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Study on the Improvement of Medical Service Quality in Beijing Tianqiao Community Health Service Center

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Abstract. Community health service centers are community-level medical institutions that implement a tiered diagnosis and treatment system, whose development profoundly impacts the establishment of basic medical and health systems with Chinese characteristics. Improving and enhancing medical service quality is a key problem for community health service centers.This study is based on the gap theory of service quality and the three-dimensional theory of "structure-process-outcome" quality evaluation. Taking the medical service of Beijing Tianqiao Community Health Service Center as an example, this study constructs an index system of medical service quality evaluation. Through the investigation of 211 people, SPSS software was used for data processing and analysis. The study found that most patients has evaluated the medical service quality in beijing tianqiao community health service center as greater than expectations, whose qualified items accounted for 93%. Among them, the scores of efficient business handling, docking and referral with large hospitals and accurately recording the diagnosis and treatment process are high, while the actual perception scores of patients on reasonable distribution of departments and clear signs and multiple types of specialist clinics are lower than the expected scores. Through communication with patients and hospitals, on the one hand, in the form of COVID-19, patients are willing to choose community hospitals if they are not suffering from serious diseases in order to reduce the risk of infection. On the other hand, in order to facilitate the masses and reduce the pressure of class III hospitals, the government has invested a lot of funds in the development of community hospitals, and patient satisfaction has been improved. As more and more people go to community hospitals, people have higher and higher requirements for the distribution of departments and diversified specialist clinics. Based on this, some suggestions are put forward to establish and add specialized departments and consider using technologies such as information IT to improve the convenience of medical treatment for the elderly.

Keywords: community health service center; quality improvement; service quality; SERVQUAL model;big data

1. Introduction

The relationship between doctors and patients has always been a hot issue in society, and the medical service quality directly influences people's experience of receiving medical care. At present, it is in the key stage of the in-depth reform of China's medical and health system. The problems such as low utilization rate of medical resources, high medical cost and no guarantee of treatment effect have become the difficulties that must be overcome in the medical reform. Over the years, the state has continuously increased policy support and capital investment in the field of medical and health care, and has also taken improving the quality of medical services as the focus of the future work of the medical industry.

As a primary medical facility in the medical system, the community health service center has the characteristics of wide coverage and convenient medical treatment for the people under its jurisdiction. A major source of primary health care for millions of Americans. High-quality medical services can meet the different health service needs of the people to improve the level of satisfaction. Against the backdrop of the COVID-19 pandemic, the importance of community health service centers as community-level medical institutions has been building up with the deepening of medical reform. On the one hand, because of the routine COVID-19 control, community health service centers are shouldering more of the workload, so as to provide public health service, epidemic

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detection and routine epidemic prevention within their communities. On the other hand, when secondary and tertiary medical institutions are overcrowded, community-level medical institutions should help ease the burden of larger hospitals. In addition, community health service centers are also facing new challenges such as the construction of intelligent medical care and more diverse needs of patients as medical reform deepens. However, most existing quality evaluation standards focus on the static analysis of aftercare results and expenditure, yet ignore the dynamic process of medical service quality management, which is not suitable for the current medical service quality development status..

Scholars at home and abroad have conducted extensive studies on improving medical service quality. Ehlke, D.C. examines the historical forces and forebears that preceded, and helped shape, community health centers.The research on service quality began in the late 1970s. Lewis and booms found that service quality has become the key basis for measuring customers' service evaluation of enterprises[1]. Parasuraman A et al. put forward a conceptual service quality model, hoping to stimulate the interest of academia and practitioners in service quality and provide a framework for further empirical research in this important field[2]. Martin et al. found that the results of doctor rating websites showed a positive impact on patient care[3]. Fayissa et al. conducted a quantitative study on healthcare service quality classification rules in the nursing home industry[4]. Meng Hua et al. have studied the construction of "Internet Plus" intelligent hospitals[5]. Du Yan analyzed the defects of public hospital service quality based on the five aspects of the SERVQUAL model[6]. Since then, more and more scholars have begun to pay attention to the quality of community medical services. Ai Xin et al. established the evaluation index system of Shanghai Medical and Health Care Integrated Community Medical Service by SPO[7]. Bowblis J R explored the impact of occupational licensing on service quality for community workers[8]. Based on SERVQUAL evaluation, Al Borie H M studied the satisfaction of medical service quality of public and private hospitals in Saudi Arabia, and found that service quality had a certain impact on medical care strategies[9]. Finnish scholars believe that the quality of medical service can be evaluated by evaluating such indicators as treatment information, integrity, politeness, service professionalism, service awareness, disease development, privacy protection, test efficiency and overall treatment success rate[10]. Even though there is no existing unified definition of medical service quality, Brook pointed out that the quality of medical service not only includes traditional factors, such as the accuracy, timeliness and integrity of diagnosis, but also includes whether the society is satisfied with effective medical services, respects patients, medical service efficiency, medical continuity and systematic Ness, etc.[11]. Hou Xiong pointed out the problems existing in the service quality of Internet hospitals through the construction of the service quality evaluation index system of Internet hospitals, and applied the analysis method of Kano model to put forward targeted improvement strategies, in order to provide beneficial thinking for the healthy development of Internet hospitals[12]. Quan Xiaoming and Zhang Yong pointed out that the current development of domestic community health service institutions is in the situation of late start, weak foundation and declining relative development ability, so it is urgent to build a good strategic ecosystem.[13].

To sum up, at present, scholars at home and abroad have analyzed the medical service quality in different types of institutions from the perspective of patients. Among them, the conclusion that the medical service quality determines whether patients are willing to obtain medical service at community health service centers has been widely accepted. Based on the discussion in the preceding section, we propose hypotheses:

Hypothesis 1(H1):Medical service quality effect patients' wills.

Hypothesis 2(H2): The Community Health Service Center have problems of patient expectations below reality, and poor medical environment, hardware equipment and medical level.

In light of this, the study closely follows the direction of medical reform, integrates the construction of intelligent medical care into the evaluation of medical service quality, takes Beijing Tianqiao Community Health Service Center as an example, and uses Donabedian's structure-process-outcome theory and the SERVQUAL evaluation scale to construct the evaluation

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model. After analyzing the data collected by a questionnaire survey, specific measures to render better services are put forward, providing a new research idea for studies on the improvement of medical service quality.

2. Materials and Methods

2.1 Materials

In this study, we focused on how to build a service quality evaluation index system of community hospitals, then do empirically test.Service quality reflects the customers' perception, which is highly subjective and perceptive. Therefore, if medical and health institutions are to improve the overall service quality, they must be grounded in the patients' needs and their perception while achieving both process quality and result quality[23]. Beijing Tianqiao Community Health Service Center is responsible for 46,300 residents in the area (managed by eight neighborhood committees) in terms of providing the "Six-in-One" community health service covering basic medical care, preventive health care, rehabilitation, etc. The Service Center has 3 service stations and has constructed a new internal management organization with the Health Management Department and Performance Evaluation Department framework. The complex structure of residents served by the Service Center offers an applicable sample of diversity and research significance for this study, basically meeting the research needs. This study has constructed an index system in accordance with the characteristics of the sample. It has passed the robustness and effectiveness tests. Referring to the design of the primary healthcare service quality index evaluation system by Huang Yanli et al., and focusing on relevant inputs, processes and results in the connotation of service quality[14].

2.2 Methods

Sample and procedure. The sample for this study is a group of patients from Beijing Tianqiao Community Health Service Center, including 107 male patients (50.71%) and 104 female patients (49.29%). First, First, we identify factors and dimensions. Then build a model to fully capture research propositions. Finally, establish the evaluation index system according to the selection principle of evaluation index, and form a questionnaire. We contacted Beijing Tianqiao Community Health Service Center to solicit their help in distributing questionnaires to their patients.

2.2.1 Influence Evaluation of Medical Service Quality

Analyzing the main factors that influence the evaluation of medical service quality. Variables are defined as follows:

Environmental equipment means medical environment and medical facilities and equipment.

Medical level means physical recovery of patients after medical treatment.

Service Attitude means service attitude of non-medical staff and operational efficiency and standardization of medical staff.

Medical Expenses means amount of medical expenses during the whole visit.

Information Construction means online platform and self-service equipment for patients' use.

Service Response means timely improve according to the patient's suggestions and deal with disputes in time.

The corresponding relationship between variables and questionnaire is shown in Table 1.

Table 1. Variables and questionnaire.

Independent variable	Corresponding questionnaire questions
Environmental equipment	1, 2, 3, 5, 17
Medical level	6, 13, 18, 19, 23
Service attitude	10, 11, 12, 14, 15, 16, 20, 22, 24

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2.2.2 Dimensions of Service Quality Evaluation

The model of service quality - SERVQUAL is divided into five dimensions: tangibles, reliability, responsiveness, assurance and empathy. Questions are set to collect data in questionnaires, asking the respondents to score the expectation value (E) and perception value (P) for each question. Based on relevant research of JCI and KTQ, this study classifies the quality of community medical service into three aspects: tangible quality, process quality and result quality. The SERVQUAL scale dimensions are repurposed by the whole diagnosis and treatment process characteristics, and reranked and redivided into tangible environment quality, process quality, and result quality.The service quality score is thus comprehensively calculated as SERVQUAL score = perception score - expectation score[15].Described by the formula is:

$$\text{SERVQUAL score} = \frac{1}{m}\sum_{i=1}^{m} P_i - E_i \quad (1)$$

in the formula：

SERVQUAL score--The overall service quality under the expected perception difference;

Pi--The mean value of the service quality of the i-th index actually perceived by patients;

Ei--The average service quality of the i-th index expected by patients;

m--Number of scale items;

2.2.3 Service Quality Evaluation Model

Given the evaluation dimension and the actual situation of the Community Health Service Center, the medical service quality evaluation model is constructed based on the three-dimensional theory, as shown in Figure 1.

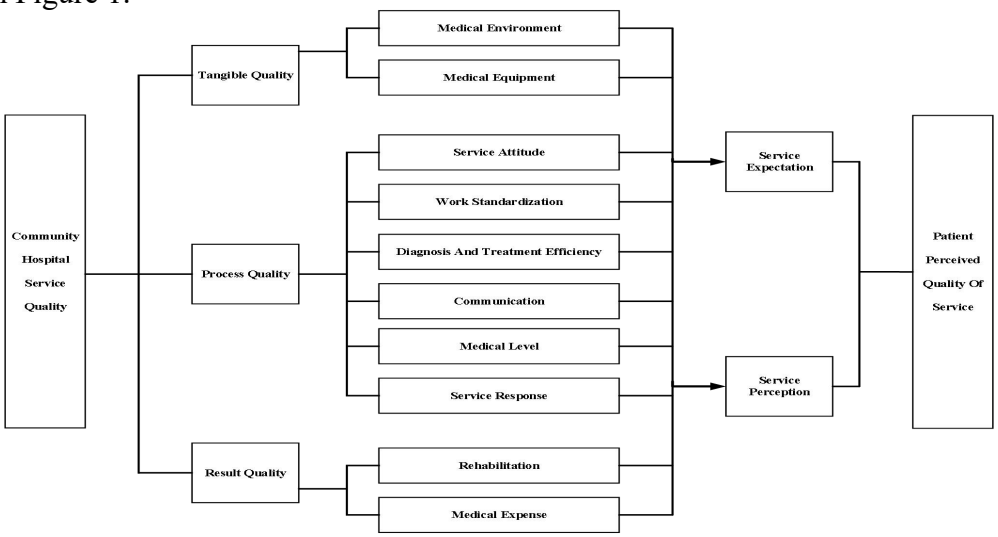

Figure 1. Medical service quality evaluation model based on three-dimensional theory.

2.2.4 Selection Principle of Evaluation Index

(1) Regional principle

Based on the specific situation of overpass streets, the operation of the overpass health service center is measured so that the evaluation indicators are targeted.

(2) Dynamic principle

The selected indicators can measure the changes of the same indicator in different periods and have practical significance in a long time.

(3) Quantifiable principle

It is better to obtain the indicators directly or indirectly through the calculation to ensure the operability of the evaluation.

(4) Hierarchy principle

Secondary indicators are established under primary indicators. Among the many secondary indicators, the indicators with strong correlation are classified and set as the same indicator group to form different levels for better analysis.

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2.2.5 Service Quality Evaluation Index System of Community Hospitals

Combined with the SERVQUAL model and the environment-process-result three-dimensional evaluation system, this study constructs the evaluation index system of community medical service quality and designs the questionnaire, adhering to regionality, dynamics, and quantification principles. In this index system, three primary indexes and 30 secondary indexes are selected, as shown in Table 2.

Table 2. Service quality evaluation index system of community hospitals.

Primary Index	Secondary Index	
Objective Condition Quality	1	Good word of mouth and reputation
	2	Convenient and fast transportation
	3	Clean environment
	4	Self-service equipment operating normally
	5	Departments reasonably distributed and clearly marked
	6	Various specialist clinics
	7	Online reservation registration and electronic medical record are available
	8	Guidance on the use of wise information technology of med system
Diagnosis and Treatment Process Quality	9	Activities propagating scientific knowledge in innovative forms
	10	Efficiency of guiding service
	11	Efficient service handling
	12	Transparent service process
	13	Alignment and referral with large hospitals
	14	Staff service attitude
	15	Communication skills of medical staff
	16	Personal privacy protection
	17	Patient flow control
	18	Personalized treatment planning
	19	Explaining the principle of medicine
	20	Accurately recording of diagnosis and treatment process
	21	Patients' trust in doctors
	22	Doctors treating patients indiscriminately
	23	Timely rehabilitation guidance
Result Quality	24	Providing doctor consultation at home
	25	Timely return visit
	26	Establishing patients' personal medical records
	27	Fair settlement of doctor-patient disputes
	28	Rapid response to patients' suggestions
	29	Reasonable prescription charges
	30	Open and transparent treatment costs

2.2.6 Evaluation Criteria of Service Quality Evaluation System

Evaluation Standard of service quality evaluation system. The medical service quality of Beijing Tianqiao Community Health Service Center (SQ) equals to the perception value minus the expectation value scored by patients. The quality is classified according to the SQ scores as shown in Table 3.

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Table 3. Evaluation criteria of service quality evaluation system.

No.	Score Range	Implication	Evaluation Content
1	SQ<-1	Much lower than expected	It shows that the service quality of community hospitals is relatively low, the overall quality is not qualified, and it demands urgent improvement.
2	-1<SQ<0	There is a gap with expectations	The service quality is below the average level and unqualified.
3	0<SQ<1	Meet expectations	The service quality is at the general level and qualified, but there is still much room for improvement.
4	SQ>1	Higher than expected	The service quality level is high and excellent. It can be deemed as a advantageous program, whose high service quality should be maintained and advertised.

2.2.7 Statistics

A total of 211 questionnaires were collected from 107 male patients (50.71%) and 104 female patients (49.29%).

3. Results

3.1 Descriptive Statistical Analysis

The distribution of the respondents by age group is shown in Figure 2. It is not difficult to see that the proportion of respondents between 30 and 39 and those between 18 and 29 are the largest, accounting for 32.70% and 30.81% of the total respectively. The age distribution tends to be in the youth and middle-aged age groups more in the actual survey process. Among the respondents, the proportion of patients holding bachelor's degrees or master's degrees is relatively high. Only 15.19% are with or below high school or technical secondary school education background, indicating that the respondents in this study sample have relatively high level of education. It suggests that our respondents are capable of independent thinking and being relatively objective and fair, which ensures the high quality of the answered questionnaires and the study's credibility.

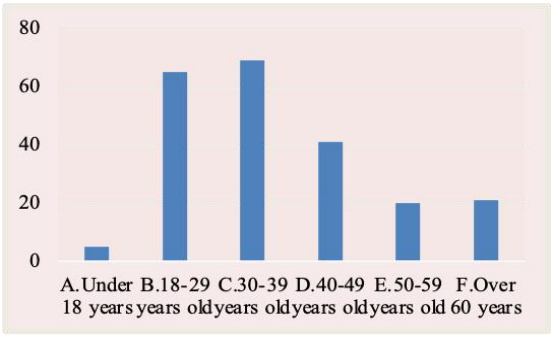

Figure 2. Age distribution.

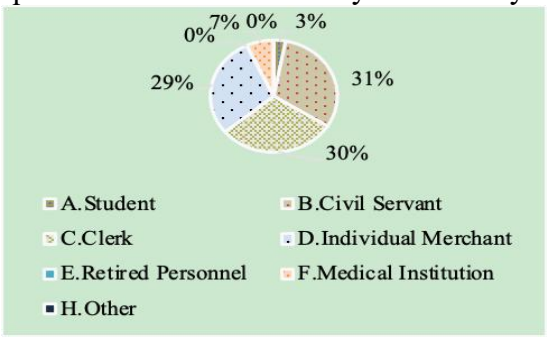

Figure 3. Pie chart of occupational distribution.

See Figure 3 for the occupational distribution of patients. It can be seen that civil servants, staff and individual businesses occupy a larger number. In addition, many of the respondents are covered by social health insurance, accounting for 70.14 % of the total, because most of the respondents are employees of enterprises. There are 49 people with commercial insurance, accounting for 23.22%. The respondents paying entirely at their own expense is less, accounting for only 6.64%.

The survey also shows that patients choose medical institutions for different reasons. Most patients choose community hospitals because they are close to home, and the community hospital is the designated hospital recommended by the local government. A small number of patients take the environment of community hospitals as the factor of choice.

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3.1.1 Paired sample t-test

The significance test results of the survey data are shown in Table 4. The paired sample t-test by SPSS software showed that the comparison between the two was t = 2.005, P = 0.046 < 0.05, reaching a significant level; and the verification results show great differences, indicating that the verification results are objective and accurate. In order to put forward targeted discussion on the research results, it is necessary to further confirm the difference value of each dimension and analyze the impact of these differences on the overall results to evaluate the overall service quality of community hospital and the quality of different dimensions.

Table 4. Paired t-test analysis of perception value and expectation value.

Number of cases (cases)	Perception value ($\bar{x} \pm s$)	Expectation value ($\bar{x} \pm s$)	T	P
211	119.39±15.98	115.88±19.45	2.005	0.046

3.1.2 Mean analysis and service quality comparison of different dimensions

Through the statistical sorting of 211 valid questionnaire data, this study clarifies the data of 30 question items in the questionnaire, makes a specific analysis of each dimension, and uses the gap theory of service quality to evaluate the final results. Analysis finds that respondents' expectations of the Center's medical service quality ranged from a general level to a very high level, with the item "N14 (Staff service attitude) " scoring the highest with 4.02. This shows that patients who come to the Community Health Service Center pay great attention to the service attitude of staff. This conclusion is consistent with reality. On the one hand, the staff are in direct contact with the patients, and the patients have direct and strong perception; On the other hand, the patient experience directly affects patients' treatment effectiveness and follow-up visits. On the whole, according to the SQ values, most of the patients' evaluation results of the Center's medical service quality are higher than expected, of which 28 items are qualified, accounting for 93%, while only two items are unqualified, accounting for 7%. Among them, those with higher scores include N11 (Efficient service handling), N13 (Alignment and referral with large hospitals) and N20 (Accurately recording of diagnosis and treatment process), the advantages of the Center. The patients' actual perception scores of N5 (Departments reasonably distributed and clearly marked) and N6 (Various specialist clinics) are lower than expected. This result is closely related to patients' increasing and diversified medical needs.

As shown in Table 5, the horizontal comparison of the six selected dimensions shows that the importance ranking of the factors affecting the whole is in the following order: Service Response, Service Attitude, Medical Expenses, Information Construction, Medical Level and Environmental Equipment. It can be seen that Beijing Tianqiao Community Health Service Center has been recognized by the patients in terms of staff attitude and improvement, while its environment and medical level remain poor. These conclusions are consistent with the self-positioning and limited medical level of Beijing Tianqiao Community Health Service Center.

Table 5. Scores and sq values of various dimensions of medical service quality evaluation indexes.

Index	Perceived Service (P)	Expected Service (E)	Index SQ
S1	3.85	3.88	0.03
S2	3.84	3.98	0.04
S3	3.89	4.04	0.15
S4	3.89	4.00	0.11
S5	3.86	3.91	0.05
S6	3.84	4.00	0.16
R	3.85	3.88	0.03

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3.2 SWOT Analysis of Medical Service Quality

Through the SWOT analysis of the medical service quality of Beijing Tianqiao Community Health Service Center, we can further clarify the advantages and disadvantages of the Center's medical service quality and the opportunities and limitations of its future development. The results are as follows:

Advantages: High service level and qualified rate. "Efficient service handling", "alignment and referral with large hospitals" and "accurate recording of diagnosis and treatment process" have been widely praised. The Center may give full play to its advantages to ensure that these three items continue to maintain a high level in the follow-up improvement process and continuously improve the service level. At the same time, located in the community, the Center is able to undertake the general medical needs of the community effectively.

institutions. It is difficult to recruit and retain people through communication with the hospital's manager. Most doctors only have a bachelor's degree. There is a serious shortage of medical personnel with senior professional titles. In the long run, the expectations of patientDisadvantages: Third-class hospitals occupy the main medical resources in the region, including more scientific department design, advanced and expensive medical equipment resources, etc. China's medical system is still under reform. The development time of community health service center is relatively short. In addition, due to the limitation of machinery and equipment, the overall service quality is still relatively low. The equipment is not perfect and the environment is not good enough, which limits the rapid improvement of service quality. In addition, due to the small number of patients, the setting of departments is not standardized, and the direction signs are not clear enough, which has brought bad medical experience to patients to a certain extent. There are patients who are not well informed, who won't use self-service devices, who won't talk to medical workers via WeChat groups or other online channels, and who are unwilling to tell their problems. Therefore, information services will not be fully utilized and the efficiency and effect of treatment will be compromised.

Opportunities: During the visit, it was found that it was still difficult for the masses to see a doctor. On the one hand, patients attach great importance to their own health. They hope to go to the top three hospitals if they have any problems, resulting in serious uneven resource allocation. On the other hand, the overall development of intelligent medical services is relatively backward. Many patients can't make timely appointments online or consult relevant problems online, resulting in their poor sense of experience. It reflects that the residents have low loyalty to the Center, and the people have higher expectations for the medical service quality.

Threats: Some highly educated medical graduates and experienced medical talents from domestic medical colleges would seek longer careers in academic research and senior professional ranks and titles. They are more inclined to work in class III hospitals. The medical staff's technical level and diagnosis and treatment level in the community health service center cannot meet the needs of patients, which reveals the lack of talents in grass-roots medicals who come to see a doctor are low, and many potential customers will choose other hospitals for treatment.

4. Discussion

Beacause of COVID-19, patients are willing to go to a community hospital when they are not suffering from serious diseases to reduce the risk of infection. In addtion, in order to facilitate the masses and reduce the pressure of class III hospitals, the government has invested a lot of funds in the development of community hospitals, and patient satisfaction has been improved. As more and more people go to community hospitals, people have higher and higher requirements for distributing departments and diversified specialist clinics.

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4.1 Problems

Despite community health centers' substantial role in local communities and in the broader safety-net healthcare system, very limited research has been conducted on community health center research experience, infrastructure, or needs from a national perspective[16].

4.1.1 Sometimes the results of diagnosis and treatment can not satisfy patients and customers

About 1% of patients in the survey said that community hospitals' diagnosis and treatment results did not meet the expectations of the diagnosis and treatment plan, such as technical problems such as too obvious wound suture.

4.1.2 Medical services sometimes take many times to complete

Individual patient customers said that they or their children could not successfully complete the test or injection in the community hospital at one time. They needed to operate again for many times, which caused a waste of time and affected the service experience of patient customers. They want to be served by medical personnel with higher medical technology.

4.1.3 Lack of perfect service recovery system and perfect service process

Some customers said that the community hospital could not give the customer a relatively satisfactory explanation and implement positive remedial measures in the case of customer dissatisfaction caused by its own improper operation.

4.1.4 Low application of Internet technology

The existing information system is relatively weak, only the basicLIS, RIS, and EMR systems. It supports the functions of WeChat and Alipay's recharge query report, or the hospital informatization based on the basic functions. In terms of management, there is no partial management software such as OA office automation, medical record management system, hospital feeling system and clinical pharmacy to carry out information-based management of the hospital's situation, which is basically semi manual and semi information-based. Hospital information construction cannot keep up with the pace of modern medical development. Due to the needs of epidemic prevention and control of COVID-19, patients need to scan three codes when entering the hospital, including Jiankangbao, Hospital Information Registration Form and Travel Itinerary. These are very unfriendly to elderly patients who do not use smart phones, resulting in the elderly living alone are very uneasy about going to community hospitals.

4.2 Analysis

4.2.1 The medical professional level of medical staff needs to be improved

Medical personnel often make mistakes in operation. Some patients said that the medical staff could not complete the medical professional operations such as hanging needle and blood drawing at one time. In contrast, others said that the medical staff did not properly handle the wound during wound suture, resulting in wound inflammation in the later stage, or the knife edge was too long, resulting in unsightness. Individual opinion providers also said that outpatient doctors and surgeons could not make effective judgments in time for some emergencies.

4.2.2 Lack of regular evaluation and training system for medical service level of insurance personnel

The reason why doctors have some deficiencies in skills and the speed of technical improvement is slow is that hospital a has not established a system of regular evaluation and regular training for the service level of medical personnel.

4.2.3 The establishment of service recovery system is not paid enough attention

Pay attention to the setting of hardware facilities, but ignore the construction of service recovery system. There is an obvious polarization in the service quality evaluation of patient community hospitals, that is, the patient customers who successfully complete the diagnosis and treatment and

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the diagnosis results meet the expectations will have a high evaluation of the hospital, while the patient customers who are not smooth in the process of medical treatment have a negative evaluation of the hospital.

5. Conclusions and recommendations

In conclusion, the Community Health Service Center has encountered difficulties and problems, such as low patient expectations, and poor medical environment, hardware equipment and medical level. Proceeding from the Center's actual condition, the following suggestions are put forward to improve its medical service quality.

First, strengthen publicity. On the one hand, to expand the scope of offline publicity, community health service centers should actively cooperate with local communities and residents' self-governing organizations for promotion and popularization, using the advantages of their own specialist clinics and characteristic activities. On the other hand, community health service centres should optimize online publicity platforms. They may set up clear and easy-to-read signs, simplify procedures, adopt online registration, and cooperate with the medical service platforms often used by residents such as JingYiTong and 114 Health. Through these methods, the registration will be more convenient. We could take care of patients' needs for health knowledge and set up online columns to propagate science knowledge to special groups, thus forming a benign interaction with local residents. Strategically aligning nurse shifts to demand is also an effective approach to better meet client needs without increasing total nurse staffing levels in a community health centre context.

Second, improve medical environment. Community medical service mainly diverts patients with different degrees of illness and highlights the community's first diagnosis function. However, in terms of the current flow of residents' medical treatment, community medical service has not been able to meet residents' basic needs, and relevant medical facilities still need to be strengthened. Marshall said that taking early planning measures, centering the focus on community needs, and forming strategic partnerships can provide a valuable foundation for future events that want to integrate community engagement with public health. The main reasons patients did not choose this Center are the lack of available departments, the inadequacy of doctors and the fear of poor treatment results. Therefore, the Center can improve medical service quality in the environment and hardware facilities. (1) In terms of the hospital environment, the location of departments should be altered and the guiding signs should be placed reasonably according to medical procedures, and the layout should be planned according to the principle of letting patients walk less, so as to improve the overall environment. (2) In terms of the hardware and facilities, community hospitals should actively bring in advanced equipment to address the problem of advanced equipment insufficiency within its relatively small space. Community hospitals should also strictly implement scrapping procedures, urge responsible hospital departments to inspect their equipment regularly, so as to improve patients' satisfaction, boost hospitals' influence, and shore up the foundation for the hospitals' long-term development. Centering the focus on community needs and forming strategic partnerships can provide a valuable foundation for future events that want to integrate community engagement with public health.

Third, promote medical techniques. As the mainstay of medical service is medical workers, personnel training becomes the key to improving the medical techniques of medical service. (1) Intensify development of a well-trained workforce, improve quality and professional competence of medical workers, and enhance their medical techniques. (2) Particular attention should be given to fostering general medical practitioners, and we should complete the establishment of characteristic and advantageous departments as far as possible and continuously enlarge the scope of medical diagnosis and treatment. (3) Create a studious atmosphere, encourage in-service medical staff to pursue further study, professional title conferring, qualification certifications, etc. (4) Take full

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advantage of geographical location, actively cooperate with large hospitals for opportunities to learn, to hire external experts, etc.

Fourth, accelerate application of information technology (IT). Replace workforce with IT applications to improve efficiency. Against the backdrop of the COVID-19 pandemic, the application of information technology can reduce the flow of people at the windows, and enables us to use early warning systems for infectious diseases in hospitals and IT-based management systems. Establish special departments for IT application, recruit information equipment management personnel with high professional relevance, timely evaluate equipment conditions, and carry out training for medical workers to ensure the normal operation of equipment. Implement various forms of appointment diagnosis and treatment services via telephone, network, WeChat and on-site booking. A WeChat official account or a cell phone application can be set up to provide online booking, payment, follow-up services, in order to reduce waiting time and effectively divert patients to the patients. Promoting Internet plus medical. Develop technologies such as mobile Internet applications, realize cloud computing data processing, machine learning analysis data, and unified database management, improve patient treatment experience, realize health information integration, and promote the development of smart hospital. By means of mobile Internet, reengineer operation management and service process to improve management efficiency and service level.

Fifth, establish patient complaint mechanisms and channels. Fully understanding and actively solving medical service complaints is an effective means to continuously improve the medical service quality and an important way to maintain harmonious doctor-patient relationships. Hospitals should establish feasible complaint mechanisms and channels to timely deal with various problems raised by patients. Taken into account the patient flows, hospitals may listen to patients' suggestions through establishing special complaint reception offices, build online platforms to post comments or many other channels, based on existing channels of telephone complaints, random telephone return visits, etc., so as to ensure that medical disputes are handled as soon as possible and medical service quality is improved.

Sixth, the Center should care about medical personnel and improve their salary. Establish a post-performance appraisal and incentive system with service quality as the core to mobilize the enthusiasm of the medical staff. It can pay attention to personal development planning and provide training and promotion opportunities for most medical personnel. Creating a good working environment and logistics support for medical personnel and improving the social status of medical personnel should be considered. If possible, volunteers can be recruited in the community to help the elderly seek medical treatment. Also, the government can facilitate the interactions between the medical school and the community.

This study has some limitations. Due to the recurrent outbreaks of COVID-19 at the time of questionnaire distribution. Therefore, the elderly group who use smart devices less actively is not taken into account. In the future, we will conduct in-depth research on the construction of intelligent medical care, and study the integration and practice of IT applications and patients.

6. Acknowledgments

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