Abstrak

Latar Belakang : Insomnia merupakan gangguan tidur yang paling umum dibandingkan dengan gangguan tidur lainnya. Salah satu faktor risiko insomnia adalah siswa dewasa muda. *Whole Body Vibration (*WBV*)* frekuensi rendah melalui tempat tidur vibrasi merupakan salah satu pilihan terapi non farmakologi yang menjanjikan untuk penderita insomnia yang tidak memungkinkan untuk minum obat, atau memiliki kendala untuk terapi non farmakologi lainnya.

Tujuan : Mengetahui efektivitas WBV frekuensi rendah dari tempat tidur vibrasi pada remaja insomnia.

Metode : *Randomized Control Trial* dengan *Cross-over design. S*ubyek penelitian adalah remaja Sekolah Menengah Atas Negeri di kota Denpasar yang mengalami insomnia dalam kurun waktu penelitian dan telah memenuhi kriteria eligibilitas. Data dianalisis dengan metode *Intention to Treat Analysis* dan uji hipotesis dengan *t-test* terhadap 2 kelompok berpasangan, dan *Wilcoxon Signed Ranks Test* untuk data yang berdistribusi tidak normal.

Hasil : Pada kelompok WBV didapatkan rerata skor Indeks Severitas Insomnia (ISI) 9,10±4,17 (sebelum) dan 6,63±3,77 (setelah) (p=0,000), rerata skor *Pittsburgh Sleep Quality Index* 8,68±2,99 dan 6,42±2,64 (p=0,000), rerata *Sleep Latency* 28,15±14,90, dan 20,36±14,81 (p=0,000), rerata total waktu tidur 6,47±1,13 dan 7,00±1,26 (p=0,004), rerata kadar kortisol plasma 177,14±77,20 dan 139,68±67,75 (p=0,026). Pada kelompok *Non-WBV* didapatkan rerata skor ISI 7,66±2,82 dan 6,44±3,03 (0,001), rerata skor PSQI 7,50±2,60 dan 6,72±2,66 (p=0,024), rerata *sleep latency* 26,66±12,76 dan 25,83±12,09 (p=0,116), rerata total waktu tidur 6,19±0,82 dan 6,33±0,69 (p=0,126), rerata kadar kortisol 125,16±81,88 dan 166,05±66,70 (p=0,021).

Kesimpulan : WBV frekuensi rendah dari tempat tidur vibrasi secara signifikan dapat menurunkan Indeks Severitas Insomnia, meningkatkan kualitas tidur, menurunkan *sleep latency*, meningkatkan total waktu tidur, dan menurunkan kadar kortisol plasma pada remaja insomnia, serta memiliki efektivitas yang lebih baik daripada tempat tidur *Non* WBV pada semua indikator yang dinilai.

Kata kunci : *Whole Body Vibration* frekuensi rendah, tempat tidur vibrasi, remaja insomnia, Indeks Severitas Insomnia, kadar kortisol plasma

Abstract

Background: Insomnia is the most common sleep disorder compared to other sleep disorders. Young adult students are risk factor for insomnia. Low frequency Whole Body Vibration (WBV) through a vibration bed is one of the promising non-pharmacological therapy options for insomnia sufferers who do not make it possible to take medication, or have problems with other non-pharmacological therapies.

Objective: To determine the effectiveness of low frequency WBV from vibration beds in adolescent insomnia.

Method: Randomized Control Trial with Cross-over design. The subjects of this research were adolescents of senior high schools in the city of Denpasar who experienced insomnia in the study period and had fulfilled the eligibility criteria. Data were analyzed by Intention to Treat Analysis method and tested hypotheses with t-test of 2 groups in pairs, and Wilcoxon Signed Ranks Test for data with abnormal distribution.

Results: In the WBV group, the mean score for Severity Insomnia Index (ISI) was 9.10 ± 4.17 (before) and 6.63 ± 3.77 (after) (p = 0.000), the mean score of Pittsburgh Sleep Quality Index was 8.68 ± 2.99 and 6.42 ± 2.64 (p = 0,000), mean Sleep Latency 28.15 ± 14.90, and 20.36 ± 14.81 (p = 0,000), mean total sleep time 6.47 ± 1.13 and 7.00 ± 1.26 (p = 0.004), the mean plasma cortisol levels 177.14 ± 77.20 and 139.68 ± 67.75 (p = 0.026). In the Non-WBV group, the mean ISI scores were 7.66 ± 2.82 and 6.44 ± 3.03 (0.001), the mean PSQI scores were 7.50 ± 2.60 and 6.72 ± 2.66 (p = 0.024), mean sleep latency was 26.66 ± 12.76 and 25.83 ± 12.09 (p = 0.116), the average total sleep time was 6.19 ± 0.82 and 6.33 ± 0.69 (p = 0.126) , the mean cortisol levels were 125.16 ± 81.88 and 166.05 ± 66.70 (p = 0.021).

Conclusion: Low frequency WBV of vibration beds can significantly reduce the Severity Insomnia Index, improve sleep quality, reduce sleep latency, increase total sleep time, and reduce plasma cortisol levels in adolescent insomnia, and have better effectiveness than Non WBV beds on all indicators assessed.

Keywords: Whole Body Low frequency Vibration, vibration bed, adolescent insomnia, Severity Insomnia Index, plasma cortisol levels