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Identifying the Components of Cognitive Decline from Older Adults' Perspectives: A Qualitative Study

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ABSTRACT

Purpose: This study aimed to identify and conceptualize the components of cognitive decline from the perspectives and lived experiences of older adults.

Methods and Materials: This applied qualitative study was conducted among older adults living in Districts 1 and 3 of Tehran, Iran. Participants were selected through theoretical sampling, and data collection continued until theoretical saturation was achieved with 17 older adults. Data were collected using in-depth, semi-structured interviews focused on participants' perceptions, experiences, and interpretations of age-related cognitive decline. The interviews were transcribed and subjected to qualitative coding and thematic analysis. The extracted codes were reviewed, compared, categorized, and integrated to identify the principal dimensions of cognitive decline. The identified components were subsequently used to develop a preliminary cognitive decline questionnaire. Ten items were proposed for each component. The content validity of the questionnaire was assessed by a panel of nine university professors and subject-matter experts. To assess the reliability of the qualitative coding and the stability of the developed framework, the interview data were coded twice at a one-month interval.

Findings: The qualitative analysis generated 20 initial codes, which were organized into nine subthemes and ultimately consolidated into nine principal themes representing the components of cognitive decline from older adults' perspectives. These findings indicated that older adults perceive cognitive decline as a multidimensional phenomenon that cannot be adequately represented by a single cognitive indicator. The nine identified components provided the conceptual foundation for developing a 90-item preliminary questionnaire, with ten items assigned to each component. Expert evaluation yielded an overall content validity index of 0.78, indicating acceptable agreement regarding the relevance and representativeness of the questionnaire items. Furthermore, the agreement between the two coding stages conducted one month apart was 85%, demonstrating satisfactory coding stability and reliability.

Conclusion: The findings support a multidimensional conceptualization of cognitive decline grounded in older adults' experiences and suggest that the resulting questionnaire has acceptable preliminary content validity and reliability for assessing perceived cognitive decline in older populations.

Keywords: Cognitive decline; Older adults; Aging; Qualitative research; Thematic analysis.

1. Introduction

Population aging has become one of the most consequential demographic and public health developments of contemporary societies, drawing increasing attention to the preservation of cognitive functioning, independence, and quality of life in later adulthood. Aging is accompanied by heterogeneous changes in memory, attention, processing speed, executive functioning, language, and spatial orientation; however, the extent and clinical significance of these changes vary considerably among individuals. Some cognitive changes represent relatively common age-related alterations, whereas others may indicate mild cognitive impairment, cognitive frailty, or the early stages of a neurocognitive disorder. Contemporary life-course perspectives emphasize that cognitive aging is not a uniform process produced solely by chronological age but instead reflects the cumulative interaction of biological vulnerability, environmental demands, health status, compensatory resources, and experiences throughout life. The scaffolding theory of aging and cognition similarly proposes that older adults may recruit alternative neural and cognitive resources to compensate for age-related decline, although the effectiveness of such compensatory processes differs according to individual and contextual conditions. Therefore, cognitive decline should be regarded as a multidimensional and dynamic phenomenon situated within the broader processes of aging, frailty, adaptation, and functional change (Fried et al., 2015; Reuter-Lorenz & Park, 2024; Ruan et al., 2015).

Cognitive decline may initially be experienced through subtle and apparently ordinary lapses that are not readily detected through conventional clinical assessment. Older adults may report forgetting names, losing personal belongings, failing to remember appointments, losing track of conversations, requiring more time to make decisions, or experiencing difficulty learning new information. Although such experiences may appear minor, recurrent everyday memory failures can affect emotional well-being, self-confidence, and perceptions of personal competence. Daily memory lapses are particularly important because they represent the ways in which cognitive changes are encountered in natural settings rather than under standardized testing conditions. These lapses may generate frustration, worry, embarrassment, or negative affect, especially when older adults compare their present functioning with their previous abilities. In addition, word-finding difficulties and anomia may interfere with

conversational fluency, social participation, and the ability to express thoughts accurately. Reductions in processing speed may further affect comprehension, decision-making, and performance in situations requiring rapid responses, while difficulties in executive control may impair planning and the coordination of multiple tasks. Consequently, the lived experience of cognitive decline often extends beyond memory loss and encompasses interconnected changes in language, attention, information processing, and everyday functioning (Laine & Martin, 2023; Mogle et al., 2019; von Bastian et al., 2022).

An increasingly influential concept in gerontology is cognitive frailty, which generally refers to the co-occurrence of physical frailty and cognitive impairment in the absence of established dementia. Cognitive frailty has been proposed as a potentially modifiable condition that may increase vulnerability to dependency, disability, hospitalization, and deterioration in daily functioning. Evidence from Iranian older adults indicates that cognitive frailty is a relevant population-level concern and is associated with a range of demographic, health-related, and functional factors. Its significance may be especially pronounced among older adults with cardiovascular disease because vascular burden, reduced physiological reserve, and cognitive impairment may interact and increase the risk of adverse outcomes. Neuroimaging findings have also linked cognitive frailty with white matter abnormalities, suggesting that subjective and functional manifestations of decline may correspond with underlying neurological changes. Moreover, cognitive frailty has been shown to affect instrumental and basic activities of daily living, thereby limiting autonomy and increasing reliance on family members or caregivers. These findings reinforce the need to identify cognitive decline not only through clinical indicators but also through older adults' descriptions of changes in their everyday abilities and routines (Ghanbarnia et al., 2024; Ijaz et al., 2024; Shimada et al., 2016; Sugimoto et al., 2019).

The development and progression of cognitive decline are influenced by multiple modifiable and nonmodifiable determinants. Sleep is one of the most important behavioral and physiological factors associated with cognitive functioning in later life. Age-related changes in sleep duration, continuity, architecture, and circadian regulation may negatively affect memory consolidation, attention, emotional regulation, and executive functioning. Older adults who experience fragmented or insufficient sleep may therefore interpret their daytime distraction, slowed thinking, or forgetfulness as signs of cognitive decline.

Nutritional status is another significant factor, as inadequate intake of micronutrients may contribute to mild cognitive impairment, physical frailty, and cognitive frailty. Physical activity, social engagement, and healthy dietary habits may function as protective factors, whereas sedentary behavior, social isolation, and unhealthy nutritional patterns may increase vulnerability to cognitive deterioration. Studies of older adults have further demonstrated that healthy lifestyle patterns, perceived stress, and behavioral tendencies are associated with cognitive performance, particularly among individuals with chronic medical conditions such as hypertension. Thus, cognitive decline emerges within a network of sleep-related, nutritional, physical, medical, and psychological influences rather than as an isolated consequence of aging (Afshari, 2024; Mahmoudi et al., 2023; Mander et al., 2017; Mustafa Khalid et al., 2022).

Social relationships constitute another major determinant of cognitive health in older adulthood. Longitudinal evidence indicates that the quantity and quality of social relationships are associated with trajectories of cognitive functioning, while social isolation and limited interpersonal engagement may accelerate cognitive decline. Communication with family members, participation in social activities, and maintenance of meaningful relationships can stimulate cognitive functioning and provide emotional and practical support. Conversely, older adults who become concerned about forgetting words, repeating information, or failing to follow conversations may withdraw from social interactions, thereby creating a reciprocal cycle in which cognitive concerns contribute to isolation and isolation further reduces cognitive stimulation. Fear of loneliness may motivate some individuals to engage in preventive social activities, yet others may respond to aging-related concerns through avoidance or withdrawal. Social attitudes toward older people also influence how cognitive changes are interpreted. Stereotypical assumptions that forgetfulness, passivity, or dependency are inevitable aspects of aging may normalize potentially important symptoms or lead older adults to conceal their difficulties. Therefore, identifying cognitive decline from older adults' perspectives requires attention to the interpersonal and social environments in which cognitive changes are experienced, interpreted, and communicated (Banimahdi et al., 2019; Kim-Knauss et al., 2024; Piolatto et al., 2022).

Cognitive changes in later life also have substantial emotional and psychological implications. Older adults may fear losing independence, becoming dependent on family members, developing dementia, or being unable to manage

their daily affairs. Aging anxiety can be shaped by socioeconomic status, perceived health threats, expectations concerning later life, and uncertainty about future functioning. Fear of aging is not limited to physical appearance or bodily deterioration; it may also encompass concerns about memory loss, cognitive incompetence, loneliness, and diminished social value. Health anxiety and dissatisfaction with body image can intensify gerascophobia, demonstrating that fear of aging is influenced by multiple psychological domains. Within the Iranian context, anxiety about aging has been conceptualized and measured as a multidimensional construct involving fears related to older people, psychological concerns, physical appearance, and loss. When cognitive lapses occur, these preexisting concerns may become more salient and may cause older adults to interpret ordinary forgetfulness as evidence of serious deterioration. Anxiety and stigma surrounding dementia can further discourage individuals from discussing cognitive changes or seeking assessment. In addition, self-critical responses to cognitive mistakes may amplify shame, distress, and perceived inadequacy, particularly when individuals evaluate themselves according to their previous level of functioning (Alsenany, 2025; Costa, 2025; Pakpour et al., 2021; Riley et al., 2014; Yang & Ge, 2025; Zaccari et al., 2024).

The interpretation of cognitive symptoms is further complicated by the overlap between cognitive decline and psychological disorders in later life. Depression, anxiety, grief, chronic stress, and loneliness may produce difficulties in concentration, memory retrieval, motivation, and decision-making that resemble neurocognitive impairment. In particular, late-life depression and Alzheimer's disease or amnesic mild cognitive impairment may share deficits in semantic processing, naming, and memory performance. Semantic assessment can therefore contribute to differential diagnosis, but clinical tests may not fully reveal how older adults distinguish between emotionally driven cognitive difficulties and persistent cognitive deterioration. For example, an individual may attribute word-finding problems to age, fatigue, sadness, or stress, whereas another may experience the same difficulty as a threatening sign of dementia. These interpretations influence emotional reactions, help-seeking behavior, and the use of compensatory strategies. A comprehensive assessment of cognitive decline should consequently integrate objective indicators with the meanings that older adults assign to their own experiences, particularly when symptoms may arise from overlapping neurological, emotional, and contextual

conditions ([Invernizzi et al., 2023](#); [Laine & Martin, 2023](#); [Riley et al., 2014](#)).

Despite the potentially distressing consequences of cognitive decline, older adults are not merely passive recipients of age-related changes. Many employ compensatory and adaptive strategies, including writing notes, using telephone reminders, establishing routines, seeking assistance from family members, participating in cognitive activities, and maintaining physical and social engagement. Such strategies may reflect the broader capacity of the aging brain and mind to adapt to changing demands through cognitive scaffolding and environmental support. Interventions targeting cognitive frailty increasingly emphasize multidomain approaches that combine physical exercise, cognitive stimulation, nutrition, psychosocial support, and the management of chronic disease. Expert consensus regarding interventions for cognitive frailty highlights the importance of coordinated and multidisciplinary responses rather than isolated cognitive exercises. Physical activity programs such as Pilates may also improve psychological resources and body-related perceptions among older women, potentially strengthening motivation and engagement in health-promoting behavior. Positive psychology interventions may reduce anxiety, enhance social skills, and increase meaning in life, thereby supporting psychological adaptation to aging and cognitive concerns. These findings indicate that identifying older adults' coping strategies is essential for designing interventions that are both acceptable and relevant to their actual needs ([Holland et al., 2025](#); [Kavandi et al., 2025](#); [Reuter-Lorenz & Park, 2024](#); [Yousefpour, 2025](#)).

The consequences of cognitive decline frequently extend into activities of daily living and the use of contemporary technologies. Difficulties with planning, attention, spatial orientation, and information processing may impair medication management, financial transactions, transportation, shopping, household tasks, and communication through electronic devices. The rapid digitalization of banking, healthcare, communication, and administrative services may create particular challenges for older adults who experience slowed processing or difficulty learning unfamiliar procedures. Even when basic self-care remains intact, problems with complex instrumental activities may indicate meaningful functional deterioration. Cognitive frailty research has therefore emphasized the relationship between cognitive vulnerability and reduced independence in everyday life. Such functional changes may increase reliance on others and reinforce fears of

dependency, frailty, and loss of control. At the same time, difficulties using technology may be incorrectly attributed solely to a lack of experience, while the older adult may perceive them as evidence of worsening cognitive ability. Examining these experiences from the perspectives of older adults can clarify how cognitive changes manifest within culturally and technologically specific daily environments ([Fried et al., 2015](#); [Ijaz et al., 2024](#); [Ruan et al., 2015](#); [Shimada et al., 2016](#)).

A further challenge concerns the distinction between professional definitions of cognitive decline and the ways older adults themselves conceptualize the phenomenon. Clinical frameworks typically classify cognitive changes according to psychometric performance, diagnostic criteria, functional impairment, and medical history. Although these indicators are indispensable, they may not capture subtle changes noticed by individuals before measurable impairment becomes evident. Older adults may define cognitive decline through disruptions in familiar routines, altered confidence, increased dependence on reminders, reduced willingness to communicate, or the reactions of family members. Their accounts may also reveal culturally shaped beliefs about aging, including the assumption that forgetfulness is natural, unavoidable, or unworthy of professional attention. Attitudes toward old age among both professionals and the wider public may affect whether these experiences are validated or dismissed. In addition, anxiety about aging may shape how older adults report their symptoms and whether they interpret cognitive changes as manageable challenges or signs of irreversible deterioration. Consequently, a person-centered understanding of cognitive decline requires direct engagement with older adults' descriptions rather than relying exclusively on predefined clinical categories ([Banimahdi et al., 2019](#); [Costa, 2025](#); [Pakpour et al., 2021](#); [Yang & Ge, 2025](#)).

Qualitative research is particularly appropriate for examining the subjective, relational, and contextual dimensions of cognitive decline. Through in-depth interviews, researchers can explore how older adults recognize cognitive changes, what language they use to describe them, which manifestations they consider most disruptive, and how they attempt to compensate for perceived decline. A qualitative approach can also identify components that may be overlooked in standardized measures, including fear of worsening symptoms, reactions from relatives, changes in social participation, technology-related difficulties, and lifestyle factors perceived as contributing to cognitive problems. Such findings can

provide a culturally grounded foundation for developing assessment instruments that reflect the experiences of the population for whom they are intended. This is especially important in Iran, where evidence has identified cognitive frailty and aging-related anxiety as relevant concerns, yet the subjective components through which older adults understand cognitive decline require further clarification. Developing a researcher-made questionnaire from qualitative data may strengthen content relevance by ensuring that its items originate from older adults' own accounts and are subsequently evaluated by specialists (Afshari, 2024; Ghanbarnia et al., 2024; Mahmoudi et al., 2023; Pakpour et al., 2021).

Accordingly, the aim of the present study was to identify the components of cognitive decline from the perspectives of older adults and to use the resulting qualitative themes as the basis for developing a researcher-made cognitive decline questionnaire.

2. Methods and Materials

One of the main characteristics that distinguishes scientific writing from other forms of text is its reliance on scientific methodology and research procedures. Selecting an appropriate research method is one of the fundamental principles of research because, without careful consideration of methodological appropriateness, achieving the research objectives would not be possible. Indeed, the compatibility of the research method with the nature of the research problem, the researcher's experience, and the needs of the intended audience determines the effectiveness and credibility of the findings. The purpose of the present study was to identify the components of cognitive decline from the perspectives of older adults. A qualitative approach was used to extract the components of cognitive decline as perceived by older adults within Iranian society. Qualitative data were collected at the beginning of the study because no comprehensive and holistic model existed that reflected enrichment experiences appropriate for Iranian older adults and consistent with Iran's cultural and local context. After identifying the components of cognitive decline from the perspectives of older adults, five items were developed for each identified component. Participants were selected using theoretical sampling. In this form of sampling, new participants or data sources are selected on the basis of ongoing analyses to facilitate the development of the emerging theory. The sampling process is generally conducted in accordance with the needs of the study.

Decisions regarding who should be selected, at what time, and in what setting depend on specific criteria determined according to the research objective. In qualitative research, unlike quantitative research, the sample size is generally not determined in advance. Instead, progressive and adaptive sampling continues until theoretical saturation is reached. Theoretical saturation refers to the point in the qualitative research process at which further data collection, including additional interviews, no longer contributes new information or concepts to the analysis. This indicates that sufficient data have been obtained to fully develop the components of cognitive decline and prepare an effective final report. In qualitative theory development, a theory or set of conceptual categories can be considered sufficiently validated when the researcher has reached theoretical saturation. To reach this point, the researcher must continue collecting and analyzing field data until no new evidence or information emerges. In other words, all data must be carefully examined and analyzed until no meaningful additions can be made. In the present study, the data were coded, categorized, and compared concurrently with data collection, and the conceptual development of the components of cognitive decline was managed accordingly. Following interviews with 17 older adults, the main categories and subcategories had developed to such an extent that new data could no longer enrich them and no new codes or concepts emerged. The researcher therefore concluded that theoretical saturation had been achieved.

The data collected through the semi-structured interviews were examined using qualitative content analysis. First, all interviews were transcribed verbatim, and the resulting transcripts were read carefully. The analysis was conducted line by line, and meaning units consisting of words, sentences, and paragraphs containing information related to the dimensions or manifestations of cognitive decline were identified. Initial codes were assigned to each meaning unit. In the second stage, similar or related codes were grouped into subcategories, from which subthemes were extracted. In the final stage, the subthemes were organized at higher conceptual levels and classified under main themes. These main themes reflected the key components of cognitive decline from the perspectives of the older adults participating in the study. To enhance the credibility and dependability of the analysis, the coding and categorization procedures were reviewed repeatedly, and strategies such as peer review and constant comparison of the data were employed. Ultimately, the qualitative findings provided the basis for identifying the components of cognitive decline

from the participants' perspectives. Ten items rated on a five-point Likert scale were developed for each identified component to prepare the researcher-developed questionnaire for use in the quantitative phase.

3. Findings and Results

Following the semi-structured interviews with the older adults, the data were carefully organized and transcribed. Content analysis was used to analyze the data. Initially, the interview transcripts were read repeatedly to enable the researcher to become familiar with the depth and details of

the participants' accounts and to identify meaning units related to cognitive decline. In the next stage, initial coding was conducted. Segments related to cognitive changes, memory problems, concentration, decision-making, everyday functioning, and other relevant components were assigned specific codes. These codes provided the basis for developing categories and main themes during the subsequent stages of analysis. Table 1 presents examples of the initial codes extracted from the data to clarify the analytical process and the formation of the preliminary themes.

Table 1

First-Stage Coding: Open Coding

Statements of Older Adults	Initial Codes
"For example, I go to the kitchen and forget what I wanted." (Code 1); "Yes, my children say that I have become a little forgetful, but they say it is natural for my age." (Code 1); "My son says, 'Mom, you are still very energetic,' but sometimes he also asks why I forget things." (Code 10)	Everyday forgetfulness
"I mostly forget people's names. I recognize their faces, but their names do not come to mind." (Code 2); "Yes, sometimes I cannot remember the names of people I know, but I remember them after a few minutes." (Code 1); "Yes, especially the names of new people or telephone numbers. I forget them quickly." (Code 2); "Not very often, but sometimes I mix up my grandchildren's names!" (Code 4); "It is very difficult for me to remember the names of new people, but not those of people I have known for a long time." (Code 6)	Forgetting names
"I think a little more slowly. I used to make decisions quickly, but now I need to think longer before reaching a conclusion." (Code 3); "I think it is because of my blood pressure. Whenever it rises, I become confused, and my thinking also slows down." (Code 11); "Not very much, but I have become slightly slower than before." (Code 4)	Slowed thinking
"My concentration has decreased. For example, I watch television and suddenly realize that I do not know what was said." (Code 5); "The doctor says it is natural and that some memory decline occurs with advancing age. I accept that myself." (Code 15); "My children ask, 'Mom, where was your attention?'" (Code 4); "My sister always asks why I cannot remember a particular word. It is obvious that she has noticed my forgetfulness." (Code 11); "Very much. Now I have to review things several times to understand what I need to do." (Code 5); "Yes, sometimes in the middle of speaking, I forget what I wanted to say." (Code 1); "Yes, when the topic is lengthy, I become bored and cannot concentrate." (Code 4); "Yes, especially when several people are speaking at the same time, I become confused and lose concentration." (Code 2); "Sometimes I become distracted, especially when I am tired." (Code 3); "A little, but not very much. My concentration decreases only when I am tired." (Code 9); "I review important things several times so that I can remember them." (Code 6)	Reduced concentration
"New information? Yes, learning it has become difficult, but I still remember old information well." (Code 6); "They repeatedly ask, 'Mom, why can you not remember new things when you remember old things perfectly?'" (Code 13); "Yes, especially the names of new people or telephone numbers. I forget them quickly." (Code 2); "It is very difficult for me to remember the names of new people, but not those of people I have known for a long time." (Code 6)	Difficulty recalling new information
"Yes, especially my glasses! I spend half the day looking for them and then realize that they were on my head." (Code 1)	Misplacing personal belongings
"Several times, I have forgotten my medical appointments. Now my children remind me." (Code 7); "Sometimes I forget minor appointments, so I write them down." (Code 3); "I sometimes forget small details, such as whom I was supposed to meet or why I was going outside." (Code 10)	Forgetting appointments
"To some extent, yes. I used to make decisions quickly, but now I hesitate more." (Code 3); "Yes, especially when I have several tasks to complete consecutively." (Code 5); "When I have several options, I become confused and take longer to choose." (Code 7); "Sometimes I have to check my work again, so it takes longer and makes me tired." (Code 4)	Difficulty making decisions
"I used to make decisions more quickly, but now it takes longer for me to think." (Code 1); "To some extent, I used to solve everyday problems more easily." (Code 3); "Yes, I used to respond quickly, but now thinking takes longer." (Code 6); "Yes, especially with new and unfamiliar problems." (Code 13); "I used to find solutions easily, but now I have to think longer." (Code 12)	Reduced problem-solving speed
"Sometimes, particularly when the subject is complicated." (Code 3); "Yes, sometimes I search for a word in the middle of a sentence." (Code 2); "Sometimes, particularly when the subject is complicated." (Code 3); "Some words suddenly disappear from my mind." (Code 13)	Word-finding difficulty
"Yes, particularly when I am in a hurry or tired. Sometimes I cannot remember the route to my children's house." (Code 1); "I used to walk a lot, but now I go outside less often." (Code 3); "Yes, particularly when I am in a hurry or tired. Sometimes I cannot remember the route to my children's house." (Code 1); "Yes, on some streets that I used to travel frequently, I suddenly become disoriented." (Code 2); "Not very often, because I always check my route using written notes." (Code 9); "It happens occasionally, especially when the route is complicated or has several alternative directions." (Code 13)	Reduced navigation ability
"Yes, I used to use my mobile phone easily, but now some of its functions are difficult for me." (Code 1); "New things such as technology and mobile phones confuse me a little. Perhaps that is why I feel that my memory has weakened." (Code 8); "Yes, I	Difficulty using electronic devices

cannot remember the functions of some buttons on the television or audio recorder.” (Code 2); “Sometimes, especially when a new update has been installed.” (Code 4)	
“Yes, honestly, sometimes I am afraid that the situation will become worse.” (Code 1); “Yes, I worry that I may forget something important.” (Code 2); “I become somewhat anxious, especially when I do not know why I cannot remember something.” (Code 3); “Not very much, but sometimes I become frustrated by these instances of forgetfulness.” (Code 4); “I try to control my stress and worries so that my mind can function better.” (Code 8)	Anxiety and concern resulting from cognitive decline
“Sometimes forgetfulness causes tasks to be completed more slowly, and my children become concerned.” (Code 1); “Loneliness... Since I have been alone, it seems that my mind has also become less active.” (Code 5); “I think COVID-19 had a major effect. For several years, we had less contact with other people.” (Code 7); “Changes in life... The children left, the house became quiet, and a person speaks with others less often.” (Code 10); “I do not eat proper meals. My appetite has decreased. Perhaps that also affects the brain.” (Code 13); “I feel that I speak with my friends less often because I am afraid that I may forget something in the middle of a conversation.” (Code 3); “My family relationships have been affected to some extent. My children have to remind me more frequently, which is upsetting.” (Code 5); “Gradually, my self-confidence has decreased, and I feel that this has also affected my social relationships.” (Code 7)	Effects on relationships and daily life
“I try to write everything down and make lists.” (Code 1); “My spouse says that I am not attentive and that I should do more mental exercises.” (Code 3); “Yes, my daughter says that my mind is too preoccupied and that I should experience less stress.” (Code 5); “My family says that I should be more active. They say this decline may also result from inactivity.” (Code 7); “Not very much, because I try not to show anything, but I know they have noticed.” (Code 9); “My children say that my mind is tired and that I should have recreational activities.” (Code 12); “Sometimes I forget minor appointments, so I write them down.” (Code 3); “I usually write appointments on paper so that I do not forget them.” (Code 8); “I always check my route using written notes.” (Code 9); “I have filled my phone with reminders so that I do not forget anything.” (Code 2); “I try to engage in mental activities, such as solving crossword puzzles or playing cognitive games.” (Code 3); “I speak with my family more often to keep my brain active.” (Code 4); “I perform light exercise and walk because they say these activities keep the mind active.” (Code 5); “I learn new things with my grandchildren, such as using a mobile phone or playing computer games.” (Code 7)	Attempts to cope with cognitive decline
“Well, it is natural as a person becomes older... Age takes its toll.” (Code 1); “I think it is because of the stress and worries of recent years. When someone is constantly preoccupied, the brain becomes tired.” (Code 2); “I think it is because of mental preoccupations and family problems. My mind is occupied.” (Code 14)	Changes in memory and thinking
“My sleep has become light at night, and I do not rest well.” (Code 6); “My husband says that I become distracted, but he thinks it is because of sleep deprivation and other problems.” (Code 14)	Sleep deprivation
“I do not exercise. Perhaps that has made my mind sluggish.” (Code 3); “My family says that I should be more active. They say this decline may also result from inactivity.” (Code 7); “I perform light exercise and walk because they say these activities keep the mind active.” (Code 5)	Physical inactivity
“Age, stress, and the fact that I read less often. I used to read newspapers, but now I do not have the motivation.” (Code 12)	Reduced motivation
“My grandchildren repeatedly joke that Grandma has forgotten again, but they do not say it in a hurtful way.” (Code 2); “Sometimes my son says, ‘Dad, you were not like this before,’ but he also says not to worry because it is natural.” (Code 6); “Some people say that these things happen with advancing age, but they do not mention them to me very often.” (Code 8); “Yes, they usually say it is natural and that everyone at this age has this problem. They reassure me.” (Code 15)	Feedback from others

Based on Table 1, 20 initial codes were identified from the interview transcripts and subsequently served as the basis for axial coding. The identified initial codes were derived from 85 statements containing concepts related to the components of cognitive decline.

In this section, the initial codes extracted through qualitative content analysis of the interview transcripts were

systematically categorized to identify subthemes and explain the components of cognitive decline among older adults. This process was undertaken to reduce conceptual dispersion, increase the level of abstraction, and move from raw data toward theoretical concepts.

Table 2

Axial Coding: Subthemes

Initial Codes	Subthemes
Everyday forgetfulness, forgetting names, forgetting appointments, misplacing personal belongings, difficulty recalling new information, and changes in memory and thinking	Memory and cognitive functioning
Word-finding difficulty	Language impairments
Slowed thinking, reduced problem-solving speed, and difficulty making decisions	Slowed cognitive processing and impaired executive functioning
Reduced concentration and reduced motivation	Attention and concentration
Reduced navigation ability	Orientation and spatial memory
Anxiety and concern resulting from cognitive decline	Emotional and psychological consequences
Effects on relationships and daily life, feedback from others, physical inactivity, and sleep deprivation	Social consequences and quality of life
Difficulty using electronic devices	Decline in applied cognitive skills
Attempts to cope with cognitive decline	Compensatory strategies

This classification indicates that cognitive decline in older adults is a multidimensional phenomenon that, in addition to cognitive dimensions, includes emotional, social, functional, and lifestyle-related consequences. Accordingly, it can provide a basis for extracting the main categories

during subsequent stages of qualitative analysis. Nine subthemes were identified at this stage.

At this stage, the subthemes were integrated, and the main themes were extracted as the central conceptual structures of cognitive decline among older adults.

Table 3

Selective Codes: Main Themes

Initial Codes	Subthemes	Main Themes
Everyday forgetfulness, forgetting names, forgetting appointments, misplacing personal belongings, difficulty recalling new information, and changes in memory and thinking	Memory and cognitive functioning	Core cognitive decline
Slowed thinking, reduced problem-solving speed, and difficulty making decisions	Slowed cognitive processing and impaired executive functioning	Decline in executive functioning and information processing
Reduced concentration and reduced motivation	Attention and concentration	Attentional impairments
Word-finding difficulty	Language impairments	Communication and language impairments
Reduced navigation ability	Orientation and spatial memory	Spatial cognitive impairments
Difficulty using electronic devices	Decline in applied cognitive skills	Decline in cognitive functioning in activities of daily living
Anxiety and concern resulting from cognitive decline	Emotional and psychological consequences	Emotional consequences of cognitive decline
Effects on relationships and daily life, feedback from others, physical inactivity, and sleep deprivation	Social consequences and quality of life	Psychosocial consequences of cognitive decline
Attempts to cope with cognitive decline	Compensatory strategies	Adaptation to and coping with cognitive decline

Based on the classification of the subthemes, nine main themes were identified. These themes can be introduced as the components of cognitive decline in the present study on the basis of the older adults' responses. Accordingly, the

items of the researcher-developed questionnaire were designed.

Following the identification of the components of cognitive decline from the perspectives of older adults, 10 items were proposed for each component.

Table 4

Proposed Items Based on the Components of Cognitive Decline

Component	Item	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Core cognitive decline	I forget everyday events more quickly than I did in the past.					
Core cognitive decline	Recalling people's names has become difficult for me.					
Core cognitive decline	I forget previously scheduled appointments and plans.					
Core cognitive decline	I misplace my personal belongings more often than I did in the past.					
Core cognitive decline	Learning new information has become more difficult for me.					
Core cognitive decline	I feel that my memory has become weaker than it was in the past.					
Core cognitive decline	I have difficulty recalling details of conversations.					
Core cognitive decline	I need written notes to remember my daily tasks.					
Core cognitive decline	I perceive negative changes in my memory.					
Core cognitive decline	My mental functioning is not as efficient as it was in the past.					

Decline in executive functioning and information processing	I need more time to think and make decisions.
Decline in executive functioning and information processing	Solving everyday problems takes me longer than it did in the past.
Decline in executive functioning and information processing	I hesitate when making simple decisions.
Decline in executive functioning and information processing	I feel that my thinking speed has decreased.
Decline in executive functioning and information processing	Performing several tasks simultaneously is difficult for me.
Decline in executive functioning and information processing	Planning daily activities has become difficult for me.
Decline in executive functioning and information processing	I have difficulty selecting the best solution.
Decline in executive functioning and information processing	Tasks that require rapid thinking make me tired.
Decline in executive functioning and information processing	I have difficulty initiating or completing tasks.
Decline in executive functioning and information processing	Managing everyday affairs requires greater effort.
Attentional impairments	It is difficult for me to concentrate on one subject for an extended period.
Attentional impairments	I am easily distracted by stimuli in my surroundings.
Attentional impairments	I become tired quickly while performing tasks.
Attentional impairments	It has become difficult for me to concentrate during conversations.
Attentional impairments	I experience reduced motivation during daily activities.
Attentional impairments	I have difficulty following what other people are saying.
Attentional impairments	My concentration while reading or watching television has decreased.
Attentional impairments	Tasks requiring accuracy and attention are difficult for me.
Attentional impairments	I feel that my attention diminishes quickly.
Attentional impairments	My mental concentration is not as stable as it was in the past.
Communication and language impairments	I have difficulty finding appropriate words when speaking.
Communication and language impairments	I sometimes forget words in the middle of speaking.
Communication and language impairments	Expressing what I mean to others has become difficult.
Communication and language impairments	I pause for long periods while speaking.
Communication and language impairments	I have difficulty naming familiar objects.
Communication and language impairments	Lengthy conversations make me tired.
Communication and language impairments	I feel that my ability to express my thoughts has decreased.
Communication and language impairments	Other people notice that I pause while speaking.
Communication and language impairments	Finding the appropriate word has become time-consuming.
Communication and language impairments	My verbal communication ability has declined compared with the past.
Spatial cognitive impairments	I become confused when attempting to follow familiar routes.
Spatial cognitive impairments	Navigating unfamiliar places is difficult for me.

Spatial cognitive impairments	I sometimes take the wrong route when returning home.
Spatial cognitive impairments	Using environmental cues for navigation has become difficult for me.
Spatial cognitive impairments	I feel that my navigation ability has declined.
Spatial cognitive impairments	I make mistakes when recognizing places.
Spatial cognitive impairments	Moving through unfamiliar environments makes me anxious.
Spatial cognitive impairments	I need assistance from others to find my way.
Spatial cognitive impairments	My mental orientation ability is weaker than it was in the past.
Spatial cognitive impairments	Spatially understanding my environment has become more difficult.
Decline in cognitive functioning in activities of daily living	Using electronic devices is difficult for me.
Decline in cognitive functioning in activities of daily living	Using a mobile phone or television makes me confused.
Decline in cognitive functioning in activities of daily living	Learning to use new devices is difficult for me.
Decline in cognitive functioning in activities of daily living	Completing banking or administrative tasks has become difficult for me.
Decline in cognitive functioning in activities of daily living	I have difficulty using new household appliances.
Decline in cognitive functioning in activities of daily living	Performing everyday tasks requires greater concentration.
Decline in cognitive functioning in activities of daily living	I need assistance from others to complete technical tasks.
Decline in cognitive functioning in activities of daily living	I feel that my functional independence has decreased.
Decline in cognitive functioning in activities of daily living	Everyday activities take me longer to complete.
Decline in cognitive functioning in activities of daily living	Simple tasks have become more difficult than they were in the past.
Emotional consequences of cognitive decline	The reduction in my mental abilities has caused me concern.
Emotional consequences of cognitive decline	I feel anxious about the condition of my memory.
Emotional consequences of cognitive decline	Cognitive decline causes me daily stress.
Emotional consequences of cognitive decline	I am afraid that my mental condition will worsen.
Emotional consequences of cognitive decline	I feel hopeless about my mental abilities.
Emotional consequences of cognitive decline	Cognitive problems have reduced my self-confidence.
Emotional consequences of cognitive decline	I am concerned about the future of my cognitive functioning.
Emotional consequences of cognitive decline	Cognitive decline has affected my psychological well-being.
Emotional consequences of cognitive decline	Memory problems make me anxious.
Emotional consequences of cognitive decline	I feel that I have less control over my mental functioning.
Psychosocial consequences of cognitive decline	My cognitive problems have affected my social relationships.
Psychosocial consequences of cognitive decline	I have less desire to interact with others.
Psychosocial consequences of cognitive decline	Feedback from others makes me concerned about my mental condition.
Psychosocial consequences of cognitive decline	My social activities have decreased.

Psychosocial consequences of cognitive decline	Cognitive problems have reduced my quality of life.
Psychosocial consequences of cognitive decline	Physical inactivity has affected my mental condition.
Psychosocial consequences of cognitive decline	Insufficient sleep worsens my mental functioning.
Psychosocial consequences of cognitive decline	I feel that other people have noticed my cognitive changes.
Psychosocial consequences of cognitive decline	Cognitive decline has restricted my daily life.
Psychosocial consequences of cognitive decline	My overall satisfaction with life has decreased.
Adaptation to and coping with cognitive decline	I use written notes to compensate for memory weakness.
Adaptation to and coping with cognitive decline	I try to maintain my abilities through mental exercises.
Adaptation to and coping with cognitive decline	I seek assistance from others to compensate for my cognitive problems.
Adaptation to and coping with cognitive decline	I have identified strategies for managing my cognitive decline.
Adaptation to and coping with cognitive decline	I try to adopt a healthier lifestyle.
Adaptation to and coping with cognitive decline	I make plans to prevent further cognitive decline.
Adaptation to and coping with cognitive decline	I reduce my stress by accepting my condition.
Adaptation to and coping with cognitive decline	I engage in cognitive activities to strengthen my memory.
Adaptation to and coping with cognitive decline	I try to adapt to changes in my cognitive functioning.
Adaptation to and coping with cognitive decline	I feel that I actively cope with cognitive decline.

During the first stage of validity assessment, specialists in psychology at the Birjand Branch of Islamic Azad University were invited during the 2024–2025 academic year to assess the validity and credibility of the proposed educational package. To determine the content validity of the proposed educational package, it was provided to nine faculty members at the Birjand Branch of Islamic Azad University who had published several articles on communication skills and problems associated with Internet use and had at least eight years of university teaching experience. In addition to assessing the face validity of the program, they provided extensive written recommendations for revising the proposed educational package. To quantitatively assess the content validity of the proposed educational package and permit the assignment of scores to each session, the package was provided to the same faculty members. They were asked to evaluate each educational session to calculate the content validity index (CVI), content validity ratio (CVR), and overall content validity of the package.

Because nine experts participated in evaluating the content validity of the items of the Older Adults' Cognitive Decline Questionnaire, the obtained CVR for each item was

required to be no lower than 0.78. The results indicated that the CVR values for all questionnaire items ranged from 0.78 to 1.00, demonstrating the adequate content validity of the questionnaire. The total content validity score was 0.78; therefore, the developed questionnaire demonstrated adequate validity.

Furthermore, because nine experts were used to evaluate the CVI in the present study, any item with a CVI lower than 0.79 was required to be removed. At this stage, the researcher calculated the CVI using the mean scores assigned by the faculty members to each item on a scale ranging from 1 to 4. The content validity of each item of the Older Adults' Cognitive Decline Questionnaire was determined on the basis of the experts' evaluations. The obtained CVI was 0.89, indicating the adequate content validity of the researcher-developed questionnaire.

To assess the reliability of the qualitative phase, two coders independently coded the data. After completion of the coding process, the results were compared, and Holsti's coefficient (Holsti, 1969) was used to evaluate coding reliability. Accordingly, the reliability coefficient obtained across two coding stages conducted one month apart was 85%. In the present study, the number of codes agreed upon

across the two coding stages was 20, whereas the numbers of coding units identified during the first and second coding stages were 22 and 25, respectively.

4. Discussion and Conclusion

The present study aimed to identify the components of cognitive decline from the perspectives of older adults and to use the resulting qualitative findings to develop a researcher-made assessment instrument. Analysis of the semi-structured interviews yielded 20 initial codes derived from 85 meaningful statements. These codes were organized into nine subthemes and subsequently integrated into nine main themes: core cognitive decline, decline in executive functioning and information processing, attentional impairments, communication and language impairments, spatial cognitive impairments, decline in cognitive functioning in activities of daily living, emotional consequences of cognitive decline, psychosocial consequences of cognitive decline, and adaptation to and coping with cognitive decline. The findings therefore indicate that older adults experience cognitive decline as a multidimensional phenomenon encompassing not only memory-related difficulties but also changes in executive functioning, attention, language, spatial orientation, everyday independence, emotional well-being, social relationships, and compensatory behavior. The developed questionnaire demonstrated satisfactory preliminary psychometric properties, with content validity ratio values ranging from 0.78 to 1.00, a content validity index of 0.89, and an inter-coding reliability coefficient of 85%.

The first and most central theme was core cognitive decline, which included everyday forgetfulness, difficulty remembering names and appointments, misplacing personal belongings, problems recalling new information, and perceived changes in memory and thinking. This finding suggests that older adults primarily recognize cognitive decline through disruptions in ordinary memory-dependent activities rather than through abstract clinical concepts. Forgetting why one entered a room, failing to recall a familiar name, or becoming increasingly dependent on written reminders may appear minor when considered separately, but their recurrence can create a noticeable sense of reduced cognitive efficiency. This result is consistent with evidence showing that daily memory lapses are common subjective manifestations of cognitive aging and may influence affective states and perceptions of competence. Such experiences may also represent early signs of broader

cognitive vulnerability, particularly when they become frequent, interfere with functioning, or occur alongside physical frailty. Life-course models of cognitive aging further suggest that memory performance in later life reflects the interaction between age-related neural changes and the individual's capacity to recruit compensatory resources (Ghanbarnia et al., 2024; Mogle et al., 2019; Reuter-Lorenz & Park, 2024).

The second theme, decline in executive functioning and information processing, comprised slowed thinking, reduced problem-solving speed, difficulty making decisions, problems managing multiple tasks, and increased effort in planning everyday activities. These findings show that older adults do not perceive cognitive decline exclusively as forgetting; they also experience it as a reduction in mental speed and efficiency. Participants reported needing more time to reach conclusions, reconsidering simple decisions, and becoming fatigued when faced with unfamiliar or cognitively demanding tasks. Processing speed is a foundational cognitive function because reduced speed can affect working memory, attention, reasoning, and executive control. Age-related slowing may therefore produce cascading difficulties across several cognitive domains. Research on cognitive training has similarly emphasized processing speed as a key mechanism that may influence broader cognitive performance and transfer effects across adulthood. Furthermore, impairment in executive functioning can compromise daily independence because activities such as financial management, medication use, planning, and problem-solving depend on the coordination of multiple cognitive processes (Reuter-Lorenz & Park, 2024; Shimada et al., 2016; von Bastian et al., 2022).

Attentional impairments formed another distinct component and included reduced concentration, distractibility, difficulty following prolonged conversations, and diminished motivation or tolerance for sustained activities. Participants frequently described losing track of television programs, becoming confused when several people spoke simultaneously, and needing to review information repeatedly. These accounts suggest that attentional decline may be experienced as mental fatigue, reduced persistence, or an inability to maintain cognitive engagement. Attention is closely connected to sleep, stress, emotional functioning, and processing speed; consequently, subjective concentration problems may reflect several interacting mechanisms. Age-related sleep disruption, for example, can impair vigilance, memory consolidation, and executive control, while chronic stress may consume

attentional resources and increase distractibility. The identification of reduced motivation within this theme also suggests that older adults may have difficulty separating cognitive limitations from emotional exhaustion or diminished interest, highlighting the importance of interpreting subjective cognitive complaints within their broader psychological context (Afshari, 2024; Mahmoudi et al., 2023; Mander et al., 2017).

Communication and language impairments were reflected in word-finding difficulty, forgetting words while speaking, prolonged pauses, difficulty naming familiar objects, and reduced confidence in verbal communication. This finding is particularly important because language-related changes may directly affect social participation and may be highly visible to family members. Anomia and slowed lexical retrieval are recognized features of both normal cognitive aging and several neurocognitive conditions, although their severity, progression, and accompanying deficits differ. Older adults may retain knowledge of a concept while temporarily being unable to retrieve the corresponding word, resulting in frustration and interrupted communication. Research has highlighted the clinical importance of semantic and naming assessments in distinguishing late-life depression from Alzheimer's disease and amnesic mild cognitive impairment. The present findings indicate that older adults themselves are aware of these subtle communication changes and often recognize them through pauses, incomplete sentences, and difficulty expressing intended meanings (Invernizzi et al., 2023; Laine & Martin, 2023).

Spatial cognitive impairments and decline in cognitive functioning during activities of daily living emerged as two related but distinguishable themes. Participants described confusion on familiar routes, difficulty navigating complex environments, and increased dependence on notes or assistance. They also reported difficulty using mobile phones, televisions, household appliances, and other electronic devices. These findings demonstrate that cognitive decline becomes particularly meaningful when it challenges functional independence. Spatial orientation requires the integration of memory, attention, visual processing, and executive planning; therefore, navigation problems may indicate difficulties across several cognitive systems. Similarly, learning to use electronic devices requires working memory, procedural learning, sustained attention, and cognitive flexibility. Previous research has shown that cognitive frailty is associated with reduced ability to perform daily activities and may represent an

important target for preventing dependency among older adults. Cardiovascular and neurological vulnerabilities may intensify these functional difficulties, while white matter abnormalities have also been associated with cognitive frailty in clinical populations (Ijaz et al., 2024; Ruan et al., 2015; Shimada et al., 2016; Sugimoto et al., 2019).

The emotional consequences of cognitive decline included anxiety, fear of further deterioration, reduced self-confidence, frustration, and concern about losing control over mental functioning. These findings indicate that cognitive decline is not experienced as a neutral change in performance; rather, it can threaten an older adult's sense of identity, autonomy, and future security. A minor memory lapse may be interpreted as evidence of impending dementia, particularly when the individual already fears aging or has observed severe cognitive impairment in others. Aging anxiety is influenced by perceptions of health, socioeconomic circumstances, expectations about later life, and concerns regarding dependence. Fear of old age may include apprehension about physical decline, loneliness, reduced social value, and cognitive deterioration. Health anxiety may further intensify monitoring of memory failures, while self-critical interpretations can magnify shame and emotional distress. Stigma surrounding dementia may also discourage older adults from discussing symptoms or seeking assessment, thereby increasing isolation and uncertainty (Alsenany, 2025; Costa, 2025; Pakpour et al., 2021; Riley et al., 2014; Yang & Ge, 2025; Zaccari et al., 2024).

The psychosocial consequences of cognitive decline included changes in family relationships, reduced social interaction, concerns about feedback from others, diminished quality of life, physical inactivity, and inadequate sleep. Participants' accounts suggested that family members often noticed forgetfulness and provided reminders, reassurance, or criticism. Although family support can compensate for cognitive difficulties, repeated correction may also make older adults feel dependent, embarrassed, or less competent. Some participants reported reducing communication with friends because they feared forgetting words or losing track of conversations. This withdrawal may create a reciprocal process in which cognitive concerns reduce social engagement, while reduced social engagement decreases cognitive stimulation and emotional support. Longitudinal evidence indicates that social relationships are associated with cognitive trajectories in later life, whereas isolation can increase the risk of decline. Fear of loneliness may motivate preventive social

behavior in some older adults, but for others, cognitive insecurity may produce avoidance. Attitudes toward aging among relatives and professionals may also shape whether cognitive complaints are taken seriously or dismissed as an inevitable consequence of age (Banimahdi et al., 2019; Kim-Knauss et al., 2024; Mahmoudi et al., 2023; Piolatto et al., 2022).

Another important finding was the identification of adaptation to and coping with cognitive decline as an independent component. Participants reported writing notes, making lists, using mobile-phone reminders, checking routes, seeking family assistance, solving puzzles, engaging in light exercise, and learning new skills with younger relatives. These strategies indicate that older adults actively attempt to preserve functioning and compensate for perceived decline. From the perspective of scaffolding theory, compensatory behaviors may support performance by reducing task demands or recruiting alternative cognitive and environmental resources. The identification of coping as a central theme also has practical significance because it shifts the conceptualization of older adults from passive recipients of decline to active agents capable of adaptation. Multidisciplinary interventions for cognitive frailty increasingly combine cognitive stimulation, physical exercise, nutritional support, chronic disease management, and social engagement. Exercise-based interventions may additionally enhance psychological capital and body image, while positive psychology programs may reduce anxiety, improve social functioning, and strengthen meaning in life. These approaches are consistent with the participants' own emphasis on maintaining activity, social interaction, and psychological engagement (Holland et al., 2025; Kavandi et al., 2025; Reuter-Lorenz & Park, 2024; Yousefpour, 2025).

The findings also highlighted the perceived contribution of lifestyle and health-related factors, including sleep deprivation, physical inactivity, poor nutrition, stress, and reduced cognitive stimulation. Participants frequently attributed their cognitive difficulties to inadequate sleep, emotional preoccupation, sedentary behavior, or reduced reading and social activity. These perceptions are broadly consistent with evidence that cognitive health in later life is influenced by modifiable behavioral and physiological factors. Sleep changes associated with aging can affect memory, attention, and emotional regulation. Micronutrient deficiencies may be associated with mild cognitive impairment, frailty, and cognitive frailty, while physical activity and healthy nutritional habits may help protect cognitive functioning. In addition, hypertension and

perceived stress may interact with lifestyle patterns to influence cognitive performance. The inclusion of these factors within older adults' accounts demonstrates that they conceptualize cognitive decline as related not only to chronological aging but also to daily behaviors and health conditions (Afshari, 2024; Fried et al., 2015; Mahmoudi et al., 2023; Mander et al., 2017; Mustafa Khalid et al., 2022).

Taken together, the nine themes support a multidimensional and person-centered model of cognitive decline. Clinical approaches often focus on memory test scores, diagnostic thresholds, and observable functional impairment, whereas the present qualitative findings demonstrate that older adults understand cognitive decline through changes in confidence, communication, relationships, emotional security, technology use, and daily independence. The findings also show that cognitive and noncognitive dimensions are deeply interconnected. For example, word-finding difficulty may reduce social participation, social withdrawal may increase loneliness, loneliness may reduce cognitive stimulation, and anxiety may further impair concentration and memory retrieval. Similarly, executive slowing may increase dependence on family members, thereby affecting self-esteem and relationship dynamics. Cognitive frailty frameworks support this integrative interpretation by emphasizing the interaction of cognitive vulnerability, physical frailty, health status, and functional outcomes (Ghanbarnia et al., 2024; Ijaz et al., 2024; Piolatto et al., 2022; Ruan et al., 2015).

The preliminary validation findings provide initial support for the content relevance and reliability of the researcher-developed questionnaire. The CVR values of 0.78 to 1.00 indicate that the expert panel generally regarded the proposed items as essential for assessing the identified components. The CVI of 0.89 further suggests satisfactory agreement regarding item relevance, clarity, and representativeness. In addition, the coding reliability coefficient of 85% indicates an acceptable level of consistency across the two coding stages. These findings suggest that the instrument is grounded in both participants' lived experiences and expert judgment. This combination is particularly valuable because measures developed exclusively from theoretical definitions may overlook culturally specific manifestations of cognitive decline, whereas measures derived only from subjective accounts may lack sufficient conceptual organization. The present questionnaire therefore represents a preliminary attempt to integrate experiential, functional, emotional, and social

dimensions within a culturally relevant assessment framework.

In conclusion, the findings indicate that cognitive decline from the perspectives of older adults is a complex phenomenon involving memory impairment, slowed executive and information-processing functions, attentional and language difficulties, spatial disorientation, reduced everyday cognitive functioning, emotional distress, psychosocial disruption, and active compensatory efforts. The identified themes are consistent with contemporary evidence indicating that cognitive aging is shaped by neurological, psychological, behavioral, social, and functional factors. The researcher-developed questionnaire demonstrated promising preliminary content validity and coding reliability and may provide a foundation for more comprehensive assessment of perceived cognitive decline among Iranian older adults.

The study had several limitations. Participants were recruited from only two districts of Tehran, which may limit the transferability of the findings to older adults living in rural areas, smaller cities, or culturally and socioeconomically different regions. The sample consisted of 17 older adults, and although theoretical saturation was achieved, the range of experiences may not encompass all manifestations of cognitive decline. The findings were based on self-reported experiences and may have been influenced by recall bias, social desirability, health anxiety, mood, or participants' interpretations of normal aging. Objective cognitive assessments and medical evaluations were not incorporated into the qualitative phase to distinguish subjective decline from clinically measurable impairment. Moreover, the questionnaire underwent only preliminary content validity and coding reliability assessment, and its broader psychometric properties were not evaluated.

Future studies should examine the identified components in larger and more diverse samples of older adults from different regions, cultural backgrounds, socioeconomic groups, and residential settings. The researcher-developed questionnaire should be evaluated using exploratory and confirmatory factor analyses, internal consistency indices, test-retest reliability, convergent and discriminant validity, and criterion-related validity. Researchers should compare questionnaire scores among cognitively healthy older adults, individuals with subjective cognitive decline, people with mild cognitive impairment, and patients with diagnosed neurocognitive disorders. Longitudinal studies are also recommended to determine whether the identified components predict subsequent cognitive deterioration,

functional dependency, or reduced quality of life. Mixed-method studies combining subjective reports, neuropsychological assessment, medical indicators, and family observations could provide a more comprehensive understanding of cognitive decline.

Healthcare professionals, psychologists, gerontologists, and community service providers should assess cognitive decline as a multidimensional experience rather than focusing exclusively on memory complaints. Screening procedures should include executive functioning, attention, language, spatial orientation, technology use, emotional reactions, social participation, and compensatory strategies. Educational programs should help older adults and their families distinguish common age-related changes from symptoms requiring professional evaluation. Interventions should promote physical activity, adequate sleep, balanced nutrition, cognitive stimulation, social engagement, stress management, and the effective use of reminders and environmental supports. Family members should be encouraged to provide respectful assistance without undermining the older adult's autonomy or self-confidence.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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