



Research paper

Sleep disorders in patients with depression or schizophrenia: A randomized controlled trial using acupuncture treatment



Peggy Bosch^{a,b,c,*}, Maurits van den Noort^{c,d}, Heike Staudte^b, Sabina Lim^c, Sujung Yeo^e, Anton Coenen^a, Gilles van Luijtelaar^a

^a Donders Centre for Cognition, Radboud University Nijmegen, Montessorilaan 3, 6525 HR Nijmegen, The Netherlands

^b Psychiatric Research Institute, LVR-Klinik Bedburg-Hau, Bahnstraße 6, 47551 Bedburg-Hau, Germany

^c Research Group of Pain and Neuroscience, Kyung Hee University, #47 Gyeonghuidae-Gil, Dongdaemun-Gu, Seoul 130-701, Republic of Korea

^d Brussels Institute for Applied Linguistics, Free University of Brussels, Pleinlaan 2, 1050 Brussels, Belgium

^e Department of Acupuncture & Meridian of Oriental Medicine, Sang Ji University, 83 Sangjidae-gil, Wonju 26339, Republic of Korea

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ABSTRACT

Introduction: The purpose of this preliminary clinical trial was to investigate whether acupuncture has a positive influence on sleep and symptomatology in patients with schizophrenia or depression.

Methods: A randomized controlled trial was conducted. One hundred participants were recruited: 40 outpatients with schizophrenia, 40 with depression, and 20 healthy controls. All completed a depression inventory, and the positive and negative symptoms of the patients with schizophrenia were evaluated by their psychiatrists. All participants were asked to complete a sleep log for two weeks. For the psychiatric patients, a randomized design with experimental (three months of acupuncture treatment) and control (waitlist) conditions was used, after which all measurements were conducted once more.

Results: Before treatment, patients with depression were awake longer during the night, needed more time to fall asleep, evaluated their sleep as less relaxed, felt more exhausted, and reported a lower average performance level compared with healthy controls. Moreover, patients with depression slept less and felt more exhausted than patients with schizophrenia. Patients with schizophrenia reported a lower average performance level compared to healthy controls. Acupuncture slightly improved sleep and depressive symptoms in patients with depression, but did not affect sleep nor influence positive and negative symptoms in patients with schizophrenia.

Conclusion: These preliminary data suggest that acupuncture can be used in order to reduce symptoms and improve sleep to some extent in patients with depression, but due to the lack of comparative data, it is impossible to reliably say anything about its effects for patients with schizophrenia.

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1. Introduction

Epidemiological studies show that approximately 40 million people in the USA suffer from sleep disorders [1] and that 20% to 35% of the population show symptoms that are related to insomnia [2–4]; moreover, 57% of patients with insomnia have a psychiatric disorder or develop one within the next year [2]. A large European study found that 7% of the Europeans suffered from insomnia and 6.9% from depression, and more than 33% of the Europeans suffered from mental disorders [5]. Previous research revealed that insomnia and nightmares are important predictors of depressive

symptoms [6,7], and depressive symptoms are risk factors for insomnia [8]; therefore, the relation between depression and sleep disorders seems to be bidirectional [9–11].

Sleep disorders are found in 30 to 80% of patients with schizophrenia [12] and in more than 80% of the patients with depression [13]. Moreover, problems with sleep are among the complaints that occur most often before a patient has a recurrent episode [14–18]. In their longitudinal study, Sands and Harrow [19] found that about one-third of the patients with schizophrenia suffered from depression, and a depression that was neither recognized nor treated could cause sleep disorders [20].

Compared to healthy controls, patients with schizophrenia were found to have a larger sleep latency in combination with a decreased total sleep time, decreased sleep efficiency, less time in phase-3 and –4 sleep (deep sleep), and longer REM sleep latency [21]. Indications suggest that in patients with schizophrenia,

* Corresponding author at: Donders Centre for Cognition, Radboud University Nijmegen, Postbus 9104, Montessorilaan 3, 6525 HR Nijmegen, The Netherlands.
E-mail addresses: P.Bosch@donders.ru.nl, p.bosch@donders.ru.nl (P. Bosch).

decreased sleep efficiency may be caused by longer sleep latency and an increased number of awakenings during the night [22].

Sleep disorders, especially in vulnerable patients with depression as well as those with schizophrenia, should be treated due to the beneficial overall influence of good sleep [23]. This is not only relevant for these patients, but also for society, because an improvement in sleep is estimated to lead to lower costs; yearly costs for insomnia for the USA alone are estimated to be \$30 to \$35 billion [24].

Different methods exist for the treatment of sleep disorders [25]. Traditionally, pharmacological interventions are used [26]. Benzodiazepines have traditionally been prescribed for sleep and still are. However, due to their high risk of tolerance and addiction, they have given way to a new group of hypnotics including zolpidem, zaleplon, and eszopiclone [27]. Psychological treatments such as stimulus control therapy, relaxation, paradoxical intention, sleep restriction, and cognitive-behavior therapy are used with success where available [28]. One relatively new method in non-Asian countries for the treatment of sleep disorders is the use of acupuncture as a non-pharmacological intervention technique because evidence exists that it may have beneficial effects as a treatment for insomnia [29–31].

The aim of this study was to investigate whether acupuncture has a positive influence on sleep in patients with schizophrenia and patients with depression. Before treatment (at baseline), we expected that patients with depression and patients with schizophrenia would sleep worse than the healthy controls and that, in line with the literature, the patients with depression would have the worst sleep of the three groups. Our hypothesis was that acupuncture would have a beneficial effect on sleep in patients with depression and in patients with schizophrenia and that typical symptoms would decrease.

2. Methods

2.1. Design overview

The study design included three groups: 1. an experimental intervention group of people with either schizophrenia or depression who received individualised acupuncture treatment once a week for a period of three months; 2. a waitlist control group of people with the same diagnosis; and 3. a healthy control group who were assessed to establish reference values for the current cultural and geographical cohort at baseline only.

The study was approved by the local ethics committee (Ärztammer Nordrhein, trial number: 2008331); and the clinical trial was officially registered under number NTR3132 at the Dutch Trial Register (see also <http://www.trialregister.nl/trialreg/admin/rctview.asp?TC=3132>). The study was conducted in accordance to the Declaration of Helsinki (<http://www.wma.net/en/30publications/10policies/b3/>). All participants in the study took part voluntarily without any inducement and could leave the study if they wished to at any time during the trial.

The healthy control participants, the patients with schizophrenia, and the patients with depression were asked to complete a sleep log for two weeks in order to establish a baseline (T1) measurement. The healthy control group was not treated with acupuncture; while no clinical effect of acupuncture could be expected in healthy participants (previous research has shown that acupuncture has a modulating and normalising effect) [32,33], they were only included to establish reference values in the current cultural and geographical cohort and were only used in the tests at T1. In the patient groups, two measurements were taken: before (T1) and after acupuncture treatment or a waitlist period (T2). Participants were required to complete a sleep log every morning

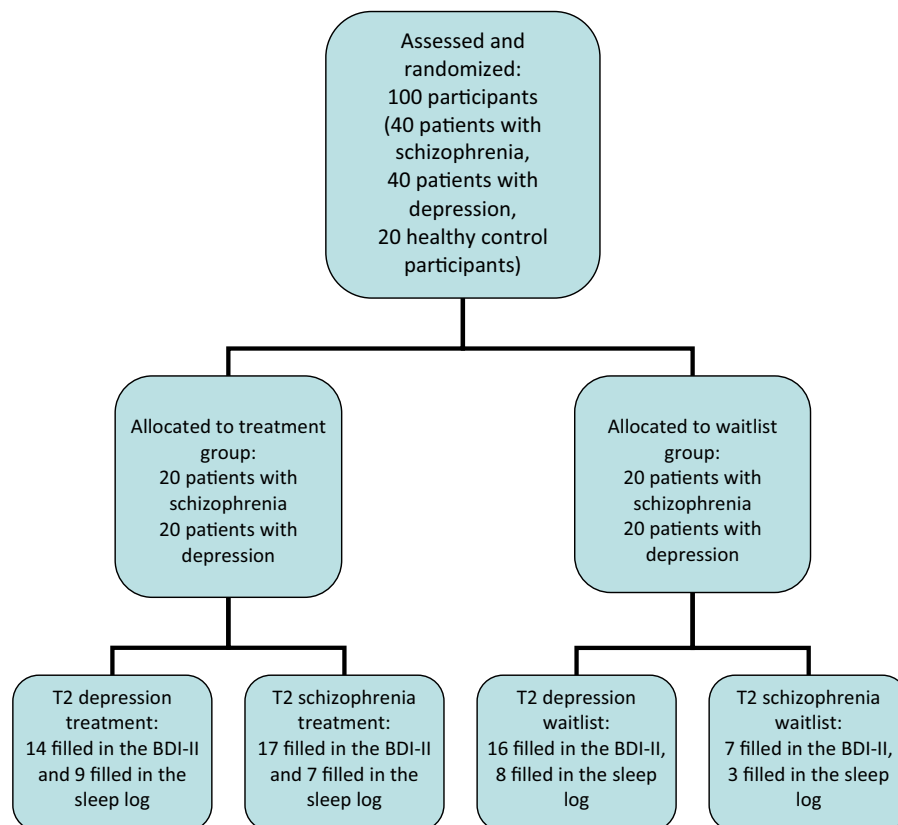


Fig. 1. CONSORT flow diagram. Note that patients felt that too much effort was required to fill in the sleep log every day, which is why they did not return the sleep log. Moreover, many could not be motivated to come to the after-test appointment.

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