

RESEARCH

Open Access



Assessing the mediating role of motivation in the relationship between perceived management support and perceived job satisfaction among family doctors in Jiangsu province, China

Xinglong Xu¹, Lulin Zhou¹, Sabina Ampon-Wireko^{1*}  and Prince Ewudzie Quansah¹

Abstract

Background The study aimed to examine the influence of perceived management support on job satisfaction through the mediating role of motivation among family doctors in the Jiangsu province of China.

Methods Six dimensions of motivation were employed as mediators in the association between perceived management support and job satisfaction in collecting data to analyze the hypothesized relationships in the present study. A total of 600 questionnaires were distributed to family doctors in Jiangsu province. Structural equation model (SEM) in the analysis of a moment structure (AMOS) version 26 software was used to estimate the path coefficients.

Results Perceived management support has a significant positive relationship with job satisfaction. Motivation had a fully mediated relationship with the association between perceived management support and job satisfaction.

Conclusions The study's findings suggest motivation is important in enhancing family doctors' satisfaction and must not be underestimated. It, therefore, offers diverse recommendations for enhancing motivation among healthcare professionals.

Keywords Family doctors, Motivation, Perceived management support, Job satisfaction, Jiangsu province

Introduction

An effective healthcare system requires motivated healthcare workers [1]. Healthcare professionals' undesirable work environment has been a vital determinant that causes health care workers to leave for better prospects elsewhere. Workplace dissatisfaction contributes to burnout, high employee turnover, and

major underemployment in healthcare facilities [2]. Work satisfaction affect customer satisfaction and overall service quality [3]. Dissatisfied workers are likely to leave their jobs and the remaining staff can provide low-quality service [4].

This forces some businesses to make significant investments in expensive machinery, capital equipment, and complex technical systems, which typically results in the neglect of the business's most important resource: its workforce [6]. It is important to note that productivity is typically influenced by aspects that are more human-related. Even if one invests in the latest technologies, productivity would barely rise in such a company if staff

*Correspondence:
Sabina Ampon-Wireko
amponwirekosabina@gmail.com

¹ School of Management, Jiangsu University, Zhenjiang 212013, People's Republic of China



members waste time and money, are frequently absent, steal, and are not committed to their jobs. As a result, an organization's employees are a necessary ingredient for increased production and achieving the organization's goals and objectives [7].

Mahmoud [5] explores the impact of demographic characteristics on satisfaction among Ethiopian health workers using the logistic regression process. The analysis revealed that management support was strongly linked to the job satisfaction of the five independent variables. SM Assiri, SF Shehata and MM Assiri [6] used structural equation modelling to find a significant correlation between organizational support and employee satisfaction. In industrialized and developing economies, job satisfaction has been a significant measure of health services' quality and success [7–9]. X Li, Y Zhang, D Yan, F Wen and Y Zhang [10] discovered that perceived management support would positively affect job control, resulting in increased job satisfaction among Chinese nurses. According to Y Lu, X-M Hu, X-L Huang, X-D Zhuang, P Guo, L-F Feng, W Hu, L Chen and Y-T Hao [11], high job satisfaction can boost employee morale and enhance an organization's efficiency and development.

Previous studies have discussed the effects of age and marital status [12, 13], educational level [14], and insufficient training opportunities [15, 16] on job satisfaction among health workers worldwide. Limited (if any) studies have explored the relationship between perceived management support and job satisfaction among family doctors in China. Due to the dearth of studies examining how management support and motivation impact job satisfaction among family physicians, the current study aims to address the following fundamental inquiries: how does perceived managerial support impact job satisfaction? What connection exists between job satisfaction and motivation? What further role does motivation play in mediating the connection between perceived managerial support and job satisfaction? To fill the gap in the literature, this study has three objectives. First, by considering the organizational support theory of Eisenberger, the study aims to understand better the influence of perceived management support on family doctors' job satisfaction. Second, we explored the relationship between employees' motivation and job satisfaction. Finally, the study examines the mediating role of the family doctor's motivation in the association between management support and job satisfaction. This goal is based on the notion that when family doctors feel the health management team respects their contributions, they are more likely to be inspired, sequentially resulting in job satisfaction. This study is essential, as China's government's interest is in reducing the growing turnover retention among health workers. The study will provide appropriate and specific

policy guidelines to achieve high job satisfaction and performance among health workers. This study adds to previous studies on the value of management support for health workers' satisfaction and well-being. Health managers can also use this study to develop plans to boost family doctors' morale in China, allowing them to remain an essential part of the healthcare system.

Theoretical background and hypotheses

Job satisfaction is an important variable used to increase employees' productivity in the workplace [17]. The study depicts ideas drawn from various sources of literature and self-determination theory, and the social exchanged theory that have been incorporated into this theoretical framework. This is due to the complexities of job satisfaction and the fact that there is no ready-made solution or single answer to what makes people happy at work. As a result, the relationship between motivation and job satisfaction has recently received much empirical attention in the healthcare industry. Although the precise understanding of motivation is still evolving [21] most theories have classified motivation as either extrinsic or intrinsic and then investigated its effects on job satisfaction [23]. According to those theories, extrinsically motivated behaviours are governed by an external mechanism (e.g., incentives or punishment), whereas intrinsically motivated behaviours are directed by personal interest [22]. However, extant literature has suggested that individuals' behaviour can sometimes not be well-explained by either intrinsic interest or extrinsic incentives [23]. For instance, employees may engage in work activities, because they feel responsible for their work or because they identify with the importance of the work rather than, because they feel interested in their work (i.e., intrinsically motivated) or pressured to do it (external regulation). This sense of identifying the work as important is also a type of motivation within self-determination theory (SDT) and could, therefore, also promote various work outcomes [24]. SDT was built on the classic distinction between extrinsic and intrinsic motivation and presented a continuum model of controlled versus autonomous [25]. According to the continuum model, extrinsic motivation can be differentiated into multiple regulation types: extrinsic regulation, introjected regulation and identified regulation [25]. This multidimensional conceptualization of motivation and thus provides a more nuanced way to explore the relationship between motivation and job satisfaction.

Our first contribution is to advance previous research by assessing perceived management support and job satisfaction. Furthermore, the mediating effects of the detailed motivation types of motivation in the relationship between perceived management support and job

satisfaction among family doctors. Figure 1 depicts the theoretical framework that has been established.

Perceived management support and job satisfaction

Perceived management support (PMS) refers to employees’ perceptions of how much an organization values their contributions and how well they are handled [18]. Management support can be in compensation, career enrichment, rewards, promotions, and verbal recognition [19]. The Social exchange theory [20] and AW Gouldner [21] are the foundations of management support. According to the social exchange theory, when an employee’s conditions are exact, the individual who has been owed a favour will return the favour [20]. Moreover, employees see their employment as a conduit for a cooperative partnership between management and staff that exposes relative dependence and goes beyond the formal contract. Workers who are assisted by their superiors feel secure and have a good assertiveness toward the organization with some sort of belonging. In contrast, employees who do not receive assistance can exhibit emotional behaviors, leading to exhaustion, frustration, and alienation, depending on the circumstances [22].

A significant positive relationship between management support and job satisfaction has been established. According to a study by M Armstrong-Stassen [23], employers with high PMS levels have higher job satisfaction than those without. This outcome could be defined as PMS enhancing individuals’ confidence and opinions about their employers’ values and rewards [24]. According to research, PMS initiates a social exchange mechanism through which individuals feel obligated to help the company achieve its objectives, resulting in higher rewards. As a result, employees are more comfortable with their work and reciprocate organizational support in various ways. Employees with PMS experience may have an inherent obligation to be socio-emotionally

committed to their job and the company. It is, therefore, proposed that:

H1: perceived management support will have a significant positive influence on job satisfaction among family doctors.

Motivation and job satisfaction

Another critical factor influencing job satisfaction among health professionals is motivation. Motivation is a term that describes an external state that encourages a particular behaviour and demonstrates that behaviour in internal responses [25].

Quality promotion of healthcare services has become one of the most challenging goals of healthcare systems all over the world [26–28]. Research findings regarding the influence of motivation and satisfaction have been inconclusive. For instance, a study in Turkey showed no statistical difference in overall satisfaction and overall motivation ratings [29]. Another study emphasized that just because healthcare professionals are happy with their jobs does not mean they will be inspired as well [30]. On the contrary self-motivation and job satisfaction were found to be positively related [31]. However, K Toode, P Routasalo and T Suominen [32] revealed that motivation is a crucial predictor of healthcare professionals’ responses to challenges and stresses. According to Bonenberger [33], motivation and job satisfaction appear to be highly linked to satisfaction. It is, therefore, reasonable to hypothesize that,

H2: motivation (H2-a-intrinsic; H2-b-integrated; H2c-identified; H2-d-introjected; H2e-external; H2f-amotivation) will significantly affect job satisfaction among family doctors.

Management support and motivation

Employees’ confidence in their employer to consider their efforts, well-being, and meet their social and emotional needs is measured by perceived management support [34, 35]. Management support theory emphasis

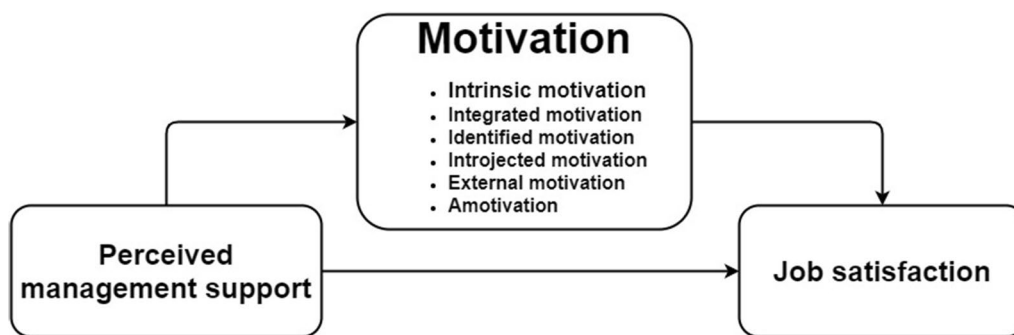


Fig. 1 Conceptual framework of the study

that workers are more likely to shape positive responses to organizations if they feel the company supports them in their efforts [19]. R Miao and H-G Kim [36] study in Taiwan evaluated the association between organizational support and employee motivation, and the results revealed a strong connection between the two variables. Employee morale and administrative support are inextricably linked and essential for any successful organization. Employee motivation and organizational support have a good relationship, according to the findings [37]. K Imtiaz, M Farooq, MS Hashm and R ul Aain [38] considered the relationship amid employee engagement and perceived corporate support in Pakistan and came up with similar results. A study in Pakistan found that management support positively correlated with motivation. Grounded on the above literature, the study hypothesizes that:

H3: perceived management support will have a significant influence on motivation (H3-a-intrinsic; H3-b-integrated; H3c-identified; H3-d-introjected; H3e-external; H3f-amotivation).

Mediation role of motivation

Some studies have established the extent to which management support could significantly and directly influence motivation [39, 40] and job satisfaction [41, 42]. Other studies have also indicated that motivation significantly influences job satisfaction in the workplace. Perceived management support helps employees develop positive psychological attitudes that compel them to be motivated about their work [43]. Motivated employees may show greater satisfaction with their job, because their organization helps them meet their needs. An increased employee motivation leads to a higher level of job satisfaction [44]. Motivated and satisfied employees assume that they are an integral part of the organization, can achieve their objectives, have a sense of control over their work, and participate in activities that support the organization [45, 46].

Notwithstanding the evidence on how these three constructs are directly related to each other in different literature, finding a study that combines these constructs in a single model will be more worthy. This phenomenon is supported by the fact that individuals who gain management support feel motivated about their work, and the long-run effect may be manifested in job satisfaction [47, 48]. Therefore, examining motivation as a mediator in perceived management support and job satisfaction relationship will address the existing gap in the literature. On this note, we hypothesize that.

H4: motivation (H4-a-intrinsic; H4-b-integrated; H4c-identified; H4-d-introjected; H4e-external;

H4f-amotivation) will mediate the connection between perceived management support and family doctors job satisfaction.

Methods

Research design

This was a quantitative study with a cross-sectional observational design. The manuscript was written per the Strengthening reporting of Observational Studies in Epidemiology (STROBE) protocol [49].

Participants and procedure

According to the National Bureau of Statistics in China [50], Jiangsu province has approximately 1028 community hospitals known as health service centers. Each community hospital has approximately 50 to 100 beds and 15 doctors. The hospital offers basic medical and healthcare services within the small towns in the district. The present study focused on Southern, Central, and Northern Jiangsu community hospitals. According to the National Bureau of Statistics of China, this is similar to the layout of Eastern China, Central China, and Western China. Community hospitals were selected, because their function has recently emerged more important in China during the new medical reform [51].

Since there was a vigorous lockdown due to the COVID-19 outbreak at the time of the study, most hospitals were designated as epicentres for the treatment of COVID-19 disease and fever-related diseases. For this reason, the researchers purposively contacted the departmental heads of 410 community hospitals for their consent to proceed with the study. Surprisingly, only three hundred and thirty-three 333 community hospital heads responded affirmatively to allow their facilities to be used for the study. Participants were recruited between 12th February 2020 till 11th September 2020. All enrolled participants were informed of the study's purpose and procedures and provided written informed consent. After receiving permission to gather the data, the researchers went to the hospitals and gave the family doctors invitation packages. The package contained a plain-language report and a consent form questionnaire in Chinese. It took each participant approximately 25 min to complete the survey. We assured the participants that their involvement was voluntary, with anonymity guaranteed. The researchers further gave respondents a prepaid envelope. This enabled them to send the filled survey to the corresponding author. The researchers issued the prepaid envelopes to assure the participants of optimum confidentiality. Approximately 600 questionnaires were distributed to participants.

Descriptive analysis was performed to show the demographic characteristics of the participants. Out of the 600

questionnaires, 486 were returned, showing a response rate of 81%. 240 (58.1%) respondents were females, and 173 (41.9%) were males. The average age of the participants was 29, with a standard deviation of 4.67. The participants' average worked for 4.69 years, recording a standard deviation of 0.89. The married participants were 315 (76.3%), and the unmarried participants were 98 (23.7%).

Measures

All items were measured on a 7-point Likert scale. This study's instruments were adapted from existing scales with reliability and validity established. Because the leaves were used in China, we converted the rankings into Chinese to ensure the translated scales' consistency and validity following recommended practices [52]. Two language translator experts who are organisational behaviour professors and have received accredited bilingual translation certificates did the translation. Using these experts was necessary as they also assessed the content strength of the scales. The process involved translation and back-translation, correcting antiquated languages, and using nouns rather than pronouns. The questionnaire also considered the views of others (e.g., insiders' and outsiders' perspectives). The translation was vital, because it provided the researchers with information and source-language transparency on validity [53]. Finally, we piloted the Chinese questionnaires on two different samples to be convinced about the converted scales' reliability and strength.

The first and second samples included 169 and 201 physicians excluded from the final study. In the first and second samples, perceived management support had a reliability Cronbach alpha of 0.88 and 0.82, respectively. The combined Cronbach alpha for the motivation scale in the first and second samples was 0.73 and 0.77, respectively. The Cronbach alpha for perceived job satisfaction in the first and second samples was 0.80 and 0.91. The test–retest survey results show that the translated scales had acceptable internal consistency and were reliable and valid for use.

Perceived management support (PMS)

To measure perceived management, we relied on eight items from the PMS Survey [19]. The scale has received significant recognition from previous studies, such as PB Le and H Lei [54], LJ Labrague and JAA De los Santos [55], PS Thompson, DM Bergeron and MC Bolino [56]. The reliability coefficient (Cronbach alpha) of SPOS originally was 0.93, with item-total correlations from 0.42 to 0.83. The PMS's items for our study were slightly modified to suit the current study's objective without affecting the scale's conceptual meaning. For instance, the sample

item "Our company cares about employees' well-being" was changed to "This hospital cares about my well-being". In addition, the sample item "Our firm strongly considers employees' goals and values" was changed to "This hospital strongly considers the objectives and values of physicians. The Cronbach alpha of the PMS in the current study is 0.905.

Motivation

The motivation construct was measured with eighteen items from the Work Extrinsic and Intrinsic Motivation Scale (WEIMS) [57]. The eighteen items assess six motivation dimensions, including intrinsic motivation (3 items), introjected motivation (3 items), integrated motivation (3 items), external regulation (3 items), identified motivation (3 items), and amotivation (3 items). The WEIMS is proven to have high internal reliability in previous studies V Gupta [58]. Each of the items was a response to the question "What do you or would involve yourself in your present work?" along a 7-point Likert scale from 1 (does not correspond at all) to 7 (correspond exactly). Examples of the items include "Because I gain much pleasure from learning new things" (intrinsic motivation; Cronbach alpha in the first, second and third samples were 0.80, 0.77 and 0.87, respectively), "Since it has become an integral part of my identity." (integrated motivation; Cronbach alpha in the first, second and third samples were 0.83, 0.84 and 0.80, respectively), "As it is the style of work I have decided to accomplish a number of important goals" (identified motivation; Cronbach alphas in first, second and third samples were 0.67, 0.74 and 0.70, respectively), "Because I want to be a "winner" in life" (introjected motivation: Cronbach alphas in the first, second and third samples were 0.70, 0.71 and 0.76, respectively), "For the income it provides me" (external regulation; Cronbach alphas in the first, second and third samples were 0.77, 0.81 and 0.73, respectively), and "I don't know, I guess we're supposed to do so much" (amotivation; Cronbach alphas in the first, second and third samples were 0.64, 0.60 and 0.75, respectively) and their Cronbach alphas as presented from the original scale were reliable. In this current study, the reliability coefficients (Cronbach alphas) for intrinsic, integrated, identified, introjected, external and amotivation are 0.873, 0.945, 0.935, 0.816, 0.851 and 0.849, respectively.

Perceived job satisfaction (JS)

The perceived job satisfaction was assessed with four items from the study of [59] and JR Hackman and GR Oldham [60]. These items had high reliability in previous studies. For instance, HSud Khan, M Zhiqiang, AM Sadick and A-AI Musah [61] recorded 0.891 as Cronbach alpha and 0.592 as the average variance extracted for the

four items. Sample items include “I am mostly happy with the work I do.,” “My job is interesting,” “My job is often dull and monotonous,” and “My job is satisfying.” In this current study, the Cronbach alpha for the perceived job satisfaction construct is 0.803.

Control variables

Variables such as gender, age, salary, work experience, and marital status affect employee job satisfaction [62]. However, we declined to control them in our model, since they were not significantly related to this study’s job satisfaction variable.

Common method bias test

We employed various steps to handle common method variance in our data. While designing and distributing the questionnaires, we followed the proposed steps of PM Podsakoff, SB MacKenzie, J-Y Lee and NP Podsakoff [63]. The steps included randomizing the items’ order, and issuing reports to the respondents that the research was solely for academic purposes. In addition, we informed the respondents that they should feel free to choose any answer they deemed fit, and that there was no right or wrong answer. Furthermore, participants are more motivated to be more accurate if they believe the information provided will benefit them or the organization, and promising feedback may also motivate greater accuracy. For this reason, we assured the respondents that the information they provided would enable the design of specific policy guidelines to encourage management support, increase specific motivation and achieve high job satisfaction.

Again, we kept the survey items short to minimize redundant measures and overlaps that helped the participants to give more accurate responses. Respondents were assured that their responses would remain anonymous to alleviate assessment concerns and social desires. We further employed Harman’s one-factor test to detect threats of common method bias. An unrotated, principal component factor examination of all measurement items showed eight factors with eigenvalues above one. The first factor explained 26.85% of the total variance, which is less than 50%, while all elements explained 74.04 per cent of the total variance.

Data analysis

An essential component of the research study is the appropriate methodological choice, according to Davis (1996) and Stevens (2002). The study employed a second-generation multivariate structural equation modelling approach to assess the relationship between the study variables. The SEM, unlike the other statistical methods assisted in determining validity and reliability

of the model metrics. Preliminary analysis was performed using SPSS v. 26.0 and the analysis of a moment structures (AMOS) Version 26 was used for testing the hypothesized relationships. The study used a two-stage technique [64, 65] to estimate the hypotheses. First, we conducted a confirmatory factor analysis (CFA) to assess the variables’ unidimensionality, validity, and reliability. During this process, we employed series tests to compare a theoretical measurement model of the study variables. Second, we specified the hypothesis to examine the fit of the structural model. The study estimated the path coefficients for statistical significance and overall model fit assessments.

Results

Confirmatory factor analysis (CFA), reliability and validity analysis

Table 1 shows the summarized findings of the first step. The CFA factor loadings for all the measures were above the suggested 0.50 thresholds (ranging from 0.696 to 0.99) except for one item (JS4) from the job satisfaction scale, which recorded a factor loading of 0.455. According to N Malhotra and S Dash [66], if a measurement item is less than the suggested factor loading threshold and does not affect the reliability or validity of the particular scale, such an item must be retained for further analysis. In this current study, JS4 did not affect the reliability and validity values of the job satisfaction scale; hence, we included it for subsequent analysis.

The study employed Cronbach’s alpha to explore the scale’s internal reliability. The scales’ reliability coefficients are between 0.803 to 0.945, and they were greater than the 0.70 thresholds suggested by J Nunnally [67], indicating sufficient internal consistency. Regarding the convergent validity, KG Joreskog and D Sorbom [68] and RB Kline [69] have suggested that it could be adequate if the measure’s construct reliability exceeds 0.70 and the average variance extracted (AVE) is above 0.50. The construct reliability coefficients in this current study ranged from 0.812 to 0.949, and the AVE values ranged from 0.53 to 0.862, suggesting acceptable convergent validity for the measures.

The study also employed fit-statistics suggested by LT Hu and PM Bentler [70] to establish the suitability of the data sets. The fit indexes indicated the model had an acceptable fit to the data set with a Chi-square (χ^2)=487.041, relative Chi-square (χ^2/df)=1.292, standardized root mean square residual (SRMR)=0.034, comparative fit index (CFI)=0.985, Tucker–Lewis fit index (TLI)=0.983, and root mean square error of approximation (RMSEA)=0.048.

The study further assessed the AVE’s discriminant validity (square root) with Amos Plugin developed by

Table 1 CFA loadings and internal reliability testing

Variables	Item code	Estimate	S.E	t value	P	C- α	CR	AVE
Integrated motivation (Integ)	Integ1	0.901				0.945	0.949	0.862
	Integ2	0.899	0.035	29.133	***			
	Integ3	0.982	0.031	35.556	***			
External motivation (Ext)	Ext1	0.748				0.851	0.861	0.678
	Ext2	0.956	0.063	17.432	***			
	Ext3	0.748	0.065	15.49	***			
Identified motivation (Ident)	Ident1	0.865				0.935	0.937	0.832
	Ident2	0.876	0.041	25.123	***			
	Ident3	0.99	0.039	30.367	***			
Intrinsic motivation (IM)	IM1	0.957				0.873	0.877	0.706
	IM2	0.778	0.043	18.647	***			
	IM3	0.773	0.043	18.489	***			
Job satisfaction (JS)	JS1	0.793				0.803	0.812	0.53
	JS2	0.783	0.062	15.86	***			
	JS3	0.819	0.063	16.475	***			
	JS4	0.455	0.065	8.826	***			
Introjected motivation (Introj)	Introj1	0.771				0.816	0.818	0.599
	Introj2	0.765	0.069	13.958	***			
	Introj3	0.786	0.065	14.143	***			
Amotivation (Amo)	Amo1	0.71				0.849	0.854	0.665
	Amo2	0.958	0.08	16.248	***			
	Amo3	0.758	0.074	14.822	***			
Perceived management support (PMS)	PMS1	0.696				0.905	0.905	0.545
	PMS2	0.745	0.081	13.999	***			
	PMS3	0.78	0.081	14.599	***			
	PMS4	0.769	0.078	14.418	***			
	PMS5	0.724	0.076	13.622	***			
	PMS6	0.749	0.077	14.07	***			
	PMS7	0.699	0.074	13.188	***			
	PMS8	0.738	0.079	13.865	***			

C- α Cronbach's alpha, CR Construct reliability, AVE Average variance extracted, CR Construct reliability, AVE average variance extracted

*** $p < 0.001$

[71]. The discriminant validity values are accessible along the diagonal lines of the latent variable correlation coefficients in Table 2, which suggest sufficient discriminant validity.

Means, standard deviation, and correlation analysis

Table 3 presents the means, standard deviation, and correlation analysis of the variables under study. The correlation analysis offers some initial support for the hypothesized relationships. It showed that perceived management support correlated with job satisfaction and all six motivation dimensions, suggesting initial support for H1 and H2. All six motivation variables also significantly correlated with job satisfaction, offering some initial support for H3.

Hypotheses testing

We tested the hypotheses by examining the connection between perceived management support and job satisfaction (H1). This was done by testing the structural model in Amos version 26 software (Fig. 2). The model gave a good fit to the data ($\chi^2 = 119.439$, $\chi^2/df = 2.254$, SRMR = 0.038, CFI = 0.971, TLI = 0.964, RMSEA = 0.055). The standardised coefficient path from perceived management support to job satisfaction was 0.356, and it is significant ($p < 0.001$). Therefore, it suggests support for H1.

We further made use of 'Indirect effects, AMOS Plugin tool' for estimating mediation effect, since the structural equation model (SEM) in AMOS does not directly generate indirect effects estimates. We further tested the full structural mediation model, in which

Table 2 Discriminant validity analysis

	Integ	Ext	Ident	IM	JS	Introj	Amo	PMS
Integ	0.928							
Ext	0.226***	0.823						
Ident	0.345***	0.207***	0.912					
IM	0.04	0.249***	0.048	0.84				
JS	0.360***	0.469***	0.409***	0.245***	0.728			
Introj	0.184**	0.374***	0.183**	0.260***	0.367***	0.774		
Amo	-0.377***	-0.330***	-0.408***	-0.226***	-0.393***	-0.270***	0.816	
PMS	0.326***	0.282***	0.320***	0.131*	0.356***	0.340***	-0.376***	0.738

Note. Discriminant validity values are presented in bold along with the inter-factor correlation matrix

Integ Integrated motivation, Ext External motivation, Ident Identified motivation, IM Intrinsic motivation, JS Job satisfaction, Introj Introjected motivation, Amo Amotivation, PMS Perceived management support

* $p < 0.05$, ** $p < 0.01$, $p < 0.001$

*** means significant at 95% confidence level

Table 3 Means, standard deviation, and correlation

	1	2	3	4	5	6	7	8
1. PMS	1							
1. PJS	0.298**	1						
2. IM	0.100*	0.209**	1					
3. Integ	0.283**	0.288**	0.019	1				
4. Ident	0.287**	0.348**	0.037	0.305**	1			
5. Introj	0.297**	0.285**	0.225**	0.157**	0.153**	1		
6. Ext	0.255**	0.367**	0.217**	0.198**	0.190**	0.315**	1	
8. Amo	-0.327**	-0.315**	-0.156**	-0.323**	-0.334**	-0.225**	-0.249**	1
Means	4.03	3.76	4.3	3.9	3.89	4.45	4.7	3.9
Std.D	1.29	1.36	1.59	1.54	1.46	1.32	1.51	1.4

PMS perceive management support, JS job satisfaction, IM intrinsic, Integ integrated, Ident identified, Introj introjected, Ext External, Amo amotivation, Wexp work experience

* $p < 0.05$; ** $p < 0.01$

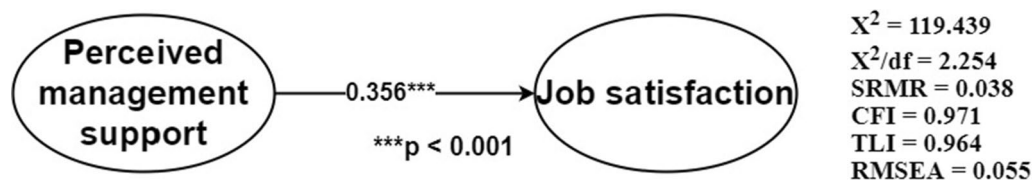


Fig. 2 Results of the direct effect of perceived management support on job satisfaction

the six components of motivation (intrinsic, integrated, identified, introjected, external, and amotivation) were included in the main effect model (Fig. 3). Rather than using a single mean score to represent the higher order construct-like motivation, we employed intrinsic, integrated, identified, introjected motivation, external and amotivation as first-order indicators of motivation. The approach also helps to identify the contributing mediating role of each motivation

dimension. As shown in Fig. 3 the full structural mediation model had a good fit to the data. The model fit ($\chi^2 = 663.099$, $\chi^2/df = 1.692$, SRMR = 0.077, CFI = 0.964, TLI = 0.960, RMSEA = 0.041) indices did not diverge much from the main effect model. The standardized path coefficients from perceived management support to intrinsic, integrated, identified, introjected motivation, external and amotivation were 0.153 ($p < 0.01$), 0.352 ($p < 0.001$), 0.348 ($p < 0.001$), 0.314

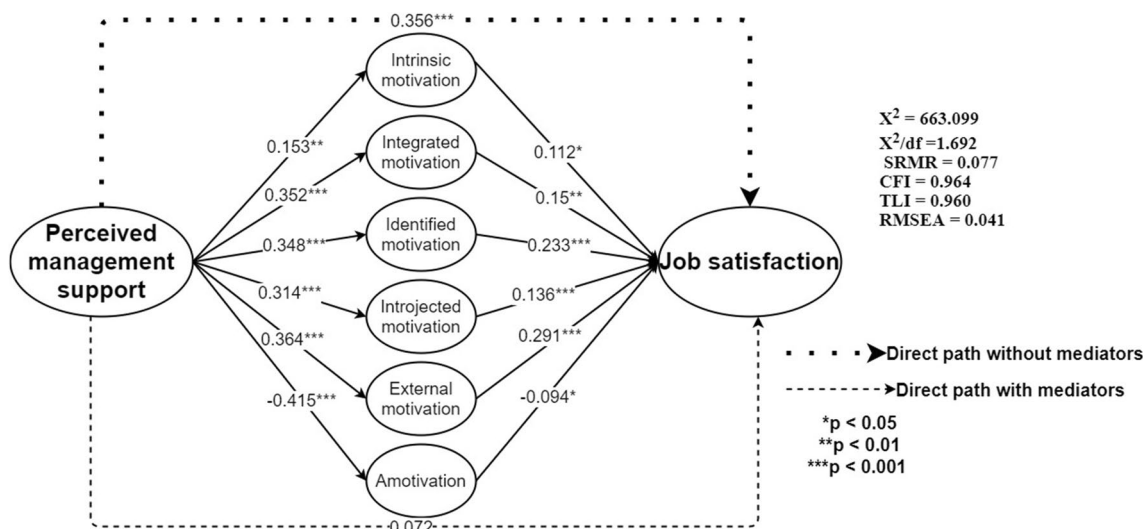


Fig. 3 Results of the full structural mediation model showing the mediating effect of six motivation variables in the relationship between perceived management support and job satisfaction

($p < 0.364$), and -0.415 ($p < 0.001$), respectively, confirming H2. About the relationships between each of intrinsic motivation, integrated motivation, identified motivation, introjected motivation, external motivation and amotivation, standard path coefficients were 0.072, 0.112 ($p < 0.01$), 0.15 ($p < 0.01$), 0.233 ($p < 0.001$), 0.136 ($p < 0.001$), 0.291 ($p < 0.001$), and -0.94 ($p < 0.05$), respectively, supporting H3.

In Table 3 is the results of the direct, indirect and total effects from perceived management support and job satisfaction. The standardized indirect effect from perceived management support to job satisfaction through the mediating role of intrinsic motivation was 0.109 with a 5000-sample bias-corrected bootstrapping that generated a 95% confidence interval (CI) of [0.017, 0.167]. According to the rule of thumb, if zero falls within the confidence interval, no significant relationship has occurred. On the contrary, a significant relationship has occurred if zero does not fall within the 95% confidence interval. Based on this, intrinsic motivation mediated the relationship between perceived management support and job satisfaction, hence support H4a. The standardized indirect path from perceived management support to job satisfaction through the mediating roles of integrated motivation ($\beta = 0.15$, $p < 0.05$; CI = 0.020, 0.182), identified motivation ($\beta = 0.233$, $p < 0.001$; CI = 0.101, 0.272), introjected motivation ($\beta = 0.136$, $p < 0.05$; CI = 0.010, 0.199), external motivation ($\beta = 0.291$, $p < 0.001$; CI = 0.105, 0.269) and amotivation ($\beta = -0.094$, $p < 0.5$; CI = -0.181 , -0.007), did not have zero within their

95% confidence intervals. The results, therefore, support H4b, H4c, H4d, H4e and H4f (see Table 4).

Discussion

Improving workers' performance has gained attention, especially in the public sector [72]. To the best of our understanding, a handful of investigations have been conducted by previous studies to assess the role of perceived management support and motivational factors in family doctors' contract services. This is worth exploring for research and policy purposes. The current study examines the impact of management support on family doctors' job satisfaction. The second goal focused on assessing the impact of motivation in mediating the relationship between management support and job satisfaction in Jiangsu province. The results showed that the model's overall structure was appropriate based on fitness indicators' values.

The findings predicted that management support positively impacted job satisfaction, supporting hypothesis 1. This confirms the findings of other scholars [73, 74], who found that workers would give their all to an organization that shows concern for their well-being. The finding implies that when the health management team supports family doctors, they could feel valued, increasing their confidence and trust that the health institution could reward their efforts to attain higher performance [27]. Employees will consequently give back to the health institution in several ways, potentially increasing their level of job satisfaction [29]. The argument is consistent with social exchange theory, which holds that when

Table 4 Direct, indirect, and total effects analysis

Predictors	Job satisfaction	IM	Integ	Ident	Introj	Ext	Amo
Direct effects							
Perceived management support (PMS ^a)	0.356***	–	–	–	–	–	–
PMS ^b	0.072	0.153**	0.352***	0.348***	0.314***	0.364***	–0.415***
Intrinsic motivation (IM)	0.112*	–	–	–	–	–	–
Integrated motivation (Integ)	0.15**	–	–	–	–	–	–
Identified motivation (Ident)	0.233***	–	–	–	–	–	–
Introjected motivation (Introj)	0.136***	–	–	–	–	–	–
External motivation (Ext)	0.291***	–	–	–	–	–	–
Amotivation (Amo)	–0.094*	–	–	–	–	–	–
Indirect effects of PMS							
	95% Confidence interval (CI)						
Through Intrinsic motivation	0.017* (0.019, 0.167)						
Through Integrated motivation	0.053** (0.020, 0.182)						
Through Identified motivation	0.081*** (0.101, 0.272)						
Through Introjected motivation	0.043** (0.010, 0.199)						
Through External motivation	0.106*** (0.105, 0.269)						
Through Amotivation	–0.039* (–0.181, –0.007)						
Total effects of PMS	0.333***						

PMS^a refers to the direct effect of perceived management support on job satisfaction from Fig. 1

PMS^b refers to the direct effect of perceived management support on job satisfaction from Fig. 2

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

workers believe their employer values their labor and is concerned about their well-being, they are more likely to feel compelled to engage in actions that are advantageous to the company. The study has consequences for Chinese healthcare administrators and leaders. Health authorities and policymakers can organize family doctors' jobs, so that self-motivated employees can convey their desire for autonomy and competitiveness.

The study further examined the mediating role of motivation in the relationship between perceived and job satisfaction among family doctors. By so doing, the six components of motivation (intrinsic, integrated, identified, interjected, external, and amotivation) according to the Work Extrinsic and Intrinsic Motivation Scale (WEIMS) [57] were employed. Interestingly, a significant relationship was revealed. Specifically, intrinsic, integrated, identified, introjected, and external motivation consecutively significantly affected the relationship between perceived management support and job satisfaction. Amotivation, on the contrary, had a negative mediatory impact on the relationship between management support and job satisfaction. This implies that, except amotivation, all forms of motivation positively affect the pathway between management support and job

satisfaction. A longitudinal investigation should be taken into consideration as it will demonstrate the efficacy of a proposed model between the sample data and predictor variables. The trends of change and the strength of the causal relationship between the targeted variables may be explained in detail using this strategy.

This indicates that when family doctors perceive that their superiors support them, they could be intrinsically motivated and willing to put in a lot of physical and emotional effort for the common good of the hospital. In the case of integrative motivation, the health management team's assistance could increase family doctors' desire by creating greater internal cohesion and team spirit. Having superiors' backing would increase their loyalty, dedication, attachment and reduce their desire to leave. The findings support the conclusions of earlier studies which encouraged the need to increase motivation [75, 76]. The implication is that health management can enable family doctors to believe their task is worthwhile. Other specific theories of motivation such as orientation to learning should be taken into account, because they have been widely acknowledged as crucial links between management support and health employee outcomes.

The study results show that PMS could not directly influence job satisfaction when the motivation variables were introduced to create the structural mediation effect model. Since the effects of PMS on job satisfaction completely pass through the types of motivation, the implication is that a full mediation effect has occurred. Interestingly, external motivation had the highest coefficients, and the findings suggest that common rewards such as pay increments, bonuses, promotions, and other benefits stimulate job satisfaction among family doctors. The significant positive effects between perceived management support and motivation are in line with Gillet, Huart, Colombat, and Fouquereau [79, 80], but contradict the findings of Hu and Chang [81]. Therefore, the healthcare management team along with other sectional heads, should implement external motivating elements that would raise employee job satisfaction in the healthcare sector. This is true, because contented employees are productive employees who want to stick around and contribute to the organization's success.

Introjected motivation also played an essential mediating role in the relationship between management support and job satisfaction. This infers that when the health management team gives their support, it increases family doctors' aspiration to put in extra effort to avoid guilt and shame and sequentially enhances satisfaction. This agrees with a previous study by A Assor, M Vansteenkiste and A Kaplan [77]. Therefore, health leaders are encouraged to support family doctors to reduce the lack of enthusiasm for engaging in an activity. Another study by T Lam, T Baum and R Pine [78] indicates that management support leads to how satisfied and fulfilled employees are grounded in their motivation.

Besides, the results show that intrinsic motivation improves the pathway through which management support affects work satisfaction. This result is in line with C-K Lee, Y Reisinger, MJ Kim and S-M Yoon [79]. They concluded that voluntary organizational support affects satisfaction, suggesting that increasing employees' intrinsic motivation would encourage them to promote job satisfaction among family doctors. R Imran, K Allil and AB Mahmoud [80] affirmed that intrinsic motivation and imposed rules are essential factors in promoting employee engagement. Furthermore, they discovered that intrinsic motivation has a positive influence on job satisfaction. Moreover, OM Karatepe and M Tekinkus [81] shows that high intrinsic motivation levels are associated with high work efficiency, job satisfaction, and affective loyalty to the organization. Extrinsically, rewards in bonuses, increased salary, or promotion similarly enhanced the relationship between work engagement and job satisfaction among family doctors, and

this finding is corroborated by MY Raza, MW Akhtar, M Husnain and MS Akhtar [82].

Unlike the others, amotivation showed a negative relationship with job satisfaction among family doctors in China's Jiangsu province. The implication is that less motivated doctors are likely to lose interest and enthusiasm for work. Extrinsic motivation revealed a positive relationship with family doctors' job satisfaction. This indicates that providing external rewards can generate energy that can induce family doctors to be satisfied and aim toward achieving organizational objectives. In another way, motivation is required, because human nature requires encouragement or reward to be satisfied.

Conclusion

Job satisfaction among healthcare professionals has been a growing concern recently. However, no such model has been explicitly proposed for family doctors in China. Considering family doctors' importance, the study scrutinizes the effects of perceived management support and job satisfaction. Similarly, the impact of perceived management support and motivation is explored. We considered the link between family doctors' motivation and job satisfaction once more. Finally, the attempt to develop motivation as a mediator in the relationship between perceived management support and job satisfaction among family doctors resulted in other results. A total of 600 questionnaires were distributed to the participants. Confirmatory factor analysis (CFA) was used to assess variables' unidimensionality, validity, and reliability. After that, structural equation simulation was used to estimate the hypotheses. As a result, it was discovered that there was a positive association between perceived management support and work satisfaction and all other motivational factors. Motivation, in turn, is a mediator in the relationship between perceived management support and family physicians' job satisfaction.

Implications of the study

The current study has several theoretical and practical implications. The study's theoretical implication stems from demonstrating the extent to which perceived management support (PMS) significantly influences family doctors' job satisfaction (JS). The study did not only investigate the direct relationship between PMS and JS, but went a step further to establish the mediating capacities of six dimensions of motivation (intrinsic, integrated, identified, introjected external, and amotivation) in PMS-JS relationships. Consequently, the study has contributed to the literature by demonstrating that external motivation has the highest predictive capacity in explaining the influence of perceived management support on job satisfaction.

Among the practical implications of the study is demonstrating that employees become satisfied with what they do at work if they receive support from their management. The support the management gives to the family–doctors must seek to address their (family–doctors) needs. This is because different employees may have different needs; hence, addressing someone's problem may not precisely solve another one's problem. In addition, management must focus on enhancing the different motivational factors differently, since they explain the impact of management support on job satisfaction differently. A special focus must be given to extrinsic motivation due to its high predictive capacity in the PMS-JS relationship.

Limitation

The study's findings are interesting but cannot be applied to the entire family of doctors in Jiangsu province, because the sample was drawn from only 33 community hospitals. Therefore, future studies should consider a larger population of family doctors from other provinces of China. This is necessary to ascertain the overall state of health care in China and to develop the necessary attitudes and behaviors for work.

Acknowledgements

The support of colleagues and staff at the Department of Public Management of the School of Management and the Center for Health and Public Policy Research and the Overseas Education College of Jiangsu University is deeply appreciated. We are also grateful to the Zhenjiang Administration Bureau for Scientific and Industrial Research for their support.

Author contributions

XX: conceived the idea, collected the data, and revised the manuscript in line with the objectives. LZ: is the supervisor of the project and sequentially aligned the parts of the research paper. AWS: conducted the analysis of the data and drafted manuscript, PEQ performed the analysis of the study.

Funding

The National Natural Science Foundation of China (71904066), Social Science Foundation of Jiangsu Province (20SHD002), and the Universities' Philosophy and Social Science Researches in Jiangsu Province (2019SJA1884) assisted pre-study, data collection and other administrative expenses incurred for the study as part of a larger project to evaluate the current state of family doctor contract services in selected provinces in China.

Availability of data and materials

The data for this research is held by the authors and will be made available upon reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval was granted by the Ethics Committee of the Center for Health and Public Policy Research of Jiangsu University China and confirmed by the Jiangsu University.

Consent for publication

Not applicable.

Competing interests

The author declares that there is no competing interests amongst them.

Received: 30 March 2021 Accepted: 27 July 2023

Published online: 28 August 2023

References

- Mosadeghrad AM. Factors influencing healthcare service quality. *Int J Health Policy Manag.* 2014;3(2):77.
- Dieleman M, Harnmeijer JW. Improving health worker performance: in search of promising practices, vol. 1. Geneva: World Health Organization; 2006.
- O'Donoghue K, Tsui MS. Social work supervision research (1970–2010): the way we were and the way ahead. *Br J Soc Work.* 2015;45(2):616–33.
- Samad S. The contribution of demographic variables: job characteristics and job satisfaction on turnover intentions. *J Int Manag Stud.* 2006; 1(1).
- Mahmoud A. A study of nurses' job satisfaction: the relationship to organizational commitment, perceived organizational support, transactional leadership, transformational leadership, and level of education. *Eur J Sci Res.* 2008;22(2):286–95.
- Assiri SM, Shehata SF, Assiri MM. Relationship of Job satisfaction with perceived organizational support and quality of care among Saudi Nurses. *Health.* 2020;12(07):828.
- Lu H, While AE, Barriball KL. Job satisfaction among nurses: a literature review. *Int J Nurs Stud.* 2005;42(2):211–27.
- Romig B, Maillot J, Denmark RM. Factors affecting allied health faculty job satisfaction A literature review. *J Allied Health.* 2011;40(1):3–14.
- Toh SG, Ang E, Devi MK. Systematic review on the relationship between the nursing shortage and job satisfaction, stress and burnout levels among nurses in oncology/haematology settings. *Int J Evid Based Healthc.* 2012;10(2):126–41.
- Li X, Zhang Y, Yan D, Wen F, Zhang Y. Nurses' intention to stay: The impact of perceived organizational support, job control and job satisfaction. *J Adv Nurs.* 2020;76(5):1141–50.
- Lu Y, Hu X-M, Huang X-L, Zhuang X-D, Guo P, Feng L-F, Hu W, Chen L, Hao Y-T. Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China. *BMJ Open.* 2016;6(7): e011388.
- Issa AO. Humanities: effects of motivation on staff performance and job satisfaction in the university of Ilorin library. *Insaniyat J Islam Humanit.* 2021;5(2):91–104.
- Azim MT, Haque MM, Chowdhury RA. Gender, marital status and job satisfaction an empirical study. *Int Rev Manag Bus Res.* 2013;2(2):488.
- Dashti S, Faradmal J, Pianvayse P, Salehiniya H. Factors affecting job satisfaction among the staff of health care workers of Hamadan County in 2012. *Pajouhan Sci J.* 2014;12:28.
- Yami A, Hamza L, Hassen A, Jira C, Sudhakar MJ. Job satisfaction and its determinants among health workers in jimma university specialized hospital, southwest ethiopia. *Ethiop J Health Sci.* 2011.
- Xuan Tran B, Minh HV, Hinh ND. Factors associated with job satisfaction among commune health workers: implications for human resource policies. *Glob Health Action.* 2013;6(1):18619.
- Ramayah T, Jantan M, Tadisina SK. Job satisfaction: empirical evidence for alternatives to JDI. In: 32nd Annual meeting of decision sciences institute conference, Track OB2. San Francisco: 2001.
- Sharma NP, Sharma T, Agarwal MN. Measuring employee perception of performance management system effectiveness: conceptualization and scale development. *EmplRelat.* 2016. <https://doi.org/10.1108/ER-01-2015-0006>.
- Eisenberger R, Huntington R, Hutchison S, Sowa D. Perceived organizational support. *J Appl Psychol.* 1986;71(3):500–7.
- Blauner R. Alienation and freedom: the factory worker and his industry. 1964.
- Gouldner AW. The norm of reciprocity: a preliminary statement. *Am sociol Rev.* 1960;25:161–78.
- Günay GY. The relationship among perceived organizational support, job satisfaction, and alienation: an empirical study on academicians. *Int J Bus Soc Sci.* 2017;8(1):96–106.

23. Armstrong-Stassen M. Downsizing the federal government: a longitudinal study of managers' reactions. *Can J Adm Sci.* 1998;15(4):310–21.
24. Rhoades L, Eisenberger R. Perceived organizational support: a review of the literature. *J Appl Psychol.* 2002;87(4):698.
25. Marquis BL, Huston CJ. Leadership roles and management functions in nursing: theory and application. Philadelphia: Lippincott Williams and Wilkins; 2009.
26. Batalden PB. Building knowledge for quality improvement in healthcare: an introductory glossary. *J Healthc Qual.* 1991;13(5):8–12.
27. Radević I, Dimovski V, Lojpur A, Colnar S. Quality of healthcare services in focus: the role of knowledge transfer, hierarchical organizational structure and trust. *Knowl Manag Res Pract.* 2023;21(3):525–36.
28. Kolagar M, Hosseini SM. The effect of combining knowledge-based practices and healthcare policies on healthcare quality. *Int J Product Qual Manag.* 2019;26(3):247–75.
29. Ucuk S, Yurtal ZB. Job satisfaction and motivation levels of midwives/nurses working in family health centres: a survey from Turkey. *Int J Caring Sci.* 2017;10(2):802.
30. Kumar P, Mehra A, Inder D, Sharma N. Organizational commitment and intrinsic motivation of regular and contractual primary health care providers. *J Fam Med Prim Care.* 2016;5(1):94.
31. Battistelli A, Galletta M, Portoghese I, Vandenberghe C. Mindsets of commitment and motivation: interrelationships and contribution to work outcomes. *J Psychol.* 2013;147(1):17–48.
32. Toode K, Routasalo P, Suominen T. Work motivation of nurses: a literature review. *Int J Nurs Stud.* 2011;48(2):246–57.
33. Bonenberger M, Aikins M, Akweongo P, Wyss K. The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study. *Hum Resour Health.* 2014;12(1):43.
34. Kraimer ML, Wayne SJ. An examination of perceived organizational support as a multidimensional construct in the context of an expatriate assignment. *J Manag.* 2004;30(2):209–37.
35. Li RYM, Tang B, Chau KW. Sustainable construction safety knowledge sharing: a partial least square-structural equation modeling and a feed-forward neural network approach. *Sustainability.* 2019;11(20):5831.
36. Miao R, Kim H-G. Perceived organizational support, job satisfaction and employee performance: an Chinese empirical study. *J Serv Sci Manag.* 2010;3(02):257.
37. Chiang C-F, Hsieh T-S. The impacts of perceived organizational support and psychological empowerment on job performance: the mediating effects of organizational citizenship behavior. *Int J Hosp Manag.* 2012;31(1):180–90.
38. Imtiaz K, Farooq M, Hashm MS, Ul Aain R. Impact of perceived organizational support on job satisfaction with mediating role of employee motivation: evidence from pharmaceutical sector of Lahore, Pakistan. *IBT J Bus Stud.* 2018;14(2):13.
39. Risambessy A, Swasto B, Thoyib A, Astuti ES. The influence of transformational leadership style, motivation, burnout towards job satisfaction and employee performance. *J Basic Appl Sci Res.* 2012;2(9):8833–42.
40. Chang YW, Hsu PY, Wu ZY. Exploring managers' intention to use business intelligence: the role of motivations. *Behav Inform Technol.* 2015;34(3):273–85.
41. Viswesvaran C, Deshpande SP, Joseph J. Job satisfaction as a function of top management support for ethical behavior: a study of Indian managers. *J Bus Ethics.* 1998;17:365–71.
42. Attiq S, Wahid S, Javid N, Kanwal M, Shah HJ. The impact of employees' core self-evaluation personality trait, management support, co-worker support on job satisfaction, and innovative work behaviour. *Pak J Psychol Res.* 2017;32(1):247.
43. Kirrane M, Lennon M, O'Connor C, Fu N. Linking perceived management support with employees' readiness for change: the mediating role of psychological capital. *J Change Manag.* 2017;17(1):47–66.
44. Jalagat R. Job performance, job satisfaction, and motivation: a critical review of their relationship. *Adv Manag Econ.* 2016;5(6):36–42.
45. Ölçer F, Florescu M. Mediating effect of job satisfaction in the relationship between psychological empowerment and job performance. *Theor Appl Econ.* 2015;22(3):111–36.
46. Amundsen S, Martinsen ØL. Linking empowering leadership to job satisfaction, work effort, and creativity: the role of self-leadership and psychological empowerment. *J Leadersh Organ Stud.* 2015;22(3):304–23.
47. Ertürk A. Exploring predictors of organizational identification: Moderating role of trust on the associations between empowerment, organizational support, and identification. *Eur J Work Organ Psy.* 2010;19(4):409–41.
48. Yen R, Lin Y-L, Tai S-H. The impacts of service climate on service-oriented citizenship behavior—the mediating roles of psychological empowerment and role definition. *Manage Rev.* 2004;23(1):25–48.
49. Aguilar-Rodríguez M, Marqués-Sulé E, Serra-Añó P, Dueñas-Moscardó L, Sempere-Rubio NJ. Elaboración y validación del «Cuestionario de actitudes hacia la ética profesional en Fisioterapia». *Fisioterapia.* 2017;39(4):148–57.
50. NBSC: "China Statistical yearBook 2020. <http://www.stats.gov.cn/tjsj/ndsj/2020/indexch.htm>. Accessed 22 July 2021.
51. Ge C, Fu J, Chang Y, Wang LJ. Factors associated with job satisfaction among Chinese community health workers: a cross-sectional study. *BMC Public Health.* 2011;11(1):1–13.
52. Schaffer BS, Riordan CM. A review of cross-cultural methodologies for organizational research: a best-practices approach. *Organ Res Methods.* 2003;6(2):169–215.
53. Berling O, Law KS. Translating questionnaires and other research instruments: problems and solutions. Thousand Oaks: Sage Publications; 2000.
54. Le PB, Lei H. Determinants of innovation capability: the roles of transformational leadership, knowledge sharing and perceived organizational support. *J Knowl Manag.* 2019;105(11):1338–50.
55. Labrague LJ, De los Santos JA. COVID-19 anxiety among front-line nurses: predictive role of organisational support, personal resilience and social support. *J Nurs Manag.* 2020;28(7):1653–61.
56. Thompson PS, Bergeron DM, Bolino MC. No obligation? How gender influences the relationship between perceived organizational support and organizational citizenship behavior. *J Appl Psychol.* 2020;105(11):1338–50.
57. Tremblay MA, Blanchard CM, Taylor S, Pelletier LG, Villeneuve M. Work Extrinsic and Intrinsic Motivation Scale: its value for organizational psychology research. *Can J Behav Sci.* 2009;41(4):213.
58. Gupta V. Relationships between leadership, motivation and employee-level innovation: evidence from India. *Pers Rev.* 2020. <https://doi.org/10.1108/PR-11-2019-0595>.
59. Churchill GA Jr, Ford NM, Walker OC Jr. Measuring the job satisfaction of industrial salesmen. *J Mark Res.* 1974;11(3):254–60.
60. Hackman JR, Oldham GR. Development of the job diagnostic survey. *J Appl Psychol.* 1975;60(2):159–70.
61. Khan HS, Zhiqiang M, Abubakari Sadick M, Ibn Musah AA. Investigating the role of psychological contract breach, political skill and work ethic on perceived politics and job attitudes relationships: a case of higher education in Pakistan. *Sustainability.* 2018;10(12):4737.
62. Goldman A, Tabak N. Perception of ethical climate and its relationship to nurses' demographic characteristics and job satisfaction. *Nurs Ethics.* 2010;17(2):233–46.
63. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol.* 2003;88(5):879–903.
64. Anderson JY, Gerbing DW. Structural equation modelling in practice: a review and recommended two-step approach. *Psychol Bull.* 1988;103(3):411–23.
65. Kline RB. Principles and practice of structural equation modeling. 2nd ed. New York: The Guilford Press; 2005.
66. Malhotra N, Dash S. Marketing Research: An Applied Orientation. Hoboken: Prentice Hall; 2011. p. 552–82.
67. Nunnally JC. Psychometric theory. 2nd ed. New York: McGraw-Hill; 1978.
68. Joreskog KG, Sorbom D. LISREL 8 user's guide. Chicago: Scientific Software; 1993.
69. Kline RB. Principles and practice of structural equation modeling. 4th ed. New York: Guilford Press; 2015.
70. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Model.* 1999;6(1):1–55.
71. Gaskin J, Lim J. Master validity tool. AMOS Plugin In: Gaskination's StatWiki. 2016.

72. Gould-Williams JJ. The importance of HR practices and workplace trust in achieving superior performance: a study of public-sector organizations. *Int J Human Resour Manag.* 2003;14(1):28–54.
73. Mohamed SD, Ali M. The influence of perceived organizational support on employees' job performance. *Int J Sci Res Publ.* 2015;5(4):1–6.
74. Saltson E, Nsiah S. The mediating and moderating effects of motivation in the relationship between perceived organizational support and employee job performance. *Int J Econ Commer Manag.* 2015;3(7):654–67.
75. Nithyanandan D. Work value as motivation among software professionals. *Management Prudence.* 2010;1(1):23.
76. Ryan JC, Tipu SA. An empirical alternative to Sidani and Thornberry's (2009)'current Arab work ethic': examining the multidimensional work ethic profile in an Arab context. *J Bus Ethics.* 2016;135(1):177–98.
77. Assor A, Vansteenkiste M, Kaplan A. Identified versus introjected approach and introjected avoidance motivations in school and in sports: the limited benefits of self-worth strivings. *J Educ Psychol.* 2009;101(2):482.
78. Lam T, Baum T, Pine R. Study of managerial job satisfaction in Hong Kong's Chinese restaurants. *Int J Contemp Hosp Manag.* 2001. <https://doi.org/10.1108/09596110110365634>.
79. Lee C-K, Reisinger Y, Kim MJ, Yoon S-M. The influence of volunteer motivation on satisfaction, attitudes, and support for a mega-event. *Int J Hosp Manag.* 2014;40:37–48.
80. Imran R, Allil K, Mahmoud AB. Teacher's turnover intentions: examining the impact of motivation and organizational commitment. *Int J Educ Manag.* 2017. <https://doi.org/10.1108/IJEM-05-2016-0131>.
81. Karatepe OM, Tekinkus M. The effects of work-family conflict, emotional exhaustion, and intrinsic motivation on job outcomes of front-line employees. *Int J Bank Mark.* 2006. <https://doi.org/10.1108/02652320610659021>.
82. Raza MY, Akhtar MW, Husnain M, Akhtar MS. The impact of intrinsic motivation on employee's job satisfaction. *Manag Organ Stud.* 2015;2(3):80–8.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Xinglong Xu XX: holds a PhD in Management Science with research and teaching interest in Health Economics and Health Policy Management. He has 10 years of teaching and research experience in this area. He is currently a teacher at the School of Management at the Jiangsu University.

Lulin Zhou LZ: Professor of Public Management, Dean of School of Management (Jiangsu University), and Head of Governing Board of Social Health Insurance in Jiangsu Province (PRC). He has 30 years of teaching and research experience and published articles in the field of Social Policy, Public Management and Healthcare Policy Management.

Sabina Ampon-Wireko AWS is a post-doctoral researcher at the Jiangsu University.

Prince Ewudzie Quansah PEQ is a post-doctoral researcher at the Jiangsu University.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

