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

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A B S T R A C T

The aim of this study was to identify the components of cognitive decline from the perspective of older adults: a qualitative study. In terms of purpose, this research was applied, and in terms of methodology, it was qualitative. The statistical population of the study included all older adults in Districts 1 and 3 of Tehran, among whom 17 older adults were selected as the sample through theoretical sampling. The data collection instrument was a semi-structured interview. The qualitative analysis of the interviews resulted in 20 initial codes. Based on these codes, 9 subthemes were identified, and ultimately, 9 main themes were considered as the components of cognitive decline, which formed the basis for designing the cognitive decline questionnaire in this study. For each component, 10 items were proposed. Based on the opinions of 9 experts and university professors, the total content validity score was obtained as 0.78; therefore, the designed questionnaire had appropriate validity. The reliability of the questionnaire was obtained as 85% through two stages of coding with a one-month interval.

Keywords: *cognitive decline, aging, qualitative analysis.*

1. Introduction

Aging is accompanied by heterogeneous biological, psychological, cognitive, and social changes that do not occur in a uniform way across individuals. Although many older adults preserve adequate cognitive functioning and daily independence, a considerable proportion experience gradual changes in memory, attention, processing speed, language, executive functioning, spatial orientation, and the ability to perform cognitively demanding daily activities. Cognitive decline is therefore not merely a neurological or psychometric phenomenon; rather, it is a multidimensional experience that is often recognized

by older adults through everyday forgetfulness, difficulty learning new information, slowed thinking, reduced concentration, problems in finding words, uncertainty in decision-making, and increased dependence on compensatory strategies. Contemporary perspectives on cognitive aging emphasize that age-related cognitive change should be understood within the broader life course, because older adults' cognitive functioning reflects the interaction of neurobiological vulnerability, accumulated experience, environmental demands, compensatory mechanisms, and psychosocial resources (Reuter-Lorenz & Park, 2024). From this perspective, studying cognitive decline only through standardized test scores may overlook the lived meanings, contextual triggers, and functional consequences that older adults themselves associate with changes in their mental performance.

One of the important conceptual developments in the literature on aging is the recognition of cognitive frailty as a clinically meaningful condition that links cognitive vulnerability with functional dependency and broader health risks. Cognitive frailty has been described as a state in which cognitive impairment and frailty-related vulnerability overlap, making it a potential target for preventing disability and dependency in later life (Ruan et al., 2015). Evidence indicates that cognitive frailty can affect daily activities and reduce older adults' capacity to maintain independence in routine life situations (Shimada et al., 2016). Neurobiological and clinical findings have also associated cognitive frailty with brain changes such as white matter hyperintensities among memory clinic patients, highlighting its relevance for both cognitive and neurological aging research (Sugimoto et al., 2019). In Iran, population-based evidence has shown that cognitive frailty is present among older adults and is associated with several demographic, health-related, and functional factors, suggesting the need for culturally relevant assessment and prevention approaches (Ghanbarnia et al., 2024). Moreover, cognitive frailty is especially important among older adults with cardiovascular disease, because cognitive vulnerability may interact with physical illness, functional limitations, and poor clinical outcomes (Ijaz et al., 2024). Recent expert consensus work has further emphasized the need to develop multidisciplinary and multisectoral interventions for cognitive frailty, indicating that cognitive decline should be approached through integrated models rather than single-domain explanations (Holland et al., 2025).

Memory problems are among the most visible and commonly reported indicators of cognitive decline in later life. Older adults may first notice changes through daily memory lapses, such as forgetting appointments, misplacing objects, failing to recall names, or losing track of intended actions. These everyday lapses are clinically and psychologically important because they are not only cognitive events but also affective experiences that can influence mood, self-evaluation, and perceived competence. Research on daily memory lapses has shown that such experiences are associated with emotional responses in adults, indicating that memory failures may carry subjective consequences beyond the objective severity of the lapse itself (Mogle et al., 2019). In this regard, the subjective interpretation of forgetfulness is particularly important among older adults, because minor memory failures may be perceived either as normal aging or as early signs of pathological decline. Therefore, examining older adults' own descriptions of memory change can reveal how cognitive decline is recognized, explained, normalized, feared, or managed in everyday life.

Executive functions and processing speed represent another central domain of age-related cognitive change. Older adults may report that they need more time to think, become hesitant in decision-making, experience difficulty solving new problems, or feel overwhelmed when several tasks must be performed sequentially or simultaneously. Processing speed is a foundational cognitive mechanism that can influence performance across multiple domains, including memory, reasoning, attention, and executive control. Research on processing speed training and transfer across the adult lifespan has emphasized that age-related slowing may be a key mechanism underlying broader cognitive differences, while also suggesting that cognitive functions remain modifiable to some degree through targeted training (von Bastian et al., 2022). In applied settings, slowed processing may manifest as reduced efficiency in daily tasks, difficulty managing administrative or technological demands, and a greater need for external support. This functional expression of cognitive slowing makes it necessary to identify not only whether older adults experience decline, but also how they describe its impact on autonomy and daily management.

Attention and concentration are also essential components of cognitive functioning in old age. Reduced attentional stability may appear as distractibility, difficulty following conversations, fatigue during cognitively demanding activities, or inability to sustain focus while reading, watching television, or completing daily tasks. Attention is closely linked with emotional arousal, sleep

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quality, physical health, and environmental complexity. Sleep is particularly relevant, because aging is often accompanied by changes in sleep architecture, sleep continuity, and restorative sleep quality, and these changes can affect memory consolidation, attention, mood regulation, and cognitive performance (Mander et al., 2017). Lifestyle and health-related factors may further interact with cognitive decline. Evidence from Iranian older adults has shown that age-related cognitive decline and executive functions can be predicted by social isolation, physical activity, and dietary habits, indicating that cognitive changes in later life are embedded within behavioral and social contexts rather than being purely intra-individual processes (Mahmoudi et al., 2023). Similarly, evidence on micronutrient malnutrition suggests that nutritional deficiencies may be associated with mild cognitive impairment, frailty, and cognitive frailty among older adults, reinforcing the importance of considering diet and biological vulnerability in cognitive aging (Mustafa Khalid et al., 2022).

Language-related changes are another important but sometimes underestimated aspect of cognitive decline. Older adults may experience word-finding difficulty, pauses during speech, reduced verbal fluency, or problems expressing intended meanings. These symptoms may be subtle, intermittent, and context-dependent, yet they can affect communication confidence and social participation. Anomia, or difficulty retrieving words, has both theoretical and clinical significance because it may appear in normal aging, mild cognitive impairment, depression-related cognitive symptoms, and neurodegenerative disorders (Laine & Martin, 2023). Semantic assessment has also been emphasized in differentiating late-life depression from Alzheimer's disease or amnestic mild cognitive impairment, indicating that language and meaning-based processing can provide important diagnostic and conceptual information in later-life cognitive assessment (Invernizzi et al., 2023). From a qualitative perspective, older adults' narratives about "searching for words," forgetting names, or losing the thread of speech can help researchers understand how linguistic changes are experienced in social interaction and how they may contribute to embarrassment, withdrawal, or reduced conversational participation.

Cognitive decline also has emotional and psychosocial dimensions. Older adults who notice cognitive changes may experience worry, anxiety, self-doubt, fear of deterioration, reduced self-confidence, or heightened sensitivity to feedback from family members. Anxiety about aging has been studied in Iranian older adults, and the psychometric evaluation of aging anxiety measures highlights the relevance of culturally valid tools for assessing older adults' concerns about aging-related changes (Pakpour et al., 2021). Aging anxiety may also be influenced by socioeconomic status, suggesting that fear and concern about aging are shaped by broader structural and life-context factors rather than only by personal traits (Yang & Ge, 2025). Relatedly, fear of old age has been documented among adults and may reflect concerns about dependency, bodily change, loneliness, social devaluation, and loss of control (Costa, 2025). Gerascophobia, or fear of aging, has also been linked to psychological predictors such as health anxiety and body image satisfaction, indicating that aging-related fears may be connected to both physical self-perception and perceived vulnerability (Alsenany, 2025). These findings are relevant for cognitive decline because memory failures or attention problems may activate broader fears about aging, dependency, and loss of identity.

The social context of cognitive decline is equally important. Older adults do not interpret cognitive changes in isolation; rather, they often evaluate their functioning through interactions with spouses, children, grandchildren, friends, health professionals, and the wider community. Social relationships can either buffer cognitive decline through stimulation, emotional support, and engagement, or intensify distress when older adults receive stigmatizing, dismissive, or overprotective feedback. Longitudinal evidence has shown that social relationships have significant effects on cognitive decline in older adults, supporting the view that social connectedness is a protective factor for cognitive health (Piolatto et al., 2022). Fear of loneliness in old age may also motivate preventive activities, which shows that aging-related fears can sometimes lead to adaptive social behaviors rather than only psychological distress (Kim-Knauss et al., 2024). At the same time, societal attitudes toward older adults can shape how aging and cognitive decline are perceived. Research comparing the attitudes of occupational therapy students and alumni toward older people suggests that professional and educational contexts influence perceptions of aging, which may affect how older adults are supported in rehabilitation and care settings (Banimahdi et al., 2019). Therefore, a culturally grounded study of cognitive decline should consider not only the cognitive symptoms themselves but also the meanings produced through family, professional, and social responses.

Another relevant dimension is the interaction between cognitive decline and psychological well-being. Positive

psychological resources, meaning in life, social skills, and emotional regulation may help older adults maintain adaptation despite cognitive changes. Evidence has shown that positive psychology training can improve anxiety, social skills, and meaning in life among older adults, suggesting that interventions focused on strengths and psychological resources may support better adjustment in later life (Yousefpour, 2025). Conversely, negative self-evaluation and self-critical thinking may intensify the psychological burden of cognitive changes. A meta-review of self-criticism has shown that this construct has multiple definitions and is closely related to maladaptive emotional processes, making it relevant for understanding how older adults interpret perceived failures or losses in functioning (Zaccari et al., 2024). When older adults attribute forgetfulness to personal inadequacy or irreversible decline, they may become more anxious, avoid social situations, or reduce participation in cognitively stimulating activities. Therefore, identifying the emotional meanings attached to cognitive decline can help researchers and clinicians distinguish between cognitive symptoms, emotional reactions, and coping processes.

Despite the growing body of research on cognitive decline, cognitive frailty, aging anxiety, lifestyle factors, and psychosocial determinants, there remains a need for qualitative studies that directly examine how older adults conceptualize the components of cognitive decline in their own language. Standardized cognitive tools are valuable, but they may not fully capture culturally specific expressions of forgetfulness, attentional problems, language difficulties, navigation concerns, technological challenges, perceived loss of independence, emotional consequences, and compensatory strategies. In particular, Iranian older adults may describe cognitive decline in ways shaped by family structure, intergenerational relationships, social expectations, health beliefs, lifestyle patterns, and attitudes toward aging. A qualitative approach can therefore provide a richer foundation for developing culturally appropriate measurement tools by moving from participants' lived experiences to initial codes, subthemes, and main themes. Such an approach is especially useful when the goal is not only to assess cognitive decline but also to identify its perceived components as experienced in daily life.

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

2. Methods and Materials

One of the main characteristics that distinguishes scientific writing from other texts is its reliance on methodology and scientific research procedures. Selecting an appropriate research method is one of the fundamental principles of research, because neglecting the correct choice of method makes it impossible to achieve the research objectives. In fact, the compatibility of the research method with the nature of the research problem, the researcher's experiences, and the needs of the audience determines the efficiency and credibility of the results. The aim of this study was to identify the components of cognitive decline from the perspective of older adults. In this study, a qualitative method was used to extract the components of cognitive decline from the perspective of older adults in Iranian society. The reason for collecting qualitative data at the beginning of the present study was that there was no comprehensive and holistic model of enrichment experience appropriate for Iranian older adults and consistent with the cultural and local context of Iran. Finally, after identifying the components of cognitive decline from the perspective of older adults, 5 items were designed for each identified component. Participants were selected using theoretical sampling. In this type of sampling, the selection of participants or new data sources is based on ongoing analyses in order to develop the emerging theory (Glaser, 1967). The sampling process is often conducted in accordance with the needs of the study. Determining who should be selected to participate in the research, at what time, and in what place depends on specific criteria determined according to the research objective (Campbell et al., 2020). In qualitative research, unlike quantitative methods, the sample size is usually not predetermined; rather, gradual and adaptive sampling continues until theoretical saturation is reached. Theoretical saturation refers to the point in the qualitative research process at which continued data collection through interviews no longer adds "new information or concepts" to the analysis. This means that the data have reached sufficiency so that the components of cognitive decline can be fully developed and an effective final report can be prepared. In qualitative theorizing, a theory or conceptual categories can be claimed to have been validated when the researcher has reached the point of saturation. To reach this point, the researcher must collect and analyze data in the field until no new evidence or documentation is presented; in other words, all data must be carefully examined and analyzed so that no meaningful

addition is made to them. In this study, the data were coded, categorized, and compared simultaneously with their collection, and the conceptual development of the components of cognitive decline was managed accordingly. After interviews with 17 older adults, the main categories and subcategories of the components had developed to the extent that new data could no longer enrich them and no new code or concept emerged; therefore, the researcher determined that saturation had been achieved (Charmaz, 2014).

The data collected from the semi-structured interviews were examined using qualitative content analysis. For this purpose, all interviews were first fully transcribed, and the resulting texts were carefully read. The analysis process was conducted line by line, and meaning units, including words, sentences, and paragraphs containing points related to the dimensions or signs of cognitive decline, were identified. Initial codes were assigned to each of these meaning units. In the second stage, similar or related codes were categorized into subcategories, and subthemes were extracted. In the final step, the subthemes were organized at higher conceptual levels and placed within the main themes. These main themes reflected the key components of cognitive decline from the perspective of the older adult participants in the study. To enhance the credibility and dependability of the analyses, the coding and categorization stages were repeatedly reviewed, and strategies such as peer debriefing and constant comparison of data were used. Finally, the qualitative findings provided the basis for identifying the components of cognitive decline from the participants' perspective. For each identified component, 10 items with a 5-point Likert scale were designed so that the researcher-developed questionnaire would be prepared for use in the quantitative section.

3. Findings and Results

After conducting semi-structured interviews with older adults, the data were carefully compiled and transcribed. Content analysis was used to analyze the data. Initially, the interview texts were read repeatedly so that the researcher could become familiar with the depth and details of the participants' statements and identify meaning units related to cognitive decline. In the next step, initial coding was performed; that is, sections related to cognitive changes, memory problems, concentration, decision-making, daily functioning, and other related components were assigned to their specific codes. These codes provided the basis for forming categories and main themes in the later stages of analysis. Table 1 presents examples of the initial codes extracted from the data in order to clarify the analysis process and the formation of the initial themes.

Table 1

First-Stage Coding: Open Coding

Initial Codes	Older Adults' Statements
Everyday forgetfulness	"For example, I go to the kitchen and forget what I wanted." (Code 1); "Yes, my children say I have become a little forgetful, but they say it is normal for my age." (Code 1); "My son says, 'Mom, you are still very lively,' but sometimes he says, 'Why do you forget?'" (Code 10)
Forgetting names	"I mostly forget people's names. I recognize their faces, but the name does not come to my mind." (Code 2); "Yes, sometimes I cannot remember the names of acquaintances, but I remember them after a few minutes." (Code 1); "Yes, especially the names of new people or phone numbers. I forget them quickly." (Code 2); "Not much, but sometimes I mix up my grandchildren's names!" (Code 4); "It is very hard for me to remember the names of new people, but not old acquaintances." (Code 6)
Slowness of thinking	"I think somewhat more slowly. I used to make decisions quickly, but now I have to think more before reaching a conclusion." (Code 3); "I think it is my blood pressure. Whenever it goes up, I get confused, and my thinking also slows down." (Code 11); "Not very much, but I have become slightly slower than before." (Code 4)
Reduced concentration	"My concentration has decreased. For example, when I watch television, suddenly I realize I do not know what was said!" (Code 5); "The doctor says it is normal; as age increases, some memory decline occurs. I accept it myself too." (Code 15); "My children say, 'Mom, where was your attention?'" (Code 4); "My sister always says, 'Why can't you remember this word?' It is clear that she has noticed my forgetfulness." (Code 11); "Very much. Now I have to review things several times to understand what I should do." (Code 5); "Yes, sometimes in the middle of speaking, I forget what I wanted to say." (Code 1); "Yes, when the topic is long, I get bored and cannot concentrate." (Code 4); "Yes, especially when several people are speaking at the same time, I get confused and lose concentration." (Code 2); "Sometimes I get distracted, especially when I am tired." (Code 3); "A little, but not much. Only when I am tired does my concentration decrease." (Code 9); "I review important things several times so that I can remember them." (Code 6)
Difficulty recalling new information	"New information? Yes, it has become difficult. But I still remember old things well." (Code 6); "They keep saying, 'Mom, why don't you remember new things? You know the old things completely!'" (Code 13); "Yes, especially the names of new people or phone numbers. I forget them quickly." (Code 2); "It is very hard for me to remember the names of new people, but not old acquaintances." (Code 6)
Misplacing personal belongings	"Yes, especially my glasses! I look for them for half the day and then realize they were on my head." (Code 1)

Forgetting appointments	"Several times, I have forgotten my doctor's appointment. Now my children remind me." (Code 7); "I sometimes forget small appointments. That is why I write them down." (Code 3); "Small things, such as whom I had an appointment with or why I was going out—sometimes I forget these things." (Code 10)
Difficulty in decision-making	"To some extent, yes. I used to make decisions quickly, but now I become more hesitant." (Code 3); "Yes, especially when I have several tasks one after another." (Code 5); "When I have several options, I get confused and choose later." (Code 7); "Sometimes I have to check tasks again, so it takes more time and I become tired." (Code 4)
Reduced speed of problem-solving	"I used to make decisions faster; 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 answer quickly, but now thinking takes longer." (Code 6); "Yes, especially new and unusual problems." (Code 13); "I used to find solutions easily; now I have to think." (Code 12)
Difficulty finding words	"Sometimes, especially when the topic is complicated." (Code 3); "Yes, sometimes in the middle of a sentence, I search for a word." (Code 2); "Sometimes, especially when the topic is complicated." (Code 3); "Some words suddenly slip out of my mind." (Code 13)
Reduced navigation ability	"Yes, especially 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; now I go out less." (Code 3); "Yes, especially when I am in a hurry or tired. Sometimes I cannot remember the route to my children's house." (Code 1); "Yes, in some streets that I always used to go to, I suddenly get lost." (Code 2); "Not much, because I always check my route with notes." (Code 9); "It happens sometimes, especially if the route is complicated or has several turns." (Code 13)
Difficulty using electronic devices	"Yes, I used to use my mobile phone easily, but now some of its functions are difficult." (Code 1); "New things like technology and mobile phones confuse me a little. Maybe that is why I feel my memory has weakened." (Code 8); "Yes, on the television or voice recorder, I do not remember some buttons." (Code 2); "Sometimes, especially when there has been a new update." (Code 4)
Anxiety and worry resulting from cognitive decline	"Yes, honestly, sometimes I am afraid that the condition will get worse." (Code 1); "Yes, I worry that I might forget important things." (Code 2); "I become a little anxious, especially when I do not know why I cannot remember." (Code 3); "Not very much, but sometimes I get irritated by these episodes of forgetfulness." (Code 4); "I try to control my stress and worry so that my mind works better." (Code 8)
Impact on relationships and daily life	"Sometimes forgetfulness causes tasks to be done later, and my children become worried too." (Code 1); "Loneliness… since I became 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 and socializing with people." (Code 7); "Life changes… the children have left, the house has become quiet, and a person talks to fewer people." (Code 10); "I do not eat proper food. My appetite has decreased. Maybe it affects the brain too." (Code 13); "I feel I talk less with my friends because I am afraid I might forget something in the middle of speaking." (Code 3); "Family relationships have been somewhat affected; the children have to remind me more often, and that is upsetting." (Code 5); "Gradually, my self-confidence has decreased, and I feel it has affected my social relationships too." (Code 7)
Efforts to cope with cognitive decline	"I try to write everything down; I make lists." (Code 1); "My husband says I am not attentive. He says I should do more mental exercises." (Code 3); "Yes, my daughter says my mind is too preoccupied. She says I should have less stress." (Code 5); "My family says I should be more active. They say this decline is also due to inactivity." (Code 7); "Not very much, because I try not to show anything. But I know they have noticed." (Code 9); "The children say my mind is tired. They say I should have a hobby." (Code 12); "I sometimes forget small appointments. That is why I write them down." (Code 3); "But I usually write appointments on paper so that I do not forget them." (Code 8); "I always check my route with notes." (Code 9); "I have filled my phone with reminders so that nothing is forgotten." (Code 2); "I try to do mental activities, such as solving crossword puzzles or thinking games." (Code 3); "I talk more with my family so that my brain stays active." (Code 4); "I do light exercise and walk; they say it keeps the mind active." (Code 5); "I learn new things with my grandchildren, such as using a mobile phone or computer games." (Code 7)
Changes in memory and thinking	"Well, as age increases, it is natural… age does its work." (Code 1); "I think it is due to the stress and worries of these past years. When a person is mentally preoccupied too much, the brain becomes tired." (Code 2); "I think it is because of mental preoccupations and family problems. My mind is occupied." (Code 14)
Sleep deprivation	"My sleep has become light at night, and I do not rest well." (Code 6); "My husband says I get distracted, but he thinks it is because of lack of sleep and problems." (Code 14)
Physical inactivity	"I do not exercise; maybe this has caused my mind to become sluggish." (Code 3); "My family says I should be more active. They say this decline is also due to inactivity." (Code 7); "I do light exercise and walk; they say it keeps the mind active." (Code 5)
Reduced patience and interest	"Age, stress, and the fact that I read less. I used to read newspapers, but now I do not feel like it." (Code 12)
Feedback from others	"My grandchildren joke and say, 'Grandmother has forgotten again!' But they do not mean it badly." (Code 2); "Sometimes my son says, 'Dad, you were not like this before.' But he says, 'Do not worry; it is normal.'" (Code 6); "Some people say that when age increases, these things happen, but they do not mention it too much to my face." (Code 8); "Yes, they usually say it is natural and everyone has this problem at this age. They comfort me." (Code 15)

Based on the table above, 20 initial codes were identified from the interview texts, which formed the basis of axial coding. The identified initial codes resulted from selecting 85 sentences containing concepts related to the components of cognitive decline.

In this section, the initial codes extracted from the qualitative content analysis of the interview texts were systematically categorized in order to obtain subthemes and explain the components of cognitive decline in older adults. This process was conducted to reduce conceptual dispersion, increase abstraction, and move from raw data toward theoretical concepts.

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Table 2

Axial Coding: Subthemes

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

This categorization indicates that cognitive decline in older adults is a multidimensional phenomenon that, in addition to cognitive aspects, includes emotional, social, functional, and lifestyle-related consequences. It can also serve as a basis for extracting the main categories in the later stages of qualitative analysis. At this stage, 9 subthemes were identified.

At this stage, by integrating the subthemes, the main themes were extracted as the central conceptual structures of cognitive decline in older adults.

Table 3

Selective Codes: Main Themes

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

Based on the categorization of the subthemes, 9 main themes were identified, which can be introduced as the components of cognitive decline in this study according to the responses of older adults. Accordingly, the items of the researcher-developed questionnaire were designed.

After identifying the components of cognitive decline from the perspective of older adults, 10 items were proposed for each component.

Table 4

Proposed Items Based on the Components of Cognitive Decline

Component	Items	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Core cognitive decline	I often forget daily events sooner than before.					
Core cognitive decline	Remembering people's names has become difficult for me.					
Core cognitive decline	I forget prearranged appointments and plans.					
Core cognitive decline	I misplace my personal belongings more than before.					
Core cognitive decline	Learning new information has become more difficult for me.					
Core cognitive decline	I feel that my memory has become weaker than before.					
Core cognitive decline	I have difficulty remembering details of conversations.					
Core cognitive decline	I need notes to remember daily tasks.					
Core cognitive decline	I feel negative changes in my memory.					
Core cognitive decline	My mental functioning is not as efficient as before.					
Decline in executive functions and information processing	I need more time to think and make decisions.					
Decline in executive functions and information processing	Solving everyday problems has become slower for me than before.					
Decline in executive functions and information processing	I become hesitant in making simple decisions.					
Decline in executive functions and information processing	I feel that my thinking speed has decreased.					
Decline in executive functions and information processing	Doing several tasks at the same time is difficult for me.					
Decline in executive functions and information processing	Planning daily activities has become difficult for me.					
Decline in executive functions and information processing	I have difficulty choosing the best solution.					
Decline in executive functions and information processing	Performing tasks that require quick thinking makes me tired.					
Decline in executive functions and information processing	I have difficulty starting or finishing tasks.					
Decline in executive functions and information processing	Managing daily affairs requires more effort.					
Attentional impairments	Concentrating on one topic for a long time is difficult for me.					
Attentional impairments	My attention is easily distracted by surrounding stimuli.					
Attentional impairments	I become tired quickly while doing tasks.					
Attentional impairments	Concentrating during conversations has become difficult for me.					
Attentional impairments	I experience reduced patience and interest in daily activities.					
Attentional impairments	I have difficulty following other people's speech.					
Attentional impairments	My concentration has decreased while reading or watching television.					
Attentional impairments	Performing tasks that require accuracy is difficult for me.					
Attentional impairments	I feel that my attention fades quickly.					
Attentional impairments	My mental concentration is not as stable as before.					
Communicative-linguistic impairments	I have difficulty finding appropriate words when speaking.					
Communicative-linguistic impairments	Sometimes I forget words in the middle of speaking.					

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Communicative-linguistic impairments	Expressing what I mean to others has become difficult.
Communicative-linguistic impairments	I have long pauses while speaking.
Communicative-linguistic impairments	I have difficulty naming familiar objects.
Communicative-linguistic impairments	Long conversations make me tired.
Communicative-linguistic impairments	I feel that my ability to express my thoughts has decreased.
Communicative-linguistic impairments	Others notice that I pause while speaking.
Communicative-linguistic impairments	Finding the appropriate word has become time-consuming.
Communicative-linguistic impairments	My verbal communication has weakened compared with the past.
Spatial cognitive impairments	I become confused when finding familiar routes.
Spatial cognitive impairments	Orientation in new places is difficult for me.
Spatial cognitive impairments	Sometimes I take the wrong route back home.
Spatial cognitive impairments	Using environmental cues for orientation has become difficult for me.
Spatial cognitive impairments	I feel that my navigation ability has decreased.
Spatial cognitive impairments	I make mistakes in recognizing places.
Spatial cognitive impairments	Moving in unfamiliar environments makes me anxious.
Spatial cognitive impairments	I need help from others to find routes.
Spatial cognitive impairments	My mental orientation has become weaker than before.
Spatial cognitive impairments	Spatial understanding of the environment has become more difficult for me.
Decline in cognitive functioning in daily activities	Working with electronic devices is difficult for me.
Decline in cognitive functioning in daily activities	Using a mobile phone or television confuses me.
Decline in cognitive functioning in daily activities	Learning how to use new devices is difficult for me.
Decline in cognitive functioning in daily activities	Performing banking or administrative tasks has become difficult for me.
Decline in cognitive functioning in daily activities	I have difficulty using new household appliances.
Decline in cognitive functioning in daily activities	Performing daily tasks requires more concentration.
Decline in cognitive functioning in daily activities	I need help from others to perform technical tasks.
Decline in cognitive functioning in daily activities	I feel that my functional independence has decreased.
Decline in cognitive functioning in daily activities	Daily activities take more time for me.
Decline in cognitive functioning in daily activities	Simple tasks have become more difficult than before.
Emotional consequences of cognitive decline	Reduced mental ability has made me worried.
Emotional consequences of cognitive decline	I feel anxious about the state of my memory.
Emotional consequences of cognitive decline	Cognitive decline causes daily stress for me.
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 worried about my future mental state.

Emotional consequences of cognitive decline	Cognitive decline has affected my psychological calmness.
Emotional consequences of cognitive decline	Memory problems make me anxious.
Emotional consequences of cognitive decline	I feel that my mental control has decreased.
Psychosocial consequences of cognitive decline	Mental 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 people around me makes me worried 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 others have noticed my mental changes.
Psychosocial consequences of cognitive decline	Cognitive decline has limited my daily life.
Psychosocial consequences of cognitive decline	My overall life satisfaction has decreased.
Adaptation and coping with cognitive decline	I use notes to compensate for memory weakness.
Adaptation and coping with cognitive decline	I try to maintain my abilities through mental exercises.
Adaptation and coping with cognitive decline	I ask others for help to compensate for mental problems.
Adaptation and coping with cognitive decline	I have found strategies to manage my cognitive decline.
Adaptation and coping with cognitive decline	I try to have a healthier lifestyle.
Adaptation and coping with cognitive decline	I plan to prevent further mental decline.
Adaptation and coping with cognitive decline	By accepting the condition, I reduce my stress.
Adaptation and coping with cognitive decline	I use mental activities to strengthen my memory.
Adaptation and coping with cognitive decline	I try to adapt myself to mental changes.
Adaptation and coping with cognitive decline	I feel that I am active in coping with cognitive decline.

In the first stage of validation, experts in the field of psychology from the Islamic Azad University, Birjand Branch, were invited in 2024–2025 to examine the validity and validation of the proposed educational package developed. To determine the content validation of the proposed educational package, it was provided to 9 professors from the Islamic Azad University, Birjand Branch, who had published several articles on communication skills and problems related to Internet use and had at least 8 years of university teaching experience. After examining the face validity of the program, they presented their corrective comments regarding the proposed educational package in detailed written form. To examine the content validity of the proposed educational package quantitatively, in a way that made it possible to assign scores to each session, it was provided to the same professors, and they were asked to review each training session in order to obtain the CVI and CVR and determine the content validity of the package.

Given that in the present study 9 experts were used to examine the content validity of the items of the cognitive decline questionnaire for older adults, the score obtained for the CVR index should not be less than 0.78. The results showed that the CVR value of all questionnaire items ranged between 0.78 and 1, indicating appropriate content validity of this questionnaire. The total content validity score was

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obtained as 0.78; therefore, the designed questionnaire had appropriate validity.

Furthermore, given that 9 experts were used in the present study to examine the CVI index, if an item had a value lower than 0.79, that item had to be removed. At this stage, the researcher used the mean opinions of the professors, who assigned a score from 1 to 4 to each item, to calculate the CVI index. The content validity of the cognitive decline questionnaire for older adults was determined for each item based on the experts' views, and the obtained CVI value was 0.89, indicating appropriate content validity of the questionnaire developed by the researcher.

To examine the reliability of the qualitative section, two coders were used separately. After the coding process was completed, the results were compared, and Holsti's coefficient (1969) was used to evaluate the reliability of coding. The reliability obtained through this method is calculated according to the following formula: PAO = 2M / (n1 + n2) × 100. PAO is the reliability coefficient, or percentage of observed agreement; M is the number of agreements in the two stages of coding; n1 is the number of units coded in the first stage; and n2 is the number of units coded in the second stage. According to Holsti, an obtained percentage above 70% indicates appropriate coding reliability in the qualitative section.

PAO = 2(20) / (22 + 25) × 100

Accordingly, the reliability coefficient obtained through two stages of coding with a one-month interval was 85%. In this study, the number of codes agreed upon in the two stages of coding was 20 codes; the number of units coded in the first stage was 22 codes, and the number of units coded in the second stage was 25 codes.

4. Discussion

The aim of the present study was to identify the components of cognitive decline from the perspective of older adults through a qualitative approach and to use the extracted components as the basis for designing a researcher-developed questionnaire. The findings showed that the lived experience of cognitive decline among older adults was organized into 20 initial codes, 9 subthemes, and 9 main themes. The main themes included core cognitive decline, decline in executive functions and information processing, attentional impairments, communicative-linguistic impairments, spatial cognitive impairments, decline in cognitive functioning in daily activities, emotional consequences of cognitive decline, psychosocial consequences of cognitive decline, and adaptation and coping with cognitive decline. These results indicate that older adults do not perceive cognitive decline merely as a decline in memory; rather, they experience it as a multidimensional phenomenon that affects thinking speed, decision-making, concentration, language, orientation, technological functioning, emotional security, social relationships, and daily independence. This finding is consistent with contemporary models of cognitive aging, which emphasize that age-related cognitive changes should be understood across the life course and in relation to neurocognitive, compensatory, contextual, and psychosocial mechanisms (Reuter-Lorenz & Park, 2024).

The first major theme, core cognitive decline, included everyday forgetfulness, forgetting names, forgetting appointments, misplacing personal belongings, difficulty recalling new information, and perceived changes in memory and thinking. This finding shows that memory-related complaints remain the most salient and recognizable signs of cognitive decline from the perspective of older adults. Participants frequently described forgetfulness in ordinary daily situations, such as entering a room and forgetting the purpose, forgetting appointments, confusing names, or needing notes to remember routine tasks. These findings are consistent with previous research showing that daily memory lapses are common experiences in adulthood and are not merely cognitive events, but also affect emotional states and self-perception (Mogle et al., 2019). The emphasis on new information and names also aligns with research indicating that memory difficulties in later life are often expressed through problems with encoding, retrieval, and everyday recall, especially when the information is recent, unfamiliar, or socially embedded.

The emergence of decline in executive functions and information processing as a major theme also confirms that cognitive decline is experienced through more than memory complaints. Participants reported slower thinking, reduced speed in solving problems, greater hesitation in decision-making, and difficulty managing several tasks. These results are consistent with studies emphasizing processing speed as a core mechanism in adult cognitive aging. Processing speed affects performance across multiple domains, including reasoning, working memory, attention, and executive control, and age-related slowing may reduce the efficiency of daily decision-making and problem-solving (von Bastian et al., 2022). The findings also support the broader literature on cognitive frailty, which considers cognitive weakness as a risk factor for loss of independence and functional

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dependency in older adults (Ruan et al., 2015). When older adults experience slowed thinking and executive inefficiency, they may require more time, repetition, external cues, and family support to perform tasks that were previously automatic.

Another important result was the identification of attentional impairments as a separate component of cognitive decline. Participants described reduced concentration, distractibility, mental fatigue, difficulty following conversations, and reduced patience during daily activities. This result is compatible with evidence suggesting that cognitive performance in aging is influenced by sleep, fatigue, mood, and health-related factors. Sleep changes in later life are strongly related to memory, attention, and cognitive control, and insufficient or poor-quality sleep may intensify subjective cognitive complaints (Mander et al., 2017). In addition, Iranian evidence has shown that cognitive decline and executive functioning in older adults can be predicted by social isolation, physical activity, and dietary habits, which supports the interpretation that attention and concentration problems are connected to lifestyle and psychosocial conditions (Mahmoudi et al., 2023). Thus, attentional decline should not be interpreted only as a neurological symptom; it may also reflect fatigue, inactivity, loneliness, emotional distress, and reduced cognitive stimulation.

The findings also identified communicative-linguistic impairments, particularly difficulty finding words, as a meaningful component of cognitive decline. Older adults reported that words sometimes did not come to mind, that they paused during speech, or that they forgot what they intended to say. This finding aligns with clinical and theoretical discussions of anomia, which is recognized as a language-related difficulty that can occur in normal aging, mild cognitive impairment, and neurodegenerative conditions (Laine & Martin, 2023). It is also consistent with research emphasizing the role of semantic assessment in distinguishing late-life depression from Alzheimer's disease and amnestic mild cognitive impairment (Invernizzi et al., 2023). The presence of language-related complaints in the participants' narratives suggests that older adults may interpret word-finding difficulty not only as a communication problem but also as evidence of cognitive weakening. Therefore, language-related indicators should be included in culturally relevant instruments designed to assess cognitive decline among older adults.

Spatial cognitive impairments were another major theme extracted from the interviews. Participants referred to difficulty finding familiar routes, confusion in streets, need for notes or assistance in navigation, and anxiety in unfamiliar environments. This result indicates that cognitive decline is experienced in relation to place, movement, and spatial independence. The finding is consistent with studies showing that cognitive frailty is associated with impairment in activities of daily living and functional limitation among older adults (Shimada et al., 2016). It is also compatible with evidence linking cognitive frailty with brain changes, including white matter hyperintensities, among memory clinic patients (Sugimoto et al., 2019). Spatial disorientation can be particularly distressing because it directly threatens autonomy and safety. In the present study, participants' statements showed that reduced navigation ability may lead to avoidance of unfamiliar routes, reduced mobility, and increased reliance on family members.

The theme of decline in cognitive functioning in daily activities showed that cognitive decline is also perceived through practical difficulties, especially in using electronic devices, mobile phones, televisions, new household appliances, banking systems, and administrative procedures. This result reflects the contemporary context of aging, in which technological demands increasingly shape autonomy and daily functioning. The finding supports the view that cognitive decline should be examined not only through clinical symptoms but also through its practical consequences for independent living. It also corresponds with research on cognitive frailty as a clinically important condition associated with vulnerability, dependency, and functional consequences (Holland et al., 2025). Among older adults with chronic disease, such as cardiovascular disease, cognitive frailty may further complicate health management, adherence, and daily functioning (Ijaz et al., 2024). Therefore, the inclusion of applied cognitive skills in the questionnaire is justified, because it reflects how cognitive changes are experienced in real-life environments.

The emotional consequences of cognitive decline formed another major theme in this study. Participants described anxiety, worry, fear of worsening, irritation, loss of confidence, and concern about forgetting important matters. This finding is consistent with previous studies on anxiety about aging and fear of old age. Evidence from Iranian older adults has shown that anxiety about aging is a measurable psychological construct and requires culturally appropriate psychometric evaluation (Pakpour et al., 2021). Broader studies have also shown that aging anxiety may be influenced by socioeconomic status and perceived vulnerability, indicating that fear of decline is shaped by

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both individual and contextual factors (Yang & Ge, 2025). Similarly, fear of old age has been documented among adults, reflecting concerns about dependency, deterioration, and loss of control (Costa, 2025). The present findings show that cognitive decline may activate these fears because memory failures and reduced mental efficiency can be interpreted as signs of future dependency or irreversible deterioration.

The psychosocial consequences of cognitive decline were also clearly reflected in the findings. Participants described changes in family relationships, reduced social interaction, concern about others noticing their forgetfulness, loneliness, decreased confidence, sleep problems, physical inactivity, and reduced quality of life. This finding is consistent with the literature showing that social relationships have a significant effect on cognitive decline in older adults (Piolatto et al., 2022). Social isolation, reduced activity, and weaker interpersonal engagement can decrease cognitive stimulation and may accelerate perceived cognitive weakness. The findings also align with research suggesting that fear of loneliness in old age may motivate older adults to engage in preventive social activities (Kim-Knauss et al., 2024). At the same time, the feedback of family members and others may intensify older adults' concerns about cognitive decline. This issue is especially important in societies where family members play a central role in the care and daily monitoring of older adults. Attitudes toward older adults among health-related professionals and students may also affect how cognitive changes are interpreted, supported, or normalized (Banimahdi et al., 2019).

The final major theme was adaptation and coping with cognitive decline. Participants reported using notes, reminders, lists, family support, mental exercises, walking, social conversations, and learning new skills with younger family members. This finding indicates that older adults are not passive in the face of cognitive decline; rather, they actively use compensatory strategies to preserve autonomy and reduce distress. This result is consistent with the scaffolding perspective of cognitive aging, which emphasizes compensatory mechanisms and adaptive reorganization across the life course (Reuter-Lorenz & Park, 2024). It also aligns with evidence that positive psychological training can reduce anxiety and improve social skills and meaning in life among older adults (Yousefpour, 2025). In this regard, coping strategies may protect older adults against the emotional burden of cognitive change and help them preserve self-efficacy. However, when cognitive difficulties are accompanied by self-criticism, shame, or negative self-evaluation, adaptation may be weakened. The literature on self-criticism shows that maladaptive self-evaluative processes are closely linked to psychological distress, which may explain why some older adults respond to cognitive lapses with worry, avoidance, and reduced confidence (Zaccari et al., 2024).

The findings of this study also support the importance of considering lifestyle and health-related determinants in understanding perceived cognitive decline. Participants referred to poor sleep, reduced physical activity, limited social interaction, reduced appetite, stress, and fewer mentally stimulating activities. These statements correspond with research linking cognitive decline with social isolation, physical activity, and dietary habits among older adults (Mahmoudi et al., 2023). Evidence also suggests that micronutrient malnutrition may be associated with mild cognitive impairment, frailty, and cognitive frailty, highlighting the role of nutrition in cognitive aging (Mustafa Khalid et al., 2022). Furthermore, the prevalence of cognitive frailty among Iranian older adults and its association with multiple factors indicates that cognitive decline should be addressed as a public health and gerontological concern, not merely as an individual complaint (Ghanbarnia et al., 2024). The present study adds to this literature by showing that older adults themselves recognize lifestyle, stress, sleep, and inactivity as possible contributors to their cognitive problems.

5. Conclusion

Overall, the results of this study provide a culturally grounded framework for understanding cognitive decline from the perspective of older adults. The identification of 9 main components shows that cognitive decline is experienced as a combination of core memory problems, executive inefficiency, attention deficits, language difficulties, spatial problems, applied functional limitations, emotional distress, psychosocial consequences, and coping efforts. The development of a researcher-made questionnaire based on these components is therefore consistent with the qualitative findings and provides a basis for future psychometric evaluation. The reported content validity indices also support the preliminary adequacy of the instrument. The CVR values ranging from 0.78 to 1, the total content validity score of 0.78, the CVI value of 0.89, and the coding reliability of 85% indicate that the extracted components and proposed items had acceptable expert agreement and qualitative dependability. Therefore, the

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findings of this study can contribute to the development of culturally appropriate assessment tools and intervention planning for older adults who experience cognitive decline.

This study had several limitations. First, the participants were selected from older adults living in Districts 1 and 3 of Tehran; therefore, the findings may not fully represent the experiences of older adults in other regions, rural communities, lower socioeconomic groups, or different cultural contexts. Second, the study relied on self-reported experiences obtained through semi-structured interviews, and these reports may have been influenced by emotional state, recall bias, social desirability, or participants' willingness to disclose cognitive problems. Third, although theoretical saturation was achieved after 17 interviews, the qualitative nature of the study limits statistical generalization. Fourth, the questionnaire developed in this phase was examined in terms of content validity and qualitative reliability, but its full psychometric properties, including construct validity, criterion validity, internal consistency, and test–retest reliability, still require further quantitative investigation.

Future studies should examine the psychometric properties of the researcher-developed cognitive decline questionnaire in larger and more diverse samples of older adults. It is recommended that future research use exploratory factor analysis and confirmatory factor analysis to examine the factor structure of the questionnaire and determine whether the 9 extracted components are empirically supported. Future studies should also compare the questionnaire scores with established cognitive screening tools, clinical diagnoses, functional assessments, and indicators of mental health in order to evaluate convergent and criterion validity. Longitudinal research is also suggested to determine whether the identified components can predict future cognitive impairment, functional dependency, emotional distress, or reduced quality of life. In addition, comparative studies across gender, socioeconomic status, educational level, living arrangement, and urban-rural residence can clarify whether the experience of cognitive decline differs across subgroups of older adults.

The findings of this study suggest that professionals working with older adults should assess cognitive decline as a multidimensional experience rather than limiting evaluation to memory complaints. Clinicians, psychologists, gerontologists, occupational therapists, and community health workers should pay attention to changes in executive functioning, attention, language, spatial orientation, technology use, emotional reactions, social relationships, and coping strategies. Screening programs for older adults should include questions about daily functioning, fear of worsening, family feedback, sleep, physical activity, and compensatory behaviors. Interventions should combine cognitive exercises, lifestyle modification, stress management, sleep improvement, social engagement, family education, and practical training for daily tasks such as using electronic devices. Supporting older adults in maintaining autonomy, confidence, and meaningful social participation can reduce the psychological burden of cognitive decline and improve quality of life.

Authors' Contributions

Authors equally contributed to this article.

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

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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