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The Effect of Aerobic Exercise Training on the Improvement of Nursing Staff's Sleep Quality: A Randomized Controlled Study

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Abstract : Sleep disturbance is highly prevalent among shift-working nurses. We aimed to evaluate whether aerobic exercise (i.e., walking combined with jogging) improves objective Sleepparameters among female nurses at the end of an 8-week exercise program and 4 weeks after study completion. This single-blinded, parallel design, randomized controlled trial was conducted in the floor classroom of a would-be medical center in northern Taiwan. Sixtyeligible female nurses were randomly assigned to either aerobic exercise (n = 30) or usual care (n = 30) group. The moderate-intensity aerobic exercise program was performed over 5days (60 min per day) a week for 8 weeks after work hours. Objective sleep outcomes including total sleep time (TST), sleep onset latency (SOL), wake after sleep onset (WASO), and sleep efficiency (SE), were retrieved using an Actigraph device. A generalized estimated equation model was used for data analyses. The aerobic exercise group had significant improvements in TST and SE at 4 weeks and 8 weeks compared with baseline evaluation(TST: B = 70.49 and 55.96, both $p < 0.001$; SE: B = 5.21 and 3.98, $p < 0.001$ and 0.002).Significant between-group differences were observed in SOL and WASO at 4 weeks but not8 weeks compared with the baseline evaluation (SOL: B = −7.18, p = 0.03; WASO: B =−11.38, p = 0.008). The positive lasting effects for TST were observed only until the 4-week follow-up. To improve sleep quality and quantity, we encourage female nurses to regularly perform moderate-intensity aerobic exercise.

Keywords : sleep quality, aerobic exercise, nurses, shift work
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