AIMS AND OBJECTIVES

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4.1 AIMS OF THE STUDY

The study investigated the effect of yoga practice on oxygenation changes in the PFC region associated with working memory in T2DM participants. The study also examined the effects of yoga practice on heart rate variability and psychological conditions (rumination and preservative thinking).

4.2 OBJECTIVES OF THE STUDY

The objectives of the study were to assess the effect of 12-week yoga practice in T2DM participants on

- Oxygenation in the PFC region during resting and while performing a working memory task
- Working memory performance – accuracy and reaction time
- Resting-state heart rate variability
- Psychological conditions, namely rumination and perseverative thinking

4.3 JUSTIFICATION OF THE STUDY

The social and economic cost of diabetes is significant, as it is associated with many problems, including vascular diseases and an increased risk of cognitive impairment. Cognition is essential in day-to-day life, and cognitive decline is one of the T2DM complications. Besides pharmaceutical treatment, non-pharmacological approaches such as exercise, diet, yoga, Tai Chi, mindfulness, and cognitive training are increasingly popular as alternative methods of treatment for cognitive improvement due to their safety and fewer side effects. Many studies have shown that yoga improves cognitive functions in healthy and clinical populations. However, there are only a few studies that address cognitive function in T2DM patients. Moreover, the cognitive performance was observed with neuropsychological tests, without investigating the underlying actions of yoga. To our current knowledge, this was the first study to examine the effect of yoga on working memory in T2DM patients and the associated underlying physiological action of yoga.

4.4 HYPOTHESIS

- Yoga may improve working memory performance in T2DM patients
- Yoga may enhance PFC oxygenation associated with improved working memory performance in T2DM patients
- Yoga may improve heart rate variability in T2DM patients
- Yoga may improve psychological conditions in T2DM patients, namely rumination and perseverative thinking

4.5 NULL HYPOTHESIS

- Yoga will not improve working memory performance in T2DM patients
- Yoga will not facilitate PFC oxygenation associated with working memory performance in T2DM patients
- Yoga will not improve heart rate variability in T2DM patients
- Yoga will not improve psychological conditions in T2DM patients, namely Rumination and Perseverative thinking