

Sleep disturbances in OCD: Association with non-response to rTMS

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INTRODUCTION

Repetitive transcranial magnetic stimulation (rTMS) is a promising augmentation strategy for treatment-refractory OCD^[1]. However, as the response rate is approximately 35%, it is important to identify predictors of rTMS response. Sleep disturbances are highly prevalent in OCD patients, in particular circadian rhythm sleep disorder (CRSD)^[2]. It is therefore proposed that sleep disturbances may mediate treatment response. The aims of the current study were to compare sleep disturbances between OCD patients and healthy subjects as well as between rTMS responders and non-responders, and most importantly to determine sleep-related predictors of rTMS non-response.

METHODS

Participants and procedure

In this open-label study, 22 OCD patients received at least 10 sessions of rTMS over the supplementary motor area (SMA)^[3] combined with psychotherapy. They were compared to a matched comparison group of 26 healthy subjects to examine sleep disturbance. Sleep disturbances were measured by means of self-report questionnaires (PSQI, HSDQ) and actigraphy. Treatment outcome was measured by monitoring obsessive-compulsive using the Y-BOCS and depressive symptoms using the BDI. Treatment response was defined as a reduction $\geq 35\%$ on the Y-BOCS. Treatment response prediction models were based on measures of CRSD and insomnia.

RESULTS

OCD patients showed a higher rate of sleep disturbances than healthy subjects. The response rate was 55% with Y-BOCS reduction $\geq 35\%$. Responders showed a significantly larger reduction in both obsessive-compulsive and depressive symptoms, whereas sleep disturbance remained more severe in non-responders throughout treatment (see Figure 1). Furthermore, a predictive model based on CRSD could accurately predict rTMS non-response, whereas the insomnia model could not (see Figure 2).

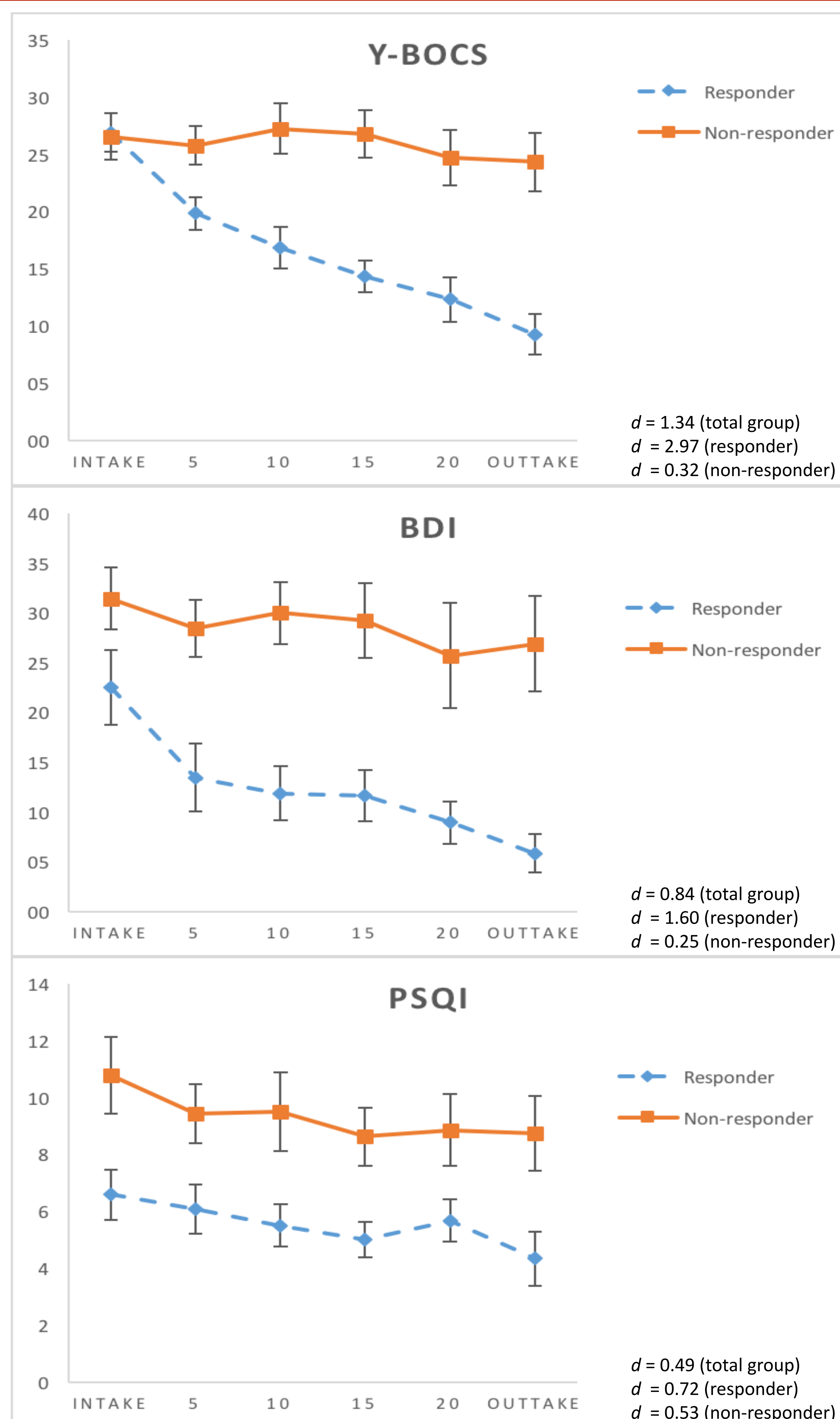


Figure 1. Differences between responders and non-responders in changes over the course of treatment on Y-BOCS, BDI, and PSQI score.

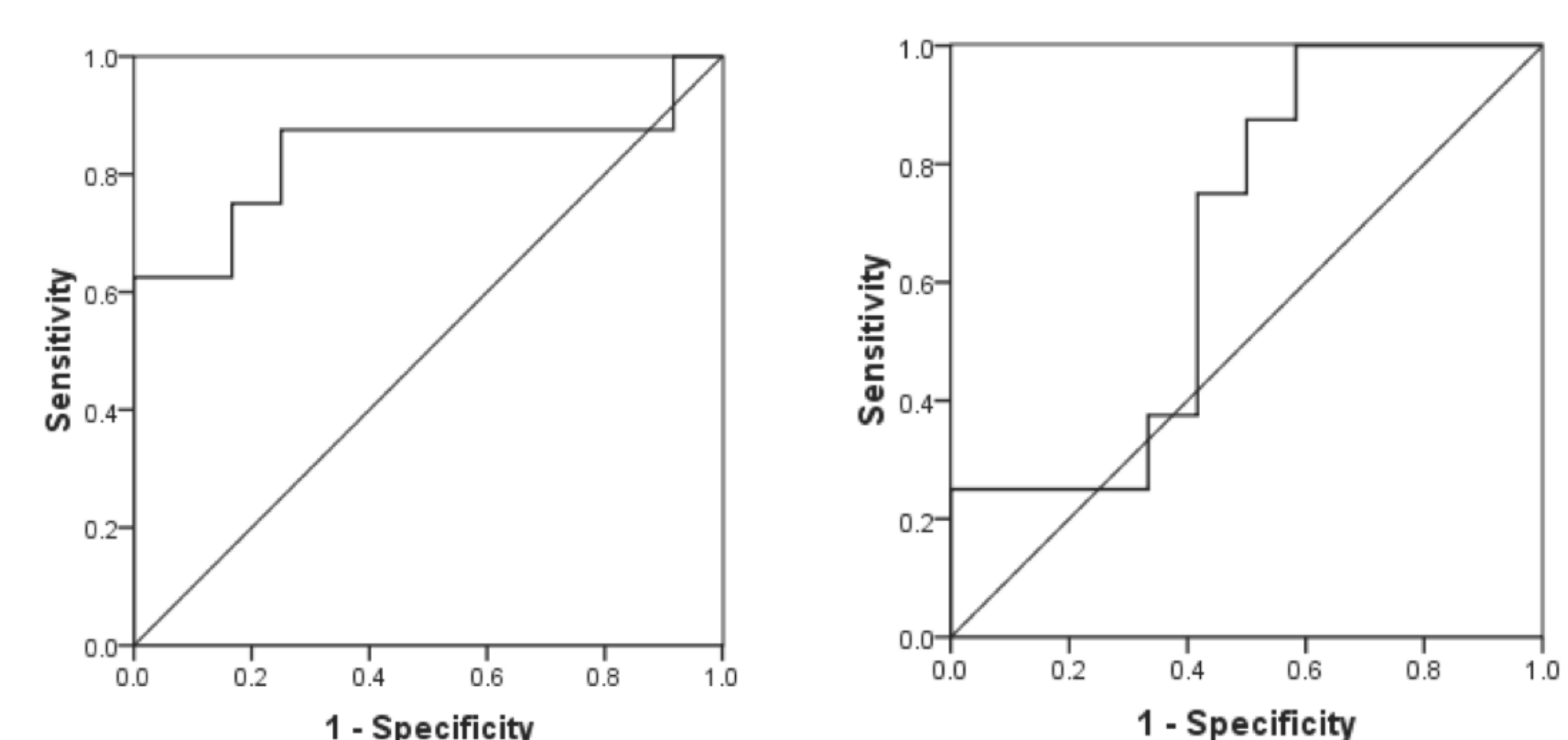


Figure 2. ROC curves of the CRSD model (left) and the insomnia model (right). The CRSD model has a sensitivity of 83.3% and a specificity of 62.5%. The AUC of this model is .83. The insomnia model, in contrast, has a sensitivity of 58.3% and a specificity of 62.5%. The AUC of the insomnia model is .66.

CONCLUSIONS

CRSD in OCD can accurately predict rTMS non-response. Therefore, normalizing circadian rhythms prior to rTMS may enhance treatment efficacy. Furthermore, CRSD may serve as a biomarker for different subtypes of OCD that correspond with response to specific treatment approaches.

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