

RESEARCH

Open Access



Leadership support and satisfaction of healthcare professionals in China's leading hospitals: a cross-sectional study

Jinhong Zhao^{1,2}, Tingfang Liu^{2*} and Yuanli Liu^{2*}

Abstract

Background Healthcare professionals' job satisfaction is a critical indicator of healthcare performance, pivotal in addressing challenges such as hospital quality outcomes, patient satisfaction, and staff retention rates. Existing evidence underscores the significant influence of healthcare leadership on job satisfaction. Our study aims to assess the impact of leadership support on the satisfaction of healthcare professionals, including physicians, nurses, and administrative staff, in China's leading hospitals.

Methods A cross-sectional survey study was conducted on healthcare professionals in three leading hospitals in China from July to December 2021. These hospitals represent three regions in China with varying levels of social and economic development, one in the eastern region, one in the central region, and the third in the western region. Within each hospital, we employed a convenience sampling method to conduct a questionnaire survey involving 487 healthcare professionals. We assessed perceived leadership support across five dimensions: resource support, environmental support, decision support, research support, and innovation encouragement. Simultaneously, we measured satisfaction using the MSQ among healthcare professionals.

Results The overall satisfaction rate among surveyed healthcare professionals was 74.33%. Our study revealed significant support from senior leadership in hospitals for encouraging research (96.92%), inspiring innovation (96.30%), and fostering a positive work environment (93.63%). However, lower levels of support were perceived in decision-making (81.72%) and resource allocation (80.08%). Using binary logistic regression with satisfaction as the dependent variable and healthcare professionals' perceived leadership support, hospital origin, job role, department, gender, age, education level, and professional designation as independent variables, the results indicated that support in resource provision (OR: 4.312, 95% CI: 2.412 ~ 7.710) and environmental facilitation (OR: 4.052, 95% CI: 1.134 ~ 14.471) significantly enhances healthcare personnel satisfaction.

Conclusion The findings underscore the critical role of leadership support in enhancing job satisfaction among healthcare professionals. For hospital administrators and policymakers, the study highlights the need to focus on

*Correspondence:

Tingfang Liu
liutingfang@pumc.edu.cn
Yuanli Liu
liuyuanli_pumc@163.com

Full list of author information is available at the end of the article



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

three key dimensions: providing adequate resources, creating a supportive environment, and involving healthcare professionals in decision-making processes.

Keywords Hospital leadership, Satisfaction, Healthcare professional, China

Introduction

In the era of accelerated globalization, the investigation of global leadership has assumed heightened significance [1]. Leadership, as a dynamic and evolving process, holds the potential to cultivate both the personal and professional growth of followers [2]. Effective healthcare leadership can enhance medical service quality, patient safety, and staff job satisfaction through skill development, vision establishment, and clear direction-setting [3–5]. Moreover, leadership support can effectively enhance staff well-being and work efficiency [6, 7]. For example, Mendes et al. found that the quality of healthcare is significantly influenced by four dimensions of leadership: communication, recognition, development, and innovation [8]. Additionally, Shanafelt et al. discovered that leaders can effectively reduce employee burnout and subsequently improve the quality of medical services by formulating and implementing targeted work interventions and motivating employees [9].

Job satisfaction among healthcare professionals is a crucial indicator of healthcare performance, playing a vital role in addressing challenges related to hospital quality outcomes, patient satisfaction, and nurse retention rates [10–13]. Researchers from different national backgrounds have conducted studies on the job satisfaction of healthcare workers across various disciplines. For example, Balasubramanian et al. examined the satisfaction of immigrant dentists in Australia [14], Mascari et al. studied physicians and hospital researchers in the United States [15], and Rosta et al. investigated the satisfaction of doctors in Norway [12]. Research has demonstrated that characteristics of the work environment, balanced workloads, relationships with colleagues, career opportunities, and leadership support all influence job satisfaction [16]. Several instruments are commonly used to measure job satisfaction, each relevant depending on the context and discipline. For instance, the Job Descriptive Index (JDI) focuses on different facets of job satisfaction such as work, pay, promotion, supervision, and co-workers [17]. The Job Satisfaction Survey (JSS) covers similar dimensions and is particularly useful in public sector organizations due to its comprehensive nature and ease of use [18]. The Minnesota Satisfaction Questionnaire (MSQ) is a comprehensive tool that assesses employee satisfaction across multiple dimensions including intrinsic and extrinsic satisfaction, and is commonly used for evaluating job satisfaction in the healthcare field [19].

Recent studies have linked leadership to healthcare professionals' job satisfaction, highlighting the pivotal

role of leadership in guiding, coordinating, and motivating employees [5]. For instance, the Mayo Clinic found that leadership from immediate supervisors could alleviate burnout and increase job satisfaction [20]. Choi's research indicated that leadership empowerment significantly enhances nursing staff's job satisfaction [21]. Additionally, Liu discovered that the support provided by hospital senior leadership is closely associated with employee satisfaction [22].

In China, while leadership research has gained some traction in areas such as business and education, it remains relatively scarce within healthcare institutions. Existing studies primarily focus on the nursing sector, and comprehensive assessments of leadership at the leading public hospitals (top 10% of Chinese hospitals) have not been extensively conducted [23, 24]. Research on leadership and healthcare professionals' satisfaction often relies on single indicators to measure job satisfaction, such as overall job satisfaction or specific aspects like compensation satisfaction and burnout levels [25]. This narrow focus may fail to fully capture the multidimensional nature of employee satisfaction, which includes aspects such as workload, ability utilization, sense of achievement, initiative, training and self-development, and interpersonal communication [26]. Additionally, most existing studies focus on the job satisfaction of nurses or physicians in isolation, lacking comparative research across different groups within healthcare institutions, such as doctors, nurses, and administrative personnel [27–29].

Therefore, this study utilized the MSQ to conduct a thorough assessment of employee satisfaction and assess the impact of leadership support on the satisfaction of healthcare personnel in China's leading public hospitals. Through this research, we aim to enhance the core competitiveness of hospitals and provide valuable data to support leadership assessments in developing countries' healthcare institutions. Moreover, this study seeks to contribute to the broader international understanding of effective leadership practices in China's leading public hospitals, with implications for global health management strategies.

Methods

Study design and participants

From July to December 2021, a cross-sectional survey study was conducted on healthcare professionals in China's 3 leading hospitals. The 3 leading hospitals represent three regions in China with different levels of

social and economic development, one in the eastern, one in the central, and one in the western. In each hospital, a convenience sampling method was used to conduct a questionnaire survey among physicians, nurses, and administrative staff.

Criteria for inclusion of healthcare professionals: (1) employed at the hospital for at least 1 year or more; (2) formal employees of the hospital (full-time staff); (3) possessing cognitive clarity and the ability to independently understand and respond to electronic questionnaires, as assessed by their leaders. Exclusion criteria: (1) diagnosed with mental health disorders that impair their ability to participate, as identified by the hospital's mental health professionals; (2) unable to communicate effectively due to severe language barriers, hearing impairments, or other communication disorders, as determined by their direct supervisors or relevant medical evaluations; (3) visiting scholars, interns, or graduate students currently enrolled in a degree program.

Instrument development

Leadership support

In reference to the Malcolm Baldrige National Quality Award (MBNQA) framework and Supporting Relationship Theory [6, 30, 31], we determined the survey scale after three expert discussions involving 5–7 individuals. These experts included personnel from health administrative departments, leading public hospital leaders, middle management, and researchers specializing in hospital management. Their collective expertise ensured that the survey comprehensively assessed leadership support within hospitals from the perspective of healthcare personnel. The Leadership Support Scale consists of 5 items: Environmental Support: 'My leaders provide a work environment that helps me perform my job,' Resource Support: 'My leaders provide the resources needed to improve my work,' Decision Support: 'My leaders support my decisions to satisfy patients,' Research Support: 'My leaders support my application for scientific research projects,' and Innovation Encouragement: 'My leaders encourage me to innovate actively and think about problems in new ways' (Supplementary material). All questionnaire items are rated on a 5-point Likert scale, ranging from 1=Strongly Disagree to 5=Strongly Agree. The Cronbach's alpha coefficient for the 5-item scale is 0.753.

Job satisfaction

The measurement of job satisfaction was carried out using the Minnesota Satisfaction Questionnaire (MSQ) [32, 33], which has been widely used and has been shown by scholars to have good reliability and validity in China [34, 35]. The questionnaire consists of 20 items that measure healthcare personnel's satisfaction with various

aspects of their job, including individual job load, ability utilization, achievement, initiative, hospital training and self-development, authority, hospital policies and practices, compensation, teamwork, creativity, independence, moral standards, hospital rewards and punishments, personal responsibility, job security, social service contribution, social status, employee relations and communication, and hospital working conditions and environment. Responses to these items were balanced and rated on a scale from 1 to 5, with 1=Very Dissatisfied, 2=Dissatisfied, 3=Neither Dissatisfied nor Satisfied, 4=Satisfied, and 5=Very Satisfied. Scores range from 20 to 100, with higher scores indicating higher satisfaction. In this study, a comprehensive assessment of healthcare personnel's job satisfaction was made using a score of 80 and above [32], where a score of ≥ 80 was considered satisfied, and below 80 was considered dissatisfied. The Cronbach's alpha coefficient for the questionnaire in this survey was 0.983.

Investigation process

The survey was administered through an online platform "Wenjuanxing", and distributed by department heads to healthcare professionals within their respective departments. The selection of departments and potential participants followed a structured process: (1) Potential participants were identified based on the inclusion criteria, which were communicated to the department heads. (2) Department heads received a digital link to the survey, which they forwarded to eligible staff members via email or internal communication platforms. (3) The informed consent form was integrated into the survey link, detailing the research objectives, ensuring anonymity, and emphasizing voluntary participation. At the beginning of the online survey, participants were asked if they agreed to participate. Those who consented continued with the survey, while those who did not agree were directed to end the survey immediately.

According to Kendall's experience and methodology, the sample size can be 5–10 times the number of independent variables (40 items) [36, 37]. Our sample size is ten times the number of independent variables. Considering potentially disqualified questionnaires, the sample size was increased by 10%, resulting in a minimum total sample size of 460. Therefore, we distributed 500 survey questionnaires.

Data analysis

We summarized the sociodemographic characteristics of healthcare personnel survey samples using descriptive statistical methods. For all variables, we calculated the frequencies and percentages of categorical variables. Different sociodemographic characteristics in relation to healthcare personnel's perception of leadership

support and satisfaction were analyzed using the Pearson χ^2 test. We employed a binary logistic regression model to estimate the risk ratio of healthcare personnel satisfaction under different levels of leadership support. Estimates from three sequentially adjusted models were reported to transparently demonstrate the impact of various adjustments: (1) unadjusted; (2) adjusted for hospital of origin; (3) adjusted for hospital of origin, gender, age, education level, job type, and department. For the binary logistic regression model, we employed a backward stepwise regression approach, with inclusion at $P < 0.05$ and exclusion at $P > 0.10$ criteria. In all analyses, a two-tailed p -value of < 0.05 was considered significant, and all analyses were conducted using SPSS 26.0 (IBM Corp., Armonk, NY, USA).

Results

Demographic characteristics and job satisfaction

This study recruited a total of 500 healthcare personnel from hospitals to participate in the survey, with 487 valid questionnaires collected, resulting in an effective response rate of 97.4%. The majority of participants were female (77.21%), with ages concentrated between 30 and

49 years old (73.71%). The predominant job titles were mid-level (45.17%) and junior-level (27.31%), and educational backgrounds were mostly at the undergraduate (45.17%) and graduate (48.25%) levels. The marital status of most participants was married (79.88%), and their primary departments were surgery (38.19%) and internal medicine (24.85%). The overall satisfaction rate among the sampled healthcare personnel was 74.33%. Differences in satisfaction were statistically significant among healthcare personnel of different genders, ages, educational levels, job types, hospitals, and departments ($P < 0.05$). Table 1 displays the participants' demographic characteristics and job satisfaction.

By analyzed the satisfaction level of healthcare personnel in different dimensions, the results show that "Social service" (94.3%) and "Moral values" (92.0%) have the highest satisfaction. "Activity" (66.8%) and "Compensation" (71.9%) were the least satisfied. Table 2 shows participants' job satisfaction in different dimensions.

Table 1 Participants' demographic characteristics and job satisfaction

Characteristics		Subjects n (%)	Satisfaction n (%)	χ^2	P value
Sex	Male	111(22.79)	73(65.77)	5.530	0.019
	Female	376(77.21)	289(76.86)		
Age(years)	20–29	82(16.84)	60(73.17)	8.920	0.030
	30–39	246(50.51)	196(79.67)		
	40–49	113(23.20)	74(65.49)		
	≥ 50	46(9.45)	32(69.57)		
Professional title	Senior	37(7.60)	28(75.68)	7.491	0.112
	Associate senior	70(14.37)	46(65.71)		
	Intermediate	220(45.17)	168(76.36)		
	Junior	133(27.31)	104(78.20)		
	No title	27(5.54)	16(59.26)		
Education level	Junior college degree or below	32(6.57)	21(65.63)	10.824	0.013
	Bachelor degree	220(45.17)	179(81.36)		
	Master degree	115(23.61)	81(70.43)		
	Doctor degree	120(24.64)	81(67.50)		
Marital status	Single	94(19.30)	68(72.34)	1.586	0.452
	Married	389(79.88)	290(74.55)		
	Divorced	4(0.82)	4(100.00)		
Job type	Administrative staff	93(19.10)	67(72.04)	19.804	< 0.001
	Physician	160(32.85)	101(63.13)		
	Nurse	234(48.05)	194(82.91)		
Hospital	H1	151(31.01)	84(55.63)	42.816	< 0.001
	H2	177(36.34)	153(86.44)		
	H3	159(32.65)	125(78.62)		
Department	Internal medicine	104(21.36)	68(65.38)	23.933	< 0.001
	Surgery	186(38.19)	161(86.56)		
	Administrative management	121(24.85)	83(68.60)		
	Others	76(15.61)	50(65.79)		

Table 2 Participants' job satisfaction in different dimensions

Dimension	Satisfaction categories n(%)					Proportion satisfied (%)	Mean ± SD
	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied		
Activity	7(1.5)	42(8.6)	113(23.1)	194(39.8)	132(27.0)	66.8	3.82 ± 0.98
Independence	4(0.7)	4(0.9)	41(8.4)	223(45.7)	215(44.2)	89.9	4.32 ± 0.73
Variety	4(0.9)	5(1.1)	61(12.5)	223(45.8)	193(39.7)	85.5	4.22 ± 0.77
Social status	4(0.9)	3(0.6)	70(14.4)	205(42.2)	204(42.0)	84.2	4.24 ± 0.78
Supervision - human relations	7(1.5)	7(1.5)	39(8.0)	206(42.2)	228(46.8)	89.0	4.31 ± 0.80
Supervision – technical	4(0.9)	5(1.1)	39(8.1)	213(43.8)	225(46.1)	89.9	4.33 ± 0.75
Moral values	10(2.0)	3(0.5)	27(5.5)	179(36.7)	269(55.3)	92.0	4.43 ± 0.79
Security	6(1.2)	5(1.0)	50(10.3)	206(42.2)	221(45.3)	87.5	4.29 ± 0.79
Social service	4(0.9)	3(0.6)	21(4.2)	188(38.6)	271(55.7)	94.3	4.48 ± 0.69
Authority	4(0.9)	3(0.7)	38(7.8)	197(40.5)	244(50.2)	90.7	4.38 ± 0.74
Ability utilisation	4(0.9)	3(0.6)	34(6.9)	204(41.8)	242(49.8)	91.6	4.39 ± 0.72
Hospital policies and practices	6(1.2)	4(0.9)	58(11.9)	202(41.4)	217(44.6)	86.0	4.27 ± 0.80
Compensation	15(3.1)	23(4.7)	99(20.4)	190(39.0)	160(32.9)	71.9	3.94 ± 1.00
Advancement	12(2.5)	21(4.3)	95(19.6)	186(38.3)	172(35.3)	73.6	4.00 ± 0.97
Responsibility	4(0.9)	8(1.6)	54(11.2)	219(45.0)	201(41.3)	86.3	4.24 ± 0.79
Creativity	4(0.9)	9(1.8)	57(11.7)	211(43.2)	206(42.4)	85.6	4.24 ± 0.80
Working conditions	9(1.9)	13(2.7)	60(12.4)	181(37.2)	223(45.8)	83.0	4.22 ± 0.90
Co-workers	4(0.7)	4(0.8)	39(8.0)	199(40.9)	242(49.6)	90.5	4.38 ± 0.73
Recognition	4(0.9)	7(1.5)	39(7.9)	215(44.1)	222(45.5)	89.6	4.32 ± 0.76
Achievement	4(0.9)	4(0.7)	49(10.1)	207(42.6)	222(45.7)	88.3	4.31 ± 0.76

Perception of different types of leadership support among healthcare professionals

Overall, surveyed healthcare personnel perceived significant levels of support from hospital leadership for research encouragement (96.92%), innovation inspiration (96.30%), and the work environment (93.63%), while perceiving lower levels of support for decision-making (81.72%) and resource allocation (80.08%). Female healthcare personnel perceived significantly higher levels of resource support compared to males ($P < 0.05$). Healthcare personnel in the 30–39 age group perceived significantly higher levels of resource, environmental, and research support compared to other age groups ($P < 0.05$). Healthcare personnel with senior-level job titles perceived significantly lower levels of resource and decision-making support compared to associate-level and lower job titles, and those with doctoral degrees perceived significantly lower levels of resource support compared to other educational backgrounds ($P < 0.05$).

Clinical doctors perceived significantly lower levels of resource and environmental support compared to administrative personnel and clinical nurses, while administrative personnel perceived significantly lower levels of decision-making support compared to clinical doctors and clinical nurses ($P < 0.05$). Among healthcare personnel in internal medicine, perceptions of resource, environmental, research, and innovation support were significantly lower than those in surgery, administration,

and other departments, whereas perceptions of decision-making support in administrative departments were significantly lower than in internal medicine, surgery, and other departments ($P < 0.05$). Figure 1 displays the perception of leadership support among healthcare personnel with different demographic characteristics.

The impact of leadership support on job satisfaction among healthcare professionals

The study results indicate that healthcare personnel who perceive that their leaders provide sufficient resource, environmental, and decision-making support have significantly higher job satisfaction than those who feel that leaders have not provided enough support ($P < 0.05$). Similarly, healthcare personnel who perceive that their leaders provide sufficient research and innovation inspiration have significantly higher job satisfaction than those who believe leaders have not provided enough inspiration ($P < 0.05$). Table 3 displays the univariate analysis of leadership support on healthcare professional satisfaction.

With healthcare personnel satisfaction as the dependent variable, leadership resource support, environmental support, decision-making support, research support, and innovation inspiration were included in the binary logistic regression model. After adjusting for hospital, gender, age, education level, job type, and department, leadership's increased resource support (OR: 4.312, 95% CI: 2.412 ~ 7.710) and environmental support (OR: 4.052,

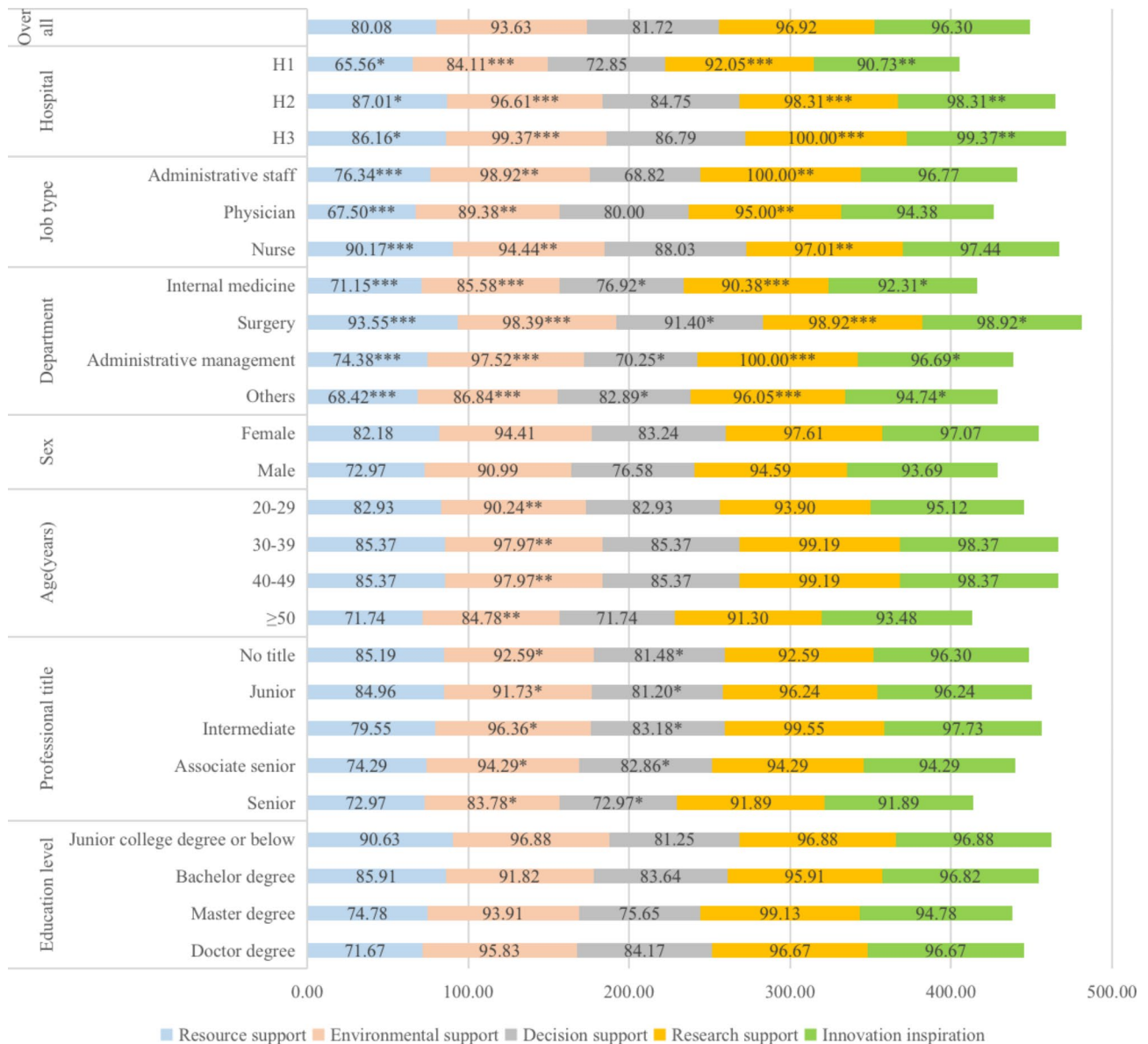


Fig. 1 Perception of leadership support among healthcare professionals with different demographic characteristics in China's leading public hospitals (* indicates $P < 0.05$, ** indicates $P < 0.01$, and *** indicates $P < 0.001$.)

Table 3 Univariate analysis of leadership support on healthcare professional satisfaction

Leadership Support	Satisfaction		χ^2	P value
	Yes	No		
Resource Support	Yes	332(85.13)	119.606	< 0.001
	No	30(30.93)		
Environmental Support	Yes	357(78.29)	58.785	< 0.001
	No	5(16.13)		
Decision Support	Yes	323(81.16)	53.141	< 0.001
	No	39(43.82)		
Research Support	Yes	360(76.27)	30.183	< 0.001
	No	2(13.33)		
Innovation Inspiration	Yes	359(76.55)	32.577	< 0.001
	No	3(16.67)		

95% CI: 1.134~14.471) were found to enhance the satisfaction levels of healthcare personnel significantly. Additionally, healthcare professionals in Hospital 2 (OR: 3.654, 95% CI: 1.796 to 7.435) and Hospital 3 (OR: 2.354, 95% CI: 1.099 to 5.038) exhibited higher levels of satisfaction compared to those in Hospital 1. Table 4 displays the binary Logistic regression analysis of leadership support on satisfaction among healthcare professionals.

Discussion

This study aimed to determine the impact of support from hospital senior leadership on the job satisfaction of healthcare personnel and to explore the effects of demographic and different types of support on the

Table 4 Binary logistic regression analysis of leadership support on satisfaction among healthcare professional

Independent variables	B	S.E.	Wald χ^2	P value	OR (95%CI)
Gender (ref: Male)					
Female	< 0.001	0.288	< 0.001	0.999	1.000(0.568 ~ 1.759)
Age(ref:20–29 years)					
30–39 years	0.198	0.416	0.226	0.635	1.219(0.539 ~ 2.755)
40–49 years	0.308	0.503	0.375	0.540	1.361(0.508 ~ 3.646)
≥ 50 years	-0.307	0.708	0.188	0.665	0.736(0.183 ~ 2.948)
Professional title (ref: No title)					
Senior	1.348	0.951	2.009	0.156	3.848(0.597 ~ 24.805)
Associate senior	-0.023	0.788	0.001	0.977	0.977(0.209 ~ 4.581)
Intermediate	0.171	0.699	0.06	0.807	1.187(0.301 ~ 4.674)
Junior	-0.402	0.658	0.372	0.542	0.669(0.184 ~ 2.432)
Education level (ref: Junior college degree or below)					
Bachelor degree	1.235	0.651	3.595	0.058	3.438(0.959 ~ 12.324)
Master degree	0.422	0.784	0.289	0.591	1.525(0.328 ~ 7.087)
Doctor degree	0.015	0.845	< 0.001	0.986	1.015(0.194 ~ 5.323)
Department (ref: Others)					
Internal medicine	0.013	0.387	0.001	0.972	1.014(0.475 ~ 2.163)
Surgery	-0.638	0.405	2.485	0.115	0.528(0.239 ~ 1.168)
Administrative management	-0.724	0.44	2.702	0.100	0.485(0.205 ~ 1.149)
Job type (ref: Administrative staff)					
Physician	-0.388	0.482	0.649	0.420	0.678(0.264 ~ 1.744)
Nurse	-0.033	0.671	0.002	0.96	0.967(0.26 ~ 3.6)
Hospital (ref: H1)					
H2	1.296	0.362	12.783	< 0.001	3.654(1.796 ~ 7.435)
H3	0.856	0.388	4.859	0.028	2.354(1.099 ~ 5.038)
Leadership support (ref: No)					
Resource Support	1.461	0.296	24.304	< 0.001	4.312(2.412 ~ 7.71)
Environmental Support	1.399	0.650	4.64	0.031	4.052(1.134 ~ 14.471)
Decision Support	0.604	0.325	3.455	0.063	1.830(0.968 ~ 3.461)
Research Support	0.630	1.289	0.239	0.625	1.878(0.15 ~ 23.474)
Innovation Inspiration	-0.786	1.159	0.460	0.498	0.456(0.047 ~ 4.421)

job satisfaction of healthcare personnel in China. The research indicates that hospital leadership's resource support, environmental support, and decision-making support have a significantly positive impact on the job satisfaction of healthcare personnel. These forms of support can assist healthcare personnel in better adapting to the constantly changing work environment and demands, thereby enhancing their job satisfaction, and ultimately, positively influencing the overall performance of the hospital and the quality of patient care.

Our research indicates that, using the same MSQ to measure job satisfaction, the job satisfaction among healthcare personnel in China's top-tier hospitals is at 74.33%, which is higher than the results of a nationwide survey in 2016 (48.22%) [38] and a survey among doctors in Shanghai in 2013 (35.2%) in China [39]. This improvement is likely due to the Chinese government's recent focus on healthcare personnel's compensation and benefits, along with corresponding improvement measures, which have increased their job satisfaction. It's worth noting that while job satisfaction among healthcare

personnel in China's top-tier hospitals is higher than the national average in China, it is slightly lower than the job satisfaction of doctors in the United States, as measured by the MSQ (81.73%) [40]. However, when compared to the job satisfaction by the MSQ of doctors in Southern Nigeria (26.7%) [32], nurses in South Korea (65.89%) [41], and nurses in Iran (59.7%) [42], the level of job satisfaction among healthcare personnel in China's top-tier hospitals is significantly higher. This suggests that China has achieved some level of success in improving healthcare personnel's job satisfaction. Studies have shown that for healthcare professionals, job satisfaction is influenced by work conditions, compensation, and opportunities for promotion, with varying levels of satisfaction observed across different cultural backgrounds and specialties [29, 43]. Furthermore, the observed differences in job satisfaction levels can be influenced by cultural factors unique to China, including hierarchical workplace structures and the emphasis on collective well-being over individual recognition.

Leadership support can influence employees' work attitudes and emotions. Effective leaders can establish a positive work environment, and provide constructive feedback, thereby enhancing employee job satisfaction [44, 45]. Our research results show that clinical physicians perceive significantly lower levels of resource and environmental support compared to administrative staff and clinical nurses, while administrative staff perceive significantly lower levels of decision-making support compared to clinical physicians and clinical nurses. This difference can be attributed to their different roles and job nature within the healthcare team [9]. Nurses typically have direct patient care responsibilities, performing medical procedures, providing care, and monitoring patient conditions, making them in greater need of resource and environmental support to efficiently deliver high-quality care [46]. Doctors usually have responsibilities for clinical diagnosis and treatment, requiring better healthcare environments and resources due to their serious commitment to patients' lives. Administrative staff often oversee the hospital's day-to-day operations and management, including budgeting, resource allocation, and personnel management. Their work may be more organizationally oriented, involving strategic planning and management decisions. Therefore, they may require more decision-making support to succeed at the managerial level [47].

The job satisfaction of healthcare personnel is influenced by various factors, including the work environment, workload, career development, and leadership support [48, 49]. When healthcare personnel are satisfied with their work, their job enthusiasm increases, contributing to higher patient satisfaction. Healthcare organizations should assess the leadership and management qualities of each hospital to enhance their leadership capabilities. This will directly impact employee satisfaction, retention rates, and patient satisfaction [50]. Resource support provided by leaders, such as data, human resources, financial resources, equipment resources, supplies (such as medications), and training opportunities, significantly influences the job satisfaction of healthcare personnel [51]. From a theoretical perspective, researchers believe that leaders' behavior, by providing resources to followers, is one of the primary ways to influence employee satisfaction [7]. These resources can assist healthcare personnel in better fulfilling their job responsibilities, improving work efficiency, and thereby enhancing their job satisfaction.

In hospital organizations, leaders play a crucial role in shaping the work environment for healthcare personnel and providing decision-making support [52, 53]. Hospital leaders are committed to ensuring the safety of the work environment for their employees by formulating and promoting policies and regulations. They also play a key

role in actively identifying and addressing issues in the work environment, including conflicts among employees and resource shortages. These initiatives are aimed at continuously improving working conditions, enabling healthcare personnel to better fulfill their duties [54]. The actions of these leaders not only contribute to improving the job satisfaction of healthcare personnel but also create the necessary foundation for providing high-quality healthcare services.

It is worth noting that our research results show that in the context of leading public hospitals in China, leadership support for research, encouragement of innovation, and decision-making do not appear to significantly enhance the job satisfaction of healthcare personnel, which differs from some international literature [23, 55, 56]. International studies often suggest that fostering innovation is particularly important in influencing healthcare personnel's job satisfaction [57, 58]. Inspiring a shared vision is particularly important in motivating nursing staff and enhancing their job satisfaction and organizational commitment [59]. This may reflect the Chinese healthcare personnel's perception of leadership's innovation encouragement, scientific research encouragement, and decision support, but it does not significantly improve their job satisfaction. However, material support (resources and environment) can significantly increase their satisfaction.

Strengths and limitations of this study

For the first time, we analyzed the role of perceived leadership support in enhancing healthcare providers in China's leading public hospitals. We assessed the impact of perceived leadership on healthcare professional satisfaction across five dimensions: resources, environment, decision-making, research, and innovation. The sample includes physicians, nurses, and administrative staff, providing a comprehensive understanding of leadership support's impact on diverse positions and professional groups.

However, it's important to note that this study exclusively recruited healthcare professionals from three leading public hospitals in China, limiting the generalizability of the research findings. Additionally, the cross-sectional nature of the study means that causality cannot be established. There is also a potential for response bias as the data were collected through self-reported questionnaires. Furthermore, the use of convenience sampling may introduce selection bias, and the reliance on electronic questionnaires may exclude those less comfortable with digital technology.

Implications for research and practice

The results of this study provide important empirical evidence supporting the significance of leadership

assessment in the context of Chinese hospitals. Specifically, the findings underscore the critical role of leadership support in enhancing job satisfaction among healthcare professionals, which has implications for hospital operational efficiency and the quality of patient care. For hospital administrators and policymakers, the study highlights the need to prioritize leadership development programs that focus on the three dimensions of leadership support: resources, environment, and decision-making. Implementing targeted interventions in these areas can lead to improved job satisfaction. Moreover, this study serves as a foundation for comparative research across different cultural and organizational contexts, contributing to a deeper understanding of how leadership practices can be optimized to meet the unique needs of healthcare professionals in various regions.

Conclusion

Our study found a close positive correlation between leadership support in Chinese leading public hospitals and employee job satisfaction. They achieve this by providing ample resources to ensure employees can effectively fulfill their job responsibilities. Furthermore, they create a comfortable work environment and encourage active employee participation. By nurturing outstanding leadership and support, hospitals can enhance employee job satisfaction, leading to improved overall performance and service quality. This is crucial for providing high-quality healthcare and meeting patient needs.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-024-11449-3>.

Supplementary Material 1

Author contributions

JZ, TL, and YL designed the study. JZ collected the original data in China, reviewed the literature, performed the analyses, and wrote the first draft of the manuscript. TL and YL critically revised the manuscript. All authors contributed to the interpretation of data and the final approved version.

Funding

This study was funded by the Fundamental Research Funds for the Central Universities (2020-RC630-001), the Fundamental Research Funds for the Central Universities (3332022166), and the Chinese Academy of Medical Sciences (CAMS) Innovation Fund for Medical Sciences (2021-I2M-1-046).

Data availability

Data are available upon reasonable request.

Declarations

Ethics approval

This study was conducted according to the guidelines of the Declaration of Helsinki and was approved by the Chinese Academy of Medical Sciences & Peking Union Medical College Institutional Review Board (CAMS & PUMC-IRC-2020-026). The survey was distributed by department heads and included informed consent and survey materials. The informed consent form

described the research objectives, assured anonymity, emphasized voluntary participation, and instructed participants to complete the questionnaire through the online system. The statement 'No signature is required, completing the survey implies consent to participate in the study' implies implied consent.

Patient and public involvement Statement

Patients or the public were not involved in the design, or conduct of our study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Beijing Jishuitan Hospital, Capital Medical University, Beijing 100035, China

²School of Health Policy and Management, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100730, China

Received: 7 January 2024 / Accepted: 16 August 2024

Published online: 02 September 2024

References

- Kempster S, Parry KW. Grounded theory and leadership research: a critical realist perspective. *Leadersh Q*. 2011;22(1):106–20.
- Northouse PG. *Leadership: Theory and Practice*. Leadership: Theory and Practice; 2014.
- Mosadeghrad AM. Factors affecting medical service quality. *Iran J Public Health*. 2014;43(2):210.
- de Vries JM, Curtis EA. Nursing leadership in Ireland: experiences and obstacles. *Leadersh Health Serv*. 2019;32(3):348–63.
- Boamah SA, Laschinger HKS, Wong C, Clarke S. Effect of transformational leadership on job satisfaction and patient safety outcomes. *Nurs Outlook*. 2018;66(2):180–9.
- Likert R. The human organization: its management and values. 1967.
- Inceoglu I, Thomas G, Chu C, Plans D, Gerbasi A. Leadership behavior and employee well-being: an integrated review and a future research agenda. *Leadersh Q*. 2018;29(1):179–202.
- Mendes L, Fradique MJG. Influence of leadership on quality nursing care. *Int J Health Care Qual Assur*. 2014;27(5):439–50.
- Shanafelt TD, Noseworthy JH, editors. *Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout*. Mayo Clinic Proceedings; 2017: Elsevier.
- Aiken LH, Clarke SP, Sloane DM, Sochalski J, Silber JH. Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA*. 2002;288(16):1987–93.
- Cicolini G, Comparcini D, Simonetti V. Workplace empowerment and nurses' job satisfaction: a systematic literature review. *J Nurs Manag*. 2014;22(7):855–71.
- Rosta J, Aasland OG, Nylenna M. Changes in job satisfaction among doctors in Norway from 2010 to 2017: a study based on repeated surveys. *BMJ open*. 2019;9(9):e027891.
- Zhang Z, Shi G, Li L, Bian Y. Job satisfaction among primary care physicians in western China. *BMC Fam Pract*. 2020;21:1–10.
- Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Job satisfaction among 'migrant dentists' in Australia: implications for dentist migration and workforce policy. *Aust Dent J*. 2016;61(2):174–82.
- Mascari C. Job satisfaction of doctors vs. researchers in the US University Hospital Environment: a comparative case study. *Northcentral University*; 2020.
- Friedberg MW, Chen PG, Van Busum KR, Aunon F, Pham C, Caloyeras J et al. Factors affecting physician professional satisfaction and their implications for patient care, health systems, and health policy. *Rand Health Q*. 2014;3(4).
- Nhung DTH, Linh TM. Identifying work-related factors influencing job satisfaction using job descriptive index questionnaire: a study of IT companies in Hanoi. *J Int Econ Manage*. 2021;21(1):63–85.
- Gomez García R, Alonso Sangregorio M, Lucía Llamazares Sánchez M. Evaluation of job satisfaction in a sample of Spanish social workers through the 'Job satisfaction survey' scale. *Eur J Social Work*. 2018;21(1):140–54.

19. Walkowiak D, Staszewski R. The job satisfaction of Polish nurses as measured with the Minnesota satisfaction questionnaire. *J Public Health Nurs Med Rescure*. 2019;4:34–40.
20. Dyrbye LN, Major-Elechi B, Hays JT, Fraser CH, Buskirk SJ, West CP, editors. Relationship between organizational leadership and health care employee burnout and satisfaction. *Mayo Clinic Proceedings*; 2020: Elsevier.
21. Choi SL, Goh CF, Adam MBH, Tan OK. Transformational leadership, empowerment, and job satisfaction: the mediating role of employee empowerment. *Hum Resour Health*. 2016;14:1–14.
22. Liu W, Zhao S, Shi L, Zhang Z, Liu X, Li L, et al. Workplace violence, job satisfaction, burnout, perceived organisational support and their effects on turnover intention among Chinese nurses in tertiary hospitals: a cross-sectional study. *BMJ open*. 2018;8(6):e019525.
23. Wang X, Chontawan R, Nantsupawat R. Transformational leadership: effect on the job satisfaction of registered nurses in a hospital in China. *J Adv Nurs*. 2012;68(2):444–51.
24. Wang L, Tao H, Bowers BJ, Brown R, Zhang Y. When nurse emotional intelligence matters: how transformational leadership influences intent to stay. *J Nurs Manag*. 2018;26(4):358–65.
25. Adamopoulos IP. Job satisfaction in public health care sector, measures scales and theoretical background. *Eur J Environ Public Health*. 2022;6(2):em0116.
26. Montano D, Reeske A, Franke F, Hüffmeier J. Leadership, followers' mental health and job performance in organizations: a comprehensive meta-analysis from an occupational health perspective. *J Organizational Behav*. 2017;38(3):327–50.
27. Carlson MA, Morris S, Day F, Dadich A, Ryan A, Fradgley EA, Paul C. Psychometric properties of leadership scales for health professionals: a systematic review. *Implement Sci*. 2021;16(1):85.
28. Aiken LH, Sermeus W, Van den Heede K, Sloane DM, Busse R, McKee M et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*. 2012;344.
29. Cunningham R, Westover J, Harvey J. Drivers of job satisfaction among healthcare professionals: a quantitative review. *Int J Healthc Manag*. 2023;16(4):534–42.
30. Foster TC, Johnson JK, Nelson EC, Batalden PB. Using a Malcolm Baldrige framework to understand high-performing clinical microsystems. *BMJ Qual Saf*. 2007;16(5):334–41.
31. Shields JA, Jennings JL. Using the Malcolm Baldrige are we making progress survey for organizational self-assessment and performance improvement. *J Healthc Qual*. 2013;35(4):5–15.
32. Bello S, Adewole DA, Afolabi RF. Work facets predicting overall job satisfaction among resident doctors in selected teaching hospitals in Southern Nigeria: a Minnesota satisfaction Questionnaire Survey. *J Occup Health Epidemiol*. 2020;9(1):52–60.
33. Ozyurt A, Hayran O, Sur H. Predictors of burnout and job satisfaction among Turkish physicians. *J Association Physicians*. 2006;99(3):161–9.
34. Wang YY, Xiong Y, Zhang Y, Li CY, Fu LL, Luo HL, Sun Y. Compassion fatigue among haemodialysis nurses in public and private hospitals in China. *Int J Nurs Pract*. 2022;28(1):e13011.
35. Jiang F, Hu L, Rakofsky J, Liu T, Wu S, Zhao P, et al. Sociodemographic characteristics and job satisfaction of psychiatrists in China: results from the first nationwide survey. *Psychiatric Serv*. 2018;69(12):1245–51.
36. Kendall MG. Note on bias in the estimation of autocorrelation. *Biometrika*. 1954;41(3–4):403–4.
37. Hinkle DE, Wiersma W, Jurs SG. *Applied statistics for the behavioral sciences*. Houghton Mifflin college division; 2003.
38. Zhou H, Han X, Zhang J, Sun J, Hu L, Hu G et al. Job satisfaction and Associated Factors among medical staff in Tertiary Public hospitals: results from a National Cross-sectional Survey in China. *Int J Environ Res Public Health*. 2018;15(7).
39. Liu J, Yu W, Ding T, Li M, Zhang L. Cross-sectional survey on job satisfaction and its associated factors among doctors in tertiary public hospitals in Shanghai, China. *BMJ Open*. 2019;9(3):e023823.
40. Ritter B. Senior healthcare leaders: exploring the relationship between the rates of job satisfaction and person-job value congruence. *Int J Healthc Manag*. 2021;14(1):85–90.
41. Shin S, Oh SJ, Kim J, Lee I, Bae SH. Impact of nurse staffing on intent to leave, job satisfaction, and occupational injuries in Korean hospitals: a cross-sectional study. *Nurs Health Sci*. 2020;22(3):658–66.
42. Shahrabaki PM, Abolghaseminejad P, Lari LA, Zeidabadinejad S, Dehghan M. The relationship between nurses' psychological resilience and job satisfaction during the COVID-19 pandemic: a descriptive-analytical cross-sectional study in Iran. *BMC Nurs*. 2023;22(1):137.
43. Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. *Mayo Clin Proc*. 2015;90(12):1600–13.
44. Laschinger HKS, Wong CA, Grau AL. The influence of authentic leadership on newly graduated nurses' experiences of workplace bullying, burnout and retention outcomes: a cross-sectional study. *Int J Nurs Stud*. 2012;49(10):1266–76.
45. Chang C-S. Moderating effects of nurses' organizational support on the relationship between job satisfaction and organizational commitment. *West J Nurs Res*. 2015;37(6):724–45.
46. Lake ET, Friese CR. Variations in nursing practice environments: relation to staffing and hospital characteristics. *Nurs Res*. 2006;55(1):1–9.
47. Bååthe F, Erik Norbäck L. Engaging physicians in organisational improvement work. *J Health Organ Manag*. 2013;27(4):479–97.
48. Zhang M, Zhu CJ, Dowling PJ, Bartram T. Exploring the effects of high-performance work systems (HPWS) on the work-related well-being of Chinese hospital employees. *Int J Hum Resource Manage*. 2013;24(16):3196–212.
49. Baek H, Han K, Ryu E. Authentic leadership, job satisfaction and organizational commitment: the moderating effect of nurse tenure. *J Nurs Adm Manag*. 2019;27(8):1655–63.
50. Robbins B, Davidhizar R. Transformational leadership in health care today. *Health Care Manag*. 2020;39(3):117–21.
51. Hussain MK, Khayat RAM. The impact of transformational leadership on job satisfaction and organisational commitment among hospital staff: a systematic review. *J Health Manag*. 2021;23(4):614–30.
52. Mete M, Goldman C, Shanafelt T, Marchalik D. Impact of leadership behaviour on physician well-being, burnout, professional fulfilment and intent to leave: a multicentre cross-sectional survey study. *BMJ open*. 2022;12(6):e057554.
53. Avolio BJ, Walumbwa FO, Weber TJ. Leadership: Current theories, research, and future directions. *Ann Rev Psychol*. 2009;60:421–49.
54. Zhang L-f, You L-m, Liu K, Zheng J, Fang J-b, Lu M-m, et al. The association of Chinese hospital work environment with nurse burnout, job satisfaction, and intention to leave. *Nurs Outlook*. 2014;62(2):128–37.
55. Cummings G, Estabrooks CA. The effects of hospital restructuring that included layoffs on individual nurses who remained employed: a systematic review of impact. *Int J Sociol Soc Policy*. 2003;23(8/9):8–53.
56. Laschinger HKS, Finegan J, Shamian J. The impact of workplace empowerment, organizational trust on staff nurses' work satisfaction and organizational commitment. *Health Care Manage Rev*. 2001:7–23.
57. Wong CA, Laschinger HKS. The influence of frontline manager job strain on burnout, commitment and turnover intention: a cross-sectional study. *Int J Nurs Stud*. 2015;52(12):1824–33.
58. Alrowwad Aa, Abualoush SH. Masa'deh re. Innovation and intellectual capital as intermediary variables among transformational leadership, transactional leadership, and organizational performance. *J Manage Dev*. 2020;39(2):196–222.
59. Chiok Foong Loke J. Leadership behaviours: effects on job satisfaction, productivity and organizational commitment. *J Nurs Adm Manag*. 2001;9(4):191–204.

Publisher's note

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