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

Ya-Lie Ku*, Li-Yu Chuang, Shu-Ming Chen and Hui-Ling Wang
College of Nursing, Fooyin University, Kaohsiung, Taiwan

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: 8), and depression (blue areas; max score: 2).
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.

### References

1. Lange Ed, Verhaak P, Meer K (2013) Prevalence, presentation and prognosis of delirium in older people in the population, at home and in long term care: A review. Int J Geriatr Psychiatry 28: 127-134.

2. Nie H, Xu T, Liu B, Zhang Y, Lei T, et al. (2011) The prevalence of mild cognitive impairment about elderly population in China: A meta-analysis. Int J Geriatr Psychiatry 26: 558-563.

3. Blackburn R, Bradshaw W (2014) Music therapy for service users with dementia: a critical review of the literature. J Psychiatr and Mental Health Nurs 21: 879-886.

4. Luck T, Luppia M, Briel S, Riedel-Heller SG (2010) Incidence of mild cognitive impairment: A systematic review. Dement Geriatr Cogn Disord 29: 164-175.

5. Chang SH, Chien NH, Chen MC (2016) Regular exercise and depressive symptoms in community-dwelling elders in northern Taiwan. J Nurs Res 24: 329-336.

6. Colasanti V, Marianetti M, Micacchi F, Amabile GA, Mina C (2010) Tests for the evaluation of depression in the elderly: A systematic review. Arch Gerontol Geriatr 50: 227-230.

7. Hou HM, Yang SH (2014) The effects of listening to music on depression and physiological parameters of hospitalized elderly patient. VGH Nursing 31: 295-305.

8. Weng CF, Lin KP, Chan DC (2014) Geriatric depression and cognitive impairment. J Nurs Heal Res 25: 158-164.

9. Huang HT, Chuang YH, Hseuh YH, Lin PC, Lee BO, et al. (2014) Depression in older residents with stroke living in long-term care facilities. J Nurs Res 22: 111-118.

10. Chang TY, Chueh KH (2011) Relationship between elderly depression and health status in male veterans. J Nurs Res 19: 298-304.
11. Fick DM, Agostini JV, Inouye SK (2002) Delirium superimposed on dementia: A systematic review. J Am Geriatr Soc 50: 1723-1732.

12. Chen SM, Ku YL (2017) Integrated literature review of delirium on the elders. J Gerontol Geriatric Res 6: 1-3.

13. Ku YL, Chuang LY (2017). Integrated literature review of depression in elderly people. J Gerontol Geriatric Res 6: 1-3.

14. Ku YL, Wang HL (2017) Integrated literature review of communication methods of patients with dementia. J Gerontol Geriatric Res 6: 1-3.

15. Inouye SK, Dyck CH, Alessi CA, Balkin S, Siegal AP, et al. (1990) Clarifying confusion: The confusion assessment method. A new method for detection of delirium. Ann Intern Med 113: 941-948.

16. Folstein MF, Folstein SE, McHugh PR (1975) “Mini-mental state”. A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 12: 189-198.

17. Burke WJ, Roccaforte WJ, Wengel SP (1991) The short form of the geriatric depression scale: A comparison whit the 30-item form. J Geriatr Psychiatry Neurol 4: 173-178.

18. Comprehensive Practicum Conference of 2018 Integrated Care for the Dementia Patients in the Center of Geriatrics and Gerontology of Kaohsiung Veterans General Hospital in the southern of Taiwan.

19. Pimouquet C, Lavaud T, Dartigues JF, Helmer C (2010) Dementia case management effectiveness on health care costs and resource utilization: a systematic review of randomized controlled trials. J Nutrition, Health Aging 14: 669-672.

20. Sommer D, Trouve H, Drame M, Gagnon D, Couturier Y, et al. (2012) Analysis of case management for patients with dementia: A systematic review. Alzheimers Dement 8: 426-436.