Discussion on the Practice Path and Value of Artificial Intelligence Technology in Community Precision Nursing

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Abstract: As far as community nursing is concerned at this stage, the traditional service mode has great limitations in terms of continuous health care and individualized care, which is difficult to meet people's increasing requirements for precision. In this regard, the application of artificial intelligence technology in community precision nursing can effectively help improve the quality of nursing service, making it more targeted and efficient. This paper mainly analyzes the value of artificial intelligence technology in community precision nursing, and puts forward the practice path of artificial intelligence technology in community precision nursing.

***Keywords*:** community precision nursing; artificial intelligence technology; practice path; value

1. Introduction

In recent years, the state has gradually increased investment in community nursing construction and publicity, which fully reflects the importance of community nursing service. As the center of residents' activities, the community has diverse and personalized requirements for residents' care. Traditional nursing methods have the disadvantages of low efficiency and low accuracy in meeting these complex needs. Artificial intelligence can deeply mine the health information of community residents, accurately identify nursing needs, and provide scientific and reasonable decision support for precise nursing in the community by virtue of its strong data processing ability, intelligent analysis and adaptive learning.

2. The value of artificial intelligence technology in community precision nursing

(1) Improve the efficiency of nursing service and solve the contradiction between supply and demand of human resources.

Humanized nursing refers to a high-quality nursing mode, which is to carry out a series of high-quality nursing centered on patients to improve the psychological and physiological comfort of patients. The application of artificial intelligence technology in community nursing has practical value in improving the level of community nursing service and alleviating the current contradiction between supply and demand of human resources. At present, the community nursing work is generally short of manpower and the demand for services is increasing. It is difficult to fundamentally solve this problem only by artificially increasing the manpower input. Artificial intelligence can share the daily routine work faced by nursing staff, and hand over the repetitive and process work that consumes a lot of manpower and time to the technical system, freeing the limited nursing human resources from the heavy mechanical labor [1].

(2) Realize personalized nursing plan and improve service accuracy.

Community nursing is a new nursing method to intervene people's health at present. The main purpose is to prevent and treat disease without disease, and then continuously improve the health level of all residents. The value of artificial intelligence technology in community nursing is that it can help to build a nursing plan that meets the needs of residents, and effectively improve the service matching degree and efficiency. Different from the universal service generally applicable in the traditional mode, the community can handle the long-term accumulated information of residents' health records, living habits, past care and so on. Based on the above data from daily nursing practice, the analysis ability of the technology itself helps the staff to find out the health vulnerabilities, risk factors and special life care needs of different residents.

(3) Strengthen risk early warning and prevention and control to reduce health and safety hazards.

Many social problems caused by population aging also need us to solve, and chronic diseases, as a high incidence disease of the elderly, need more social resources to support. Therefore, community nursing service plays a more and more important role in the process of chronic disease management, nursing and rehabilitation, and is widely concerned by the society. Traditional community health management often has the problem of lagging risk early warning, which is not enough to prevent possible health problems [2]. AI can continuously collect multi-dimensional health data of community residents such as electronic health records, wearable device monitoring indicators, past medical history, etc. through the learning and

pattern recognition of a large number of data, it can explore the small change trend beyond the normal range, so as to find early health problems as soon as possible.

3. Practice path of artificial intelligence technology in community precision nursing

(1) Building an AI driven accurate management system for community health data.

In the community precision nursing, the application of artificial intelligence technology provides new ideas for health management. Through the data management platform driven by AI algorithm, the technology transforms the scattered individual health information into analyzable and predictable structured resources, and realizes the intellectualization of the whole process from data collection to risk early warning. This model breaks the dependence on artificial experience in traditional nursing, and makes the response of community health service more efficient and fast.

The community can design closed-loop health monitoring for the elderly living alone, and configure intelligent blood pressure meter and exercise bracelet with data transmission function for the elderly living alone. Basic data such as blood pressure, heart rate and steps are automatically collected three times a day and transmitted to the community health management platform through the Internet of things. The data are dynamically cleaned and compared through the AI analysis module on the platform. For example, the blood pressure value is cross verified with the baseline value in the previous health records, and the health risk assessment model is established according to the daily activity, weather and other environmental factors [3].

For example, the system monitors that the blood pressure of an elderly person living alone is about 20% higher than the normal value, accompanied by a faster heart rate. The AI module first responds to the three-level early warning, pushes the red alarm to the doctor terminal of the community health station, and synchronously generates an electronic report of abnormal indicators, possible incentives and suggestions. Doctors can view the health data of the elderly for nearly a week through the platform within 5 minutes, and find that it is strongly associated with poor sleep quality at night. Then the doctor can carry a portable electrocardiograph to check and confirm that the fluctuation of the elderly's milk blood pressure is caused by insufficient sleep, and then guide the elderly to adjust their work and rest and assist their families to install bedroom noise monitoring equipment [4].

The success of this case lies in the effective combination of technology and manpower. AI provides simple and accurate data output and analysis, while medical staff do complex situational judgment and personalized intervention. In the subsequent optimization of the community, technicians can add the correlation analysis function of "medication time blood pressure fluctuation" to the AI model according to the doctor's feedback, so as to further improve the accuracy of early warning.

(2) Creating an AI enabled personalized nursing service precise supply mode.

With the deepening implementation of the reform of the medical and health system, all regions have vigorously carried out community nursing service, but there are great differences in the quality of community nursing service. In the practice of community precision nursing, artificial intelligence has gradually broken the single positioning of nursing service and matched individual health needs with dynamic service supply. The basic idea is to transform scattered health information into operable nursing solutions through data-driven decision-making, from "standardization" to "personalization", from "passive intervention" to active intervention.

Taking hypertension management as an example, the community can establish a closed-loop service system of "intelligent device+ai analysis+multi department linkage" for elderly patients with hypertension, equip patients with intelligent sphygmomanometers with wireless transmission, and automatically measure and upload them to the AI health management system every morning and evening. The built-in algorithm model of the system can analyze blood pressure fluctuations, medication compliance, seasonal changes and other situations and put forward nursing suggestions. For example, if the patient's morning blood pressure exceeds 150/95mmhg for more than three days, the system will send medication reminders to the patient's mobile phone and notify the community nurse station. The nurse will complete the patient status assessment and contact the family doctor to adjust the medication plan within 2 hours according to the "risk classification prompt" generated by AI (yellow warning requires telephone follow-up, and red warning requires door-to-door intervention [5].

More importantly, the dynamic learning ability of the system enables it to continuously optimize service strategies. For example, in the early stage, some patients' data errors were caused by improper operation. The AI system found that the patients' measurement posture was incorrect by measuring parameters such as time and equipment tilt angle, and then generated a graphic instruction manual and sent it to their families. In addition, the community can connect the AI system with the regional medical platform. When the patient's blood pressure continues to change, the system will automatically generate referral suggestions, and the cardiovascular specialist of the superior hospital will conduct remote consultation. The

whole process management of "prevention monitoring intervention referral" improved the blood pressure compliance rate of patients within 3 months, and reduced the number of emergency visits caused by blood pressure fluctuations.

(3) Relying on AI technology to optimize the precise allocation mechanism of community nursing resources.

In the community precision nursing, the application of artificial intelligence technology is gradually changing the traditional way of resource allocation. Traditional community nursing often faces the lag and subjectivity of resource allocation, while AI technology can realize the three-dimensional matching of residents' health status, nursing service needs and nursing staff's professional ability by establishing a data-driven model, and promote the cross time and space allocation of manpower and materials.

Taking the "silver hair intelligent guard program" implemented by the community as an example, the project has established a three-level resource allocation system for the elderly living alone. The community is equipped with intelligent mattresses, fall monitoring bracelets and other devices for the elderly participating in the project, which can collect heart rate, respiratory rate and activity track information in real time and upload the information to the nursing management platform. When the system detects that the old man has not walked for 3 hours and his heart rate is abnormal, it will immediately send a first-class response and notify the nearest community nurse to bring emergency equipment to visit [6]. If the nurse asks for further medical services, enter the secondary response and notify the contracted family doctor group to bring diagnostic equipment to the door. If there is a critical situation, notify the 120 system directly and notify the family members.

The main advantage of the platform is the dynamic learning function, which improves the deployment logic through historical service data. When the elderly population in a certain area is large but there is a large shortage of nurses, the service radius parameter will be adjusted, or it is suggested that community managers increase nursing staff. The ability evaluation function of the nursing staff of the platform can also recommend nursing tasks in combination with nurse specialist background, service evaluation, reaction speed and other indicators.

4. Conclusion

In a word, the integration of community precision nursing and artificial intelligence technology is the inevitable development trend of community precision nursing and a way to improve the level of community health service. By building an AI driven precise management system of community health data, creating an AI enabled personalized nursing service precise supply mode, and relying on AI technology to optimize the precise allocation mechanism of community nursing resources, we can give full play to the advantages of artificial intelligence technology, so that community precise nursing can better serve residents.

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