

## Combined Mindfulness and Exercise Intervention for Depressive and Insomnia Symptoms in Chinese Students: A Pilot Randomized Controlled Trial

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**Abstract :** Background: Body-mind theory refers to the concept that the mind and body are interconnected; in this case, combining aerobic exercise and mindfulness-based training may be beneficial for mind-body health; however, there is limited evidence regarding their effects and potential mechanisms among Chinese university students. Therefore, the current study aims to examine the preliminary effects and feasibility of the combined intervention on depressive and insomnia symptoms, as well as to explore the underlying mechanisms. Methods: This is a two-arm pilot study of a randomized, controlled trial. Sixty-one Chinese university students were randomly allocated to 8-week combined intervention group (aerobic exercise plus mindfulness, N = 36) or control group (N = 36). In addition, 8 participants in combined intervention group were later volunteer to engage in semi-structured interview. The Self-Rating Depression Scale (SDS) and the Youth Self-Rating Insomnia Scales (YSIS) were used to measure depressive and insomnia symptoms, respectively. The intervention outcome and feasibility were tested by repeated-measures ANOVA, mediation model, and qualitative analysis. Results: The study included 31 participants in the intervention group and 30 participants in the control group, all of whom completed pre-test and post-test questionnaires. The results of the repeated-measures ANOVA showed that the combined intervention was effective in reducing depressive and insomnia symptoms among university students. Moreover, the mediation analysis suggested that improvement in insomnia symptoms might be a significant mechanism for the combined intervention. Qualitative analysis identified two main themes: "Helpful aspects of mind-body state" (including 7 sub-themes) and "Factors that influence the training effects" (including 3 sub-themes). Conclusions: The study confirmed the preliminary effect and feasibility of the combined intervention of mindfulness and aerobic exercise, while also exploring the potential mechanisms underlying this effect. Additionally, qualitative data provided valuable insights for optimizing future protocols.

**Keywords :** combined intervention, mindfulness, aerobic exercise, depressive symptoms, insomnia symptoms

**Conference Title :** ICPPW 2023 : International Conference on Positive Psychology and Wellbeing

**Conference Location :** Vancouver, Canada

**Conference Dates :** September 25-26, 2023