19,49</sup> With regard to the 6 items used to measure job satisfaction in our study, pay and climate in workplace were also positively related to job satisfaction, which are similar to previous studies.<sup>6,67</sup> All these findings are compatible with the two-factor theory.

In this study, doctors below 30 and over 50 years old had higher job satisfaction than doctors aged 31 to 50 years old. In

particular, doctors aged 31 to 40 years old had the highest work-family conflict, and male doctors suffered more work-family conflict than female doctors. In China, doctors work long hours in hospital. In particular, people aged 31 to 40 years old tend to devote more time and effort to work, and in most cases working longer hours can easily lead to more family life conflict and job dissatisfaction.<sup>68</sup> Besides, doctors at this age range usually are already married and have children to raise, making it difficult to balance their work and family activities and household responsibilities; male doctors in particular generally take more economic and social responsibilities than their wives, and most of them work longer and harder. Several studies also found that married persons experience more work-family conflict than the unmarried ones, and parents of younger children experience more work-family conflict than parents of elder children.<sup>69,70</sup>

The work-family conflict is positively related with emotional exhaustion and cynicism among both male and female doctors.<sup>71</sup> In other words, the conflict is associated with burnout, which can lead to the decline of job satisfaction. Time devoted to one role will also make it difficult to act better as another role. For example, a highly career involved man may often miss family activities due to his unavailability of time to his family, which can result in his little involvement in family activities and household responsibilities. Time-based conflict will be generated when the time pressure is incompatible with the demands of the other role domain. Besides, strain-based conflict suggests that strain experienced in one role intrudes into and interferes with participation in another role.<sup>40</sup> Poor doctor-patient relationship nowadays leads doctors to suffer from more work stress, which can produce strain symptoms such as fatigue, anxiety, irritability, and depression,<sup>42</sup> and doctors' overwork, stress, and fatigue are contributing factors to medical errors.<sup>72</sup> When getting home from work, many doctors are too emotionally drained and frazzled to participate in family activities and household responsibilities, and are even unwilling to do things they enjoy. Moreover, behavior-based conflict occurs when specific patterns of behaviors required in one role are incompatible with behavioral expectation in another role.<sup>73</sup> For example, it has been suggested that doctors at work emphasize calmness, emotional stability, and authority. In contrast, it is expected that a family member should be warm, emotional, and easy to be touched in his or her interactions. In this aspect, doctors need to adjust their behaviors at home to comply with the expectations of their husband, wife, or children. Otherwise, he or she will be likely to experience behavior-based conflict.

Similar to the previous studies,<sup>74,75</sup> we found that better doctor-patient relationship was related with higher job satisfaction. Both two-factor theory and Maslow's hierarchy of needs can be applied to support this finding. According to the two-factor theory, doctor-patient relationship can be viewed as a hygiene factor related to medical environment, or a

motivational factor related to the recognition of one's achievement. From this sense, improving doctor-patient relationship may help reduce doctors' job dissatisfaction and increase job satisfaction. Furthermore, Maslow's theory consists of a 5-level pyramid, from bottom to the top are the needs of physiologic or basic survival, physical and mental safety, sense of belonging, love or esteem, and self-actualization.<sup>76</sup> Deterioration of doctor-patient relationship will endanger doctors' safety, and lacking trust and respect on doctors will also seriously harm their needs for esteem.<sup>77</sup> From this sense, the hierarchical needs defined by Maslow will be undermined by intentional doctor-patient relationship, which in return may cause the decline of doctors' job satisfaction. In the past 2 decades, the incidence and severity of medical disputes have greatly increased.<sup>78</sup> One of the root causes is that hospital services are not effectively differentiated into hospital care and primary care. Tertiary general hospitals are always crowded with patients for both outpatient and inpatient care, and heavy workload of doctors can easily harm doctor-patient relationship and further trigger medical disputes.<sup>79</sup> Another crucial reason for patient distrust on their doctors lies in the information asymmetry between patients and doctors.<sup>80</sup> Usually patients report full information to their doctors but they do not have full information, making them unable to fully understand their doctors' diagnosis, prescriptions, and treatments. Moreover, doctors working in big hospitals have very limited time to communicate with patients,<sup>81,82</sup> making patients exposed to high risky treatment conditions. Furthermore, poor doctor-patient relationship in China can also be attributed to patients' excessive expectations.<sup>83</sup> Their relationship will dramatically deteriorate when patients have paid an overwhelming bill without being cured or when medical incidents occur. On these occasions patients start to lose their sense. In extremely cases, doctors get attacked, injured, and even killed by patients and their relatives.<sup>1</sup>

Our findings suggest that, to improve doctors' job satisfaction, hospital administrators and policy makers can strengthen internal management, formulate and implement strategies to ameliorate doctor-patient relationship and balance doctors' work-family conflict with the following approaches: (1) Governments of all levels in China need to continuously make effort to effectively differentiate services provide by hospitals so that doctors' workload in tertiary hospitals can be released from most outpatient services and focus on tertiary hospital services. Doctors' work-hours can as well be adjusted to make it more flexible according to their professional characteristics.<sup>84</sup> (2) To improve doctors' communication skills with patients through training, so that their communication behaviors can be better along with transparency in diagnosis, treatment, and so forth, as a way to improve doctor-patient relationship.<sup>80</sup> (3) To facilitate inter-departmental communication and collaboration. It is reported that good relationships with colleagues and support from superiors and



subordinates help to improve job satisfaction.<sup>45</sup> (4) To conduct pay for performance, so that doctors with excellent performance can get more income and have better career development. (5) More legislations and safety measures need to be established in place to deal with various medical disputes and protect doctors from injury of violence at work.

### Limitations of This Study

Our study has several limitations. First, our results only reflected the situations in Hubei Province, and might not represent the whole situation in China. A national analysis is needed in the future to generate more general results. Second, the data used in this study were from the Medical Staff Survey, which was part of the fifth NHSS. The scales were set by experts organized by the NHFPC in advance and were fixed. Although the Job Satisfaction Scale has good reliability and validity, more items can be added to the scale such as organizational policies, recognition for one's achievement, vacation, and so forth. Including more items mentioned into the two-factor theory may be better to identify more influential factors to Chinese doctors' job satisfaction. Third, taking doctors' special profession into account, the issue of doctor-patient relationship is sensitive and deserves more attention. It is important to include doctor-patient relationship perceived by doctors in their job satisfaction measurement in future research.

### Conclusion

In this research, we found that the level of doctors' job satisfaction in Hubei Province of China is relatively low and still has ample room for improvement. Work-family conflict was found to have negative impact on job satisfaction. Our findings also demonstrated positive impact of doctor-patient relationship on doctors' job satisfaction. Hospital administrators and policy makers can strengthen internal management, and formulate and implement strategies to meliorate doctor-patient relationship and balance doctors' work and family conflict, so as to further improve doctors' job satisfaction.

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### Supplemental Material

Supplemental material is available for this article online.

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