



A qualitative study on the communication experience of empty-nester elderly in dental outpatient clinics

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SUMMARY: ***Objective** In-depth study of the communication needs of empty-nester elderly people attending dental outpatient clinics, to provide scientific reference for further improving the experience of elderly patients attending dental clinics. **Methods** This study is descriptive in nature, using purposive sampling method, 15 cases of empty-nester elderly people attending the outpatient clinic of Peking University Stomatological Hospital from December 2024 to February 2025 were selected as the study subjects and were interviewed in depth. The content analysis method was applied to analyze the interview data, and the themes were summarized and generalized based on the theory of interactional behavior. **Results** A total of 2 themes and 7 sub-themes were extracted, which were the subject relationship (the influence of social environment on medical care behavior; the empty-nester's knowledge of doctor-patient relationship, doctor-patient communication and interaction, and the filling and maintenance of cognitive gap) and the effectiveness of verbal communication (authenticity, correctness, and sincerity). **Conclusion** Healthcare professionals should pay attention to the patient's feeling of medical consultation, develop patient-centered communication strategies, and actively develop intelligent communication and educational tools to enhance the effectiveness of doctor-patient communication and improve patient satisfaction.*

KEYWORDS: Dental clinic; Empty nesters; Communication; Needs; Qualitative research

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1 Introduction

Empty-nested elderly families are families with children who have left or live alone, and the elderly have physical and psychological problems. Along with the aging of their own physiological structure, the elderly have different degrees of deficiencies in language communication, information acquisition, and social participation, which, together with the special characteristics of empty-nested elderly families, not only affects the quality of life of the elderly and their ability to communicate, but also potentially triggers the elderly's psychological problems. It has been argued that there is a certain degree of mediation in the relationship between depressive tendencies and sleep disorders and psychological crises in empty-nested elderly [1], which shows that there is a clear psychosocial component in the empty-nested elderly. Elderly people have more needs for medical services than other populations, especially the diagnosis and treatment of chronic diseases and specialist visits requiring regular follow-up, with a higher sense of psychological dependence and expectations [2, 3]. As common oral diseases in the elderly include missing teeth, dental caries, periodontal inflammation, and oral mucosal diseases, in addition to affecting food chewing and nutritional intake, they are all very closely related to systemic health. For example, failure to detect and treat oral mucosal diseases in their early stages may result in further aggravation of oral mucosal diseases or the development of oral and maxillofacial malignant tumours [4]. Oral diseases are generally characterized by complex consultation operations, longer treatment courses, and more repeated follow-up visits, which may contribute to excessive stress and increase the cost of doctor-patient communication in elderly patients [5, 6]; coupled with the fact that doctor-patient communication barriers have become a currently recognized important cause of conflict in doctor-patient relationships [7], and that communication barriers are more likely to lead to such problems for the empty-nested population of elderly patients with impaired language skills and intellectual cognition. prone to cause such problems. Although China's geriatric health services have improved significantly in recent years, however, research on the quality of communication services for empty-nesters in the dental clinic is still very limited, and most of the research focuses on the pathology of the disease or treatment means, such as the effect of fluoride on the initial eruption of teeth, the molecular expression of oral cancer, and the radiotherapy method of early oral cancer [8], etc., and there are very few studies on the current status of communication and the psychological expectation of older people in the process of diagnosis and treatment. research is scarce. In view of this, it is of great practical value to actively conduct research on the needs of the elderly and the current status of communication barriers, psychological expectations, and communication service deficiencies in the dental clinic for empty nesters. To this end, the present study is intended to use a qualitative research paradigm to conduct in-depth interviews on the outpatient communication situations experienced by empty-nester elderly people in the process of dental care, and their feelings, needs, and suggestions, with a view to revealing the realities of outpatient communication for the elderly in the dental clinic, and providing empirical guidance for the construction of an outpatient communication model for the elderly in the dental clinic, and for the corresponding enhancement of their feelings of and satisfaction with their dental care.

2 Objects and Methods

2.1 Research subjects

Purposive sampling method was used to select empty-nested elderly patients who made visits to the outpatient clinic of Peking University Stomatological Hospital from December 2024 to

February 2025 as the study subjects. Inclusion criteria: (1) age ≥ 60 years old; (2) outpatient visits; (3) empty-nested elderly (refers to the elderly who live alone after their children have grown up and separated from the family one after another); (4) good communication and expression skills; (5) voluntary participation in this study. Exclusion criteria: (1) those with cognitive impairment or comorbid mental illness; (2) those with neurological disorders, such as cerebral haemorrhage, cerebral infarction, etc., resulting in memory, cognitive impairment or language impairment; (3) those who are blind, deaf, etc., and are unsuitable for conducting interviews. The sample size was determined based on the principle that no new themes would emerge. Fifteen outpatients attending outpatient clinics were finally included in this study, including 2 males and 13 females; the minimum age was 70 years old and the maximum age was 84 years old. The general information of the interviewees is shown in Table 1. This study was approved by the Ethics Committee of Peking University Stomatological Hospital (Ethics Approval Number: 2024106228)

Table 1: General information of 15 empty-nested elderly patients

No.	Age	Gender	Specialty	Living Situation	Initial/Follow-up
P1	78	Male	Dentistry	Living with spouse	Follow-up
P2	76	Female	Surgery	Living with spouse	Initial
P3	75	Female	Dentistry	Living with spouse	Follow-up
P4	80	Female	Dentistry	Living with spouse	Initial
P5	82	Female	Prosthodontics	Living alone	Initial
P6	74	Female	Surgery	Living with spouse	Initial
P7	72	Female	Emergency	Living with spouse	Initial
P8	72	Female	Surgery	Living with spouse	Follow-up
P9	74	Female	Mucosal	Living alone	Follow-up
P10	70	Male	Implantology	Living with spouse	Initial
P11	65	Female	Periodontology	Living with spouse	Initial
P12	75	Female	Dentistry	Living with spouse	Follow-up
P13	80	Male	Prosthodontics	Living alone	Initial
P14	79	Female	Periodontology	Living with spouse	Initial
P15	76	Female	Mucosal	Living with spouse	Follow-up

2.2 Research Methodology

2.2.1 Data collection

This study adopts a descriptive qualitative research method [9] to collect information through semi-structured in-depth interviews. According to the purpose of the study, reference to relevant literature at home and abroad, combined with the opinions of experts in related fields to initially formulate the interview outline, and after pre-interviewing 2 patients, determine the formal interview outline. The content includes the following aspects: (1) basic information; (2) what troubles you have during the consultation process, please give examples? (3) Did you express your distress during the consultation to the medical staff? (4) Do you understand the language of the medical staff well? (5) Are you satisfied with the process and results of each communication, if not, please specify; (6) In addition to verbal communication in the process of communicating with the medical staff, what other aspects of interaction would you like the medical staff to have with you? The interviews were conducted by the researcher herself, explaining the purpose, methodology and content of the study to the patients and informing them that the interviews would be audio-recorded. After informed consent was obtained, each

participant was interviewed in a quiet place. All interviews were audio-recorded and the length of the interviews was (38.00±10.98) min, with a minimum of 25 min and a maximum of 65 min. sample size was used until information saturation was reached.

2.2.2 Methods of data analysis

After the interviews, the audio recordings of the interviews were transcribed into Word manuscripts by the researcher within 24 h. Two researchers repeatedly read and compared the interview data, used Nvivo14 software to analyse the data and open coding, marked important concepts and information, and then grouped related and similar codes into subcategories and categories. In case of disagreement on coding and categorisation during the analysis process, qualitative research experts were consulted to discuss the results and reach consensus.

2.2.3 Theoretical basis of coding

When analysing the communication experience of empty nesters, the study took full account of the group's special characteristics in terms of social support, psychological adaptation and healthcare service use. It has been pointed out that empty nesters' sense of loneliness [10], patterns of healthcare resource utilisation [11], and the moderating role of psychological resilience in coping with health problems [12] all provide an important basis for understanding their perceptions and behaviours in doctor-patient communication. Therefore, in the process of coding and theme refinement, the focus was on the elderly patients' willingness to express themselves, their ability to understand, their emotional needs and their interactive expectations in communication, in an attempt to restore the overall picture of their consultation and communication on the basis of the real corpus.

2.2.4 Quality control

(1) The process is professionally guided by experts in qualitative research, and the researcher has received relevant training in qualitative research and is familiar with the skills and methods of interviewing; (2) The interview questions are asked from shallow to deep, from simple to complex, and the questions are asked in a language that is easy to understand by the patients; (3) The interview process is conducted in a quiet environment without interruption, and the researcher listens mainly without evaluation, encouraging the interviewees to fully express their opinions; (4) After the audio transcription of the interviewees are coded instead of the interviewees' information, and the interview data are strictly preserved to prevent the leakage of patients' privacy, which is only visible to the team members. During the interview process, interviewees can end the interview and withdraw from the study at any time.

2.3 Statistical methods

SPSS 25.0 software was used to organise and descriptively analyse the quantitative data derived from the general information questionnaire. All continuous variables were tested for normality and, where appropriate, were summarised as mean ± standard deviation ($\bar{x} \pm s$); the sample mean and standard deviation were calculated according to formulas (1) and (2).

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i \quad (1)$$

In equation (1), \bar{x} is the sample mean for a continuous variable (e.g., age, length of interview, etc.); x_i is the observed value of the i th respondent on that variable; and n is the total number of respondents included in this analysis. And the sample standard deviation, as shown in equation (2).

$$s = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2} \quad (2)$$

In equation (2), s is the sample standard deviation of this continuous variable, which is used to reflect the degree of inter-individual variation; $n-1$ is estimated using unbiased estimates.

Categorical variables were expressed as frequency and percentage ($n, \%$), as shown in formulas (3) and (4).

$$f_k = \sum_{i=1}^n I(X_i = k) \quad (3)$$

In equation (3), f_k is the frequency of observation of category k in a categorical variable (e.g., ‘initial/repeat’, ‘living alone/living with spouse’); k is the percentage of a particular category (e.g., ‘living alone’, ‘initial consultation’, etc.); and $I(\cdot)$ is an indicator function that takes the value of 1 when the condition in parentheses is true; otherwise, it is 0. The percentage of a category is shown in equation (4). B is a specific category of the variable (e.g., ‘living alone’, ‘first visit’, etc.); $I(\cdot)$ is an indicator function that takes the value of 1 when the condition in the parentheses is true, and 0 otherwise; and the percentage of a category is shown in equation (4).

$$p_k(\%) = \frac{f_k}{n} \times 100\% \quad (4)$$

$p_k(\%)$ is the percentage of class k in that variable. These descriptive indicators were used to present the sociodemographic characteristics of the interviewed empty nesters and the distribution of selected consultation behaviours, thereby providing essential background information and data support for subsequent qualitative thematic analysis. All data entry and statistical descriptions were independently completed by two researchers, and discrepancies were checked and corrected to ensure accuracy and consistency.

3 Results

This study analysed the content of the interviews based on the theory of interactional behaviours, and extracted 2 themes: subject relationship definition and effectiveness of communication language.

3.1 Theme 1: Definition of Subject Relationship

(1) Impact of the social environment on the healthcare behaviours of empty-nesters: empty-nesters have a relatively poor support from their children and family members due to their solitary living pattern, and their ability to learn new knowledge and accept new things is weakening. Studies have shown that empty nesters generally face psychological adaptation problems caused by reduced social contact [13], and this contraction of social relationships directly affects their confidence in seeking medical care and their ability to obtain information. The interviewed elderly generally faced difficulties such as cumbersome medical registration, insufficient knowledge of oral expertise, and difficulties in travelling, etc. P1: ‘I still know something about systemic diseases, but this is the first time I heard that tumours can occur in the oral mucosa, so I have been procrastinating and not taking it seriously, and I finally learnt that the dental hospital can treat this disease.’ P2: ‘I can't use electronic products to grab a number, and my children are busy, then I operated by myself, and often half of the operation

number was grabbed.’ P6: ‘I can't get a number on my mobile phone, my home is far away, and I take a taxi out to the hospital at six in the morning.’ Social exclusion is particularly pronounced in the empty nester population [14], and this feeling of marginalisation further exacerbates their vulnerability in the healthcare system. Some of the empty nesters interviewed were influenced by their past experiences and life experiences, and were cautious about seeking medical treatment, placing their hopes on authoritative hospitals and doctors. P4: ‘I suspect that a misdiagnosis caused my partner's paralysis back then, so I dare not go to the hospital casually, and I only go to the most authoritative hospitals to seek medical treatment.’ P4: ‘I suspect that a misdiagnosis caused my partner's paralysis, so I don't dare go to any hospital, and I only go to the most authoritative hospitals.’ P12: “I don't communicate with my son, and I usually think of things on my own. My concept is to get there once and for all, hang up a specialist's number, lie down in the chair and all listen to the doctor, and think of nothing else.”

(2) Empty nesters' perception of the doctor-patient relationship: the knowledge and information possessed by doctors and patients are not equal, and a dialogue relationship of equality and mutual consultation cannot be established, and empty nesters are in a ‘vulnerable’ position among the ‘disadvantaged groups’ in doctor-patient interactions. p1: ‘When I see tumours and hypertension, I can still say something, but when it comes to the oral cavity, I basically can't say anything, and I can't see what's going on, so I just leave it to the doctor, and I don't have much of an idea.’ P2: ‘There is something I don't understand out of the consulting room after asking nurses or medical students, catching who ask who, anyway, people have time to say a few words, no time even.’ P5: “The doctor is too busy and sees too many patients, on average he sees one patient in twenty minutes, can he explain it to you clearly? Even if there is time, he won't give you a clear explanation for fear that you will ask too many questions next.” P9: ‘Patients and medical staff should be screwed together, patients cooperate with doctors, trust doctors, and should have the intention to overcome the disease together.’

(3) Doctor-patient communication and interaction: in the process of interaction medical staff pay attention to the patient's feelings, stand in the patient's point of view to solve the problem, by adjusting the way of communication, pulling in the gap between the two sides of the social, cultural and personal dimensions, the better the elderly get an emotional experience, the easier it is to establish an emotional relationship of trust. P6: “The nurse took the initiative to come over and guide me to register my number, which is the spirit of the Thunderbird. The receiving doctor said directly after the examination that it was fine, no need for further examination, and that I could go home at ease. You see how good it is, I think I can go back today and have an extra bowl of rice’ P9: ‘The doctor was especially considerate of my feelings and didn't directly say whether the examination was cancerous or not, which is scary for anyone who hears it. It also said that removing a piece would hurt and bleed a little, so you shouldn't be afraid.” With age, elderly patients will experience communication problems such as memory loss and weakened comprehension, while medical staff have a weak sense of language services, fast speech and frequent use of jargon in the communication process increase the difficulty of patient communication. P8: “I hope that the medical staff will use the most common language to talk to the elderly about one, two, three, and don't play with the S plus Y jargon, which is confusing to anyone who listens to it. ” P15: ‘The doctor's attitude is very good, and he speaks to me quite well, but he speaks fast, and some of it is still incomprehensible, and in the end I forget what the doctor says except that I remember that he is quite good.’

(4) Cognitive gap filling and maintenance: Most of the interviewed empty-nesters were unwilling to add more burden to their children, and they understood that their children were busy with work and had to raise the next generation, which put them under heavy pressure. Therefore, when encountering problems related to medical treatment, they tend to seek assistance from medical personnel, neighbours or patients, or conduct self-health management

by reading books and listening to health talks. Some of the elderly respondents also chose to change hospitals or doctors to seek more trustworthy medical technology services. p3: ‘If there is a treatment problem I will call my child to discuss it with him, he doesn't know much about it, but at least he can look it up on the internet and tell me about it.’ P5: "Figure it out on your own, do you still know how to ask for help all the time? Just study hard and don't let yourself get out of society." P8: ‘When the doctors and nurses are busy and then ask, if there are still questions I don't understand, I'll go ask the doctors in the community hospitals, which is also a method.’ P7: "My children aren't around, and usually it's just me and my partner who don't have any knowledge of dentistry, so the doctors tell me what to do, and then I do it, and I give it to the experts, and then I don't think about it, who told me to ask for help? Just don't think about it, who asked me to beg, big deal, I won't come in the future." The core thematic structure of the outpatient oral communication experience for empty nesters is shown in Figure 1.

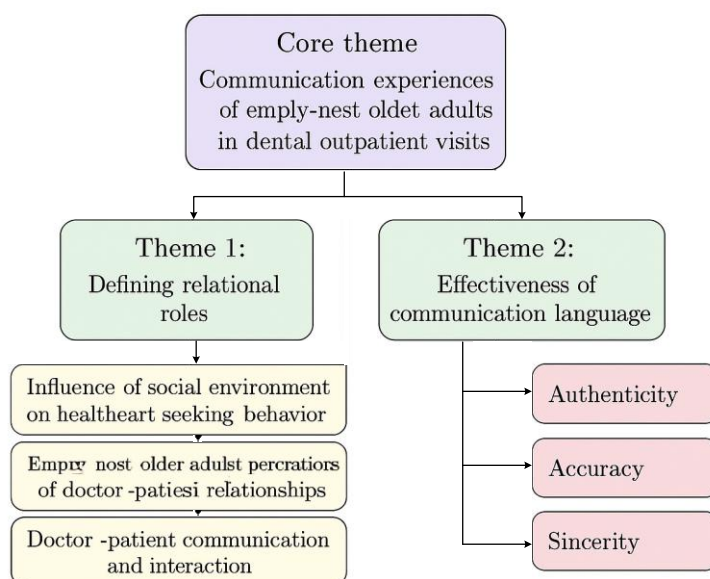


Figure 1: Core Theme Structure of Oral Outpatient Communication Experience for Empty Nest Elderly

3.2 Theme 2: Effectiveness of communication language

(1) **Truthfulness:** the interviewed patients mentioned that the medical staff should inform the patients accurately, objectively and truthfully about the patients' relevant conditions or the problems encountered in the process of consultation, and help the patients to have a comprehensive understanding of the relevant situation so that they can make a judgement. P6: "After he had looked at it, he was very attentive to me and said, I am just an ordinary doctor, I will hire a teacher for you. And his teacher said directly after examination that there is no problem, you see how good, responsible, business ability and strong, at once said to my heart." P9: ‘I told the nurse that it was difficult for the elderly to register, she told me not to worry, I could use the hospital's special appointment line for elderly patients to make an appointment, and while saying so, she also helped me to check if there was any number left.’ During the interviews, some patients said that the prognosis of the disease was of great concern to patients, however, sometimes doctors could not provide comprehensive and truthful information about it, and the presentation was often vague. P1: ‘Patients just want to know how to treat their teeth better, and what the final result will be.’ P7: "I was told “the faster the better”, what will happen if it's fast? What happens if it's slow? Don't understand."

(2) **Correctness:** during the interviews, most of the elderly mentioned that when the doctor-

patient communication just started, they would pay attention to the speech and behaviour of the medical staff as a way of judging the other party's professional norms and quality, and that a good first impression is crucial and relates to the establishment of a trusting relationship. p4: "I think that this doctor's skill in treating the patient is particularly good, and he also considers for me to tell in advance me which step of the treatment will hurt, so I trust her and go to her for medical treatment." P6: 'When I entered the clinic, the nurse was very disciplined and told me to put my bag in the basket at the door.' P8: 'Doctors and nurses are able to ask to the point so that I am also willing to communicate and be particularly detailed about it.' P12: 'I watched from afar and saw that she was especially nice and warm to other patients, so I was relieved that I was right to go to her.'

(3) **Sincerity:** the interviewed elderly said that during the communication process, the medical staff not only provided patients with educational cards, marked treatment information on medical records, and communicated with warm words, but also gave patients emotional support, thus establishing a doctor-patient relationship of mutual understanding and trust. P2: "The medical staff all have quite a good attitude towards the elderly, and they explain everything very clearly, for fear that I will forget the precautions to be taken after tooth extraction, they even gave me a small sign so that I could take a picture of the precautions on it with my mobile phone." P9: 'The medical staff not only have high medical skills and good service attitude, but also speak softly and consider the patient's feelings, and when I meet such medical staff, my mood is especially comfortable and I am willing to talk to them more.' P14: 'While explaining and also writing something on the medical record, drawing something, it feels particularly warm, heart is particularly comfortable, immediately produce good feelings.' P10: 'My child had a hard time registering a number for me, and even took time off work so that I could come to see the doctor, but when I entered the consultation room, the doctor looked at me for less than ten minutes and said that he couldn't see me, and I didn't know what I should do next.' General information about the 15 empty-nested elderly patients, as shown in Table 2.

Table 2: General information of 15 empty-nested elderly patients

Key Issues Identified in Research	Implications for Clinical Practice	Specific Strategy Recommendations
Difficulty with registration, inconvenient travel, and over-reliance on authoritative hospitals	Build an age-friendly service support system	Establish and promote a dedicated appointment hotline for the elderly; optimize on-site registration processes; provide clear guidance inside and outside the hospital
High barriers in professional knowledge and low self-efficacy among patients	Promote accessibility of information and cognitive support	Develop age-appropriate educational materials with illustrations; use metaphors and diagrams for simplified explanations; encourage patients to repeat key information
Issues with fast speech and excessive jargon in communication	Implement age-adaptive communication techniques	Actively slow down speech and emphasize key points; avoid using abbreviations and professional jargon; confirm patient understanding before continuing
Patients desire emotional support and the establishment of trust	Strengthen humanistic care and trust building	Incorporate non-verbal interactions (such as nodding and smiling) during communication; proactively anticipate and inform patients about discomfort during treatment; provide emotional responses to patients' concerns

4 Discussion

Established studies have shown that empty nesters' quality of life, self-rated health, and depression are closely related to social support, social capital, and healthy lifestyles, and that structural disadvantage often translates into higher demand for healthcare services and a more vulnerable healthcare experience [15-17]. The 15 empty-nesters interviewed in this study generally reported difficulties in registering, inconvenience in travelling, and lack of grasp of professional knowledge, and many of the interviewees relied more on 'authoritative hospitals and authoritative doctors' in making decisions about medical care, and showed a tendency of 'being arranged' and 'being told' in their treatment plans. Many respondents rely more on 'authoritative hospitals and authoritative doctors' in their decision-making, and show a passive attitude of 'being arranged' and 'being told' about treatment plans, which confirms the reality that empty-nesters, despite their strong demand for medical care, are difficult to become real 'co-participants' in decision-making.

In terms of the health information environment, some of the elderly in this study would repeatedly 'seek evidence' from multiple departments or medical personnel in an attempt to find the 'safest' option, but the single source of information and the difficulty in distinguishing between true and false information caused them to delay or even interrupt their treatment in the midst of hesitation. Overseas research on the impact of 'misinformation' on patients' risk perception suggests that when medical information is fragmented, highly specialised and inadequately explained, patients are more likely to amplify anxiety or form unrealistic expectations in a state of semi-comprehension [18]. At the same time, the impairment of oral function is often presented as subjective experiences such as 'unpleasant eating and chewing', which may not be regarded by patients as a health problem that requires systematic intervention, which is corroborated by the findings that oral function, subjective symptoms, and the desire to eat are closely related to each other [19]. In the empty-nest context, this pattern of 'talking, asking, and putting off' oral healthcare is more likely to become entrenched.

In this study, we used the theoretical framework of interactional behaviour to collate the interview data, and formed two themes, namely, 'the definition of subject relationship' and 'the effectiveness of communication language', which advocated that doctor-patient interactions are not only information exchange, but also understanding and negotiation based on mutual trust. Internationally, some scholars have also tried to apply Habermas's theory of communicative action to clinical reasoning and clinical teaching situations, in their view, only in a dialogue process in which truthfulness, correctness and sincerity coexist, can clinical decision-making become a kind of 'common practice' rather than a unilateral order [20]. In the scenario of the dental clinic in this study, on the one hand, the elderly had a high degree of trust and admiration for people with medical expertise, but at the same time, they also 'wondered' whether the doctor's qualifications were 'really trustworthy' by observing the details of his behaviour and language. At the same time, they also 'wondered' whether the doctor's qualifications were 'really trustworthy' from observing the details of his behaviour and language, showing sensitivity and expectation of the reasonableness of the relationship.

Comparative studies of other vulnerable groups have also revealed similar findings. For patients with artificial tracheotomy tubes in the intensive care unit, the barrier to information transfer brings about a mental journey from 'all speechless' to 'gradually restoring access to speech', in which information mediation and caregiving can play a crucial role [21]. Information mediation and caregiving can play a crucial role. In sample analyses of patients with chronic myopathies or tumours, patient self-reported outcomes are often inconsistent with clinical outcomes, and presentational style and affective state can influence symptom narratives [22, 23]. Older immigrants' experience of foreignness during medical consultations also

suggests that language, cultural and systemic differences create a superimposed effect, with “being misunderstood” and “rejected” being an important part of the patient's experience of medical care [24]; previous medical experiences of family members of patients undergoing high-risk surgery, and of family members, can also highly shape trust and trustworthiness [25]. Previous medical experiences of high-risk surgical patients and their families also highly shape trust and prognostic expectations. This material suggests that the sensitivity of empty nesters to ‘being heard and told the truth’ in this study is not an isolated case, but rather a structural circumstance common to vulnerable older adults in complex healthcare systems.

In response to these issues, international care and service research has emphasised that patient-centred communication is not only an attitudinal requirement, but also needs to be institutionalised in the structure of the consultation, the presentation of information, and the feedback of interactions, in order to improve the patient experience in both inpatient and outpatient settings [26]. Systematic evaluations of remote home care and home monitoring projects have shown that remote services can make up for the shortcomings of face-to-face communication if accompanied by sustainable communication mechanisms and family support in addition to technology [27]; and equipping patients with aphasia or limited expression with a wide range of communication tools, such as boards and electronic devices, in critical care environments can significantly improve the sense of safety and engagement [28]. In the context of rapid digital and artificial intelligence intervention in healthcare scenarios, how to improve efficiency while avoiding further erosion of patient-centred relationships has become an ethical and practical issue that needs to be seriously confronted [29]. These studies provide a pathway for building ‘age-friendly’ and ‘communication-friendly’ dental clinics: combining intelligent triage and education tools with face-to-face explanations and confirmation of understanding, and reducing the threshold of information with visual illustrations, concise text, and reviewable materials, rather than simply using technological alternatives. threshold, rather than simply replacing dialogue with technology.

The results of this study show that the ‘short board’ in dental outpatient communication among empty-nesters is largely due to the mismatch between health literacy and communication methods. On the one hand, elderly patients often rely on verbal explanations to understand diagnostic and therapeutic measures, and lack systematic and continuous health education; on the other hand, they are also accustomed to short, fast, technical discourse due to time constraints, quick and technical discourse due to time constraints. Nursing perspective studies have shown that the low health literacy level of elderly patients and the single source of obtaining health education information are also important factors contributing to the limited effect of health education and the imbalance of doctor-patient communication [30]. On this basis, the introduction of narrative medicine and reflective teaching in the field of dentistry can help healthcare professionals to listen to the ‘patient’ while listening to the ‘medical history’, and to leave their hearts and eyes to pay attention to the space of the patient's life world in addition to making professional judgements about the patient, so as to enhance their professionalism, empathy, and humanistic care. The ability of professional, empathetic and humanistic care is enhanced [31].

In conclusion, this study found a structural paradox of high expectations and low participation of high-need older adults in the dental clinic: their desire for reliable and specialised support is gradually silenced by institutional complexity, information disparities, and self-depreciation. In the future, dental clinics can start from at least three points: firstly, optimise the design of the process, simplify the consultation procedure, and develop various forms of assistance for the elderly, such as offline windows and telephone appointments; secondly, optimise the communication method, promote the oral expression of ‘slow speech, less terminology, and more confirmations’, as well as the combination of graphic and

multimodal educational aids, and enhance the interactive mode of dental consultation. The second is to optimise the communication mode, promoting ‘slow speech, less jargon, more confirmation’, and the combination of oral presentation with illustrations and multimodal teaching aids, so as to enhance patients' review and acquisition of information even after they have left the dental clinic; and the third is to optimise the composition of the team, promoting the gerontological communication skills training and the regular continuing education of the concept of narrativised practice, so as to allow multidirectional collaboration of medical staff from different disciplines and professional backgrounds, and to implement a truly patient-centred outpatient dental healthcare service on a larger scale. This study is a single-centre and small-sample qualitative study based on patients' memories and subjective experiences, which cannot be extrapolated to all empty-nester elderly groups, and more multi-centre studies in dental clinics in different regions and at different levels are needed, as well as comparative studies focusing on elderly people with different local dialects, cultural backgrounds, and information literacy.

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