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ORIGINAL RESEARCH

Improving Service Quality of Home-Based Health Care Services for the Elderly: A Qualitative Study of Facilitators and Barriers Reported by Community Health Workers in Beijing

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Background: As the population ages, the growing demand for elderly care has become a multi-faceted issue, encompassing the health of individuals, the viability of healthcare systems in addition to family and societal pressure. This study aims to identify the associated factors and provide recommendations to inform the better implementation of home health care services in Beijing.

Methods: This study was a qualitative study in which 13 individuals were selected for focus group interviews through purposive sampling to understand the current status of home-based health care service provided by Beijing's community health service organizations, and to categorize facilitating and barriers factors into the five domains of the Consolidated Framework for Implementation Research (CFIR), a comprehensive framework for implementation research, and to derive targeted recommendations by using the expert recommendations for implementing change (ERIC).

Results: Of the 13 study participants, 4 (30.77%) were physicians, 9 (69.23%), were nurses and 8 (61.54%) were involved in the management of home-based health care service. The main facilitators included Intervention Source, Evidence Strength and Quality, and Adaptability; Local Attitudes, Conditions, and Cosmopolitanism; Relationship Connection, Incentive System; and Motivation. Major barriers identified included Design Quality and Packaging, Cosmopolitanism, Peer Pressure, Available Resources, Structural Characteristics, Access to knowledge and information, Key Stakeholders, and Planning. To address the barrier factors, CFIR-ERIC matching tool was utilized to make recommendations. Importance was determined by cumulative selection rate, resulting in multiple improvement strategies.

Conclusions: The provision of home-based health care service by Beijing's community health service organizations meets some of the needs of participants in this study reported, but there are still some barriers that can be further improved with reference to the ERIC recommendations.

Keywords: community health service organizations, home-based health care service, CFIR-ERIC

Introduction

Currently, the problem of population aging is serious in China, and the data from the seventh national census in 2022 showed that the number of elderly people aged 60 years or older had reached 264 million, accounting for 16.70% of the national population.[1] This demographic change has led to a gradual decrease in the ability to provide health care within the family.[2,3] Therefore, there is an urgent need to develop socialized forms of geriatric health care services and establish a new type of geriatric care system. In developed countries, programs that integrate medical and non-medical resources to improve service capacity and quality for the elderly have been implemented for many years. For example, the PACE (Program of All-Inclusive Care for the Elderly) and CBSS (Community-Based Supports and Services for Older Adults)

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in the US, the aged care reforms in Australia, and the "Embrace" in the Netherlands. In 2020, the WHO released the ICOPE (Integrated Care for Older People) pilot program, which aims to provide integrated and person-centered care services for the elderly.[4]

"Aging in home" is generally welcomed by older persons in China, with the advantage that care can be provided in a familiar environment.[5] In 2019, the Chinese government issued a number of documents such as Several Opinions on Further Promoting the Development of Combined Medical Care and Nursing and Medium- and Long-Term National Plan for Actively Responding to Population Aging, which emphasize the importance of home-based health care service in responding to the challenges of aging.[6,7] Home-based health care service, also known as home medical care service or household service focuses on the provision of in-home medical care services such as diagnostic and treatment services. Service provided include medical care, rehabilitation therapy, pharmacy services, hospice care, and traditional Chinese medicine services for elderly patients.[8]

In the past, geriatric health care in China relied primarily on informal care provided by family members, reflecting a culture of filial piety.[9] However, in recent years the capacity of family members to provide health care services has gradually diminished. This is due to the decline in fertility and the phenomenon of childlessness resulting from family planning policies that have been implemented at the national level for a long period of time.[2,3] China has implemented the "9073" or "9064" (ie, 90% of the elderly ageing at home, 7% or 6% in the community, and 3% or 4% in institutions) model of care for the elderly. The Fifth Sample Survey of the Living Conditions of China's Urban and Rural Elderly showed that 87.4% of the elderly chose to age in place, 4.9% chose to age in a community (village) day-care center (station) during the day and return home in the evening, and 7.7% chose to age in nursing institutions.[10] Unlike other ways of aging that require leaving familiar living environments, home-based health care service can help older people to solve their health problems as well as realize the desire to stay in the community and family.[11,12] Also, care provided in the home frees up health system resources and reduce the medical costs of the elderly while releasing their medical needs.[13]

In Beijing, the willingness to accept home-based health care service for the elderly is high, but the awareness rate is low. This may be due to the low literacy level of the elderly and insufficient publicity of the service.[14] The study by Fu and others[15] showed that there is a strong demand for community and home-based health care services for urban elderly. The cost of elderly care services, the level of social support, and health status affects the demand for services for the elderly. Overall home-based health care service is in high demand but underutilized.

Although home-based health care service has been implemented for many years, most of the existing studies summarize the service dilemmas raised by healthcare professionals through qualitative interviews, lack the exploration of facilitating and hindering factors for the implementation of home-based health care service, and the viewpoints are fragmented and lack the systematic support of a theoretical framework. This study aims to identify the relevant factors and further provide strategies for better implementation of home-based health care service.

Methods

Data Collection

The study adopted a semi-structured focus group interview method, in which an outline of the interview was prepared in advance, discussed and modified within the group, and then sent to the invited medical staff three days before the start of the interview to ensure that there were no misunderstandings or misinterpretations and that they were given enough time to prepare for the interview. Seats were arranged according to the list of participants before the start of the interviews, and people with similar job functions were arranged together according to their division of services (management, medical, nursing), so that they could communicate and exchange ideas during the meeting.

The focus group interviews lasted 3 hours, with interviews and discussions conducted in Mandarin Chinese and moderated by an interviewer who facilitated the questions and controlled the atmosphere of the meeting. The entire meeting was audio-recorded, and after the meeting, a note-taker transcribed the interviews verbatim and word-for-word into a transcript and numbered each of the speakers.

Study Design and Participants

In April 2024, this qualitative study used purposive sampling to recruit 13 medical staff from eight community health service organizations in Xicheng District, Fengtai District, and Shijingshan District of Beijing, who were engaged in medical, nursing, and management work related to home-based health care service.

Focus group interviews were conducted to understand the current status of home-based health care service provision for older adults in the Beijing community, as well as the problems and challenges faced in the process of service implementation, in order to summarize the favorable factors and potential barriers to current service provision, and to propose relevant strategies for improvement. The interviews included an informed consent form signed by all invited participants before the start of the interview, which included the anonymization of the interview information and audio recording of the whole interview process. The inclusion and exclusion criteria were as follows:

Inclusion criteria: engaged in home-based health care service management in Beijing community health service organizations; experienced doctors and nurses in practice, etc.; willing to participate in this study.

Exclusion Criteria: less than 5 years in management; unfamiliarity with home-based health care service work-related regulations.

The interviews mainly consisted of: (1) Basic process for developing home-based health care service for the elderly; (2) Composition and characteristics of the staff of home-based health care services for the elderly; (3) Use of intelligent devices and medicines; (4) Present incentive measures; (5) Patient and caregiver evaluations; (6) Difficulties and recommendations.

Theoretical Framework for Data Analysis

Implementation science is the discipline that promotes the application of intervention programs in reality by focusing on the problems encountered in the dissemination, adoption, evaluation, and improvement of the intervention programs in order to develop targeted measures to improve the quality and effectiveness of health care services, and the related research is called implementation research.[16] Consolidated framework for implementation research (CFIR) is one of the most commonly used theoretical frameworks in the field of implementation research, this study focuses on the experiences and problems in the implementation of home-based health care service, summarizing the facilitators and barriers to service implementation based on the five domains and subordinate components of CFIR. Specifically, the audio content was transcribed and double-checked by the researcher and imported into NVivo 11.0 within 24h after the interview. Researchers reviewed the transcripts and inductively generated preliminary codes related to the influencing factors around emergent concepts. Subsequently, these similar preliminary codes were grouped into themes and deductively mapped to the CFIR.

Improvement Strategy Analysis Method

The study will propose targeted improvement strategies based on expert recommendations for implementing change (ERIC). The ERIC compendium of expert recommendations consists of 73 separate implementation strategies, and previous research has demonstrated that most ERICs are of high importance and can be applied prospectively to specific new programs.[17] If a CFIR corresponds to an ERIC with a matching selection rate of ≥50%, the ERIC is a Tier 1 strategy (best); 20% to 49% is a Tier 2 strategy (better). Since one strategy can address multiple CFIR barriers, and one CFIR barrier can have multiple ERIC strategies, the importance of strategies is ranked by cumulative selection rate to prioritize the important improvement strategies. Compared to other implementation strategy development tools, CFIR-ERIC is more targeted. It was able to generate a list of ERIC implementation strategies that were endorsed by experts based on barriers to home-based health care services in Beijing, and to provide recommendations for facilitating the implementation of home health care promotion interventions in Beijing.

Results

Basic Information About the Interviewee

A total of 13 medical staff from 8 community health service organizations in Beijing who were engaged in home-based health care service were invited to the study, and the average age of the interviewees was 42.46 years old, with 11

females and 2 males. Among the 13 medical staff interviewed, 4 (30.77%) were doctors, 9 (69.23%) were nurses, and 8 (61.54%) were involved in the management of home-based health care service, all with intermediate or higher titles.

Description of Facilitators of Service Delivery

In the intervention characteristics, interviewees indicated that the current service delivery approach is implemented in accordance with the home-based health care service guidelines issued by the higher authorities in their district and different districts develop their own specific implementation programs accordingly.

> Before implementing the service, our district's higher authority issued a very comprehensive and detailed service guide, in which some standards of home-based health care service were set in great detail, including the assessment of the household, the emergency treatment of some problems, and so on. (N2, Nurse/Director, 57 years)

In the characteristics of individuals, community health service organizations health care workers can contribute to the delivery of home-based health care service in two ways: (1) the individual's positive attitude is aligned with the agency's mission; and (2) the individual's humanistic approach.

> Personally, by carrying out [home-based health care service], I have access to more cases and possibly more opportunities to enhance my professional skills (N6, Nurse, 32years).

> For patients whose families have financial difficulties or are not willing to pay for the service, we will still provide care for them in the spirit of humanistic care. (N8, Nurse, 37 years)

In the Inner setting, some interviewees mentioned that their community health service organizations have developed a clear "out-of-bag" pay incentive system related to home-based health care service in order to encourage service delivery, and declared that participation in home health care helps with title advancement ratings.

> In addition to performance pay, doctors and nurses have a guaranteed income of 100 yuan, which means they earn 100 yuan for a home visit. In our center, the motivation to serve is not bad. (N7, Nurse, 39 years)

Additionally, some interviewees said the establishment of collaborative relationships between home health care teams that are able to help patients with the multifaceted needs of home-based health care service without interruption.

> We do have two teams, one is our home healthcare team and the other is our hospice team. All of our home health care teams know about hospice, but the knowledge is not necessarily in-depth, so if [the patient or family] has a need, we refer the patient to our home hospice team, and our hospice team then assesses and performs the service. (N1, Doctor/Director, 46years)

In the outer setting, the subsidies provided by the Government for the disabled elderly are a very important safeguard. This group of elderly people can, according to their own needs, request community health service organizations to provide them with home-based health care services, such as health monitoring, so as to help those who have financial difficulties, In this way, we can help the disabled elderly who are unable to receive the medical services they need due to financial difficulties and mobility problems. In addition, interviewees mentioned that social workers play a coordinating role in home-based health care service, which can reduce the workload of healthcare workers and reap good results at the same time.

> Social workers and volunteers have more time and frequency to visit the home than healthcare workers, they contact us online while they are there and give us timely feedback on problems, and some medical problems can be corrected online, in which case the patient's experience is actually particularly good. (N1, Doctor/Director, 46years)

After an in-home assessment, community healthcare services alone may not be able to solve all medical problems, so it is also important to establish referral pathways with general hospitals.

> We have a green referral channel, beyond the capacity of community healthcare, we can refer the elderly to general hospitals, so they don't have to go back to make appointments on their own. (N12, Nurse, 51years)

In the process, the executable service process, quality control and patient satisfaction evaluation specifications are detailed documents distributed by the organization and higher authorities that can help health care workers to execute them smoothly in service implementation. Since the family doctor is the one who knows the patient best in the community health service organization, he or she should serve as the core of the home-based health care service team.

> We still emphasize that whoever signs up is responsible for managing their own contracted sessions [through home-based health care service], relying on the family doctor to sign up for the service. After all, the family doctor knows the patient best. (N4, Nurse, 51 years)

In addition, for the managers of the organizations that carry out the service, they indicated that there are requirements for the title of the health care personnel who attend the clinic,

> For physicians, we recommend that they be at least attending or have worked in the community for more than 5 years, and then for nurses we recommend that they be at least a nurse practitioner (N1, Doctor/Director, 46years),

but due to the existing problem of the shortage of health care personnel in the community, it is difficult to meet the above requirements, so the strategy of having experienced healthcare workers to lead those who lack experience in household visits was adopted. In order to reduce conflicts and disputes during the service process, some interviewed healthcare workers said that the organization would require the signing of an informed consent form for home healthcare services,

> For some medical dispositions, such as urinary catheters and gastric catheters, before entering the home, we will sign an informed consent form, which will include the content of the required safety notifications. (N11, Doctor, 44years)

A description of the facilitators of service delivery summarized from the interviews can be found in Table 1.

Table 1 Facilitators of Home-Based Health Care Service by Community Health Care Workers in Beijing

CFIR[a]	Facilitators
Intervention characteristics	Government-led implementation
	Customized implementation programmes in the districts
	Supported by strong research evidence
Outer setting	Grants and subsidies for priority clients
	Coordination of social workers and volunteers
	Referrals with general hospitals
Inner setting	Clear compensation and performance incentives
	Help with title promotion
	Collaborative relationships within the teams
Characteristics of individuals	Consistency of individual attitudes with institutional mandates
	Individual humanism
Process	Executable service processes and norms
	Emphasize the family doctor as the core of the service team
	Experienced healthcare professionals lead the implementation
	Signing informed consent for medical services with patients
	Quality Control and Satisfaction Feedback

Note: [a]Consolidated framework for implementation research.

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Description of Barriers to Service Delivery

In the intervention characteristics, the lack of clarity on the scope of service jurisdictions and the lack of uniform service regulations across the city were the main barriers.

> I have a doubt that there are any regulations on the scope of home visits in our community. It's because we are quite close to other communities, and sometimes patients from other districts find us and ask us to go to the clinic, and actually it doesn't belong to our community, but our refusal will lead to complaints, but we also really don't have this condition to go to other communities. (N6, Nurse, 32 years)

Confusion among healthcare workers about the lack of uniform service regulations was multifaceted, including how to schedule visits during delayed clinic hours and the requirements for home healthcare case writing.

In the outer setting, respondents indicated that the lack of involvement of other government departments in home-based health care service makes the service process face a lot of problems that cannot be solved by relying on medical treatment alone,

> It is important to synergize with the neighborhood committee, I change medication for a patient at home, and that environment was so bad. How bad is the environment of their home? Because the elderly were bedridden and totally disabled, and their children were mentally retarded, the environment was so dirty, so full of cockroaches, that we healthcare workers could not place medical supplies. (N12, Nurse, 51 years)

Other healthcare workers mentioned that many patients go to the community to seek services at home, but the community has a limited capacity to deal with all the problems, which is in great need of support and understanding from the community. In addition, the lack of close ties between community organizations and general hospitals may affect the provision of home-based health care service,

> Maybe the general hospitals do not know much about the situation in the community, and sometimes the community cannot admit the patients transferred from the higher level hospitals. One of our complaints was about infusion at home, the community does not have the conditions for this at all (N11, Doctor, 44years),

> I think it is more important for the community to strengthen the construction of the healthcare consortium, especially this kind of healthcare consortium with the top hospital and specialized hospitals, there are healthcare consortiums and remote diagnosis and treatment, for example, if I don't know how to do this operation, I can contact him and get online guidance so that patients can get timely treatment. (N12, Nurse, 51years)

In the Inner setting, the relevant problems and perplexities raised by the interviewed healthcare workers were the most extensive, including six aspects such as the existence of restrictions on the use of medication, the onerous task of handwriting daily case records, insufficient manpower, lack of professionalism in training, the need to build up the mobile payment method, and the large discrepancy between the service fee charged and the market price. For the home-disabled elderly, many of the medications needed are not available in the community,

> Mainly pain medications are relatively lacking, and then there are actually some psychological aspects involved in the use of medications, this is also limited, and the incidence of this kind of anxiety and depression in the elderly is actually very high. (N1, Doctor/Director, 46years)

Daily home case writing is more disturbing to health care workers, the need for more information technology to improve the existing way,

> We are now really basically paper, and handwritten, these intelligent things are not embodied in the home door-to-door service (N1, Doctor/Director, 46years)

The lack of manpower in the community is also a key issue plaguing the development of home-based services,

> Manpower is definitely not enough, we originally planned to arrange for specialized people to provide home-based services every afternoon, but if a patient needs a home-based service in the morning, all the staff are in the clinic and no one can provide the service. (N13, Nurse, 44years)

At present, diagnostic and treatment methods are often updated, because of a lack of training, a lack of understanding of the new technology, which may lead to difficulties in carrying out the service,

> I have never seen [medical supplies] before, I can only take the manual and read it one by one, [medical supplies] is very expensive, and we are afraid of the loss to the patient, can there be a systematic training, I still want to learn more! (N3, Nurse, 42years).

In addition to the above, charging is also a difficulty faced by home-based health care service, firstly, the lack of mobile payment means, the traditional payment method is more cumbersome and requires technological upgrading; secondly, the gap between the charging standard and the market price,

> 'some market price, for example, the gold-medalist nurse is 298 yuan, we are 50 yuan, the difference is so much', we use the time and our technology is not worse than his, this is disproportionate. (N1, Doctor/Director, 46years)

In the characteristics of individuals, especially in nursing, the majority of respondents indicated that there is currently a lack of awareness and mastery of new medical technologies in the community,

> We are not specialized nurses like in hospitals, community nurses don't have specific training. Ordinary operations such as giving injections to patients are not a problem, but some advanced things we really haven't seen. (N10, Nurse, 44years)

In the process, the implementation of home-based health care service faces many risks, and the scope of the service program should be clearly defined,

> In terms of the policy provisions for home-based patients to visit the home, what can be done and what cannot be done, it should be very clearly expressed, which is a protection for health care workers (N11, Doctor, 44years)

In addition, the community's initial assessment of home visits for patients who need to go out still has a greater risk,

> If the patient is bedridden for a long time without hospital examination, there will be risks in our manual assessment in the early stage, for example, the first attempt to insert a urinary catheter may bleed profusely. It leads to the question of whether or not to insert a urinary gastric tube for the first visit in the community, and whether there is any risk, and there is no way to know if there is no examination. (N1, Doctor/Director, 46years).

A description of the barriers of service delivery summarized from the interviews can be found in Table 2.

Analysis of Improvement Strategies

The above mentioned barriers to home-based health care service by health care workers summarized from the interview data were matched to each of the CFIR components, and the corresponding results are shown in the right side of Table 2. The barriers organized in this study to correspond to the CFIR components include Design Quality and Packaging,

Table 2 Barriers of Home-Based Health Care Service by Community Health Care Workers in Beijing

CFIR[a]	Barriers	CFIR Constituent Elements
Intervention characteristics	Lack of clarity on service jurisdictions	Design Quality and Packaging
	Lack of harmonized service provisions	Design Quality and Packaging
Outer setting	Lack of involvement of other relevant government departments	Cosmopolitanism
	Lack of understanding of community healthcare workers by the population	Peer Pressure
	Insufficient linkages with general hospitals	Cosmopolitanism

(*Continued*)

Table 2 (Continued).

CFIR[a]	Barriers	CFIR Constituent Elements
Inner setting	Restrictions exist on medicine use	Available Resources
	Heavy case documentation	Structural Characteristics
	Inadequate manpower provision	Structural Characteristics
	Lack of specialized training	Access to knowledge and information
	Mobile payment methods not built	Structural Characteristics
	Service charges vary significantly from market prices	Available Resources
Characteristics of individuals	Lack of awareness and mastery of new medical technologies	Key Stakeholders
Process	Lack of clarity on the scope of services	Planning
	First diagnosis assessment is risky	Planning

Note: [a]Consolidated framework for implementation research.

Cosmopolitanism, Peer Pressure, Available Resources, Structural Characteristics, Access to knowledge and information, Key Stakeholders, and Planning. These eight CFIR elements are retained in the CFIR-ERIC matching tool, and the service improvement strategies can be analyzed through ERIC.

Of the total 73 ERIC strategies, this study retained only the potentially possible level 1 and level 2 strategies, (more than 20% of the experts believed that the ERIC strategy was valuable for at least one CFIR barrier element). After excluding irrelevant ERIC strategies, they were ranked by cumulative selection rate, and the top ten strategies were ultimately retained, as shown in Figure 1. The thickness of the line indicates the degree of agreement of the experts, with the thicker line indicating that the experts are more convinced that the measure will solve the problem.

Discussion

More than 99% of the 4,948,000 elderly people in Beijing choose to age in home, and 815,000 of the 855,000 "older people" and the disabled and demented elderly choose to age in home, accounting for 95.3% of the total.[18,] Carrying out home-based health care service meets the rigid needs of the elderly, and it is also the focus of Beijing's elderly care work. Disabled elderly have a high rate of willingness to demand home-based health care service, but the utilization rate is low, and there is a large gap between demand and supply. Therefore, it is particularly important to explore and analyze the influencing factors of home-based health care service in community health service organizations in Beijing, which can

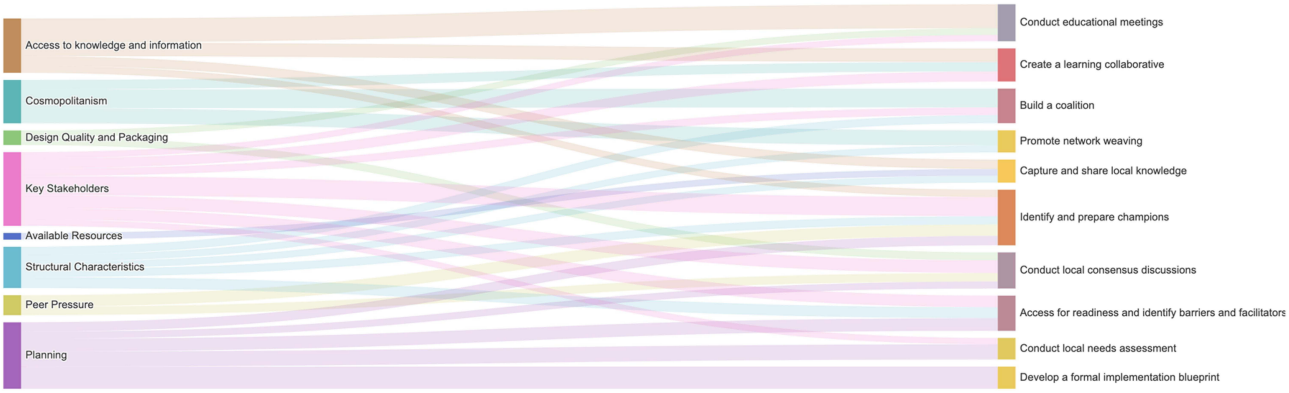

Figure 1 Proposed CFIR Implementation Strategies for Barriers to home-based health care service for Healthcare Providers.

enhance the quantity and quality of home-based health care service supply, meet the elderly's needs for old age, and alleviate the pressure of aging. According to the results of this study, in the intervention characteristics, there is a lack of clarity and feasibility in the operationalization of services. Support from the Outer setting is more limited. The inner setting restricts the development of home-based health care services in terms of manpower, medicines, payment methods and price imbalances. In the characteristics of individuals, the capacity of service providers needs to be strengthened. The process encounters problems of risk control, quality management and service content.

Intervention Characteristics

Aging is a serious challenge that the world is currently facing and an issue that our government needs to address urgently, which is why government agencies such as the Beijing Municipal Bureau of Civil Affairs, Health and Wellness Commission, and the Committee on the Work of Aging have taken the lead in implementing the program and have issued policies to guide the work on several occasions. Under the supervision of the higher government, districts have also customized enforceable programs, such as the "Implementation Opinions of Fengtai District on Implementing the <Beijing Regulations on Elderly Services at Home>". In addition, studies in many countries have shown that home-based health care service can achieve beneficial health effects, such as a cohort study in Canada that reported lower rates of emergency room visits and hospitalizations among elderly patients who received more frequent home-based health care service from their physicians compared to those who did not receive the service.[19] Similarly, a study in Japan found a reduction in mortality among older adults who received physician-led home health care.[20] The French Municipalities stipulate: how to provide the service, type of strategies and principles of providing home care services, and how to finance. This is what Beijing lacks at the moment.[21]

Outer Setting

The introduction of long-term care insurance provides financial protection for the life care and medical care of the disabled elderly and helps the community to develop home-based health care service, which is consistent with the results of this study. Zhao et al's study[22] concluded that the lack of understanding of the content of the service program is one of the influencing factors of the disabled elderly not accepting home-based health care service, and some of the elderly need home-based services that may exceed the capacity of community health service organizations, such as meals and baths, but the current lack of involvement of other government departments and the lack of policy synergies have affected the provision of home health care, consistent with the results of this study. Beijing is actively promoting the construction of healthcare consortia, and there is a transfer channel between community health service organizations and general hospitals, which is consistent with the results of this study, but there is the problem of "easy upward transfer and difficult downward transfer". Zhang et al's study[23] concluded that the medical service capacity of primary health care organizations is more likely to be improved through "export" and "backfill" cooperation, such as guidance, assistance and support from higher-level hospitals in the health care consortium. However, the willingness of the medical staff of the hospitals leading the medical association in China to help is not high, and the connection between community health service organizations and higher-level hospitals is not close enough, which is consistent with the results of this study. Asghari et al's study concluded that the community health workers direct communication and relationship with the clinical staff uniquely positioned them to coordinate patient care in a more timely manner, avoiding harmful and significant delays in care. Therefore, we should also strengthen communication with general hospitals.[24]

Inner Setting

Some healthcare workers indicated that there were clear pay and performance incentives, and the motivation to enter the household was good, which was contrary to the findings of Song Yanping et al.[25] This may be because some community healthcare institutions pay more attention to incentives for healthcare workers, and therefore there is a greater need to establish a uniform and standardized standardization. The study by Searched Yunjie et al[26] concluded that the pricing mechanism needs to be further explored and the Internet information platform is missing, which is consistent with the findings of this study that the service fee charged differs greatly from the market price, the case records are burdensome, and the mobile payment method is further improved. Zhou et al's[27] considered insufficient human resources to be the

most prominent impediment; community health workers usually have to balance institutional work and home services, with a high volume of services, low wages, and low satisfaction, leading to a high turnover rate. This study also identified inadequate manpower provision as one of the hindering factors affecting the provision of home-based health care service. The US hospital at home care service staff includes professionals who can provide technical support for the technologies used such as electronic health records, medical devices, remote monitoring and telehealth devices, which is exactly what our country lacks, and in the future, not only should we strengthen the construction of community caregiver teams, but the construction of technical-related staff is also indispensable.[28]

Characteristics of Individuals

For the perspective of humanistic care and professional ethics, community medical personnel are willing to provide home-based health care service, but due to the lack of specialized training and the lack of awareness and understanding of new medical technologies, medical personnel are not competent enough to perform some parts of home-based health care service. This is consistent with the results of the study by Lian et al.[29] The ability of primary medical staff to diagnose and treat common and frequent diseases is superior to the ability to deal with critical emergencies and emergencies. Health professionals abroad equally recognize the importance of Continuous Professional Development. It not only meets the needs of professional development, but also better meets the needs of patients. To ensure effectiveness, the training content should be closely aligned with actual job requirements and provide continuous organizational support.[30]

Process

The Beijing Municipal Health Commission's "Implementation Plan for Strengthening home-based health care services for the Elderly in Beijing"[30] requires that relevant responsibilities be clarified, and that healthcare organizations carrying out home-based health care services should sign an agreement with their service recipients, which is in line with this study's signing of informed consent for healthcare services with the patients in the course of implementation, and can play a role in protecting healthcare professionals and promoting home-based health care service implementation. The study by Zhao et al[32] showed that the main providers of chronic disease care and prevention were general practitioners and team nurses, and the staffing of the medical-nursing-assistant (pharmaceutical) accountability model was consistent with the findings of this study, which emphasized "whoever signs the contract is responsible for it". Gao et al[33] concluded that the limited diagnostic and therapeutic means and equipment available to patients in home healthcare may result in misdiagnosis and loss of treatment, and that there is a greater risk of first consultation, which is consistent with the results of the present study, in which medical staff were concerned about the inability to accurately identify the patient's condition, which could lead to medical malpractice. In Japan, for patients with serious illnesses, home visits are required under the supervision of the attending physician. The attending physician takes a leading role in the patient's care plan; they are responsible for developing the treatment plan and supervising the caregiver's house calls. This is a good way to reduce the risk of a first visit.[34] On quality, five questions about safety, effectiveness, respect, responsiveness to individuals' needs, and good management are assessed for all care providers in the United Kingdom.[35] Singapore regulates the quality of services based on national standards that ensure the safety and dignity of clients and meaningful client-centered care by trained staff. All of this is worth learning.[36]

Innovations and Limitations

The innovation of this study is that it is based on the theoretical framework to analyze the data, and based on the barrier factors of CFIR, it provides the ERIC implementation strategy suggestions that match the barrier factors, which is more targeted. The limitations of this study are that it only considers one city, Beijing, and the results are not generalizable, so it is difficult to generalize to the whole country, and it lacks the perspective of the demand side. Afterwards, a nationwide survey will be started based on the summary of this survey in order to better facilitate the implementation of home-based health care service in the future.

Conclusion

This study used the CFIR to understand the current situation of home-based health care service provision for community-dwelling older adults in Beijing, as well as the problems and challenges faced during service implementation. The

barriers can be categorized as Design Quality and Packaging, Cosmopolitanism, Peer Pressure, Structural Characteristics, Available Resources, Access to knowledge and information, Planning, and Key Stakeholders. Thirty-eight ERIC strategies were derived from the CFIR-ERIC matching tool, and the importance was ranked by the cumulative selection rate, resulting in multiple improvement strategies. It is hoped that by summarizing the relevant lessons learned, it will help Beijing community health centers to develop better home-based health care service in the future.

Data Sharing Statement

Data are available upon reasonable request from the corresponding author.

Ethics Approval and Informed Consent

Research ethics approval was obtained from the Medical Ethics Committee of Capital Medical University (2023SY124).

Informed consents were obtained from all subjects before the investigation. Participants informed consent included publication of anonymized responses/direct quotes.

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Disclosure

The authors declare that they have no competing interests.

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