CDT gradually decreased from non-frailty group, pre-frailty group to frailty group, and the differences between groups were significant (P < 0.05). We analyze frailty with multiple cognitive domains. The scores of time orientation, place orientation, attention, calculation capacity, delayed memory and visual space gradually decreased from non-frailty group, pre-frailty group to frailty group, and the differences between groups were significant (P < 0.05); The score of language gradually decrease, the differences between non-frailty and frailty were significant (P < 0.05); Comparing to non-frailty the time orientation scores of pre-frailty group decreased, the difference was significant (P < 0.05); Comparing to pre-frailty group and frailty group, time orientation, place orientation and the visual space scores of the latter group decreased, the difference was significant (P < 0.05).

Conclusions: The prevalence of frailty is high in hospitalized patients over 60 years old, which is closely related to age and education level, and can lead to the decline of total cognitive impairment. In the early stage, it mainly leads to orientation and visual space impairment. With the progression of frailty, it can lead to the impairment in multiple cognitive domains, including time orientation, place orientation, attention, calculation capacity, delayed memory language and visual space. The cognitive impairment causing by frailty may progress to dementia.

**Table 1. Prevalence of Frailty**

| Group   | Samples | Percentage (%) |
|---------|---------|----------------|
| Group 1 | 52      | 23.8           |
| Group 2 | 110     | 49.3           |
| Group 3 | 61      | 27.4           |

Group 1: Non-frailty group, Group 2: Pre-frailty group, Group 3: Frailty group

**Table 2. Correlation between frailty and demographic characteristics**

| Characteristics | Pearson's r | P-value |
|-----------------|-------------|---------|
| Age             | -0.15       | 0.007   |
| Gender          | -0.12       | 0.017   |
| Educational level | -0.13     | 0.006   |
| Monthly income | -0.10       | 0.023   |

**Table 2. Correlation between frailty and multiple cognitive domains**

| Cognitive Domain | Pearson's r | P-value |
|------------------|-------------|---------|
| Time orientation  | -0.10       | 0.005   |
| Place orientation | -0.15       | 0.007   |
| Attention         | -0.15       | 0.007   |
| Calculation capacity | -0.13  | 0.006   |
| Delayed memory   | -0.10       | 0.023   |
| Language          | -0.10       | 0.005   |
| Visual space      | -0.15       | 0.007   |

**Table 3. K-ECog domain and global function scores in normal elderly, aMCI, and DAT**

| Cognitive Domain | Normal (n=268) | aMCI (n=95) | DAT (n=27) | E | F (Effect size) |
|------------------|----------------|-------------|------------|---|----------------|
| Memory           | 2.46 ± 0.06    | 2.43 ± 0.05 | 2.28 ± 0.06 | 0.06 | 0.94         | a = b = c |
| Language         | 1.37 ± 0.04    | 1.37 ± 0.04 | 1.29 ± 0.03 | 0.03 | 0.99         | a = b = c |
| Visuospatial Function | 1.26 ± 0.12 | 1.18 ± 0.12 | 1.15 ± 0.18 | 0.02 | 0.87         | a = b = c |
| EF: Planning     | 1.26 ± 0.17    | 1.21 ± 0.17 | 1.10 ± 0.10 | 0.08 | 0.67         | a = b = c |
| EF: Organization | 1.28 ± 0.04    | 1.28 ± 0.04 | 1.22 ± 0.06 | 0.05 | 0.86         | a = b = c |
| Global Function  | 1.36 ± 0.16    | 1.19 ± 0.16 | 1.10 ± 0.12 | 0.06 | 0.90         | a = b = c |

Values are presented as mean ± standard deviation. K-ECog: Korean-Everyday Cognition, NE: Normal Elderly, aMCI: amnestic MCI, DAT: Dementia of the Alzheimer’s Type, EF: Executive Function

**Table 3. Correlation between frailty and multiple cognitive domains**

| Domain                | Pearson's r | P-value |
|-----------------------|-------------|---------|
| Time orientation      | -0.10       | 0.005   |
| Place orientation     | -0.15       | 0.007   |
| Attention             | -0.15       | 0.007   |
| Calculation capacity  | -0.13       | 0.006   |
| Delayed memory        | -0.10       | 0.023   |
| Language              | -0.10       | 0.005   |
| Visual space          | -0.15       | 0.007   |

**Table 4. K-ECog function scores in normal elderly, aMCI, and DAT**

| Domain                | Normal (n=268) | aMCI (n=95) | DAT (n=27) | E | F (Effect size) |
|-----------------------|----------------|-------------|------------|---|----------------|
| Memory                | 2.46 ± 0.06    | 2.43 ± 0.05 | 2.28 ± 0.06 | 0.06 | 0.94         | a = b = c |
| Language              | 1.37 ± 0.04    | 1.37 ± 0.04 | 1.29 ± 0.03 | 0.03 | 0.99         | a = b = c |
| Visuospatial Function | 1.26 ± 0.12    | 1.18 ± 0.12 | 1.15 ± 0.18 | 0.02 | 0.87         | a = b = c |
| EF: Planning          | 1.26 ± 0.17    | 1.21 ± 0.17 | 1.10 ± 0.10 | 0.08 | 0.67         | a = b = c |
| EF: Organization      | 1.28 ± 0.04    | 1.28 ± 0.04 | 1.22 ± 0.06 | 0.05 | 0.86         | a = b = c |
| Global Function       | 1.36 ± 0.16    | 1.19 ± 0.16 | 1.10 ± 0.12 | 0.06 | 0.90         | a = b = c |

Values are presented as mean ± standard deviation. K-ECog: Korean-Everyday Cognition, NE: Normal Elderly, aMCI: amnestic MCI, DAT: Dementia of the Alzheimer’s Type, EF: Executive Function

**Background:** In the early diagnosis of dementia, an important factor is the evaluation of activities of daily living. The Everyday Cognition (ECog) scale was developed to measure functional changes that are the everyday correlates of specific neuropsychological impairments. This study aimed to examine the validity of the Korean version of Everyday Cognition (K-ECog).

**Methods:** The participants were 268 cognitively normal older adults (NE), 151 amnestic mild cognitive impairment (aMCI), and 77 dementia of the Alzheimer’s type (DAT). The Korean-Mini Mental State Examination (K-MMSE), Korean-Montreal Cognitive Assessment (K-MoCA), and Short form of the Geriatric Depression Scale were administered to all the participants. The K-ECog and Korean-Instrumental Activities of Daily Living (K-IADL) were rated by their informants.

**Results:** Internal consistency (Cronbach’s α) of K-ECog Global Function was 0.93, and its test-retest reliability (Pearson’s r) was 0.73. K-ECog was significantly correlated with K-IADL (0.66), K-MMSE (-0.38), and K-MoCA (-0.26). Confirmatory factor analysis of K-ECog yielded a global and six domain-specific factors that the original ECog proposed. K-ECog Global Function and six domain-specific scores were significantly different across the NE, aMCI, and DAT groups (Table 1). Receiver Operating Characteristic (ROC) curve analyses showed that K-ECog effectively differentiated aMCI and DAT patients from NE, suggesting that K-ECog is as sensitive for detecting functional impairments as K-IADL. The proposed optimal cut-off score to differentiate aMCI from NE was 1.41.

**Conclusions:** K-ECog is proven reliable and valid for clinical use. K-ECog can be used to distinguish very early stages of impaired ADL and cognitive impairment in the community.