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Mini Review Open Access

Developing a Mini-3D (Delirium, Dementia, and Depression) Assessment Scale for the Elderly

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Abstract

This study developed a mini-3D (delirium, dementia, and depression) assessment scale for the elderly. Initially, the research team developed the items of a mini-3D assessment scale based on the findings of an integrated literature review and their teaching and clinical experience during May-October 2017. Later, three experts in the psychiatric and geriatric fields evaluated the mini-3D assessment using a 5-point Likert scale. The content validity index of the mini-3D assessment scale approached 0.83 (4.125/5). Subsequently, the scale was revised by a psychiatrist who had worked in the Center of Geriatrics and Gerontology of Kaohsiung Veterans General Hospital, Taiwan. Finally, the three parts of the mini-3D assessment scale (total score: 17) for the elderly included demographic information as well as items for assessing delirium (red areas; max score: 7), dementia (green areas; max score: 8), and depression (blue areas; max score: 2). After establishing the content validity of the scale in May–October 2017, the research team will continue to construct the reliability and validity of the scale for the elderly in the future. The final goal is to construct the scale's reliability and validity for quickly and easily assessing delirium, dementia, and depression in the elderly in a clinical setting, including long-term care facilities. Future studies could evaluate the scale's generalizability and universality by testing it in other countries.

Keywords: Delirium; Dementia; Depression; Elders; Mild cognition impairment

Introduction

Delirium, dementia, and depression (3D) are common problems among hospitalized elderly patients, especially those who have been transferred from one medical institution to another or to a long-term care facility. The prevalence of delirium is 22% in elderly patients, with dementia ranging from 1.4% to 70% in long-term care depending on the diagnostic criteria [1]. Nie et al. [2] and Blackburn and Bradshaw [3] determined that dementia is the most critical and fast-growing public health problem. Luck et al. [4] identified that mild cognition impairment (MCI) is a high-risk factor for developing dementia. Nie et al. [2] reported that the prevalence of MCI in the elderly is 12.7% in China. In addition to delirium and dementia, studies have shown that 30% of elderly people aged over 65 years had emotional disorders and 64% of hospitalized elderly had depressive symptoms [5-8]. In one study, 36.9% of 111 elderly patients experienced depression, and 45.7%, 36.2%, 22.2% of them lived in nursing homes, intermediate care facilities, and domiciliary care facilities, respectively [9]. In another study, 21.7% of 152 elderly veterans developed depression [10].

Delirium was prevalent in 22%-89% of hospitalized and community-dwelling elderly populations aged 65 years and older with dementia [11]. Research findings accumulated over many years have revealed that elderly people with mild, early-diagnosed, and relapsed depression carry a high risk of dementia [8]. Thus, delirium and depression seem to be related to dementia in the elderly. However, in a clinical setting-be it the intensive care unit (ICU), medical and surgical wards, or long-term care facilities—healthcare professionals are often confused between the symptoms of delirium, dementia, and depression (3D) in the elderly; this is difficult because of numerous overlapping definitions of 3D as well as the various scales developed for the individual diagnosis of 3D. No single and short-cut scale exists that could identify each problem of 3D in the elderly, which inspired this study's research team to construct a reliable, valid, and quick 3D assessment scale.

Literature Review

Process of developing the Mini-3D assessment scale

Initially, the research team developed the items of the mini-3D assessment scale based on the findings of an integrated literature review [12-14] as well as their teaching and clinical experience from May to October 2017. The items of the scale were constructed by selecting part of items from the confusion assessment method-ICU (CAM-ICU) [15], the mini-mental status examination (MMSE) [16], and GDS [6,17], based on the literature and clinical experts identifying as the core items for assessing 3D. Later, three experts in the psychiatric and geriatric fields evaluated the mini-3D assessment on a 5-point Likert scale (ranging from strongly disagree to strongly agree) in terms of the characteristics with respect to clarity, appropriateness, application, simplicity, and generalizability. The content validity index of the mini-3D assessment scale approached 0.83 (4.125/5). Subsequently, the scale was revised again by a psychiatrist who had worked in the Center of Geriatrics and Gerontology of Kaohsiung Veterans General Hospital in Southern Taiwan for a long time; these revisions took place during the comprehensive practicum conference of 2018 integrated care for patients with dementia [18].

Content of the Mini-3D assessment scale

Three parts of the mini-3D assessment scale (total score: 17) included the demographic information as well as items for assessing delirium (red areas; max score: 7), dementia (green areas; max score:

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Themes of Scale	Questions
Demographics	Birth: Year
	Sex: ○Male Female
	Education: ○illiterate ○elementary ○high school ○university ○graduate
	Occupation
	Living areas: ○Country Side ○Urban ○City
	Numbers of Relocation: Times Duration (Short-Long)
	Numbers of Hospitalization: Times Duration (Short-Long)
	Illness: ○Hypertension ○DM ○Kidney Disease ○Others
	Sleeping Pattern: ○Normal ○Difficult onset ○Interrupt ○Awake Early
	Sedatives taken: ○Yes ○No Sleeping pills taken ： ○Yes ○No
Consciousness (1)	Fluctuating change during the past 24 hours dYes (1) ○No (0)
Orientation (5)	Person (1), Time (Year, Month, Day) (3), Place (1)
Short-term Memory	Learn to name three different objects → cover three objects
Attention (6)	19 1 22 5 1 8 1 1 18 20
Short-term Memory (3)	Recall the three objects that were just learned (3)
Emotion/Life (2)	I often experience low moods and cannot be happy (1)
	I have lost interest toward daily life activities and habits (1)

Table 1: The Mini 3D (Delirium, Dementia, Depression) Assessment Scale (Total Score: 17). Current diagnosis of the patient: Delirium ○Dementia ○Depression.

8), and depression (blue areas; max score: 2) in the elderly. The demographics were the birth year, sex, education level, occupation, living area, number of relocations, number of hospitalizations, chronic illness, sleeping patterns, and current use of sedatives and sleeping pills. The red items for assessing delirium included consciousness and attention. For consciousness, the data collector asked the caregiver about the elderly person's state of consciousness during the past 24 hours. For attention, the data collector asked the elderly person to read the numbers 19 1 22 5 1 8 1 1 18 20 one after the other; the desired outcome is to answer at least six numbers correctly. The green items evaluating dementia included orientation and short-term memory. For orientation, the data collector asked the elderly person the following questions: Who is the data collector? What is the current year, month, and day? Where are you right now? For short-term memory, the data collector talked to the elderly person about three different objects and asked them to recall them immediately and after 3 minutes. The blue items for depression included emotional state and life, in the form of the following two statements: I often experience low moods and cannot be happy, and I have lost interest toward daily life activities and habits. The following Table 1 presents the mini-3D assessment scale for the elderly.

Discussion

After establishing the content validity of the mini-3D assessment scale during May-October 2017, our research team will continue to construct the reliability and validity of the scale for the elderly. The final goal is to construct a reliable and valid mini-3D assessment scale for efficiently assessing 3D problems in the elderly. Thus, the mini-3D assessment scale can help distinguish the symptoms of 3D for the elderly in clinical setting with high accuracy and specificity, including in long-term care facilities. The mini-3D scale will be useful for healthcare professionals to quickly and easily assess 3D in the elderly. Future studies could evaluate its generalizability and universality by testing it in other countries.

Conclusion and Suggestions

Our 3D scale may help create case management programs for elderly patients to identify and treat the symptoms of 3D earlier; thus, they may be able to maintain or improve their cognition, mood, and emotion. A systematic review on the efficacy of case management programs for community-dwelling patients with dementia was inconclusive with respect to resource utilization and cost saving [19], but another on the impact of case management programs found that resource utilization and cost saving were related to the efficacy of case management as the integration levels among health care, social service, and intensity of the case management programs [20]. Therefore, our research team can develop an integrated case management program for case managers to assess the symptoms of 3D in elderly patients, along with the multiple team members who can continually design individualized interventions to empower elderly patients to maintain or improve their cognitive function and emotional state.

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