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Language frailty among older adults: A persona-based qualitative study

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Abstract

Background

Older adults may differ in how they experience and respond to changes in language function. In this study, language frailty was used as a working concept to explore perceived age-related language changes and their implications for everyday communication. A persona-based approach may help describe these experiences alongside coping behaviors and support needs.

Methods

A descriptive qualitative study was conducted with 19 older adults recruited from urban and rural areas of Yangzhou, China, using purposive and maximum variation sampling. The semi-structured interview guide was informed by Information-Processing Theory and the Health Belief Model. Data were analyzed using qualitative content analysis to identify persona dimensions, followed by individual case analysis and cross-case comparison to construct user personas.

Results

Six dimensions were identified from participants' accounts: Language Functional Status, Communication Behaviors, Psychological Experiences, Family and Social Support, Language Maintenance Strategies, and Health Intervention Needs. Comparison across these dimensions yielded four user personas: proactive maintainers, passive adapters, social withdrawers, and functionally limited individuals. Each persona represented a recurring combination of characteristics within the study sample.

Conclusions

The four personas reflected distinct patterns in older adults' experiences related to language frailty, including their perceived language difficulties, communication behaviors, and responses. These findings may inform the development of support tailored to older adults' everyday communication needs and circumstances.

1. Background

With the rapid growth of the global aging population[1], China is also experiencing rapid population aging[2], with increasing attention being paid to maintaining functional ability and quality of life alongside disease management[3]. According to the National Bureau of Statistics of China, 323 million people were aged 60 years or older by the end of 2025, accounting for 23.0% of the total population, up 59.36 million and 4.3 percentage points from 2020[4]. According to the Seventh National Population Census, 264 million people were aged 60 years or older, accounting for 18.7% of the total population[5]. With

advancing age, changes in brain structure and functional connectivity[6], slower information processing[7], sensory decline, and reduced cognitive efficiency[8] may contribute to age-related changes in language function. Language plays an important role in enabling older adults to express their needs, engage in social interactions, and maintain social relationships in everyday life[9]. Communication difficulties in later life are associated with reduced social participation and poorer psychological well-being and may also affect quality of life[10, 11].

Maintaining language function is important for supporting communication in later life[12]. Age-related changes may affect speech comprehension, word retrieval, and the fluency and coherence of expression, although these changes vary considerably among individuals[13, 14]. Both cross-sectional and longitudinal studies have reported associations between language performance and frailty[15, 16]. These findings provide a rationale for examining language changes from a frailty perspective. In this study, language frailty is used as a working concept to explore older adults' perceived age-related changes in language function, their experiences of everyday communication, and their responses to these changes. Communication difficulties in later life are also associated with socioeconomic disadvantage and smaller social networks[17]. The study therefore considers participants' accounts of language changes alongside their psychological responses and social circumstances, including those who describe little disruption to everyday communication and those who report more noticeable difficulties.

Understanding language frailty requires attention to both language difficulties and how older adults interpret and manage them in everyday life. Information-Processing Theory provides a basis for considering how information is encoded, maintained, and retrieved[18, 19]. Applied to this study, it directs attention to the processes involved in understanding and producing language. The Health Belief Model provides a complementary perspective on perceived susceptibility and severity, the benefits and barriers associated with taking action, and self-efficacy[20]. These concepts can guide exploration of how older adults understand language changes and consider possible responses. User personas are composite profiles developed from research data to represent shared characteristics, experiences, and needs[21]. The use of personas in qualitative research with older adults illustrates how physical, psychological, behavioral, and social characteristics can be integrated to describe different patterns of daily life and participation[22].

Studies have documented age-related changes in spoken word recognition and lexical retrieval[13, 14]. Building on these findings, further investigation is needed to understand how older adults experience language changes in daily communication, how they respond, and what support they consider helpful. Examining these experiences together may clarify how language difficulties, psychological responses, coping behaviors, and social circumstances combine within individual accounts. Guided by Information-Processing Theory and the Health Belief Model, this qualitative study used language frailty as a working concept to explore older adults’ experiences, coping behaviors, and support needs, and to develop user personas from recurring patterns across these dimensions. The findings may inform the development of individualized support tailored to older adults' communication needs and circumstances.

2. Methods

2.1 Study design

We used a descriptive qualitative design to explore older adults' experiences related to language frailty, including perceived changes in language function, their impact on everyday communication, psychological responses, coping behaviors, and support needs. This design was chosen to provide a detailed account of these experiences while remaining close to participants' descriptions[23].

Information-Processing Theory and the Health Belief Model informed the development of the semi-structured interview guide. Information-Processing Theory helped shape questions about perceived changes in language reception, processing, retrieval, organization, and expression, while the Health Belief Model informed questions about participants' perceptions of these changes and their responses to them.

The reporting of this study was guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ)[24].

2.2 Research team

The core research team consisted of one expert with experience in medicine and nursing and five master's-level nursing students. The first, second, and third authors were involved in the study design. The fourth and fifth authors assisted the first author with participant recruitment. All interviews, data organization, and initial data analysis were conducted by the first and second authors. The sixth and ninth authors contributed to the validation of the findings, the seventh author participated in further data analysis, and the eighth author was responsible for data visualization. In addition, the fifth author provided oversight and consultation when ambiguities arose during the analytic process to enhance the accuracy and credibility of data interpretation. The senior researcher provided methodological guidance and overall supervision. Any disagreements arising at any stage of the study were resolved through discussion within the research team until consensus was reached.

2.3 Participants and setting

Older adults were purposively recruited from urban and rural areas of Yangzhou, Jiangsu Province, China, between June and August 2026. Maximum variation sampling was used to obtain diversity in age, sex, residence, living arrangements, health status, social participation, and everyday communication characteristics. The inclusion criteria were: (1) aged ≥ 60 years; (2) living in a community or home setting rather than receiving institutional care; (3) conscious and able to understand the interview questions, engage in basic verbal communication, and complete the interview; (4) able to describe their language functioning and everyday communication experiences, including self-perceived age-related changes in language or communication; and (5) willing to participate and provide written informed consent. The exclusion criteria were: (1) hearing impairment or reliance on hearing-assistive devices that substantially interfered with the interview; (2) language comprehension or expression difficulties that prevented effective participation; (3) cognitive or psychiatric conditions that substantially affected the ability to

understand or respond to the interview questions; and (4) an acute or severe health condition that made participation inappropriate. Eligibility was initially assessed through participant self-report and a brief pre-interview conversation conducted by the researchers. No standardized diagnostic assessment of language frailty was performed.

Given the exploratory focus of the study, participants were not required to meet a diagnostic threshold for language frailty. Eligibility was based on their reported language and communication experiences. Older adults who described subtle language changes with little effect on everyday communication were also eligible. This approach allowed the study to include a range of perceived language changes and responses.

2.4 Data collection

The semi-structured interview guide was developed based on the study objectives, relevant literature, Information-Processing Theory, and the Health Belief Model. It was pilot-tested with three older adults who met the eligibility criteria. The pilot interviews revealed that some questions were repetitive. Accordingly, repetitive questions were removed or combined, and the wording and sequence of selected questions were refined to improve clarity and comprehensibility. The three pilot participants were not included in the final study sample. The revised interview guide was subsequently reviewed by one expert in gerontological nursing and finalized based on the expert's feedback (Table 1).

Table 1
Interview guide.

Question number	Core question
	Compared with one year ago, what changes, if any, have you noticed in hearing or understanding speech, finding words, organizing your thoughts, or expressing yourself?
	How do you view the likelihood of communication difficulties developing or worsening as you grow older, and their impact on your daily life, social interactions, and feelings?
	How do you respond or adjust your communication when you have difficulty understanding others or making yourself understood?
	What possible benefits and difficulties do you associate with regular conversation, social activities, or language practice, and how confident are you that you can sustain these activities?
	What support would you find helpful for maintaining communication, and what might prompt you to start or continue activities or training for this purpose?

Before the interviews, the researchers explained the study objectives and confidentiality procedures to all participants. Face-to-face interviews were conducted at times convenient to participants in quiet, private settings, such as community activity rooms or participants' homes. With participants'informed consent, all interviews were audio-recorded, and field notes were taken to document relevant nonverbal information. Each interview lasted approximately 30–60 min.

When no new information emerged after the 17th interview, two additional older adults were interviewed for verification. As no further information emerged, data saturation was confirmed and data collection was discontinued. All recordings were transcribed verbatim within 24 h and checked by a second researcher for accuracy. Participants were coded P1–P19 to ensure confidentiality.

2.5 Data analysis

The interview transcripts were analyzed using qualitative content analysis with the assistance of NVivo 15 software[25]. The initial content analysis was conducted by the first and second authors in three stages. First, they repeatedly reviewed the interview transcripts to become fully familiar with the data and participants' accounts. Second, the transcripts were imported into NVivo 15 for systematic data management and coding. Meaningful text segments relevant to the research question were identified through line-by-line examination and assigned initial codes that reflected participants' experiences and perspectives. Third, the codes were compared iteratively and grouped according to conceptual similarity. Through progressive abstraction and synthesis, related codes were organized into broader categories representing shared characteristics across participants. These categories subsequently served as the foundation for identifying the persona dimensions. Information-Processing Theory and the Health Belief Model informed the researchers' theoretical sensitivity but were not used as predetermined coding categories.

Based on the identified dimensions, the first and second authors synthesized information from each of the 19 participants to develop an individual multidimensional profile capturing the overall pattern of their language and communication experiences. The researchers then returned the preliminary profiles to the corresponding participants for member checking. Participants were asked to confirm whether the profiles accurately reflected their experiences and characteristics and to clarify any inaccurate or incomplete information. The researchers revised the profiles where necessary based on participants’ feedback.

Following participant validation, the research team iteratively compared the individual profiles to identify recurring multidimensional patterns. The researchers examined similarities and differences first within individual dimensions and then across the overall configuration of dimensions. Participants with similar multidimensional patterns were provisionally grouped, and the research team repeatedly reviewed within-group similarities and between-group differences through discussion and reference to the original data. When a participant did not clearly fit an emerging group, the researchers returned to the original transcript and verified profile to reconsider the classification. Persona assignment was based on the overall configuration of characteristics across dimensions rather than any single feature. Through iterative comparison and refinement, four personas were ultimately established and named according to their defining characteristics.

To visually present the distinctive characteristics of the personas, the research team extracted representative keywords based on their recurrence and contextual relevance in the interview data. The team then generated word clouds using the Wordart tool and summarized the four personas in a comparative table.

2.6 Rigor

Rigor was enhanced through strategies aligned with credibility, dependability, confirmability, and transferability. Credibility was supported through audio recording and verbatim transcription of the interviews, the use of open-ended questions and probing to elicit detailed accounts, and regular analytic discussions to review developing codes, categories, persona dimensions, and persona boundaries. The initial coding conducted by the first researcher was reviewed against the original transcripts by the second author, and disagreements in coding or interpretation were resolved through research team discussion until consensus was reached. Investigator triangulation was further strengthened by involving multiple researchers in the interpretation and refinement of the findings, while interview transcripts and field notes were considered together to contextualize participants' accounts.

Dependability and confirmability were enhanced by maintaining an audit trail throughout data collection and analysis, including documentation of interview guide development and refinement, field and reflective notes, coding records, and key analytic decisions made during team discussions. Emerging categories, persona dimensions, and persona patterns were repeatedly checked against the original data to ensure that interpretations remained grounded in participants' accounts. Transferability was facilitated by providing detailed descriptions of the study setting, sampling strategy, participant characteristics, data collection, and analytic procedures, enabling readers to assess the applicability of the findings to other contexts.

2.7 Ethical considerations

Ethical approval

was obtained from the Institutional Review Board of the School of Nursing, Faculty of Medicine, Yangzhou University (YXBLL–2026–33). Written informed consent was obtained from all participants before data collection.

3. Results

3.1 General characteristics of the participants

A total of 19 older adults completed the interviews (Table 2). The sample comprised 10 male and 9 female participants, with a mean age of 72.68 years (SD = 7.10; range = 61–83 years). Participants were recruited from both urban and rural communities. Overall, 89.5% were married, 47.4% had received secondary-level education or above, and 68.4% lived with their spouses only. Detailed demographic characteristics of the participants are presented in Additional File 1.

Table 2
General characteristics of the participants (n = 19).

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	10	52.6
	Female	9	47.4
Age (years)	60–69	6	31.6
	70–79	9	47.4
	≥ 80	4	21.0
Residence	Urban	11	57.9
	Rural	8	42.1
Educational level	Low education	10	52.6
	Secondary-level education	8	42.1
	Higher education	1	5.3
Marital status	Married	17	89.5
	Unmarried	1	5.3
	Divorced	0	0.0
	Widowed	1	5.3
Living arrangements	Living with spouse	13	68.4
	Living with children	3	15.8
	Living with spouse and children	2	10.5
	Living alone	1	5.3
Self-rated communication ability	Excellent	5	26.3
	Good	6	31.6
	Average	7	36.8
	Poor	1	5.3
	Very poor	0	0.0

Note: Educational level was classified as low (primary school or below), secondary (junior or senior high school), and higher (junior college or above).

3.2 Persona dimensions related to language frailty

Analysis of the interview data identified six dimensions describing different aspects of participants' experiences related to language frailty. Language Functional Status referred to participants' descriptions of their language abilities, perceived difficulties, and the effects of these difficulties on everyday communication. Communication Behaviors described actual patterns of interaction, including communication frequency, initiative, partners, and settings.

Psychological Experiences encompassed emotional responses to communication experiences and participants' views of language changes, their own abilities, and the value of continued communication. Family and Social Support described the availability of communication partners, the nature of interpersonal relationships, and the assistance or opportunities for interaction provided by others.

Language Maintenance Strategies concerned the ways participants reported maintaining language use or managing communication difficulties. Accounts of actions already taken were distinguished from intentions to undertake additional practice. Health Intervention Needs described whether participants considered additional support necessary, what forms of support they preferred, and the circumstances under which they would consider seeking help. Together, these dimensions provided the basis for comparing individual case profiles and constructing the user personas.

3.3 User personas related to language frailty

A comparison of the individual case profiles across the six dimensions identified four user personas: Proactive Maintainers (n = 6), Passive Adapters(n = 4), Social Withdrawers (n = 4), and Functionally Limited Individuals (n = 5). Each persona represented a recurring combination of characteristics within the study sample. The personas differed in participants' perceived language difficulties, communication initiative, responses to changes, maintenance strategies, and support circumstances. Their defining characteristics are presented in Table 3.

Table 3 Characteristics of the four user personas.

Characteristic	Proactive Maintainers	Passive Adapters	Social Withdrawers	Functionally Limited Individuals
Personas				
Participants (IDs)	P2, P9, P10, P12, P13, P18	P1, P3, P7, P17	P4, P5, P14, P19	P6, P8, P11, P15, P16
Age range (years)	63–80	61–73	62–80	68–83
Description	Confident, self-initiated communication across daily settings, with continued social and role participation.	Communication within familiar routines, acceptance of current abilities, and little deliberate language practice.	Reduced communication initiative and narrower social participation, shaped by communication experiences, psychological responses, and social circumstances.	Speaking or processing difficulties that participants described as interfering with everyday conversations.
Language Functional Status	Smooth, confident communication; subtle changes had little impact.	Adequate everyday communication; subtle changes had limited impact.	Generally manageable communication, with occasional expression or understanding difficulties.	Slower responses, word-finding problems, and difficulty organizing or expressing thoughts.
Communication Behaviors	Frequent, self-initiated interaction across family and social settings.	Routine-based interaction mainly with familiar contacts.	Reduced initiation and participation, especially in less familiar settings.	Slower, shorter, or less frequent conversations; some avoided speaking when difficulties arose.
Psychological Experiences	Confident and positive about staying socially connected.	Acceptance of current abilities, with little concern or preventive motivation.	Varied responses, including loneliness or concern in some but little embarrassment or anxiety in others.	Concern about communication difficulties and reduced confidence in speaking or sustaining practice.
Family and Social Support	Diverse family and social contacts provided regular	Family and familiar neighbors provided routine	Familiar contacts remained important, while limited shared	Familiar partners provided interaction and practical help,

	communication opportunities.	but sometimes limited contact.	activities restricted wider interaction.	although support varied.
Language Maintenance Strategies	Language use maintained through conversation, social participation, hobbies, and meaningful roles.	Little deliberate practice; mainly relied on routine communication and occasional repetition or rephrasing.	Some withdrew from difficult exchanges; others simplified or rephrased speech.	Practice was attempted but often constrained by functional difficulties.
Health Intervention Needs	Little current need; willing to consider practice if difficulties emerged.	Little current perceived need; support considered mainly if difficulties increased.	Some wanted more conversation or companionship; others reported no clear formal support need.	Assistance, encouragement, and patience from communication partners were valued.

3.3.1 Persona 1: Proactive Maintainers

Description: This group primarily consisted of older adults aged 63–80 years with language abilities they considered adequate for everyday communication, strong communication confidence, and active communication patterns. They frequently initiated and maintained interactions with family members, neighbors, friends, and other social contacts and remained actively involved in social activities or meaningful social roles. Overall, this persona was characterized by active everyday communication, confidence in interacting with others, and positive attitudes toward continued language use.

Features:

- Language Functional Status: Participants described being able to communicate smoothly and confidently in everyday situations. Although some perceived subtle age-related changes, these changes had limited influence on their everyday communication and did not substantially reduce their willingness to communicate.
- Communication Behaviors: Communication was frequent and self-initiated rather than dependent on others initiating interaction. Participants actively created and maintained opportunities for conversation across family, neighborhood, friendship, and work-related settings. Communication was therefore integrated into their daily routines and broader social participation rather than confined to necessary or family-based interactions.
- Psychological Experiences: Participants demonstrated strong communication confidence and generally positive responses to age-related language changes. They valued communication as a meaningful part of remaining socially connected and active in later life and showed little tendency to withdraw from interaction because of perceived changes in language function.

- Family and Social Support: Participants were embedded in relatively diverse interpersonal networks. Family interaction, neighborhood relationships, friendships, and, for some, continued occupational or social roles provided multiple and stable contexts for communication. These relationships enabled language use to remain a regular component of everyday life rather than an occasional activity.
- Language Maintenance Strategies: Participants described frequent conversation within their everyday routines, including interactions with family members, friends, neighbors, and colleagues. Some regarded these activities as a way of keeping their language abilities active.
- Health Intervention Needs: Participants generally did not perceive an immediate need for formal language-related intervention because they considered their current communication abilities satisfactory. Some nevertheless expressed willingness to engage in language practice if noticeable difficulties emerged in the future and valued continued opportunities for everyday communication and social interaction.

Typical participant quotes:

Participant 2: I talk a lot in daily life. I chat with acquaintances whenever I meet them.

Participant 9: I feel I'm doing quite well. I'm still working, and I have to talk a lot every day.

Participant 10: We should still practice as we get older. Talking more is good for us.

Participant 12: I would certainly feel upset, but I would still find ways to practice. I wouldn't just let myself remain that way.

Participant 13: Active communication can reduce conflicts. If you communicate well with others, more people will be willing to talk with you.

Participant 18: I haven't done any specific language training. Serving customers in the shop and chatting with neighbors is a kind of practice, I suppose.

3.3.2 Persona 2: Passive Adapters

Description: This group primarily consisted of older adults aged 61–73 years who considered their language abilities adequate for everyday communication but who showed limited initiative in actively maintaining or expanding communication. Their communication was largely embedded in established daily routines and familiar interpersonal relationships, with little deliberate effort to create additional opportunities for language use. Overall, they demonstrated a passive-adaptation pattern characterized by acceptance of their current communication status, reliance on established routines, and limited motivation for active maintenance, rather than prominent language difficulties or psychological withdrawal.

Features:

- Language Functional Status: Participants generally considered their language abilities adequate for everyday communication, and noticeable communication difficulties were not the dominant feature of their experiences. Because their current abilities were perceived as adequate for familiar daily situations, subtle age-related changes were rarely regarded as requiring particular attention.
- Communication Behaviors: Communication largely occurred within established daily routines and relationships rather than through actively sought interaction. Although individual levels of social contact varied, participants generally showed limited initiative in expanding their communication networks or deliberately increasing communication opportunities. Their communication patterns therefore reflected continuation of existing habits rather than active engagement for the purpose of maintaining language use.
- Psychological Experiences: Acceptance of the current situation was particularly evident. Participants commonly regarded subtle language changes as a normal part of aging or considered their current communication ability sufficient for everyday life. They expressed relatively little concern about possible changes and limited motivation to take preventive action while communication remained manageable.
- Family and Social Support: Communication was maintained mainly through established relationships with spouses, children, other family members, and familiar neighbors. These relationships provided a basic level of everyday interaction, but communication opportunities were closely dependent on existing social routines. When family members were unavailable or social activities were limited, participants generally did not actively seek alternative sources of interaction.
- Language Maintenance Strategies: Participants rarely reported deliberate language practice or efforts to expand social interaction. Instead, they relied mainly on naturally occurring communication within their usual daily routines.
- Health Intervention Needs: Participants generally did not perceive a current need for language-related training or support because they considered their communication adequate for everyday life. Most reported little interest in undertaking additional practice while their current communication remained manageable.

Typical participant quotes:

Participant 1: I think this is quite normal as people get older. There is no need to worry too much about it.

Participant 3: I don't do anything special about it. I just live my life as usual.

Participant 7: I have never practiced or paid much attention to it because I feel fine and don't think I have any problems.

Participant 17: I had never really thought about this kind of training before. I can still communicate normally, so I don't think I need it for now.

3.3.3 Persona 3: Social Withdrawers

Description: This group primarily consisted of older adults aged 62–80 years with reduced communication initiative and limited social interaction. They tended to restrict communication to familiar people and situations and became increasingly selective in their everyday interactions. For some participants, reduced communication was not attributable solely to perceived language decline. Contextual barriers, including unfamiliar dialects, limited shared topics, living arrangements, and restricted opportunities for interaction, also influenced their willingness and ability to communicate. Overall, this persona reflected the combined influence of communication experiences, psychological responses, and social circumstances rather than marked limitations in language function alone.

Features:

- Language Functional Status: Participants described being able to communicate in everyday situations while experiencing difficulties with expression or understanding in some contexts. Their accounts emphasized uncomfortable or unsuccessful interactions and the difficulty of managing these situations.
- Communication Behaviors: Communication became increasingly selective and passive. Participants were often willing to respond when others initiated conversation but were less likely to initiate interaction themselves. Some deliberately reduced unnecessary communication or remained silent when expression became difficult, gradually restricting communication to familiar people and situations.
- Psychological Experiences: Participants' psychological responses varied. Some described loneliness, discouragement, or concern about misunderstanding others, whereas others did not report embarrassment or fear of negative evaluation. For example, P4 and P14 explicitly denied feeling embarrassed despite reducing their communication. In some cases, withdrawal appeared to reflect a lack of shared topics or difficulty joining conversations rather than communication anxiety. Thus, reduced interaction in this persona was associated with heterogeneous psychological and social experiences rather than a single emotional response.
- Family and Social Support: Participants relied heavily on family members and familiar communication partners, who provided relatively safe and predictable contexts for interaction. However, broader social relationships were limited, and insufficient companionship or reduced opportunities for interaction were accompanied by feelings of loneliness or social isolation in some participants.
- Language Maintenance Strategies: Responses to communication difficulties varied. Some participants remained silent or ended an exchange when communication became difficult. Others attempted to repair the conversation; P14, for example, described using simpler wording when misunderstood. These adjustments could coexist with reluctance to initiate conversations or participate in wider social interaction.
- Health Intervention Needs: Participants’ perceived support needs varied. Some expressed a desire for more opportunities to talk with others or for greater companionship, whereas others did not explicitly request formal language-related support.

Typical participant quotes:

Participant 4: I don't feel embarrassed. If I can't express it, I just don't say anything.

Participant 5: Living alone, I would feel better if I had someone to talk to. It gets lonely every day, but I've become used to living this way.

Participant 14: I'm not afraid of feeling embarrassed. It's mainly that we don't have much in common to talk about, so I choose to socialize less.

Participant 19: Sometimes I'm afraid I'll misunderstand and make a fool of myself, so I talk less. Gradually, I don't really take the initiative to chat with people here.

3.3.4 Persona 4: Functionally Limited Individuals

Description: This group primarily consisted of older adults aged 68–83 years who described more noticeable language difficulties affecting everyday communication. Their accounts emphasized slower responses, difficulty retrieving words, and problems organizing or expressing their thoughts. Participants described these difficulties as making conversations more effortful and, in some cases, limiting how much they spoke or making it harder to continue language practice.

Features:

- Language Functional Status: Language-related functional difficulties were particularly prominent in this persona. Participants described slower responses, difficulty retrieving or remembering words, interruptions or pauses during speech, and difficulty coordinating thoughts with verbal expression. For some, these difficulties occurred alongside broader health or functional changes and made communication more effortful than it had been previously.
- Communication Behaviors: Reduced communication was closely associated with difficulties encountered during the communication process itself. Participants sometimes spoke less, shortened their responses, or required additional time to understand information and organize verbal responses. Some deliberately limited conversation when speaking became effortful or when they anticipated that others might have difficulty waiting for or understanding their responses.
- Psychological Experiences: Repeated difficulty in communicating was accompanied in some participants by frustration, reduced confidence, fear of unclear expression, or concern about burdening others during conversation. These concerns accompanied participants' accounts of communication difficulties. Compared with Social Withdrawers, whose accounts placed greater emphasis on psychological responses and avoidance, difficulties with responding, retrieving words, or expressing thoughts were more prominent in this group.
- Family and Social Support: Familiar communication partners became increasingly important when participants experienced difficulty expressing themselves independently. Family members provided everyday opportunities for interaction and, for some, practical assistance during communication.

However, the extent of available support varied, and functional communication difficulties could remain apparent even within familiar relationships.

- Language Maintenance Strategies: Participants' efforts to maintain language function were constrained by their existing functional difficulties. Some attempted to continue communicating or practicing, but difficulties with memory, processing, or expression could make sustained practice difficult and reduce motivation.
- Health Intervention Needs: Participants more often described difficulties in maintaining communication or language practice independently. Some indicated that assistance, encouragement, or greater patience from family members and communication partners would be helpful when speaking or practicing became difficult.

Typical participant quotes:

Participant 6: I'm afraid to talk now because I can't express myself clearly.

Participant 8: Sometimes the word I want to say gets stuck on the tip of my tongue. When others can't understand me, I don't feel like explaining further and just stop talking.

Participant 11: I speak slowly and sometimes get stuck.

Participant 15: I deliberately talk less. When others ask me something, I usually give only a brief response because I'm afraid younger people won't have the patience to listen to me speak slowly.

Participant 16: I used to speak quickly, but now my mouth can't keep up with my thoughts.

4. Discussion

This study identified four user personas reflecting patterns in older adults' experiences related to language frailty. Building on previous research on language processing and production in later life[26, 27], the findings highlight how perceived language changes intersect with communication behaviors, psychological responses, and social circumstances. Importantly, the four personas suggest that similar levels of everyday communication activity may reflect different underlying experiences and support needs. Understanding these differences may help inform more individualized approaches to communication assessment and support in older adults.

Proactive Maintainers described little disruption to everyday communication, confidence in expressing themselves, and active engagement with others. Continued social interaction may contribute to better self-rated health among older adults[28], while greater social engagement has also been associated with better cognitive functioning and a lower risk of cognitive decline in later life[29, 30]. Meaningful and purposeful activities may further contribute to psychological well-being and quality of life by providing older adults with a continued sense of purpose and opportunities for engagement[31, 32]. Consistent with these findings, a recent systematic review showed that community-based activities can benefit older adults across physical, psychological, and social domains, with peer and social support contributing to

confidence and motivation for continued engagement[33]. Supportive interpersonal networks and accessible community opportunities have also been identified as important facilitators of social participation among community-dwelling older adults[34, 35]. These findings may help explain why Proactive Maintainers in the present study remained actively engaged in communication through family interaction, neighborhood relationships, hobbies, exercise, and meaningful social roles. Their accounts suggest that everyday communication should be considered alongside meaningful activities, self-management practices, and opportunities for interaction within supportive social environments. For this group, the findings suggest that future support could focus on maintaining existing strengths and sustaining opportunities for meaningful communication and social participation rather than primarily targeting functional deficits.

Passive Adapters generally considered their language abilities sufficient for everyday communication and described limited communication initiative and reliance on familiar social relationships. Unlike Proactive Maintainers, these older adults tended to maintain their existing routines rather than actively seek new opportunities for communication or language use. Recent evidence suggests that social participation in later life is shaped not only by physical and functional capacity but also by psychological resources, interpersonal networks, and available opportunities for engagement[35]. Conversely, limited social support, poorer cognitive function, and adverse health conditions have been identified as important factors associated with social isolation among older adults[36, 37]. Reduced opportunities for social engagement may also be relevant to cognitive health, as recent reviews have highlighted associations between social engagement and the maintenance of cognitive functioning in later life[38]. Continuing familiar communication routines does not establish that language function is being maintained over time. Although familiar routines and relationships may enable them to meet basic everyday communication needs, restricted communication networks and low initiative may provide fewer opportunities for varied and sustained language use. For this group, interventions can therefore focus on gently expanding everyday communication opportunities through familiar and acceptable activities while respecting established lifestyles, rather than imposing intensive or highly structured language training.

Social Withdrawers were characterized by reduced communication initiative and restricted social engagement despite generally manageable everyday communication. Participants described varied reasons for reducing interaction, including difficulties in self-expression, concerns about misunderstanding, lack of shared topics, and difficulty engaging in conversations. These variations suggest that withdrawal in this group reflected a combination of communicative, psychological, and social influences rather than a single underlying psychological factor. Previous studies suggest that communication difficulties in later life may be associated with smaller social networks and constraints on social participation[11, 17]. Evidence from studies of older adults with hearing loss further suggests that communication barriers may restrict social participation and the maintenance of social relationships[39, 40]. The findings indicate that reduced communication should not automatically be interpreted as evidence of impaired language function. In some cases, social withdrawal appeared to reflect environmental or interpersonal barriers, such as limited companionship, unfamiliar dialects, or a lack of shared conversational topics. Support for this group may therefore be responsive to the specific barriers

experienced by individuals and may include low-pressure opportunities for positive communication and gradual re-engagement in everyday communication and social interaction.

Functionally Limited Individuals described more pronounced language difficulties that affected everyday communication. Compared with social withdrawers, whose accounts emphasized psychological responses and avoidance, functional difficulties, particularly slower responses and problems with word retrieval, were more prominent in this group. These experiences are consistent with research linking age-related word-finding difficulties to slower lexical retrieval and other cognitive processes involved in language production[41]. Support from family members and other communication partners may help older adults manage these difficulties while accounting for their abilities and communication environment[9]. Support for this group should therefore address the specific challenges they encounter in daily conversations. Assessment could guide the selection of communication activities and compensatory strategies. Structured language activities may also be considered, drawing on research on pragmatic training in healthy older adults[42]. These findings highlight the importance of considering functional communication difficulties alongside older adults' broader health conditions and available interpersonal support. They also suggest that communication support should be responsive to individual abilities and everyday circumstances rather than based solely on the frequency of social interaction.

4.1 Implications for nursing practice

The four personas provide a preliminary framework for understanding differences in older adults' communication experiences and may inform individualized nursing assessment and support. In community and geriatric nursing practice, nurses could consider not only perceived language difficulties but also communication initiative, psychological responses, social relationships, and available family support. Such an approach may help distinguish communication difficulties associated with functional limitations from reduced interaction related to psychological or social factors.

For Proactive Maintainers, nursing support could focus on maintaining existing communication habits and encouraging continued social participation. Passive Adapters may benefit from opportunities for communication integrated into familiar daily routines. For Social Withdrawers, nurses could explore barriers to communication, provide emotional support, and encourage gradual participation in comfortable social settings. Functionally Limited Individuals may require more comprehensive assessment, communication assistance, and family involvement, with referral for further evaluation when clinically indicated.

These persona-informed approaches may help nurses identify differing support priorities and facilitate person-centered communication care. However, the personas are exploratory and have not been validated as a clinical classification tool. Further research is needed to evaluate their applicability and effectiveness in nursing practice.

4.2 Limitations

This study has several limitations. First, participants were recruited from selected communities in Yangzhou, China, using purposive and maximum variation sampling. Although variation in demographic characteristics, health status, social participation, and communication experiences was considered during recruitment, the relatively small and geographically restricted sample may limit the transferability of the findings to older adults from other regions and sociocultural backgrounds.

Second, the findings were primarily based on older adults' self-reported experiences obtained through semi-structured interviews. Participants' accounts may have been influenced by individual perceptions, recall, and their ability to describe language-related changes. The interviews did not establish whether reported difficulties were attributable to aging, health conditions, or other contextual factors. Future studies could incorporate objective assessments of language and cognitive function, together with information from family members or caregivers, to provide a more comprehensive understanding of language frailty. Third, the four user personas were constructed from cross-sectional qualitative data and represent recurring multidimensional patterns observed among participants at the time of the study. They should therefore not be interpreted as fixed categories or sequential stages of language frailty. Longitudinal studies are needed to examine whether and how older adults transition between different persona patterns over time and to identify factors associated with the maintenance or deterioration of language function. Finally, the persona classification was developed within a specific qualitative sample and has not yet been externally validated. Future research with larger and more diverse populations is needed to examine the applicability and stability of the identified persona dimensions and classifications and to further evaluate their potential value in guiding stratified and individualized language health interventions.

5. Conclusions

This qualitative study identified four user personas reflecting older adults' experiences related to language frailty: Proactive Maintainers, Passive Adapters, Social Withdrawers, and Functionally Limited Individuals. The personas captured distinct combinations of perceived language functioning, communication behaviors, psychological experiences, social support, and coping strategies. These findings may help community and geriatric nurses recognize differences in older adults' communication experiences and consider individualized assessment and support. Further research is needed to validate the personas and evaluate their usefulness in guiding nursing practice.

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Institutional Review Board of the School of Nursing, Faculty of Medicine, Yangzhou University (YXBLL–2026–33). All study procedures involving human participants were conducted in accordance with the Declaration of Helsinki and relevant national and institutional guidelines and regulations. Written informed consent was obtained from all participants before data collection.

Clinical trial number

Not applicable.

Consent for publication

Written informed consent for the publication of anonymized interview quotations was obtained from all participants.

Availability of data and materials

The interview transcripts are not publicly available because participants' informed consent did not cover sharing these materials outside the research team. To protect participants' privacy and confidentiality, the transcripts are not available for external access.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

LS: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft. JD: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – review & editing. SXZ: Conceptualization, Methodology, Writing – review & editing. SWH: Investigation, Writing – review & editing. SZ: Investigation, Supervision, Validation, Writing – review & editing. HLW: Validation, Writing – review & editing. ZYC: Formal analysis, Writing – review & editing. JXZ: Visualization, Writing – review & editing. GXG: Validation, Writing – review & editing. YBL: Conceptualization, Methodology, Supervision, Project administration, Writing – review & editing. All authors read and approved the final manuscript.

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Declaration of generative AI and AI-assisted technologies in the manuscript preparation process.

During the preparation of this work, the authors used OpenAI ChatGPT in order to check grammar, spelling and references. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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