

THE EFFECTIVENESS OF PROTOCOL-DRIVEN COMPUTERIZED COGNITIVE TRAINING PROGRAM FOR IMPROVING COGNITIVE FUNCTION AND PERCEIVED WELL-BEING IN PSYCHOGERIATRIC OUTPATIENTS WITH COGNITIVE DECLINE

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Introduction

As Hong Kong's population ages, cognitive decline among older adults poses increasing challenges to independence and quality of life. The deterioration of cognitive function is frequently accompanied by a parallel decline in mood, manifesting in increased social withdrawal and depressive symptoms, which in turn can exacerbate cognitive decline, creating a vicious cycle. This highlighting the necessity for effective interventions, particularly in psychogeriatric care. Occupational therapy, with its holistic approach, plays a crucial role in addressing this complex interplay by incorporating computer-assisted trainings into treatment modalities. Thus, a protocol-driven Computerized Cognitive Training Program (CCTP) was developed to provide a comprehensive cognitive intervention for psychogeriatric outpatients, offering a resource efficient and non-invasive option to slow decline while enhancing their perceived well-being.

Objective

To evaluate the clinical effectiveness of CCTP in psychogeriatric outpatients for improving:

Cognitive function

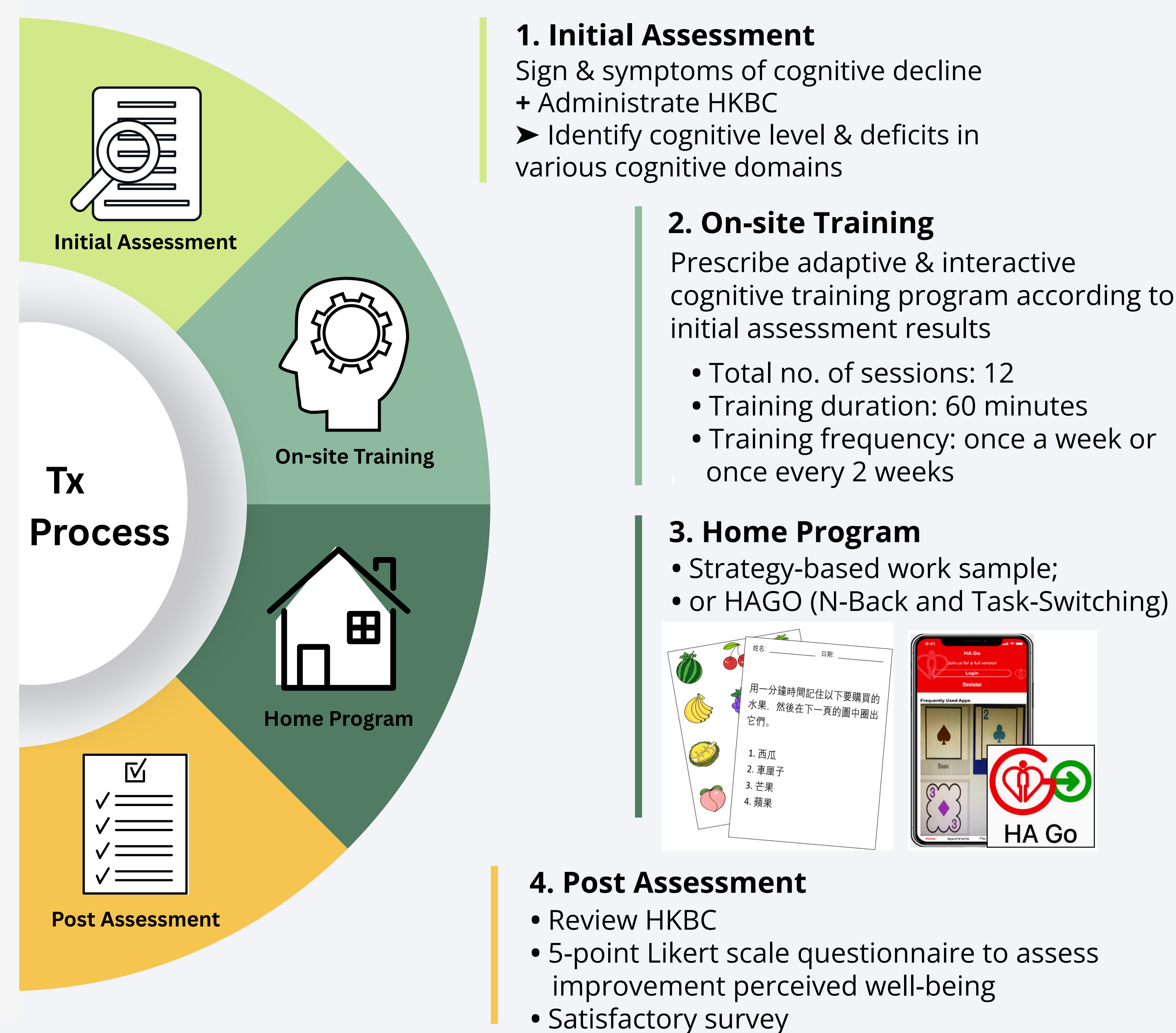


Perceived well-being



Methodology

A pretest-posttest study design was adopted with the Hong Kong Brief Cognitive Test (HKBC) administered as the primary outcome measure for cognitive function. A 5-point Likert scale questionnaire was given to patients during post-assessment for measuring patients' improvement in their perceived well-being. The CCTP is provided based on the following standardized assessment and intervention procedure:



Participants were included in the final analysis if they are: (1) a first-time participant (2) diagnosed with mild cognitive impairment (MCI)/dementia or had subjective memory concerns. Conversely, participants were excluded if they failed to complete 12 sessions.

Results and Outcomes

52 psychogeriatric outpatients (mean age = 79.0 ± 6.1 years) that were recruited from June 2020 to August 2025 meet both criteria. For perceived well-being, 94% of patients rated 4 or above for mood improvement (mean score= 4.32±0.642) (Figure 1), suggesting satisfactory effectiveness in enhancing perceived well-being.

For cognitive function, the program yielded an overall significant improvement (p=0.0240) yet differing effects across diagnostic groups. Among patients with mood disorders as primary diagnosis (n=17), participation in CCTP yielded statistically significant improvement (p=0.0029), whereas patients diagnosed with dementia or MCI (n=35) showed positive trending yet statistically non-significant changes (p=0.2649) (Figure 2). Results suggest CCTP can be an effective intervention for psychogeriatric outpatients with mood disorders in preventing or decelerating cognitive decline while concurrently addressing mood problems. However, the positive trending yet non-significant results in dementia or MCI groups suggested CCTP as a standalone intervention may be insufficient to counteract neurodegenerative progressions. To enhance efficacy for this population, future programs and research can consider the following modifications: adjusting the intervention duration and frequency may be necessary to stimulate meaningful neuroplastic change; incorporating a multi-modal approach that combines computerized cognitive training with other evidence-based interventions, such as physical exercise. Potential limitations of this study include the small sample size, short intervention duration and variability in baseline cognitive levels.

Figure 1.

Score distribution the 5-point Likert scale questionnaire for perceived well-being

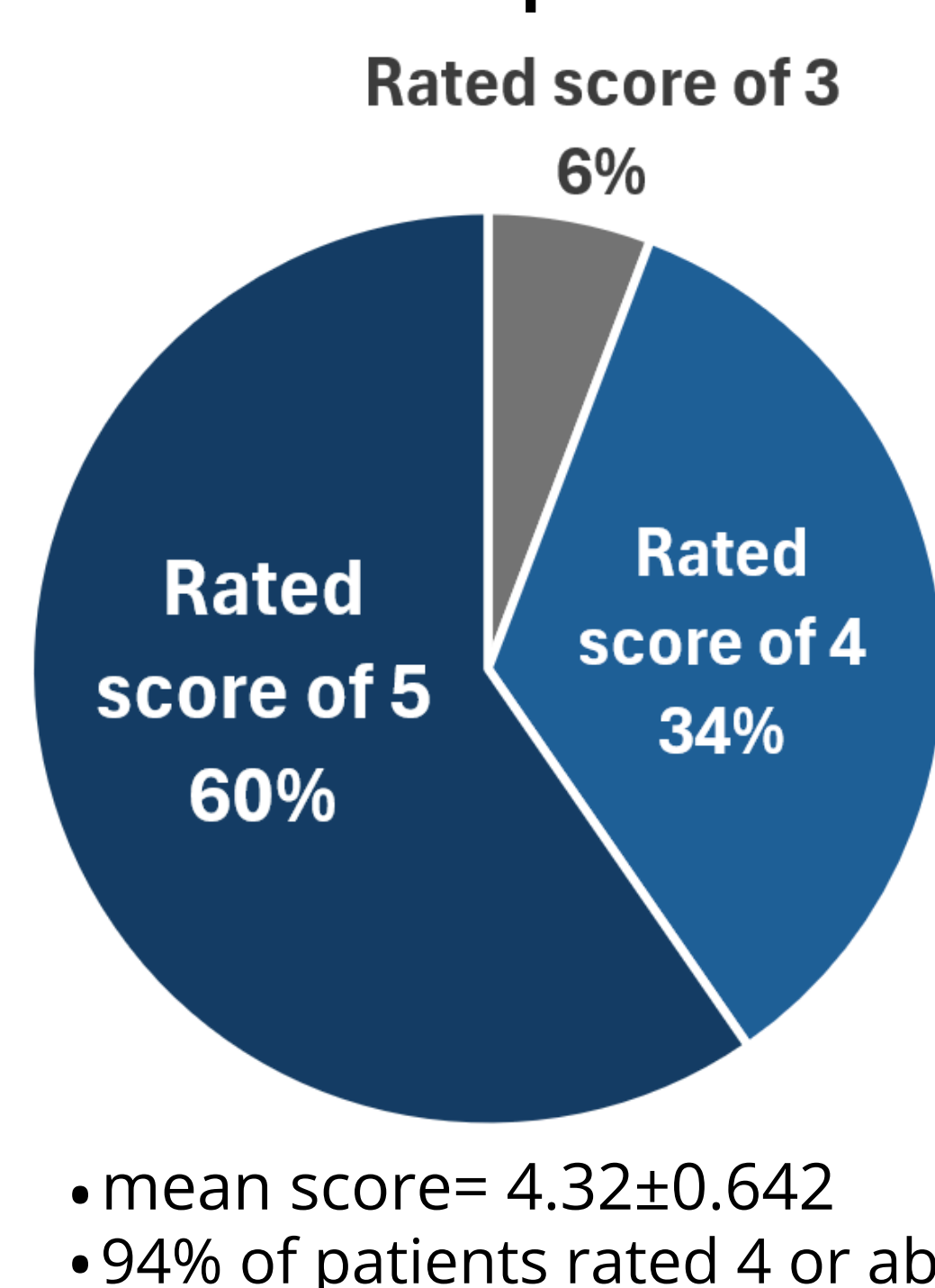


Figure 2.

Comparison of the score of HKBC between different diagnosis

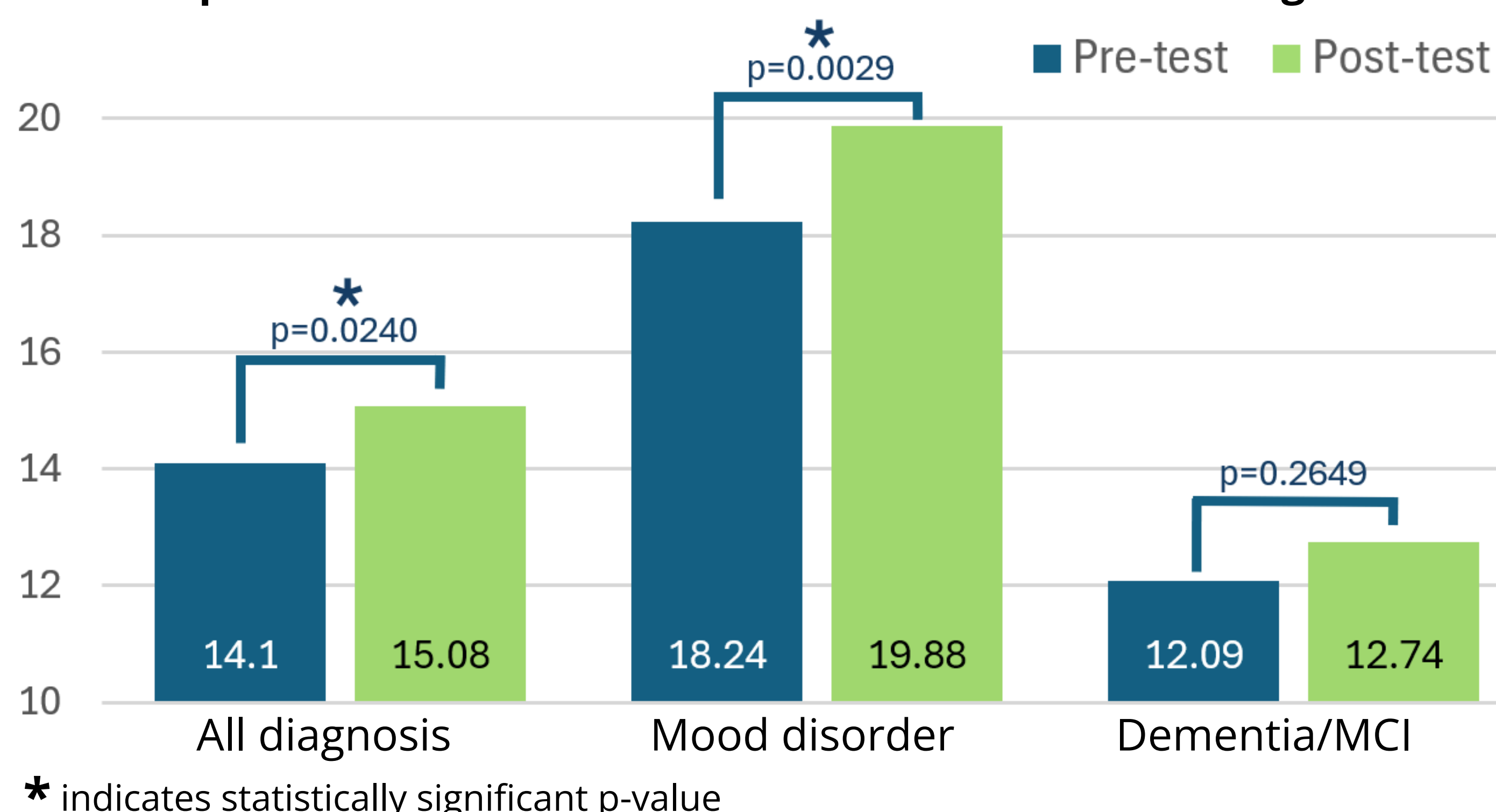


Table 1.

Supplementary results in the 5-point Likert scale satisfactory survey

Subjective improvement in cognitive function	4.54±0.628
Training duration	4.37±0.690
Training frequency	4.41±0.624
No. of sessions	4.29±0.804
Willingness to join again	4.29±0.917