Self-relaxation training can improve sleep quality and cognitive functions in the older: a one-year randomized controlled trial

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Jingxian Sun, Jiaxun Kang, Ping Wang and Hui Zeng

I Background
- There has been a growing interest in the role of mindfulness meditation techniques and their effects on cognitive function and sleep. Furthermore, observational studies have suggested that poor sleep is associated with increased risk of cognitive deterioration. Treatment of sleep disorders, such as insomnia, often requires sedative pharmacotherapy, which carries significant risks in older adults.

II Hypothesis of the study and why important
- A self-relaxation intervention consisting of mindfulness meditation and progressive muscle relaxation will improve sleep
- This improved sleep will lead to cognitive benefits

III Methods review
- Randomized controlled open-label clinical trial, with 40 subjects in each arm (intervention vs control)
- Study duration: One year
- Intervention: Mindfulness meditation incorporating elements of sleep hygiene, progressive muscle relaxation (both via tape): Four 90 min training sessions
- Comparison or control: Sleep hygiene education only (active placebo)
- Inclusion criteria included poor sleep quality (PSQI>5)
- Outcomes chosen (baseline, 3m, 6m, 12m; Repeated measures ANOVA)
  - Sleep: Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS)
  - Cognitive indices: MMSE, Wechsler Memory Scale (only 4 subscales)

IV Results
- Study sample had an average MMSE of 24, 40% without chronic illness
- Excellent adherence: only 5 subjects dropped out over the one year study period
- Study intervention associated with significant improvements in sleep quality and cognitive function (Tables 2, 3, 4 and 5)

V Reviewers Critique
- Study was well designed, with a priori sample size calculations, randomization and an active placebo.
  - Several minor omissions that are surprising: lack of a CONSORT flow chart, insufficient description of the meditation process (such as training, etc.), reliance on the PSQI instead of a sleep diary, and use of the Epworth Sleepiness scale (less accurate in older adults).
- Study participants not screened for sleep apnea, which may have been in up to 30% of the patients.
- Extensive efforts to promote adherence (every 2 weeks)—not feasible in general practice
- Open-label study—difficult to blind study participants to a behavioral intervention

VI Summary for practice implications
- Relaxation techniques, such as mindfulness based stress reduction or progressive muscle relaxation, may be useful aids for sleep in older adults
- Cognitive effects are intriguing and need to be validated in other studies