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Data Article

EEG/EOG/EMG data from a cross sectional study on psychophysiological insomnia and normal sleep subjects



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ABSTRACT

The data presented here had been originally collected for a research project entitled ‘Sleep EEG spectral analysis in psychophysiological insomnia and normal sleep subjects’. This article describes the data of 11 subjects, referred to Sleep Disorders Research Center (SDRC) in Kermanshah, Iran. The data includes 14 EEG, 6 EOG, and 3 EMG channels, with a sampling ratio of 256 Hz. It includes power spectral features in segments of 30 s for each channel, and nonlinear analysis parameter. Also, the complete demographic and polysomnography specifications are attached.

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Specifications Table

Subject area	<i>Neuroscience, Neurobiology</i>
More specific subject area	<i>Psychiatry, sleep, psychophysiological insomnia</i>
Type of data	<i>Table, text file, m-file, mat file,</i>
How data was acquired	<i>Polysomnography, Matlab software</i>
Data format	<i>Filtered, analyzed,</i>

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Experimental factors	<i>Sleep questionnaire were used for subjective features. Age, gender, height, weight, education, marriage, and body mass index were used as covariates.</i>
Experimental features	<i>Power spectrum includes delta, theta, alpha and beta bands. Parameters from nonlinear analysis (Poincare's map and standard descriptors).</i>
Data source location	<i>Samples were collected in the Sleep Disorders Research Center in Kermanshah University of Medical Science.</i>
Data accessibility	<i>The dataset is freely available at [1] for any academic, educational, and research purposes.</i> http://dx.doi.org/10.17632/3hx58k232n.4

Value of the data

- The raw data could be processed using algorithms and other procedures during future researches.
- The data represents 8 h of sleep signals (EEG, EOG, and EMG) from 22 subjects; including 11 psychophysiological insomniacs and 11 normal subjects.
- Psychophysiological insomnia is a more prevalent sleep disorder, which leads to clinically significant impairment in social, occupational, and cognitive functions.
- The data can also be used to assess the EEG Sleep Pattern in psychophysiological insomnia patients as well as good sleepers.
- The diagnosis was performed by a sleep clinician, based on subjective and objective sleep features.

1. Experimental design, materials and methods

1.1. Participant

A total of 22 subjects that includes 8 males (36.36%) and 14 females (63.64%) aged between 18 and 63 years (43.2 ± 14.2) were recruited for participation. Out of the participators, 11 patients were suffering from psychophysiological insomnia (18.18% male; age: 44 ± 13.2 years; Body Mass Index (BMI): $26.6 \pm 3.7 \text{ kg m}^{-2}$) and 11 subjects had normal sleep pattern (54.5% male; age: 42.4 ± 15.4 years; BMI: $27.53 \pm 4.24 \text{ kg m}^{-2}$).

The patients were selected from people referred to SDRC, due to insomnia complaints. Normal sleep subjects were recruited from the general population. A detailed written consent was obtained from all participants. Both patients and normal subjects completed their demographic and medical history checklists, including substance and alcohol check as well as psychiatric disorders. For selection of normal subjects, candidates had to first complete the Pittsburgh questionnaire. Preliminary selection was done based on these results. Then, they were further tested using Polysomnography. Finally, subjects who cleared the PSG test round, were selected.

1.2. Procedure

All subjects underwent a one-night polysomnography (PSG) test with the help of SOMNOscreen device called SOMNOscreen™ plus PSG produced by SOMNOmedics GmbH, Germany. The duration of the test was 8 h (23:00–07:00 h), as per standard protocol at SDRC of KUMS, Iran. A day before appointment, the subjects were invited to sleep in the laboratory of SDRC. They were advised against consuming any tea, coffee, heavy diet or cigarette. Sleeping during the day was also prohibited. Upon arriving at the laboratory, the height and weight of the subject was measured by an experienced personnel. Next, the subjects and participants completed the Pittsburgh questionnaire followed by a detailed briefing on PSG procedures. The measurement of PSG was based on the American Academy of Sleep Medicine guidelines. The polysomnography room was cleaned from artefacts like auditory and visual noises, based on standards [1].

24 recording electrodes were prepared, including 14 electroencephalogram channels (C4A1, C3A2, F3, F4, C3, C4, A1, A2, O1, O2, F3A2, F4A1, O1A2, O2A1), 6 electrooculogram channels (EOG1, EOG2,

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