

Investigation of the Service Status of Pharmacists under COVID-19: A Case Study in Yunnan Province, China

Zhu Meng, B.D.¹, Lu Jingyi, B.D.¹, Jiang Yan, B.D.¹, Mao Jia, B.D.¹, Yang Jian, M.D.^{1,2}

¹School of Pharmacy and Yunnan Natural Pharmaceutical Pharmacology Key Laboratory, Kunming Medical University, Kunming, Yunnan 650500, China.

²Yunnan Provincial Center for Drug Policy Research, Kunming, Yunnan 650500, P.R. China.

ABSTRACT

Objective: The aim of this study is to investigate the current status of pharmaceutical care provided by pharmacists in Yunnan province amid the COVID-19 pandemic. This is in line with the province's pursuit of becoming a (health destination) and the development of a large-scale health industry. The findings may provide insights for enhancing the capacity building of pharmacists in medical institutions in Yunnan province.

Material and Methods: A questionnaire titled (Improving the Capacity Building of Hospital Pharmacists under the Epidemic Situation) was designed and distributed to hospital pharmacists. The collected data were analyzed using statistical methods.

Results: A total of 50 hospital pharmacists participated in the survey. Approximately 80% of the respondents were employed in tertiary medical and health institutions, and 50% were primary pharmacists or primary drug pharmacists. A significant positive correlation was found between the satisfaction of current salary level, promotion mechanism satisfaction, status environment satisfaction, and status in the hospital (p -value<0.01). A significant negative correlation was found between salary satisfaction (p -value<0.01). The overall mean situation of hospital pharmacists' perception of a (healthy living destination) was 3.70.

Conclusion: The pharmaceutical service capacity building in Yunnan Province remains in a traditional mode, characterized by insufficient matching of professional pharmaceutical personnel, low overall satisfaction with the pharmaceutical service environment, low enthusiasm for pharmaceutical work, lack of relevant understanding, and imperfect policy support. Recommendations include improving the pharmaceutical management system, strengthening capacity building for pharmaceutical services, enhancing training and development of professional talents, establishing a medical insurance incentive mechanism, and reasonably reflecting the value of pharmaceutical services.

Corresponding author: Yang Jian, M.D.
School of Pharmaceutical Sciences and Yunnan Provincial Key Laboratory of
Pharmacology for Natural Products, Kunming Medical University, Kunming,
Yunnan 650500, P.R. China.
E-mail: hamars@126.com
doi: 10.31584/psumj.2023257840
<https://he01.tci-thaijo.org/index.php/PSUMJ/>

PSU Med J 2023;3(2):69–75
Received 25 July 2022
Revised 18 October 2022
Accepted 18 October 2022
Published online 7 July 2023

Keywords: countermeasure analysis; hospital pharmacist; pharmaceutical service ability; status investigation

INTRODUCITON

Hospital pharmacy is an integral component of hospital work. Pharmacists play a crucial role in ensuring the safety and effectiveness of drug use for patients and safeguarding public health. In the context of the COVID-19 epidemic and the alignment of Yunnan Province's (health destination) with the development of a large-scale health industry, the growth of pharmacists should be in line with the evolving demand for hospital pharmaceutical care. This necessitates the continuous improvement of pharmaceutical care capacity and social value.¹ This study investigates the capacity building and status of pharmaceutical care provided by pharmacists in Yunnan Province through a questionnaire survey. The factors affecting pharmaceutical care ability are analyzed, offering insights for developing pharmaceutical care capacity plans for pharmacists in the province.

MATERIAL AND METHODS

Research objects

The research objects were hospital pharmacists from selected public medical institutions in Yunnan province.

Research methods

After consulting relevant literature and expert opinions, a questionnaire was designed with careful consideration to its rationality and practicability. The survey was conducted using Questionnaire Star Webpage, a platform with functions similar to Amazon Mechanical Turk. The questionnaire was distributed to hospital pharmacists in selected public medical institutions in the province, and all responses were anonymous. The questionnaire was considered valid only if all items were filled in.

Statistical methods

Data analysis was performed using Excel 2010 and SPSS 25.0 software. Measurement data were presented as mean±standard deviation (M±S.D.). Descriptive statistical analysis was used to present the overall situation. The statistical methods of independent sample T test and one-way ANOVA were used to determine the differences in population variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Basic information and current status of pharmaceutical services

A total of 50 hospital pharmacists participated in this study, titled (Questionnaire on Improving the Capacity Building of the Hospital Pharmacist Team). Among the participants, 66.0% were female and 34.0% were male. Participants under the age of 25 accounted for 26%, those aged between 26–35 years old accounted for 54.0%, and the remaining 20% fell into other age categories. 60.0% of participants held a bachelor's degree, while 6% held a junior college or high school degree. 56.0% of participants majored in clinical pharmacy, while 36% majored in pharmacy. 40% had been working for more than 5 years, while 52% worked within the staff and 12% were classified as (others). The overall matching degree of hospital pharmacists to their pharmacy positions was between fully competent and competent, indicating that the overall level of matching was upper-middle. However, the average level of satisfaction with salary, job promotion mechanism, working environment, and status was between average and dissatisfied. Hospital pharmacists believed that they lacked knowledge and skills in the areas shown in **Figure 1-2**.

Relationship between Hospital Pharmacists' job matching degree, salary satisfaction, promotion mechanism, and job status satisfaction.

There was a significant positive correlation between hospital pharmacists' satisfaction with their current salary level, job promotion mechanism, work environment and status quo satisfaction, and their attitudes towards their job in the hospital (p -value<0.01). However, there was a significant negative correlation between the matching degree of pharmacists to their pharmacy positions and satisfaction with their salary level (p -value<0.01). The matching degree of hospital pharmacists to their pharmacy

positions was related to their satisfaction with their job promotion mechanism, working environment, and job status, but not their attitudes towards their job (p -value>0.05). This survey revealed that hospital pharmacists' satisfaction with their current pharmacy service environment was generally at a middle to low level, and the value of their service was not fully reflected. This could lead to reduced recognition of the pharmacy profession, decreased motivation, and enthusiasm for pharmacy work, and hinder the development of the pharmacy profession.

Hospital Pharmacists' cognition and importance ratings on (healthy life destination)

Regarding the (healthy life destination) proposed by the CPC Yunnan Provincial Committee and the Yunnan Provincial Government in 2018 to create one of the (three trumps) and promote the construction of a modern full-process pharmaceutical care system, only 10.0% of the respondents stated that they understood it, while over half reported having little knowledge or partial understanding, and nearly 30.0% had not heard of it. The average cognition score of hospital pharmacists on the (healthy life destination) was 3.70, indicating a level between general awareness and understanding. The overall level of hospital

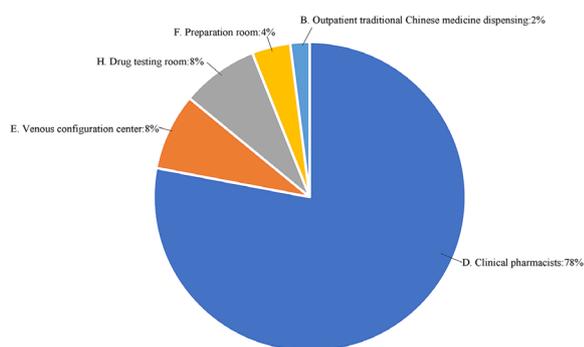


Figure 1 Most promising positions according to Hospital Pharmacists

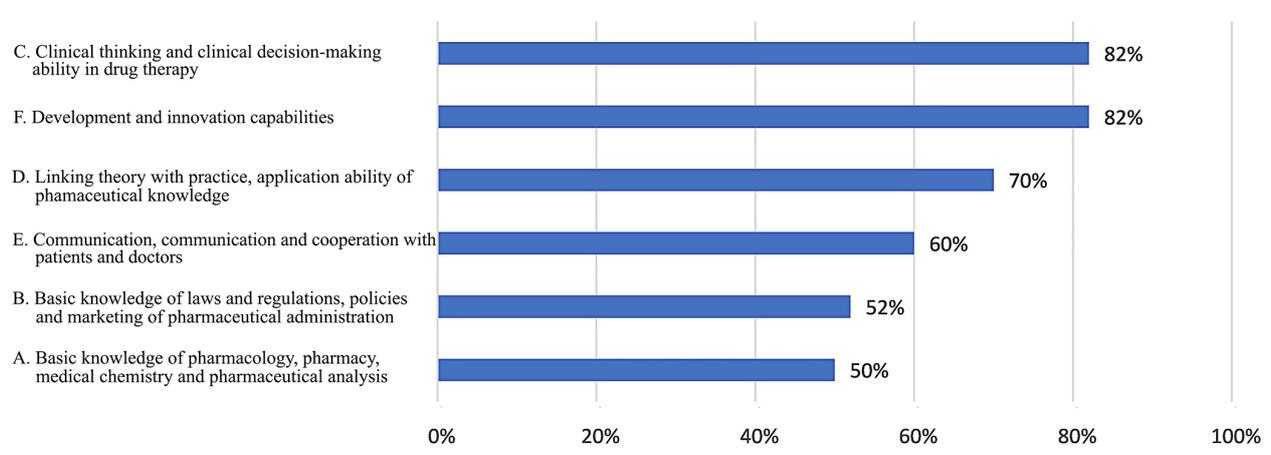


Figure 2 Skills lacking among pharmacists

pharmacists' cognition of (healthy life destination) was at a lower middle level. 72.0% of respondents believed that the construction of a pharmacist talent team played an important role in building a (healthy life destination), while only 6.0% believed it was not important or had no effect. Hospital pharmacists rated the importance of the construction of a pharmacist talent team to Yunnan Province in building a (healthy life destination) as 2.00 on average, indicating that it was extremely important, as shown in Table 1-3.

DISCUSSION

Continuing education to improve pharmaceutical services

Given the uneven educational structure and professional quality, implementing continuing education to enhance the level of pharmaceutical services is necessary. Some pharmacists lack formal and systematic theoretical study due to the absence of a self-improvement environment for continuous learning of pharmacy-related professional theories. Consequently, it is challenging to enhance their professional skills, leading to insufficiently detailed and comprehensive consultations, along with inadequate medication guidance for medical staff and patients.

Significant gaps exist in the academic knowledge structure, work ability, and self-quality of pharmacy personnel within numerous hospitals. The national health administrative department should integrate its pharmacy management functions for medical institutions and establish a (National Pharmacy Management and Drug Treatment Expert Committee) responsible for researching and formulating clinical diagnosis, treatment guidelines, and drug clinical application guidelines for medical institutions' drug treatment. It should also define pharmacists' work responsibilities and guiding principles of work education and training².

Table 1 Status of pharmacy services (n=50)

Variable	Category	Number	Proportion(%)
Medical Institution Level	Level 1	4	8
	Level 2	7	14
	Level 3	39	78
Job title	Junior Pharmacist/ Pharmacist	25	50
	Head Pharmacist	11	22
	Deputy Chief Pharmacist	5	10
	Other	9	18
	Jobs operating post	Clinical pharmacist	16
	Outpatient medicine dispensing	18	36
	Other	16	32
Types of pharmacists' work carried out	Medication consultation	43	86
	Prescription reviews	46	92
	Medication education	36	72
	Drug ADR analysis	44	88
	Case discussion	39	78
	Daily ward rounds	39	78
	Medicine calendar writing	36	72

Medical and health institutions should strengthen the introduction of pharmacy professional and technical personnel, improve the access standards of pharmacy personnel, and reinforce on-the-job training of pharmacy personnel, according to functional orientation. This would ensure a more professional staff while simultaneously expanding the scope of pharmacy services³. Examples

Table 2 Analysis results of job matching, salary satisfaction, promotion mechanism and job status satisfaction

Item	Pharmacy job matching degree	Salary level satisfaction	Satisfaction with job promotion mechanism	Satisfaction with the current state of the work environment	Pharmacist's position in the hospital
Pharmacy job matching degree	1				
Salary level satisfaction	-0.343 [*]	1			
Satisfaction with job promotion mechanism	-0.098	0.495 ^{**}	1		
Satisfaction with the current state of the work environment	-0.056	0.598 ^{**}	0.614 ^{**}	1	
Pharmacist's position in the hospital	-0.222	0.424 ^{**}	0.374 ^{**}	0.529 ^{**}	1

Note: **means p-value<0.01; *means p-value<0.05

Table 3 Overall cognition of hospital pharmacists on: "healthy life destination"

Item	N	Min	Max	Average	Standard deviation
Understanding of "healthy Living destination", and actively promoting the construction of a modern, full process pharmaceutical care system	50	2	5	3.70	0.995
The importance of the construction of a pharmacist talent team, for building a "healthy life destination" in Yunnan Province	50	2	5	2.00	0.969

include home pharmacy services, promoting the healthy development of (Internet+pharmacy services), and increasing in-vivo pharmacy services of the medical complex. Moreover, medical institutions should increase capital investment, expand the scope of pharmaceutical services, and strengthen pharmaceutical personnel training to meet pharmaceutical service needs in both number and ability³.

Strengthening pharmacy service capacity by standardizing service models

In light of the low overall satisfaction of hospital pharmacists with the pharmacy service environment, it

is necessary to strengthen pharmacy service capacity by exploring and standardizing pharmacy service models. Hospital pharmacists are not satisfied with the pharmacy service environment and believe that the value of pharmacist services has not been fully reflected. This dissatisfaction is detrimental to the development of hospital pharmacy disciplines, pharmacy talent echelon construction and development, and ensuring the implementation of policies promoting rational drug use in medical institutions.

By setting a reasonable pharmaceutical service fee, the cost and value of pharmaceutical services can be considered in the price of medical services. Support for the development of pharmaceutical services, encouraging

pharmacists to play an active role in rational drug use promotion, and reducing resource waste is essential. Further improvement of the performance appraisal system for pharmacists is also necessary, reflecting the job characteristics and professional value of pharmacists. A pharmacist performance management system could enhance pharmacists' enthusiasm, work efficiency, and standardization degree, improving their status in drug treatment participation and overall satisfaction within the pharmacy service environment⁴.

Hospital pharmacists also report a lack of knowledge, particularly in clinical thinking and clinical decision-making ability in drug treatment, as well as the capacity to develop and innovate. Nearly half of the younger pharmacists desire increased training opportunities abroad. Younger individuals are ambitious and receptive to new ideas but often lack long-term professional experience. They require guidance and encouragement from role models to establish good professional norms and correct values. Therefore, strengthening continuing education and promoting pharmacist team construction in medical and health institutions is crucial⁵.

Enhancing legal framework, Incentive mechanisms, and pharmaceutical information management

Current mechanisms are imperfect; hence, laws and regulations should be improved, incentive mechanisms established, and pharmaceutical information management strengthened. At present, the pharmacy management organization of medical institutions in Yunnan province lacks responsibility rules and regulations for pharmacists. Although the (Affairs of Medical Institutions) stipulate the scope of authority, professional fields, and job responsibilities of pharmacists, there is no clear guidance on many rights and responsibilities of pharmacists in carrying out clinical pharmacy services. As a result, the current pharmacy service fails to fully reflect the patient-centered tenet, negatively impacting the service level⁶.

Chinese pharmacists also lack specific legal requirements and protection in clinical work. Although the country has successively promulgated the (People's Republic of China Drug Administration Law» and (Medical Malpractice Regulations), the level of perfection in pharmaceutical services remains insufficient. Relevant state departments should provide legal norms and guidance to protect pharmacists' rights and regulate their work standards in the form of legal provisions⁷.

The new medical reform necessitates hospitals to mobilize staff enthusiasm by implementing comprehensive performance appraisals. This measure is also applicable to pharmacists, helping hospitals understand their working conditions, service implementation effects, and promoting the continuous improvement and development of hospital pharmacy services. Current prescription review remains in the form, necessitating improvements to the information-based prescription review system, real-time dynamic monitoring of prescriptions, and long-term warnings⁸.

CONCLUSION

This survey has identified some problems and difficulties in the current situation of pharmacy service capabilities in Yunnan province, such as the scarcity of clinical pharmacists, the overall low level and professional titles of pharmacy personnel, and the dominance of traditional dispensing in the service model. To respond to the call of (Healthy China) and create a (healthy life destination), several measures can be taken. This includes improving the admission standards of pharmacy personnel, strengthening the education of pharmacy professionals, improving their level of professional knowledge, and strengthening their practical service ability. Adopting a variety of incentive mechanisms to enhance the sense of value and satisfaction of pharmacists, breaking the traditional service model, accelerating the transformation and development of a modernized and networked pharmacy service model, and adapting to the

requirements of (normalization of epidemic prevention). Gradually improving the ability of pharmacy services from multiple aspects and angles will help in achieving the goal of creating a (healthy life destination).

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