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Original Article

A qualitative study on the life experiences and discharge planning of family caregivers for the elderly with nasal feeding

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Abstract: Objective: To understand the discharge planning needs of family caregivers for the elderly with nasal feeding. Methods: From May to August in 2021, in-depth interviews were conducted with eleven family caregivers for elderly patients with nasal feeding at a tertiary hospital in Shenzhen. The interviews were analyzed using phenomenological research methods and the Knowledge, Awareness, and Practice (KAP) theory to identify and refine key themes. Results: The discharge planning needs of family caregivers for elderly with nasal feeding can be summarized into three themes: ① Learning needs related to nasal feeding knowledge and discharge planning (Knowledge), ② Factors affecting the family caregivers of elderly with nasal feeding (Awareness), and ③ Practical needs in caregiving (Practice). Conclusion: Discharge planning for family caregivers of elderly individuals receiving nasal feeding should focus on the accurate assessment of tube placement and patient condition, operational skills, emergency response, and complication management. Medical professionals should evaluate these needs to develop personalized discharge readiness service plans, ensuring the quality of care for elderly patients with nasal feeding at home.

Keywords: Nasal feeding, caregiver, discharge planning, need, qualitative study

Introduction

China has entered the age of an aging society, and the elderly have become a significant segment of hospital patients, increasingly consuming a large share of medical resources. Projections suggest that in the coming decades, the elderly may account for approximately 50% of medical resource usage [1], posing substantial challenges to the allocation of existing medical resources.

Oropharyngeal dysphagia (OD) significantly affects the quality of life among the elderly, with nearly 1/3 of the elderly in China have dysphagia. The aggravation of aging and the presence of multiple comorbidities escalate the risk of OD and malnutrition in this demographic [2-4]. Enteral tube feeding (ETF) is indicated for elderly patients with OD, and mainly used for adult patients with nervous system diseases, dysphagia, malnutrition, gastrointestinal diseases, patients receiving chemotherapy or radiotherapy, and critically ill cancer patients [3]. Nasal feeding is often used as the preferred enteral nutrition support pathway in elderly patients when gastrointestinal function exists and they cannot eat via their mouth [5]. Although nasal feeding addresses nutritional needs, it is associated with several complications such as reflux, aspiration, and diarrhea, which adversely affect patient outcomes and prognoses. Additionally, there are heightened risks of mortality and adverse clinical outcomes including malnutrition and interruptions in feeding [6]. Nasal feeding-related complications and quality of survival of the elderly nasal feeding patients after discharge are closely related to the family caregivers [7]. To prevent and reduce the occurrence of nasal feeding-related complications, a series of measures have been taken by medical staff [8, 9], includ-

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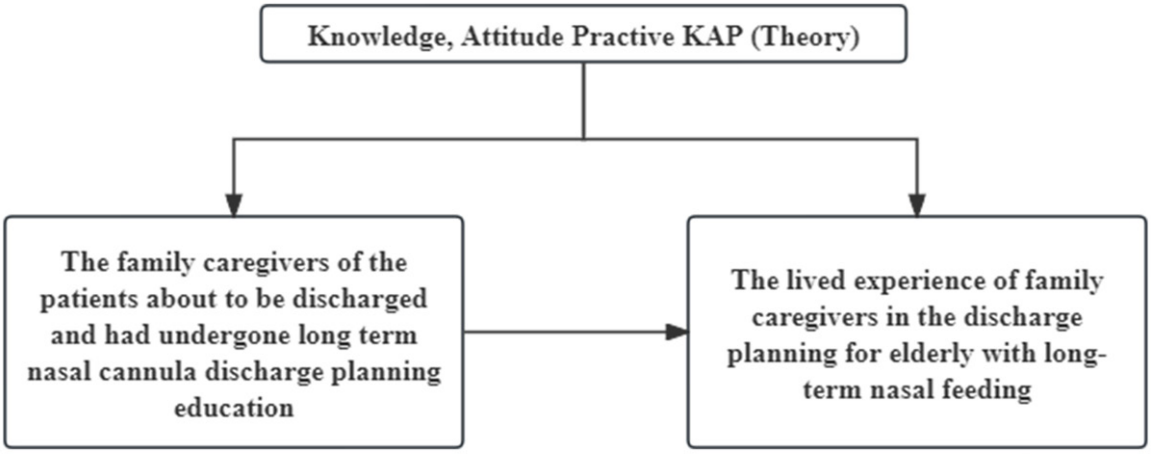

Figure 1. The schematic diagram of the conceptual framework of the study.

ing strengthening health education and improving continuity of services.

The purpose of this study was to explore the lived experience of family caregivers in the discharge planning for the elderly with long-term nasal feeding, focusing on understanding the necessary knowledge and addressing the challenges encountered during nasal feeding.

Methods

Research design

We conducted a qualitative study using semi-structured interviews with family caregivers of the elderly with nasal feeding. We employed phenomenology as our analytical approach, which focuses on understanding individuals' lived experiences from a first-person perspective, thus categorizing it within qualitative research methodologies [10]. The schematic diagram of the conceptual framework of the study was shown in **Figure 1**.

Participants

Participants were recruited from the geriatrics department of Shenzhen People's Hospital in Guangdong Province, China. They were primary caregivers who transitioned with the elderly from the hospital to home care. Recruitment continued until thematic saturation was achieved, at which point no new topics were emerging from interviews. The study comprised ten participants: six hired caregivers and four family members.

Inclusion criteria: (1) caregivers of elderly patients needing discharge with a nasal feeding tube; (2) caregivers of elderly patients experiencing geriatric syndrome or other chronic diseases such as dementia, diabetes, cerebral apoplexy, and restlessness, but in a stable stage; (3) caregivers who had been providing care for over one month; (4) caregivers with good communication skills; (5) voluntary participation. Exclusion criteria: (1) caregivers who only provided care during hospitalization; (2) caregivers of patients in the terminal stage of cancer or other diseases.

Interview guidelines

The interview guide was developed by LWX and LJL, the nursing managers who were trained in conducting interviews. The guide included topics pertinent to the caregivers' experiences and assessments related to elderly patients with nasal feeding (**Table 1**). Assessment instruments utilized were: (1) the Water Swallow Test [11]; (2) Mini Mental State Exam (MMSE) [12]; and (3) assessment of muscle strength level [13].

Data collection

We conducted a literature review and consulted existing guidelines on the discharge planning for elderly nasal feeding patients [14, 15] to develop a preliminary semi-structured interview outline based on the Knowledge, Belief, and Practice model. Next, the guide was refined through group discussion and consultations with clinical experts. The interviews were car-

Table 1. Interview guideline

Guideline details
1. Can you talk about your understanding and views on nasal feeding?
2. What are the most common problems or difficulties you encounter in caring for the elderly with nasal feeding?
3. What are your unique opinions about caring for the elderly with nasal feeding?
4. Can you talk about your understanding and views on the discharge planning? Especially in the elderly with nasal feeding.
5. What else do you think should be done by the medical team, such as the nurse, doctors, rehabilitation therapist and dietitian during your clients' hospitalization to help you improve your caring ability in home?
6. The obstacles and promoting factors in the process of nasal feeding work.

Table 2. General information of interviewees

ID	Type of care	Sex	Age	Length of care (month)	Marital Status	Education level	Nasal feeding related training	Experience with nasal feeding patient care	Whether the care recipient is being intubated for the first time
P1	Employment	Female	41	1.5	Married	Primary School	No	No	Yes
P2	Family	Female	53	38	Married	Junior High School	Yes	Yes	Yes
P3	Employment	Female	54	18	Married	Primary School	Yes	No	No
P4	Family	Female	47	2	Divorce	Junior High School	Yes	No	Yes
P5	Employment	Female	52	1.5	Widowed	Primary School	No	Yes	No
P6	Employment	Female	49	1.5	Married	Middle School	Yes	Yes	No
P7	Family	Female	61	26	Married	Middle School	No	No	No
P8	Employment	Female	50	20	Married	Junior high school	No	No	Yes
P9	Family	Female	55	7	Divorce	Undergraduate	No	Yes	No
P10	Employment	Male	52	11	Married	Middle school	Yes	Yes	No
P11	Employment	Female	53	18	Married	Primary School	Yes	Yes	No

ried out by two researchers, LWX and JLL, between September and December 2021. A pilot interview was conducted prior to the formal interview to fine-tune the themes. All interviews were recorded, stored, and analyzed for research purposes only. Access to the data is restricted to the research team and will be deleted after one year.

Data analysis

Audio recordings were transcribed verbatim by an external party, checked, and anonymized. Data were analyzed using Nvivo software (version 12.0), which supports robust management and analysis of qualitative data. The seven-step thematic analysis by Colaizzi was used to analyze the data [16]. The Consolidated criteria for Reporting Qualitative research (COREQ) Checklist was used for structuring the report.

Ethical considerations

Ethical approval for the study was obtained from the Medical Ethics Committee of Shenzhen People's Hospital (LL-KY2020-475). All participants were informed about the study's aims and gave oral informed consent before participating. Strict confidentiality measures were implemented to protect participant privacy, ensuring that personal identifiers were not recorded or disclosed in any research outputs.

Results

General demographic information of the participants

A total of 11 family caregivers of elderly patients with nasal feeding were included in this study, The details are shown in **Table 2**. All elderly patients with nasal feeding tubes cared for by these participants had some levels of swallowing impairment, and some also had dementia and abnormal muscle strength. These specific conditions are detailed in **Table 3**.

Interview topics

Using thematic analysis, three main themes and thirteen sub-themes were identified based

Table 3. The related assessment about the elderly with nasal feeding who the interviewees take care of

	Water swallow test	MMSE	Muscle strength level	
			Upper Extremity	Lower extremities
P1	III	23	2	1
P2	IV	27	2	3
P3	V	11	4	3
P4	IV	Coma	1	1
P5	III	7	3	4
P6	IV	10	2	3
P7	V	20	4	4
P8	IV	15	4	2
P9	V	16	4	2
P10	V	15	3	2
P11	IV	9	3	4

Note: MMSE = Mini Mental State Exam.

on the theory of Knowledge, Trust and Practice model, mainly addressing the challenges encountered during the caregiving process and the sharing of experiences among caregivers. Exemplar quotes for each theme are displayed in **Table 4**.

Theme 1: learning needs for nasal feeding knowledge and discharge planning (knowledge): (1) Perceived need for nasal feeding and discharge planning: Most participants reported basic familiarity with nasal feeding, primarily understanding the function of feeding tubes. However, they perceived discharge preparation services as primarily the responsibility of medical staff and the patients themselves, not the caregivers. (2) Assessing the need for knowledge: Many interviewees expressed confusion about the patient's condition and the specifics of the nasal feeding materials, indicating a significant gap in their understanding. (3) The need to acquire knowledge about nasal feeding: Participants generally acquired knowledge about nasal feeding from health education and guidance by healthcare staff during hospitalization. However, they often reported forgetfulness after discharge. A small number of respondents also indicated that nasal feeding knowledge and skills could be obtained from experienced peers.

Theme 2: factors affecting the family caregivers of elderly patients with nasal feeding: (1) Care recipient referrals and attitude: In this study, family caregivers noted that an improved physical condition aroused their confidence to actively learn the nasal feeding operation. In addition, hired caregivers reported that their attitude toward caregiving affects their enthusiasm for learning and applying nasal feeding procedures. (2) Attitude and support from the clients' family members: The majority of participants believed that understanding and support from the family of the care recipient are crucial to the caregiving process. Some hired caregivers also mentioned that encouragement and appreciation from their own families enhance their motivation and commitment to their caregiving roles. (3) Family caregivers' own factors: Several caregivers indicated that their personal social activities could impact their ability to learn and perform nasal feeding. Furthermore, many noted that their personal experiences and prior knowledge also play a role in how effectively they manage nasal feeding tasks. (4) Working environment and salary and treatment: Most hired caregivers emphasized that the work environment and their compensation are significant factors that affect their job satisfaction and performance in nasal feeding care.

Theme 3: the need of practice: (1) The Needs for nasal feeding skills: Both family caregivers and employed caregivers in this study expressed their need for training in nasal feeding related skills. Those new to caregiving or without prior experience in nasal feeding expressed a particularly high demand for this training. (2) The needs for recognition and management of nasal feeding related complications: In this study, the majority of respondents indicated a lack of experience with the possible complications associated with nasal feeding. They expressed a desire for guidance on how to recognize and manage these complications effectively. (3) The needs for somatic co-morbid condition management: Caregivers reported challenges related to the management of multiple chronic diseases and geriatric syndromes in elderly nasal-fed patients. These conditions complicate caregiving and add to the burden faced by caregivers. (4) The needs for rehabilitative exercise: Caregivers acknowledged the importance of rehabilitative exercises in improving quality of life for the elderly but were uncertain about the specifics, such as the types of exercises, frequency, and intensity

Table 4. Themes identified through interviews

Theme	Subtheme	Quotations
sI. Learning needs for nasal feeding knowledge and discharge planning (Knowledge)	i. Perceived need for nasal feeding and discharge planning	*P1: "Shouldn't the discharge preparation be prepared by your doctors and nurses? My education is limited. I can do whatever I can do".* *P2: "I didn't know much about this thing before, but she lost the swallowing function and coughed easily".* *P3: "What to prepare for discharge, repeatedly hospitalized many times, anyway, out will come back, before admission need to prepare things to the hospital is almost".* *P5: "I am a worker, take care of grandma, you inform the hospital, the family members to pay the bill, I followed, I have nothing to prepare for".* *P6: "He can't eat it himself, so he uses this pipe instead of him".* *P7: "The old man with this tube (nose feeding tube) are a lot of, people are old, a lot of function loss, can only be replaced by the machine. It's like having a meal".* *P10: "You see him so coma, all have not consciousness, need not can do with this, this pipeline is the life pipeline"; "I feel that the patient should be prepared before leaving the hospital, and go back when stable, otherwise I can't deal with an emergency at home".*
	ii. Assessing the need for knowledge	*P1: "He has more phlegm, every morning I give him with normal saline gargle, the smell is no, is more phlegm, the mouth has a bad smell. And he did not cooperate, doctors and nurses to him sputum he refused, can only he spit to the mouth to suck".* *P2: "About this nasal feeding tube, I do not know the specific situation, anyway, before and after feeding, water clean, other seems to have nothing".* *P5: "She completely can't move, also can't talk, except for the instrument (ecgmonitor/infusion pump) their own alarm when I knew there was a problem, usually she is the same, I also don't know what changes".* *P7: "In the hospital in the ward, at home in his bedroom, in the kitchen to break the food with a blender, in the bowl".* *P10: "Usually will feed when people are few, like you ward rounds when I don't feed, more people, I still feel not very hygienic".*
	iii. The need to acquire knowledge about nasal feeding	*P1: "When I first intubated, the nurse fed, taught me while feeding, then they watched me feed, they pointed out any problems, and slowly I fed myself".* *P6: "It is my first time to take care of this nasal feeding tube patient, I don't know many things, ask the doctor and nurse, but also ask the escort in the next bed, because she has experience".* *P8: "Won't ask, can do? Take care of him, just ask the doctors and nurses in the hospital, or ask those colleagues who take care of such patients in the group of our escort company".* *P7: "Generally have a problem I will call the nurse, although just intubation, have taught, but said too much, I can not remember, especially at home, sometimes nasal feeding process suddenly encountered a little problem, remember the nurse handed over, but just can't remember how to do? If you can have a video or little book to bring back, I'll probably not forget".* *P11: "Your aisle has some pictures and words of the old man (health education wall newspaper), I sometimes go there to see, just learn something. You can also know some of your regular training sessions every Wednesday".*
II. Factors affecting the family caregivers of elderly withe nasal feeding (Awareness)	i. Care recipient referrals and attitudes	*P1: "The patient's incompatibility will affect my enthusiasm for work, anyway, I feel that I am a called person, I don't cooperate with anything I say".* *P2: "Seeing my father slowly getting better and his physical symptoms relieving, I must feel a certain sense of achievement".* *P4: "At the beginning of this tube is to hope that can supplement nutrition, see my mother weight up, the heart is happy, will be willing to take the initiative to understand this pipeline. Last time I was hospitalized, I also took an active part in a training in your department, mainly teaching how to feed, and dealing with some simple situations".* *P5: "Anyway I say what he also does not cooperate, she only listens to his family of. This situation will certainly be frustrated ah, not too active to learn more nasal feeding skills.*

	ii. Attitude and support from the clients' family members	*P3: "I have been taking care of her for a long time, and his daughter treats me very well. They always think I take good care of her and give me a higher salary. Of course, money is also an influencing factor, ha ha ha".* *P5: "One understanding of my own family will make me feel that there is no white work, I came to send the child to school, but the child is still quite understand, think I am not easy, also often call to care about me. Every festival when the parents will also call to care, or will be more happy".* *P6: "Prepare these things you want to tell the family, tell me the family don't listen to me. I am not in a good condition, otherwise I really do not want to take care of it".* *P11: "The family member's understanding, sometimes to the family member said to buy what, he said to let the doctor call him, do not trust me".*
	iii. The family caregivers' own factors	*P2: "Life and work will definitely affect the care, because although I have nothing, but occasionally I still have to go out with my friends, so I can only call temporary workers to take care of them"; "I usually ask the kids if, and I have been taking care of him for so long that I can deal with general problems. If you can't, call your follow-up call (continuation service)".* *P6: "I am the first time to take care of this kind of nasal feeding tube patients, many things do not know, ask the doctor nurses, also ask the escort of the next bed, because she has experience".* *P10: "Sometimes the family has something, you need to ask for leave, can only let his family temporarily take care of him for a few days".* *P11: "Although I take care of him for a long time, sometimes I still have some things to deal with. I have to attend some lectures in the escort company in order to take better care of him"; "Your aisle has some pictures and words of the old man (health education wall newspaper), I sometimes go there to see, just learn something. You can also know some of your regular training sessions every Wednesday".*
	iv. Work Environment and Salary	*P3: "The treatment of the company will affect me, because I accompany the company, and then I have experience, know more, the company will also raise wages, and the patient is serious, will increase the money accordingly".* *P4: "I am still willing to take care of patients in the hospital. When I get home in trouble, I still worry that I can't cope with an emergency".* *P11: "Money is too little, like her this situation, and complex, I should not only pay attention to nasal feeding, but also pay attention to sputum suction and oxygen suction, turn over to pat the back, very troublesome".*
III. The needs of Practice (Practice)	i. The needs for nasal feeding skills	*P1: "I didn't start working for long, but I took care of some moving patients. I first took care of them with a nasal feeding tube, and I didn't know a lot of things".* *P3: "How do I measure the height of the bed, I also have no culture, how do I know how big 30 degrees is".* *P6: "Flush pipe is not good, every time flush is not clean, flush too much water and afraid that he is too strong".* *P8: "The fixed tape on the nose, very easy nose red. And he is old easy to extubated, this half a year has been pulled twice, once also with blood, scared to death".* *P9: "Once also don't know what, after feeding he cough, and then face red, blood oxygen also reduced, then the nurse doctor came to see is mistakenly suction, said my bed elevation is not enough, then I was so high ah, no problem".* *P10: "That drug, do not know how to do, want to break again feed, but how do not get broken. After the body position is arranged during the feeding process, the patient can not sit still and will decline".*
	ii. The needs for recognition and management of nasal feeding related complications	*P1: "He is easy to constipation, 2-3 days to defecate once, and then said to the doctor, the doctor prescribed this medicine (lactulose). Later I knew that this tube should pay attention to the stool situation".* *P4: "Like choking cough, diarrhea this will be dealt with, encountered before, nurses have also taught. Before going home, I still want to have a systematic explanation, or leave a contact information, if there is any emergency, or want to consult".* *P8: "It is he often pull tube, the bed in the home can not bundle him, this is very troublesome. And if inhaled at home is also afraid of his suffocation".* *P9: "Before a feeding, I saw him fell asleep, put flat, then after a while he began to hiccup, also vomit, now I will feed half an hour and then lower".*

iii. The needs for somatic co-morbid condition management	*P2: "He has been back to hospital several times, many times because of asthma and infection, but you say that the infection".* *P3: "He has COPD, and recently has a lot of sputum, to suction sputum pat back, should suction sputum first or eat first".* *P6: "He can not exercise by himself. He often needs me to turn over and pat my back and monitor his blood sugar, which has been high since intubation. I don't know if that is the reason".* *P8: "He has Alzheimer's disease, has been extubed several times, sometimes a little no attention, he pulled out, if to stop him, he will hit people again".* *P11: "The doctor said to get out of bed activity, how does this tube put ah, walk when so drooped, won't fall out?"*
iv. The needs for rehabilitative exercise	*P1: "He suffered from acromegaly, I know was to often give him massage limbs, but I don't know a few times a day ah, you that pressure treatment after I still press?"; "During the hospital massage you have air pressure, and the doctor also communicated with him, let do appropriate resistance exercise, after returning home he just love to do, to see his mood".* *P2: "He is not diabetic, and then he is afraid that poor exercise will not cause hypoglycemia, so when you are not there, he takes this as an excuse not to do it, especially at home, basically rarely active exercise".* *P3: "Before, I would pout at home, but the respiratory doctor would do it. After a period of time, the degree and frequency of the wheezing were obviously reduced".* *P4: "When he is at home on the bed activities, are we help, he himself is absolutely refused to move, drink water sprinkled themselves do not wipe, to us to wipe that kind of, in the hospital and pretty good, doctors and nurses all listen to".* *P6: "Because he did bladder surgery last year, the doctor said it can be appropriate activities, he was always afraid, refused to get out of bed, go out is basically in a wheelchair. Once when he walked at home for a while, there was blood in his catheter, he felt that he could not go, afraid".* *P8: "He has dementia, the body is actually quite strong, but if you want him to do exercise, he will quarrel with you".* *P11: "Because he had done thrombolysis before, the doctor told him to exercise properly, he will stretch every day, in you this to step on the bike, at home when he will slowly use crutches activities, this half a year mental outlook is really a lot better, also willing to talk to us".*
v. Medication management needs	*P2: "He has hypoglycemic drugs, blood pressure drugs, and separate meals, so it's easy to confuse them, and these little white tablets look like them".* *P4: "This medicine needs to be ground and beaten, is it ground separately? Separate, it will touch a lot on the stone groove, put in the pocket grinding several times and break the pocket".* *P5: "He also has the atomization medicine, is that medicine must be behind the oral medicine? To gargle".* *P8: "He can eat his own mouth, sometimes at home is their own medicine, this will not affect this tube".*
vi. The needs for continuity of service from medical institutions	*P4: "Before he did not have a catheter, now two pipes, turn over is very troublesome, can you pull out the catheter and then go back".* *P5: " She is now in this unconscious situation, it is still very troublesome to go home, want to wait for her a little better to go back. At least have a good blood oxygen control. And how to monitor the blood oxygen when at home".* *P6: "I think the basic care after discharge is certainly fine, but there is any problem, you can call you better".* *P7: "I want to be a few days before the discharge, your nurse to give me a standard operation of how to feed, by the way to note".* *P8: "This pipe needs to be replaced regularly, but he can not move, has a wheelchair, travel is not convenient, if it would be better to replace the pipe".*

required. They also noted that adherence to exercise regimens was generally better in hospital settings under medical supervision than at home. (5) Medication management needs: The caregivers noted the concerns about the correct order of medication administration and potential incompatibilities related to nasal feeding; besides, they also expressed uncertainty about managing medications following nasal feeding sessions. (6) The needs for continuity of service from medical institutions: Most of the respondents highlighted the need for continued education and support services starting a few days before discharge and extending post-discharge. They emphasized the importance of a seamless transition and ongoing support to effectively manage care at home.

Discussion

The results of this interview revealed a limited awareness of nasal feeding and discharge preparation among caregivers. Many caregivers expressed uncertainty about how to properly evaluate nasal feeding operations, specifically regarding the preparation and disinfection processes. They commonly believed that no special preparations were necessary for the patient, who simply needed to cooperate during feeding. Caregivers also perceived discharge preparation as primarily the responsibility of the patient and the healthcare provider, not themselves. Based on this analysis, two primary needs were identified in the pre-nasal feeding assessment: 1) the need for correct assessment of nasal feeding materials and procedures, and 2) the need for assessment of psychological condition and physical function, including swallowing ability, oral cleanliness and digestion. These findings align with previous studies [17-19].

This study highlights the critical need for family caregivers of elderly nasal feeding patients to enhance their understanding of nasal feeding and discharge preparation services. It is essential to establish a multidisciplinary team to provide continuous and dynamic guidance and supervision throughout the hospitalization period, thereby improving caregivers' professional capabilities in patient care. Discharge preparation should be a collaborative effort involving not only patients and medical staff but also family members, caregivers, and volunteers [20]. Each participant plays a vital role in addressing the substantive needs of patients and in utilizing medical and social resources effectively. The World Health Organization's recent guidelines on self-care interventions recommend strengthening individual self-monitoring, awareness, and management to enhance the overall quality of life [21]. In light of this, it is imperative for medical staff to move beyond traditional models. Assessments should not only be conducted by medical professionals but should also involve teaching family caregivers prior to discharge. Implementing feedback mechanisms based on these assessments is crucial. Furthermore, medical staff should employ discharge preparation service evaluation tools to assess the needs and risks of elderly nasal feeding patients at various stages - including admission, hospitalization, and discharge. This approach enables the development of personalized discharge plans that ensure care continuity during the stable periods of the patients' conditions.

This study identifies several factors that influence the ability of family caregivers to effectively provide care and learn nasal feeding techniques. These factors include the demands of the care recipients, family dynamics, financial security, and the caregivers' own social support networks. These findings echo those reported by Huang et al. [22]. In view of the above challenges, the establishment of effective out-of-hospital health continuation service is recommended to provide professional support to family caregivers, improve their care ability and ensure the quality of care they deliver. At the same time, the continuation service should not only be limited to the nose-fed elderly, but also pay attention to the psychological comfort of their family caregivers.

Moreover, the interview revealed that caregivers require further improvement and guidance in nasal feeding skills, with differing needs during hospitalization and after discharge. The deficiency in nasal feeding often directly affects the quality of life of the patients. It is suggested that clinical nurses regularly assess the needs of caregivers at various stages: during hospitalization, prior to discharge, and following discharge. Nurses should offer professional suggestions and guidance based on clinical experience, guidelines and relevant evidence-based evidence, and conduct relevant assess-

ment and provide training in nasal feeding knowledge and skills when necessary. Despite some caregivers having the ability to identify complications associated with nasal feeding, many lack the skills to manage these complications effectively, often relying on medical professionals for resolution. It is proposed that caregivers of patients with nasal feeding tubes receive comprehensive theoretical and practical training at the outset of care. This training should include an assessment and evaluation of the caregiver's ability to manage nasal feeding, with successful completion of training being required before the caregiver assumes full care duties. The training and assessment program should integrate clinical guidelines, relevant research findings, and considerations specific to elderly patients receiving nasal feeding, ensuring a well-rounded approach to caregiver education and patient care.

This study underscores the crucial need for comprehensive preparation before the discharge of elderly patients reliant on nasal feeding, which mainly includes readiness of the patients themselves, the caregivers' preparedness, and the adequacy of the nasal feeding environment and materials. Effective preparation requires coordinated communication between caregivers, medical staff, and the patients' families to ensure the physical environment and materials are appropriately tailored to the needs of the nasal feeding patients.

Conclusion

In conclusion, relevant departments should expedite the establishment of an integrated "hospital-community-family" care model [23]. This model should engage pension institutions, healthcare providers, and social volunteers to provide professional service directly to family caregivers, thus ensuring patients can enjoy door-to-door services from hospitals or communities without leaving home. Furthermore, the adoption of "Internet +" service model supported by information technology, alongside the implementation of standardized follow-up services, can significantly improve the quality of family preparation services post-discharge [24]. During hospitalization, various educational approaches - such as on-site training, simulation sessions, and video instructions - should be utilized to equip both the elderly and their caregivers with necessary care skills. Post-discharge, continuous nursing guidance should be maintained through diverse channels including telephone follow-ups, outpatient visits, home visits, and online communications, ensuring sustained support and care for the elderly.

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