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Letter to the Editor: Cognitive Assessment and Training in Iranian Retirees: A Study Design Report

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Dear Editor

Mild Cognitive Impairment (MCI) is stated as an intermediate stage between normal aging and dementia [1], affecting 30%-42% of the older adults [2]. MCI may affect memory, language, attention, visuospatial functioning, and executive functions [3]. Previous studies revealed that people diagnosed with MCI could recover their lost cognitive abilities. The reported range of recovery varies from 4% to 15% in clinic-based studies and 29% to 55% in population-based studies. However, the rate of progression to dementia has been reported at 12% in the general population and up to 20% in higher-risk Groups [4, 5].

Several studies report that mental activities such as reading, playing games, or creates arts increase cognitive reserve and decrease the chance of developing symptoms of dementia and Alzheimer disease [6, 7]. Recent studies reveal that a healthy lifestyle [8] and computerized cognitive tasks [9] can improve cognitive functions in the short term and slow progression to dementia in the long term.This study has been designed to evaluate the effects of cognitive training and mental activities on attention, reasoning, and processing speed in Iranian retirees over 50 years old.

Screening tests will be done to construct the cognitive profile baseline of the subjects. We have adopted three self-administered tools. The Integrated Cognitive Assessment (ICA) is the first tool, and for those who cannot complete ICA, Montreal Cognitive Assessment-B (MoCA-B) paper-test will be the alternative choice. MoCA-B enquires participants' attitudes toward their cognition state. Also, the Geriatric Depression Scale (GDS) and a General Health Questionnaire (GHQ) will be used to evaluate the older adults' mental status so that the individuals suffering from depression or any other mental health issues will be referred to a psychiatrist. Our questionnaire also inspects participants' lifestyles. In case of any complication, they will be referred to a physician or nutritionist.

Considering a large number of study participants, four clinics have been selected to run the screening test. The criteria considered are based on a) congruous environment, b) synchronized personnel, and c) convenient geographical location. Two trained psychologists will conduct the tests. The results will be categorized as Normal, MCI, or Demented. If participants cannot complete either MoCA-B or ICA, they will be referred to three neurologists and elderly psychiatrists so that they will report the result by utilizing Functional Assessment Staging Scale (FAST) or dementia staging instrument (Clinical Dementia Rating [CDR]). Participants suffering from

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significant cognitive impairment will be referred to neurologists, elderly psychiatrists, and geriatricians. Participants categorized as 'Normal' and 'MCI' will enter the next phase of the study.

In this phase, they will be divided into two Groups based on their level of education and familiarity with smartphones. The first Group (familiar with smartphones) will be divided into two subGroups: 1) educated participants (certified higher than high school diploma) will be assigned to a) cognitive training by workbook (at least three times a week), b) mobile brain games for 30 minutes (at least three times a week), and c) virtual reality games for 8 sessions (one session every week), 2) undereducated/uneducated participants will be assigned to a) mobile brain games for 30 minutes (at least three times a week), and b) virtual reality games for 8 sessions (one session each week), and c) visual arts training, such as painting, ceramics, crafts, sculpture, or gardening, and Lego-building (three times a week).

The second Group (unfamiliar with smartphones) will also be subdivided into two subGroups, 1) will be trained to work with computers and smartphones and then enter the first Group, 2) will not be trained to work with digital devices, and if they are educated, they will be assigned to cognitive training by workbooks and visual arts training, such as painting, ceramics, crafts, sculpture, or gardening and Lego-building. If they are undereducated/uneducated, they will only be assigned to visual arts training, gardening, and Lego-building.

This course will be conducted in 8 weeks, and the participants should choose two activities and take part in 80% of the program. After the intervention, the participants will be evaluated by ICA and MoCA-B (post-test).

Aging normally leads to a decrease in memory, reasoning, and processing speed; therefore, designing this study has been based on improving these abilities. The course duration will be 8 weeks, and the participants should choose two activities and take part in 80% of the program. After one year, the participants will be followed up by ICA and MoCA-B tests. We hope this study can contribute to improving the cognitive assessment and training of older adults.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Ethics Committee of Tehran University of Medical Sciences.

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Authors contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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