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Analysis of the Application Effect of Community Health Center Nursing Models in Elderly Health Examinations

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Abstract: *Objective:* To explore the application effect of optimizing the nursing model in community health centers for elderly health examinations, providing a reference for enhancing the management level of elderly health at the grassroots level. *Methods:* A total of 300 elderly individuals who underwent health examinations at our center from January 2024 to December 2024 were selected as the study subjects. They were randomly divided into a control group and an observation group, with 150 cases in each group. The control group underwent the conventional health examination nursing process, while the observation group adopted an optimized community nursing model, which included stratified education and appointment scheduling before the examination, full-time accompaniment and safety care during the examination, and the establishment of electronic medical records and continuous follow-up after the examination. Differences in health management awareness rates and satisfaction with health examination services between the two groups of elderly individuals were compared. *Results:* The health management awareness rate in the observation group was 94.67%, significantly higher than that in the control group (78.00%; $p < 0.001$). The satisfaction rate with health examination services in the observation group was 96.00%, also significantly higher than that in the control group (82.00%; $p < 0.001$). *Conclusion:* The optimized community nursing model can effectively enhance the health awareness level and service satisfaction of elderly individuals during health examinations, demonstrating strong practicality and promotion value. It contributes to achieving continuity and precision in grassroots elderly health management.

Keywords: Community health center; Nursing model; Elderly health examination; Health management; Service satisfaction

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1. Introduction

In recent years, the process of social aging in China has been accelerating, with a persistently high and rising prevalence of chronic diseases among the elderly population [1]. Addressing the contradiction between the high incidence of chronic diseases in the elderly and the inadequate management services is one of the urgent issues

currently facing us [2]. Community health service institutions are the primary venues for conducting elderly health management work, with community health centers serving as the main platform for delivering basic public health services to residents in their respective jurisdictions [3]. Therefore, evaluating the quality of elderly health examinations provided by community health centers can effectively provide insights into the health status and disease conditions of the elderly in the community, directly relating to the effectiveness of early chronic disease screening and health risk prevention and control [4]. However, the conventional physical examination and care model currently adopted by most communities has significant limitations: before the examination, only a single phone call is used for notification, without fully considering the elderly's thirst for health knowledge and their difficulties in mobility; during the examination, the focus is on process coordination, neglecting environmental adaptability and emotional care; after the examination, reports are simply issued without in-depth interpretation of abnormal indicators or long-term health management follow-up [5,6]. This results in insufficient health awareness among the elderly, making it difficult to meet the health management goal of "early prevention and early intervention". The "Healthy China 2030" Plan clearly proposes to strengthen the health management functions of primary-level medical and health institutions. This study takes elderly individuals who underwent community physical examinations in 2024 as the subjects, explores the application value of optimizing care models, and provides data support for improving the primary-level elderly care system.

2. Materials and methods

2.1. General information

A total of 300 elderly individuals who underwent health examinations at our center from January 2024 to December 2024 were selected as the subjects. The control group consisted of 150 individuals, including 79 males and 71 females, aged between 65 and 82 years, with an average age of (70.34 ± 5.12); 42 had a history of hypertension, and 28 had a history of diabetes. The observation group consisted of 150 individuals, including 81 males and 69 females, aged between 65 and 83 years, with an average age of (71.02 ± 4.89); 45 had a history of hypertension, and 26 had a history of diabetes. The general information of the two groups was comparable ($p > 0.05$).

2.1.1. Inclusion criteria

The inclusion criteria were as follows

(1) Aged 65 years or older
(2) Individuals with normal communication and expression abilities
(3) Individuals who could understand, read, and fill out the questionnaire content, were willing to participate in the study, and signed the informed consent form.

2.1.2. Exclusion criteria

The exclusion criteria were as follows

(1) Patients with severe dementia who were unable to complete interviews or lacked cooperation
(2) Individuals who had experienced acute cardiovascular diseases (such as stroke) or other critical conditions requiring hospitalization within the past three months
(3) Individuals who needed to rest in bed for more than one month due to various reasons and could not

undergo examinations and follow-ups.

2.2. Nursing methods

2.2.1. Control group

Implement routine medical examination nursing: Notify patients by phone about the time and precautions before the examination; assist in completing measurements such as height, blood pressure, and blood glucose during the examination; distribute reports after the examination and briefly inform patients of any abnormal indicators.

2.2.2. Observation group

The optimized community nursing model was adopted, which included the following.

(1) Pre-examination intervention

A team consisting of nurses, general practitioners, and nutritionists was established to conduct health education through community announcements and home visits, explaining the significance of medical examinations for early screening of chronic diseases. Through phone calls or in-person communication, medical examinations were scheduled in time slots based on the elderly's daily routines (e.g., avoiding morning exercise and medication times), with 30-minute intervals between slots and a daily limit of 30 appointments. For elderly individuals with mobility issues, living alone, or without their children nearby, community volunteers were coordinated to provide dedicated transportation services, equipped with wheelchairs, first-aid kits, and other supplies to ensure safe travel. A phone reminder was given one day before the examination to confirm the time and reiterate precautions such as fasting and medication discontinuation.

(2) Nursing during the examination

A dedicated waiting area for elderly patients was set up, with nurses guiding them through the relevant examinations. For those with psychological burdens, communication was conducted using the "listen-empathize-explain" approach (e.g., "Many uncles and aunts share your concerns. Let's conduct a comprehensive physical examination from head to toe for you."). Full accompaniment was provided, along with timely care and attention. Before conducting electrocardiograms and other examinations for the elderly, necessary assistance with dressing/undressing was offered. Simultaneously, safety precautions were taken, including continuous pressure on the wound for at least five minutes after blood collection before leaving the blood collection station, closely monitoring the patient's blood loss and symptoms such as dizziness, and ensuring no abnormalities before guiding them to the next examination item. A lifestyle assessment was also conducted simultaneously, recording dietary habits, sleep patterns, and exercise levels.

(3) Post-physical examination management

Establish electronic health records and provide feedback on results within five working days through community lectures and one-on-one consultations. Create electronic health records for the elderly, encompassing physical examination results, intervention plans, follow-up records, and other content, to enable dynamic management. Utilize a combined approach of "telephone follow-up + home visit follow-up", conducting monthly follow-ups. Telephone follow-ups primarily inquire about health status and the implementation of intervention plans, while home visit follow-ups focus on elderly individuals with mobility issues, checking medication usage, measuring blood pressure and blood glucose levels, and

updating health records simultaneously. If abnormalities are detected during follow-ups (e.g., a sudden increase in blood pressure), promptly assist in arranging referrals to higher-level hospitals for treatment.

2.3. Observation indicators

(1) Awareness rate of health management

Assessed through a self-designed questionnaire covering 10 items, including chronic disease prevention, rational drug use, and health monitoring. Respondents who correctly answer ≥ 8 items are considered aware, and the awareness rate is calculated accordingly.

(2) Satisfaction with physical examination services

Evaluated using a Likert 5-point scale, assessing dimensions such as process convenience and personnel professionalism. Scores ≥ 4 indicate satisfaction, and the satisfaction rate is calculated accordingly.

2.4. Statistical methods

Data analysis was conducted using SPSS 26.0 software. Count data are presented as [n (%)], and χ^2 tests were performed. A p-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of health management awareness rates between the two groups

The awareness rate of health management in the observation group was significantly higher than that in the control group ($\chi^2 = 17.657$, $p < 0.001$). See **Table 1** for details.

Table 1. Comparison of health management awareness rates between the two groups [n (%)]

Group	Number of cases	Understood	Not understood	Understanding rate (%)
Control	150	117	33	78.00
Observation	150	142	8	94.67
χ^2				17.657
p				0.000

3.2. Comparison of satisfaction with physical examination services between the two groups

The satisfaction rate with physical examination services in the observation group was significantly higher than that in the control group ($\chi^2 = 15.015$, $p < 0.001$). See **Table 2** for details.

Table 2. Comparison of satisfaction with medical examination services between the two groups [n (%)]

Group	Number of cases	Satisfied	Dissatisfied	Satisfaction rate (%)
Control	150	123	27	82.00
Observation	150	144	6	96.00
χ^2				15.015
p				0.000

4. Discussion

The community nursing model, structured as a closed loop of "prevention–intervention–management", emphasizes the integration of individual health with community resources. Its core lies in breaking through the limitations of traditional medical examinations' "one-time service" by establishing health awareness through pre-examination education, optimizing service experiences through nursing during the examination, and achieving continuous management through post-examination follow-up, aligning with the needs of the elderly for continuous health services [7]. Leveraging the geographical advantages of community service centers, this model combines professional medical resources with life-oriented care, reflecting the core concept of "supportive nursing" in Orem's Self-Care Theory [8].

In terms of health management awareness, the observation group achieved a rate of 94.67%, significantly higher than the control group's 78.00%. This outcome aligns closely with the core logic of the Health Belief Model. This theory posits that an individual's acquisition of health knowledge and behavioral changes depend on the cognitive balance of three key elements: "disease risk-health benefits-action barriers".

The observation group employed a tiered approach to education (home-based face-to-face counseling + short video presentations + distribution of brochures), translating complex knowledge points into specific objects and life scenarios easily understandable to elderly patients (e.g., "Poorly controlled hypertension may lead to stroke"). Additionally, measures such as dedicated transportation and staggered appointment scheduling were implemented to overcome physical limitations, transforming the elderly from "passive recipients of information" to "active seekers of solutions", thereby achieving a deeper cognitive impact. In contrast, the control group merely provided telephone notifications, failing to truly address the elderly's latent awareness and concerns about diseases, resulting in limited improvements in awareness rates [9].

Regarding satisfaction with medical examination services, the observation group's satisfaction rate of 96.00% was significantly higher than the control group's 82.00%, aligning closely with the principles of "patient-centered" holistic nursing theory. This theory emphasizes that the core of evaluating service quality lies in "demand matching" rather than mere procedural completeness. From the perspective of the elderly themselves: Their declining physical functions, such as blurred vision, slow walking; and the personality trait of craving attention determine their specific demands for medical check-ups. To address the issue of "mobility difficulties", measures have been taken, including the establishment of a green channel in the waiting area, the installation of non-slip handrails, and the provision of reading glasses. To solve the problem of "poor vision", a "three-step communication method" has been adopted, along with the use of voice announcements to read out the examination items [10].

To minimize queuing, full-time escort and reminders of precautions have been provided. All these measures have been considered with the aim of addressing the practical difficulties faced by the elderly, thereby achieving excellent results. In contrast, the control group merely completed the basic workflow, consisting of three steps: notification, assistance, and report issuance, without taking into account the actual needs of the elderly population, resulting in a significant difference in satisfaction.

This study enriches the empirical data on community-based elderly care and expands the empirical resources in related fields. The "multidimensional intervention—multidirectional change" pathway clearly demonstrates the effectiveness and scientific validity of the "three-step" approach, laying a solid theoretical foundation and basis for subsequent explorations of elderly care models grounded in primary institutions. The model exhibits strong operational feasibility: it does not require the procurement of large-scale equipment and can be fully implemented

by leveraging existing human and material resources, making it well-suited to the current conditions of most community health centers in China. The establishment of health records facilitates the smooth implementation of future health management initiatives for the elderly and enables data sharing with other healthcare institutions. This contributes to the goal of joint prevention and control in chronic disease management, while also supporting the nationally promoted hierarchical medical system. It is worth noting that the model's adaptability to the oldest-old and disabled elderly populations requires further investigation. Future iterations could incorporate intelligent monitoring devices to enhance the precision of services.

5. Conclusion

In summary, the optimized nursing model in community health centers significantly improves the awareness rate of health management and service satisfaction among the elderly through precise interventions throughout the entire medical check-up cycle. This model aligns closely with the realities of primary healthcare, enabling a shift in health services from passive to proactive management and providing a viable approach to addressing the issues of homogenization and diminished effectiveness in health examination services for the elderly.

Disclosure statement

The authors declare no conflict of interest.

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