

Needs of Formal Caregivers for Older Adults with Home Enteral Tube Feeding in China: A Qualitative Study

Huiya Zhu

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Xiao Ma

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Zhuyun Gong

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Hongli Liu

Fengtai First Retirement Home for Retired Cadres of Beijing Garrison

Aihua Liu

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Zhongyan Han

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Yanling Yang

PLA Rocket Force Characteristic Medical Center

Haiyan Shi

shihyan662@163.com

the Second Medical Center & National Clinical Research Center for Geriatric Diseases, Chinese PLA General Hospital

Research Article

Keywords: Aged, Community Health Nursing, Enteral Nutrition, Home Nursing, Home Care Services

Posted Date: October 18th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10771401/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

With the growing population of disabled older adults and the predominance of home care, home enteral tube feeding (HETF) has become increasingly prevalent in Chinese. Caring for older adults with HETF poses substantial challenges for formal caregivers, including insufficient competencies, limited standardized services, and inadequate social support. This study aims to explore the needs and experiences of formal caregivers for older adults with HETF in China, identifying difficulties in skill acquisition, routine care, and risk management, to reduce caregivers' care burden, improve both home care quality and the quality of life for older adults.

Methods

A descriptive phenomenological qualitative design was adopted. From June 1 to August 30, 2025, a total of 20 participants (14 caregivers, 3 community healthcare professionals, 3 hospital professionals) were purposively recruited in Beijing, China. Data were collected through semi-structured interviews and analyzed using Colaizzi's method with NVivo 15.

Results

Three core themes emerged: (1) Pathways of caring ability acquisition: fragmented informal learning and peer sharing as main skill sources, lacking systematic training; (2) Lack of professional support: caregivers encountered professional issues in nutritional assessment, standardized equipment operation, complication identification, tube replacement, and individualized nutrition guidance; (3) Caregivers' support needs: flexible, daily-integrated learning approaches such as short video tutorials and live-stream training, and expressed strong demands for emotional counseling and respite care due to loneliness and isolation.

Conclusion

Formal caregivers of HETF work in isolation with insufficient guidance and systematic support, and their experience-based decision-making may compromise safety and the quality of care. Optimizing HETF care quality requires standardized training and ongoing knowledge reinforcement, a "hospital-community-family" network to fill gaps, and strengthen psychological and social support systems to improve caregivers' professional identity and occupational well-being.

1. Background

With accelerating global population aging, the number of disabled and semi-disabled older adults has continued to rise. Many older adults experience comorbidity, dysphagia, high risk of malnutrition and other health problems, contributing to growing demand for enteral nutrition support. Against the broader backdrop of China's "9073" elderly care pattern - i.e., about 90% of older adults receive home-based care, 7% community-based care, and 3% institutional care - the number of older adults receiving HETF has shown an increasing trend year by year. HETF serves as a vital supportive strategy to preserve nutritional status and quality of life for numerous disabled older adults ^[1-3].

Compared with routine care tasks, HETF constitutes a medical intervention with higher frequency, longer duration and elevated risk of adverse events. Moreover, the home environment is less supervised than healthcare institutions, with limited professional oversight and monitoring. Improper feeding practice or delayed recognition of complications may trigger problems including tube blockage, vomiting, diarrhea and malnutrition, which can progress to severe adverse outcomes ^[4, 5]. This care context requires home caregivers not only to cope with complex tube feeding operations, but also to face multi-dimensional challenges, including psychological stress and lack of social support ^[6, 7].

However, existing studies largely focused on outcome indicators within the positivist paradigm, including the incidence of complications associated with HETF, caregivers' knowledge awareness, and intervention effects on nutritional markers. Few studies have explored caregivers' personal experiences, emotional needs and demands within the home context from their own viewpoints ^[8, 9]. Given the complexity and humanistic dimension of HETF care, qualitative approaches are particularly valuable for an in-depth exploration of caregivers' lived experiences. As formal caregivers represent a sizeable and expanding segment of China's home care workforce, and their experiences, motivations and support demands differ markedly from family caregivers, the present study targets this specific subgroup.

This study aims to employ a qualitative method to explore the lived experiences and needs of HETF caregivers of older adults. It intends to provide a basis for establishing support strategies that can meet caregivers' needs, with the ultimate goals of enhancing HETF care quality and older adults' quality of life, alleviating caregivers' burden, and advancing the systematic and standardized delivery of long-term home care services.

2. Methods

2.1. Design

This study employed descriptive phenomenology as its qualitative methodological framework. Rooted in the Husserlian tradition, descriptive phenomenology seeks to reveal the essential structure of lived experiences by returning to "the things themselves" as consciously perceived ^[10]. This methodology fits well for investigating caregiving experiences related to HETF, enabling an understanding of shared meanings and recurring patterns embedded in caregivers' everyday practice. To uphold methodological rigor, the research team systematically implemented bracketing (epoché). Before data collection and

analysis, all team members engaged in reflexive discussions to identify and set aside their pre-existing knowledge, professional assumptions, and personal biases regarding HETF care. The first author, a nurse with rich clinical experience in this field, kept a reflexive journal during the whole research process to record reflections and continuously assess the potential influence of her clinical background on data interpretation. The study adheres to the reporting guidelines of the Consolidated Criteria for Reporting Qualitative Studies (COREQ) ^[11].

2.2. Participants

Purposive sampling was used to select formal caregivers of the elderly with HETF from a community in Beijing between June and August of 2025. Following the principle of maximum variation, investigators recruited participants with diverse characteristics in terms of age, gender, education level, and experience of HETF care. Additionally, to enrich the narrative perspectives and interview content, healthcare professionals from communities and hospitals were also interviewed to provide supplementary information.

2.2.1. Inclusion criteria for the elderly

(☒) Age ≥ 65 years; (☒) Receiving ongoing HETF; (☒) The participant or their legal representative provided informed consent to take part in the study.

2.2.2. Inclusion criteria for caregivers

(☒) Age ≥ 18 years; (☒) Formal caregiver: Defined as paid, market-based professional caregivers providing care in institutions, nursing homes or private households ^[12]; (☒) Has provided HETF care for no less than one year; (☒) Agreed to participate in this study.

2.2.3. Exclusion criteria for caregivers

(☒) Concurrent involvement in other research projects; (☒) Unable to communicate clearly.

2.2.4. Inclusion criteria for healthcare professionals

(☒) Working in community, home-based, or geriatric gastroenterology-related care for ≥ 3 years; (☒) Able to articulate views clearly; (☒) Agreed to participate in this study.

2.2.5. Exclusion criteria for healthcare professionals

(☒) Concurrent involvement in other research projects; (☒) Not employed in frontline clinical or primary care roles.

According to the principle of information saturation, when the themes extracted from coding new interview texts repeated previous ones and no new dimensions emerged, the recruitment ceased.

2.3. Interview Guide Development

The interview guide was developed by our research team based on evidence from a previous study^[13] and refined through team discussion, expert review, and pilot interviews with two eligible caregivers. The final semi-structured interview guides for caregivers and healthcare professionals are provided in Supplementary Material S1. The guides covered topics including overall caregiving experiences, difficulties encountered, coping strategies, support needs, and expectations for service improvements.

2.4. Data Collection

Interviews were conducted by the first author (Zhu Huiya, MD candidate), a female nurse trained in qualitative research with 10 years of clinical experience and expertise in HETF care. Participants were provided with interview information and the interview guide in advance. Written informed consent was obtained after agreement from caregivers and the older adults or their family members. Prior to each interview, confirmation was made that the older adult's condition was stable and the caregiver was available without ongoing care responsibilities. Face-to-face semi-structured interviews were conducted in Mandarin at a nearby quiet indoor venue. Each interview lasted 30–40 minutes and was audio-recorded with participants' permission. The interviewer flexibly adjusted questions based on participants' emotions and responses, encouraging them to express true feelings while avoiding leading, negative, or suggestive behaviors. Field notes were documented to capture non-verbal cues including facial expressions and body language. No participant declined to respond or withdrew during the interview.

2.5. Data Analysis

Within 24 hours after each interview, audio recordings and field notes were transcribed, checked and organized by two nursing graduate students. Where any content was unclear, participants were re-contacted for verification. During the confirmation with participant C2, new ideas emerged, leading to a repeat interview to gather further information. Following Colaizzi's seven-step analytical method^[14], data coding, theme extraction, classification and clustering were performed using NVivo 15 software.

2.6. Rigor and Trustworthiness

To ensure the rigor of this qualitative study, we drew upon the criteria proposed by Lincoln and Guba^[15]. Credibility was established through three strategies: triangulation via interviews with three groups of participants (caregivers, community healthcare professionals, and hospital professionals), member checking with five participants, and peer debriefing within the research team. Dependability was established by maintaining a comprehensive audit trail, including raw transcripts, coding frameworks, and meeting minutes. Confirmability was mainly achieved through reflexivity. As the first author was a nurse with 10 years of clinical experience in enteral feeding care, she kept a reflexive journal throughout the study to record preconceptions and monitor how her professional background might influence data interpretation. In addition, the research team held reflexive discussions prior to data collection to articulate and bracket presuppositions about caregivers' challenges. The first author had no prior relationship with any participant. Transferability was supported by participant and setting descriptions presented in Section 2.2 and Table 1, allowing readers to evaluate whether the findings can be applied to

other contexts. However, as this study only recruited formal caregivers in urban China, the results should be generalized cautiously to other groups, such as informal caregivers, or rural settings.

Table 1
Characteristics of participants

Demographics of caregivers (n = 14)	Value n (%) /Median (range)	Demographics of community healthcare professionals(n = 3)	Value n (%) /Median (range)	Demographics of hospital healthcare professionals(n = 3)	Value n (%) /Median (range)
Sex		Sex		Sex	
Woman	12(85.7%)	Woman	2(66.7%)	Woman	2(66.7%)
Man	2(14.3%)	Man	1(33.3%)	Man	1(33.3%)
Age(years)	56.5(52–64)	Age(years)	39(35–43)	Age(years)	39(37–41)
Roles		Roles		Roles	
Nanny	14(100%)	Community nurse	2(66.7%)	Hospital nurse	2(66.7%)
Education		Community physician	1(33.3%)	Hospital physician	1(33.3%)
Primary school	2(14.3%)	Education		Education	
Junior school	6(42.9%)	Undergraduate	2(66.7%)	Undergraduate	1(33.3%)
Secondary school	1(7.1%)	Postgraduate and above	1(33.3%)	Postgraduate and above	2(66.7%)
High school	5(35.7%)	Experience of HETF care(years)	12(9–20)	Experience of HETF care(years)	12(10–19)
Experience of HETF care(years)	9.5(2–38)				
Type of feeding tube					
Naso-gastric tubes	14(100%)				
Functional mobility of older adults					
Completely bedridden	12(85.7%)				
Partially bedridden/ wheelchair-dependent	2(14.3%)				

3. Results

The study finally recruited 14 caregivers (C1-C14), 3 community healthcare professionals (N1, N2 and D1), and 3 hospital healthcare professionals (N3, N4 and D2). Characteristics of participants are presented in Table 1 (at the end of the text). Through thematic analysis, three themes and seven sub-themes were derived from the data, as shown in Fig. 1 (at the end of the text).

3.1. Pathways of caring ability acquisition

3.1.1. Fragmented, Demonstration-Based Learning of Tube Feeding Care

In the initial stage of tube feeding care, formal caregivers mainly acquired skills through brief demonstrations provided by hospital staff or other peers, with limited access to standardized, systematic training and ongoing follow-up support.

We all learn by copying what nurses do. It's such a big hospital that there's no time to give you lessons. We don't have much time to learn before we have to do it ourselves.

(C3)

After the tube was inserted, the nurse told me how to deliver enteral nutrition. I've just been using that knowledge ever since... Every time we went to the hospital to change the tube, it was finished within a minute. The nurse seldom gave us extra instructions.

(C9)

Nurses also reported that heavy workloads restricted them to offering only brief explanations or demonstrations of tube care for caregivers.

Generally, when we place a tube for a patient for the first time, we always explain the basic precautions to the caregiver. If they have previous experience, we don't need to say much; if it's their first time, we say a bit more and demonstrate... Daily clinical work is too busy to do much more.

(N4)

3.1.2. Peer Experience Sharing to Address Tube Feeding Problems

During the subsequent long-term home care, formal caregivers' behavior patterns gradually formed, primarily relying on experience gained from handling problems independently and through exchanges with peers.

“There’s an older sister in this apartment who also looks after an old woman with tube feeding. We meet almost every day downstairs to rest for an hour and chat. As the tube duration of her customer is not as long as mine, she usually asks me questions about tube care. If neither of us can figure it out, we discuss together.”

(C4)

Maybe I didn’t learn it well enough at the start. Later on, I had to watch and follow what other caregivers did and how they administered the tube. It all relies on accumulated experience.

(C5)

In home care settings where resources are limited, caregivers independently developed methods for resolving tube blockages and dislodgement, such as using Coca-Cola or white vinegar to clear tubes, forcefully flushing, or mixing medications into milk or blenderized diets.

When the tube gets clogged with feed, I knead it to relieve the blockage. If it still stays blocked, I buy some Coke and inject it using a 5 mL or 10 mL syringe. The caregiver next door also encounters tube blockages sometimes, so she asks me how to handle it. Eventually, she fitted a three-way tap at the end of the tube to perform forceful flushing. It is really labor-intensive.

(C7)

We originally secured the tube with adhesive tape, but it came loose easily. Even a cough could dislodge it. Now we put a net which is used on concussion on his head, and thread the tube through it. However, the tube can still shift while he sleeps at night, and he may pull it out.

(C10)

We have a small stainless-steel sieve to filter liquid before administering medications. After filtration, almost no particles remain in the liquid.

(C12)

3.2. Lack of Professional Support in caring practice

3.2.1. Difficulty in Managing Operational Problems

Some formal caregivers lacked sufficient knowledge such as nutritional assessment, equipment usage, and complication identification.

What troubles me most is regurgitation and vomiting. When these symptoms occur, I don’t know what to do. When I see her coughing, I know she will vomit in a moment and my head spins.

(C1)

There are some practical skills I'm not too clear about, like the volume and the feeding speed of diet. I used to feed by hand with a syringe. Since nurses didn't teach me how to operate the various types of feeding pumps, I haven't figured them out yet, so I just set it by myself.

(C3)

During home visits, community nurses observed that even experienced formal caregivers sometimes lacked essential tube feeding skills.

Once we visited an old man who had pulled his nasogastric tube out while turning over. Surprisingly, his caregiver still didn't know how to apply the nasal tape properly even over half a year after tube placement. It is really dangerous if the tube is not fixed well enough.

(N3)

Some caregivers had insufficient awareness of the risks of tube feeding complications with a fluke mindset. Either the oral-feeding desire of the elderly sometimes arises a feeling of sympathy of caregivers, or they believed the particles of diet and medication may block the tube, leading them to take risks by attempting oral feeding.

The tube blocks when there are too many particles in the liquid, so I use the syringe to pull back and push down... Sometimes he smacked his lips to express a desire to eat. I felt sorry for him and secretly gave him a little orally. Occasionally he coughed or choked, which frightened me greatly, and I dared not do it again.

(C10)

If the crushed tablets are too big to go through the tube, I put them in soup or porridge and make him swallow. Sometimes I give him some chopped, soft-cooked vegetables, just to let him enjoy the taste. I think it should be okay, right?... if the total oral intake cannot meet his needs, we then administer feeds via the tube.

(C13)

3.2.2. Limited Accessibility of Tube Replacement Services

Accessing tube replacement services faced multiple barriers, including the condition of the elderly person, time and transportation constraints for caregivers and family, and insufficient manpower or medical resources in community institutions. This prompted formal caregivers to seek alternative solutions, and some even attempted to replace the tube by themselves.

If the tube blocks in the night, and community hospital doctors are off duty, who can we find to change the tube? The older man would have to go hungry until morning! In that situation, I have no choice but to insert the tube myself...

(C1)

Her son can't get off work on weekdays. If the tube needs changing, we have to wait until 7 p.m. when he gets home to drive her to hospital.

(C2)

Every month when the older man needs a tube replacement, we have to call 120 for a stretcher and transfer him by ambulance. Our apartment has no elevator, and this monthly procedure exhausts us greatly, especially in winter.

(C8)

For convenience, caregivers and family members tried to arrange tube replacement services via online platforms, yet service quality was unreliable.

Last time his daughter found a so-called nurse through a local services app, who was affiliated to a qualified nursing company. But the nasogastric tube she brought was of poor quality, and the insertion procedure didn't go smoothly.

(C7)

Community healthcare professionals tended to refer older adults to higher-level hospitals for tube replacement due to inadequate facilities or personal concerns.

"Our community lacks the equipment for tube insertion as well as the emergency resources available in large hospitals. Besides, most of us have not performed enteral tube replacement—either for fear of incurring risks or due to family distrust. We feel more comfortable and safer transferring patients to higher-level hospitals."

(D1)

3.2.3. Lack of Clear Guidance for Nutritional Formula

Most HETF diets for older adults in China are home-made blenderized formulas, occasionally supplemented with commercial nutritional powders. Caregivers were often unsure how to determine food proportions, and just relying on others' recipes or simply replicating their own meals.

Every day we feed him what we eat—basically blended from vegetables, meat and eggs. I often worry he may not receive adequate nutrition.

(C7)

His son heard that a certain nutritional powder was good and bought it from abroad. I add a scoop into home-made diet for extra nutrition, but I cannot understand the ingredient list because it is all in English.

Could you help me take a look?

(C11)

Although family members may consult clinicians about feeding plans before discharge, some clinicians are incapable of providing suitable, individualized and precise nutrition regimens.

When patients are hospitalized, their feeds are prepared and delivered by the Nutrition Department. Some families ask us about post-discharge feeding plans before taking patients home with feeding tubes, but our advice is not as professional as a dietitian. As home conditions are limited, families and caregivers usually decide what to feed by themselves, depending on their level of understanding.

(D2)

3.3. Caregivers' Support Needs

3.3.1. Need for Convenient Learning Methods Integrated into Daily Life

Constrained by time and space, formal caregivers demonstrated strong willingness to learn yet found systematic long-term learning difficult. They preferred learning in their spare time through accessible methods like short videos or live streams.

Our daily schedule is extremely tight. There is barely any free time even after finishing care work... I believe continuous learning is necessary, but we lack relevant platforms. At our age, we're not so adept with smart phones, so it would be good to sit there and learn from a video.

(C5)

We definitely cannot leave the care recipient to attend offline training. If resources are available online, we can listen while cooking or looking after the older adult.

(C14)

Since formal caregivers find it difficult to leave home, community-organized offline training sessions were often poorly attended.

Sometimes the hospital professionals come to provide training on home care, and we notify family members and caregivers in advance to come and listen. But if we don't do some persuasion, hardly anyone turns up. After all, the old person at home can't be left alone... This kind of training probably happens once or twice a year.

(N1)

3.3.2. Need for Psychological Support

As old adults with HETF are generally disabled or cognitively impaired individuals, formal caregivers are often confined to the home for long periods, lacking social interaction and experiencing strong loneliness and isolation. They crave emotional connection and outlets for relaxation.

I spend all day just revolving around the old man. There's no one to even talk to. He's been bedridden for years and doesn't understand what you say... I can't go out because he can't be left alone. I just video call my family in my free time.

(C6)

I just hope that his children could come back and relieve me for a while, so I can go down to the small garden and have a rest.

(C8)

Every morning when I go out for an hour to buy groceries, I can get some fresh air. Otherwise, staying cooped up here every day is suffocating. I'm afraid I'll end up with problems myself.

(C11)

During a home visit last time, the caregiver talked to us for more than half an hour and barely let us speak. It seemed she had not communicated with anyone for a very long time. Eventually we had to interrupt her and leave.

(N2)

4. Discussion

4.1. Provide Caregivers with Standardized Initial Training and Ongoing Knowledge Reinforcement

Our study found that the development of caregivers' competence of HETF relies heavily on simple initial demonstrations and unsystematic, fragmented experiential learning. Previous studies have indicated that older adults and their caregivers tend to forget health education information received in hospital after discharge^[16, 17]. Many caregivers often feel isolated and helpless at home, unsure of whom to turn to when complications arise, and may even feel abandoned by the medical system^[18, 19]. This suggests that brief one-off hospital education cannot sustain caregivers' safe, standardized tube feeding practice over the long term after discharge.

Therefore, service models should shift from one-time fragmented teaching to a framework featuring "standardized introductory training, regular review and long-term follow-up support". After tube insertion or replacement in the hospital, healthcare professionals should organize standardized tube feeding training, integrating basic knowledge with practical skills for caregivers. After returning home, learning

should be facilitated by online applications including short training videos (e.g., “Managing Tube Blockages,” “Preventing Diarrhea,” “Preparing Blenderized diets”), a medication encyclopedia (to check indications, compatibility issues, etc.), and online consultation (connecting with the nutrition support team for Q&A). Community health institutions should establish a regular home visit plan to identify high-risk care practices and provide immediate correction and guidance, possibly combined with practical assessments. Hospitals, as definers of norms and standards, should disseminate correct procedures and coping strategies to communities and homes, enhancing the standardization and safety of HETF care practices.

4.2. Construct a Tube Feeding Care Support System to Bridge the Gap in Home care Services

Unlike family members motivated by emotional attachment, formal caregivers in China operate within a professional service relationship, with extrinsic motivation that may affect their willingness to learn and progress^[20]. Therefore, external support for tube feeding care is particularly important. Currently, the functions of community health centers in China are extremely limited, mainly providing services for minor illnesses and basic management of common chronic diseases, and largely unable to provide specialized services related to HETF (tube replacement, nutritional support, skills training, etc.)^[21]. This results in a “last mile” gap between medical resources and the elderly, leaving caregivers alone, so they are forced to find alternative solutions or make decisions based solely on experience.

“The Action Plan for Enhancing the Service Capacity of Elderly Care” published by the National Health Commission of the PRC states: “Select senior nurses or experienced geriatric nursing professionals to provide continuous nursing services for community-dwelling and homebound elderly patients through regular assignments to grassroots institutions, forming joint nursing teams, point-to-point assistance, etc.”^[22] Hospitals should guide communities in integrating functions such as online training, appointment scheduling for tube changes, and nutritional counseling, thereby enabling resource decentralization, providing formal caregivers with more support right on their doorstep. A multidisciplinary nutrition support team should be established, using community health service centers as hubs to create a regional care network. The coverage of “Nursing Services Online” should be expanded, fully leveraging information technology to provide professional home nursing services for the elderly with tube feeding, such as those who are disabled, cognitively impaired, or of advanced age.

4.3. Provide Psychological and Social Support for Caregivers to Enhance Professional Identity and Occupational Reward

Currently, formal HETF caregivers are mainly middle-aged or older adults with relatively low educational attainment, many of whom are rural migrant workers^[23, 24]. Their care duties are complex and professional role is ambiguous, so they are often regarded as “nannies” who undertake routine domestic tasks, while their “medical care” expertise is overlooked^[25]. This makes it difficult for caregivers to gain

professional identity and an occupational reward. To scientifically define this occupational identity and its medical attributes, the *Occupational Classification Dictionary of the People's Republic of China (2015 Edition)* added a new occupational category, "Medical Caregiver" [26]. National Health Commission also issued notices to clarify the theoretical and practical competencies required of medical caregivers [27, 28]. *Service Standards for Home and Community-Based Medical Caregivers* were recently published and further define the scope of practice for these workers. Such policies and standards lay a foundation for strengthening caregivers' professional identity and occupational reward.

Furthermore, the long-term, monotonous, and unsupportive care environment exposes caregivers to stress and anxiety. Meanwhile, their social roles shrink, social interactions decline, and insufficient social support exacerbates their physical and mental exhaustion. Healthcare professionals should carry out regular comprehensive geriatric assessments and advise families caring for moderately to severely disabled older adults receiving HETF to arrange an appropriate number of caregivers, so as to lower individual workloads. Communities can collaborate with long-term care institutions to build respite care platforms and foster mutual support mechanisms, allowing caregivers to secure time for rest and recuperation. The use of smart assistive devices, such as intelligent sensors and alarm systems, should also be promoted to reduce care burden. Establishing online communities for HETF caregivers led by community nurses can encourage them to express their thoughts and feelings, such as writing care diaries or sharing experiences to relieve their emotions. Additionally, partnerships with professional psychological counselors can grant caregivers access to psychological support, enabling timely intervention for mental health concerns.

5. Limitations

This study has certain limitations. The sample size was relatively small, and all participants were recruited in Beijing. Only nasogastric tubes were considered as it is one of the most popular enteral tube types in communities of China. Importantly, this study exclusively enrolled formal caregivers and did not include family caregivers. These two groups may differ substantially in their caregiving motivations, prior training, emotional investment, and sources of burden—family caregivers often deliver care driven by filial obligation or emotional attachment, whereas paid caregivers work under a professional service relationship. Consequently, the findings may not be fully transferable to the family caregiver population. Further investigation into the utility of smart technologies in home care is also warranted to generate empirical evidence for formulating comprehensive HETF care schemes for older adults.

6. Conclusions

This study focused on the current situation and problems of HETF care for older adults, as well as the lived experiences of caregivers. Through in-depth exploration using qualitative interviews, three themes and seven sub-themes were identified. The study revealed that in the absence of professional support, formal HETF caregivers follow an unstructured, self-directed learning trajectory. Furthermore, a structural disconnect exists among the "hospital-community-family" triad, often leaving caregivers isolated and

struggling to maintain care quality. Therefore, improving the quality of HETF care requires constructing a multi-dimensional, integrated management system. This includes transforming caregiver training models, establishing a tripartite risk prevention and control mechanism, strengthening the community-centered support service network, and providing psychological and social support— all designed to offer robust institutional and knowledge-based support for HETF caregivers.

Abbreviations

HETF Home enteral tube feeding

COREQ The Consolidated Criteria for Reporting Qualitative Studies

Declarations

Ethics approval

This study has been reviewed and approved by the Medical Ethics Committee of Chinese PLA General Hospital (No. S2024-738-05). All procedures performed in this study were in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments. All participants have signed the informed consent form to assure voluntary participation of the interviews. The names were anonymized with alphabetical and numerical codes; the interview texts containing identifying information have been removed; the research data are stored on a password-protected laptop and will be destroyed two years after the completion of the study.

Clinical trial number

Not applicable. The study is not registered.

Consent for publication

The authors affirm that all participants provided informed consent for publication.

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available due to the risk of compromising participant privacy and confidentiality but are available from the corresponding author on reasonable request.

Competing interests

The authors declare that there is no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

Huiya Zhu: Conceptualization, methodology, software, formal analysis, investigation and writing- original draft.

Xiao Ma: Conceptualization, validation and writing- review & editing.

Zhuyun Gong: Investigation, resources and supervision.

Hongli Liu: Investigation, resources and data curation.

Aihua Liu: Formal analysis, investigation and data curation.

Zhongyan Han: Formal analysis, investigation and data curation.

Yanling Yang: Investigation, data curation and writing- review & editing.

Haiyan Shi: Conceptualization, methodology, writing- review & editing, supervision and project administration.

All authors read and approved the final manuscript.

Acknowledgements

We would like to express our gratitude to Dr. Wei Na, Doctor of Taikang Management and Operation Co., Ltd. for initial revision of this article, as well as Professor Zhang Huaguo from Beijing AnDing Hospital for her guidance on the methodology of qualitative research. We would also appreciate the valuable suggestions of philosophical perspective and language editing from Dr Wang Jingting of Naval Medical University.

References

1. National Health Commission of the People's Republic of China. The 14th Five-Year Plan for Healthy Aging. 2022. https://www.gov.cn/zhengce/zhengceku/2022-3/01/content_5676342.htm. Accessed 2026-02-07.
2. Siegel RL, Giaquinto AN, Jemal A. Cancer statistics, 2024. *Ca Med J*. 2024;74:12–49. 10.3322/caac.21820.
3. Folwarski M, Kłęk S, Zoubek-Wójcik A, Szafranski W, Bartoszevska L, Figura K, et al. Home Enteral Nutrition in Adults-Nationwide Multicenter Survey. *Nutrients*. 2020;12(7):9. 10.3390/nu12072087.
4. Lin Q, Dai T, Wang SQ, Luo J. The application of supportive nursing intervention in patients with esophageal cancer after surgery for home enteral nutrition. *J Qilu Nurs*. 2023;29:79–82.

- 10.3969/j.issn.1006-7256.2023.24.024.
5. Tian WR, Liu L, Li ZH, Gong YK, Wang CR, Zhang L, et al. Construction and clinical application of home enteral nutrition health education content after esophageal cancer surgery. *Chin J Nurs Educ.* 2025;22:1242–9. 10.3761/j.issn.1672-9234.2025.10.015.
 6. Serjeant S, Tighe B. A meta-synthesis exploring caregiver experiences of home enteral tube feeding. *J Hum Nutr Diet.* 2022;35:23–32. 10.1111/jhn.12913.
 7. Sandhu R, Elliott T, Hussain W, Engbers J, Kassam R. Exploring the lived experiences of adults using home enteral nutrition and their caregivers: A meta-aggregation qualitative systematic review. *Nutr Clin Pract.* 2025;40(2):368–88. 10.1002/ncp.11225.
 8. Zhao RN, Hou XH, Niu YS, Wang JL. Effect of the Home to Hospital to Home nutrition management program on postoperative liver cancer patients: A single-center randomized controlled study. *Medicine.* 2023;102(49):e36648. 10.1097/MD.00000000000036648.
 9. Niu YR, Lin QR, Wang L, Huang RY, Yang X, Hou M. Evidence summary on safety management of long-term home tube feeding in the elderly. *J Nurs Sci.* 2023;38:101–5. 10.3870/j.issn.1001-4152.2023.20.101.
 10. Husserl E. Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: Book 1, General Introduction to a Pure Phenomenology. New York: Kluwer Academic; 1982.
 11. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6):349–57. 10.1093/intqhc/mzm042.
 12. Hooyman NR, Kawamoto K, Kiyak HA. *Social Gerontology: A Multidisciplinary Perspective.* 10th ed. New Jersey: Pearson; 2021.
 13. Zhu HY, Liu AH, Han ZY, Yang YL, Ma X, Shi HY. Best Evidence Summary of Home Enteral Tube Feeding Care Management in the Elderly. *Patient Prefer Adherence.* 2025;19:49–63. 10.2147/ppa.s498890.
 14. Colaizzi PF. Psychological research as a phenomenologist views it. In: Valle RS, King M, editors. *Existential-Phenomenological Alternatives for Psychology.* New York: Oxford University Press; 1978. p. 6.
 15. Lincoln YS, Guba EG. *Naturalistic inquiry.* Dublin: Sage; 1985.
 16. Zhao J. Health education based on IMB model combined with Ebbinghaus Forgetting Curve in patients with first-episode stroke. 2024.
 17. Lyu Y, Ding YF, Li PF, Sun Y. Application of discharge planning model in home care of elderly long-term tube feeding patients. *Chin Nurs Res.* 2022;36:2693–7. 10.12102/j.issn.1009-6493.2022.15.012.
 18. Mou JJ, Sun JA, Zhang R, Yang Y, Yang WW, Zhao XS. Experiences and needs of home caregivers for enteral nutrition: A systematic review of qualitative research. *Nurs Open.* 2022;9:11–21. 10.1002/nop2.990.

19. Green SM, Townsend K, Jarrett N, Fader M. The experiences and support needs of people living at home with an enteral tube: a qualitative interview study. *J Hum Nutr Diet*. 2019;32:646–58. 10.1111/jhn.12656.
20. Luevanich C, Kane R, Naklong A, Surachetkomson P. Motivation for becoming a paid caregiver for older people: a case study in Phuket Province. *Thail Home health care Serv Q*. 2024;43(3):220–37. 10.1080/01621424.2024.2320100.
21. Qiu HY, Xiao TT, Song JM, Xu ZN, Chen XH. Elderly care needs and family care for empty nesters: a scoping review. *Chin Evidence-based Nurs*. 2024;10:443–8. 10.12102/j.issn.2095-8668.2024.03.011.
22. National Health Commission of the People's Republic of China. The Action Plan for Enhancing the Service Capacity of Elderly Care. Beijing. 2025. <https://www.nhc.gov.cn/yzygj/c100068/202512/6306d857609542b781dd970b2f22ccc0.shtml>. Accessed 2026-01-10.
23. Committee of Research Report on Elderly-Caregiver Occupational Status. (2025). Research Report on Elderly-Caregiver Occupational Status (2025). 2025. <https://www.shanghai.gov.cn/nw4411/20251218/3507519749744088bd9b21f87ff6c81b.html>. Accessed 2026-01-20.
24. Wu X. Care Work and Aging Conundrum: Elder Care Workers in China's Nursing Homes. *J Chin Women's Stud*. 2021;4(14):83–96.
25. Liu T, Shi HY, Zhang HG, Chen Y, Pi HY, Hou HR, et al. Interpretation of the service standards for medical nursing assistants of older adults in home and community. *Chin J Geriatr*. 2025;44:1500–6. 10.3760/cma.j.issn.0254-9026.2025.11.005.
26. National Classification of Occupations Revision Committee. Occupational Classification Dictionary of the People's Republic of China. 2015 Edition. Beijing: China Personnel Publishing House; 2015.
27. National Health Commission of the People's Republic of China. Notice on Conducting Elderly Care Needs Assessment and Standardizing Service Work. 2019. <https://www.nhc.gov.cn/yzygj/c100068/201908/01a2813f59bc44a0aaab11f0f9fda3f7.shtml>. Accessed 2025-12-20.
28. National Health Commission of the People's Republic of China. Notice on Strengthening Training and Regulatory Management of Medical Caregivers. 2019. <https://www.nhc.gov.cn/yzygj/c100068/201908/1e8142327ed04a7f895bf3732f856c36.shtml>. Accessed 2025-12-21.

Figures

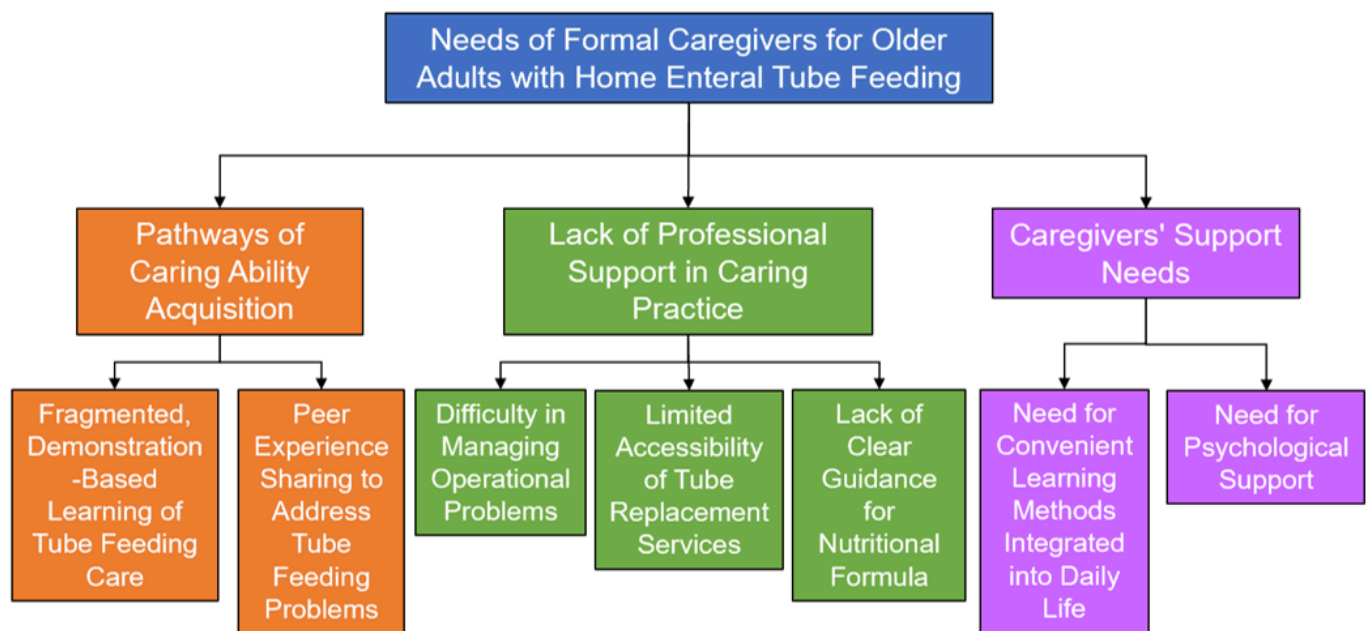


Figure 1

The structure of themes and sub-themes

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryMaterialS1.pdf](#)