

## INTRODUCTION

According to the NICE guideline, cognitive behavioural therapy (CBT) is a treatment recommendation for chronic fatigue syndrome/myalgic encephalitis (CFS/ME) [1]. Most of the previous studies assessing the effectiveness of CBT in CFS/ME usually were randomised control trials and focused on fatigue or physical functioning as the primary outcome [2]. Only a few studies focused on interventions improving sleep quality in CFS/ME [3]. We aimed to study the effectiveness of CBT for CFS/ME patients on sleep outcomes in real-world clinical service.

## METHOD

We conducted a retrospective cohort study between 2014 and 2019. The primary outcome was sleep quality and other sleep parameters assessed by the Pittsburgh Sleep Quality Index (PSQI). The data was gathered at baseline, discharge, and 3-month follow-up. A paired samples t-test and the Friedman Test were used to determine the effectiveness of CBT. A linear mixed model was employed to evaluate the effect size of CBT. Finally, we carried out a benchmark study to compare our effect sizes (Cohen's *d*) to similar studies using CBT elements.

## RESULTS

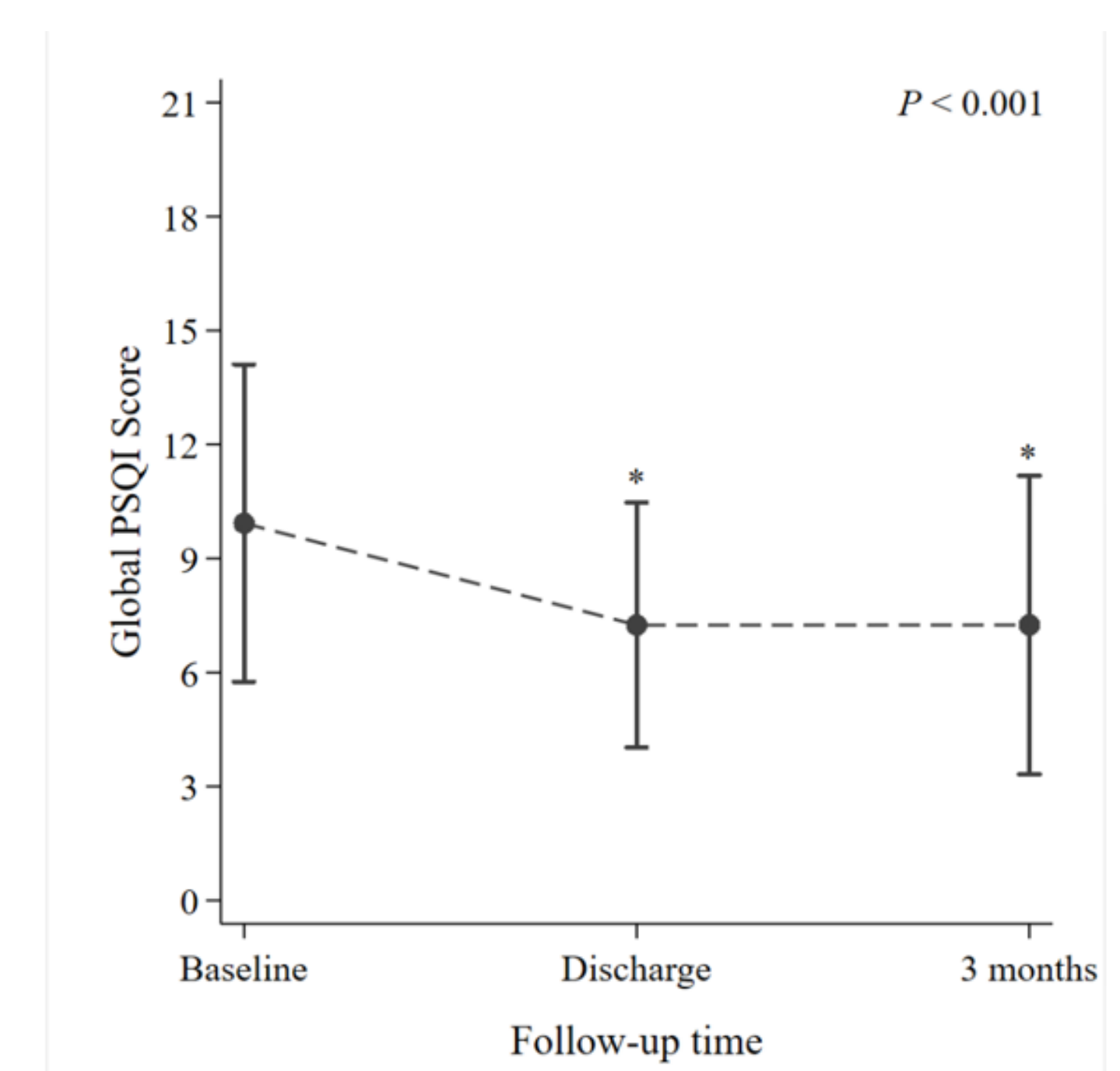
Of 217 participants 85.7% experienced poor sleep quality. CBT had a substantial positive effect on sleep parameters over time. It resulted in a -1.87 point drop in the mean PSQI score (95%CI: -2.29, -1.46) ( $P < 0.001$ ), a -9.85 minute drop in mean sleep latency (95%CI: -14.14, -5.56) ( $P = 0.001$ ), and a 4.93 per cent improvement in mean sleep efficacy (95%CI: 3.17, 6.69) ( $P < 0.001$ ). The effect size (Cohen's *d*) of CBT was 0.72.

Means and Standard deviation at pre-treatment and post-treatment and within-group effect sizes for CBT-based treatment

Study	PPS clinic	White et al. [4]	Gotts et al. [5]	Kallestad et al. [6]
Intervention	individual, CBT	individual, CBT-I	individual, ACT	individual, CBT
Study design	cohort	RCT	RCT	RCT
	n=217	n=161	n=7	n=122
Sleep outcome	PSQI	JSS	ISI	ISI
Pre-treatment: mean(SD)	9.93(4.18)	12.5(4.9)	14.4(4.5)	12(6.07)
Post-treatment: mean(SD)	7.25(3.22)	9.9(4.3)	11.3(5.4)	9.51 (6.12)
Effect size	0.72	0.51	0.62	0.41

PSQI; Pittsburgh Sleep Quality Index, ISI; Insomnia Severity Index; JSS; Jenkins sleep scale

Effect sizes: Cohen's (*d*)



PSQI scores across time points. Error bars of standard error are included.

## CONCLUSION

We found a high prevalence of poor sleep quality in our cohort. In addition, CBT significantly and positively affected sleep parameters, including sleep quality, sleep latency, and sleep efficiency.

## REFERENCES

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