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RESEARCH ARTICLE



Schizophrenia, Depression, and Sleep Disorders: Their Traditional Oriental Medicine Equivalents

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Abstract

Psychiatric disorders can be described and treated from both a Western (allopathic) and an Eastern perspective, which should be taken into account when conducting research. Patients with schizophrenia or depression are likely to be undergoing Western treatment when they are referred to an acupuncturist for (add-on) treatment, and knowledge of both types of treatments is necessary to integrate them successfully. In this study, the different Traditional Oriental Medicine (TOM) diagnostic patterns in patients with a Western diagnosis of schizophrenia, depression, or sleep disorders are described from a literature and a clinical perspective. The data on 30 depression and 30 schizophrenia patients from a German study are presented. Our results show that if a psychiatric group, sorted in accordance to Western diagnostic principles, is diagnosed on the basis of TOM diagnostic patterns, it can be categorized into different groups of patients with psychiatric disorders; this finding has far-reaching consequences in scientific research on acupuncture. Moreover, we found a high prevalence of sleep disorders in patients with both

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schizophrenia and depression, which could be explained from the perspective of a TOM diagnostic pattern. Finally, we discuss sleep quality as a treatment objective that may play a crucial role in mediating acupuncture-induced treatment effects in patients with schizophrenia and depression.

1. Introduction

Psychiatric disorders can be described from both a Western (allopathic) and an Eastern perspective. In particular, patients with a Western diagnosis of schizophrenia or depression are likely to be undergoing Western treatment when they are referred to an acupuncturist for (add-on) treatment; therefore, knowledge of both types of treatments is needed for integrating them. Sleep disorders are comorbid with most psychiatric disorders. It is well known that sleep disorders occur in depression, but they are often underestimated in schizophrenia [1]. Research on acupuncture and depression is more difficult than one might think because of the fact that, although patients seem to have the same Western diagnosis, they have different Traditional Oriental Medicine (TOM) diagnostic patterns, creating a heterogeneous group. From a TOM point of view, some patterns are more severe than others, making it logical that acupuncture results differ between the various patient groups within the overall group of patients with depression. In patients with schizophrenia, this is even more extreme because this patient group is already heterogeneous from a Western point of view. Moreover, if standardized treatments are used, these may be more suitable for some patterns than for others. Therefore, in order to further illustrate this point, we discuss the results from two different psychiatric groups (patients with schizophrenia and those with depression), in order to answer the following research questions: what TOM diagnostic patterns can be distinguished in patients who would receive a Western diagnosis of schizophrenia, depression, or sleep disorders; how are these disorders related; and how can acupuncture treatment results be explained from both an Eastern and a Western perspective [2]?

2. Materials and methods

Thirty patients with schizophrenia and 30 patients with depression participated in this study. All patients were outpatients at the LVR-Klinik Bedburg-Hau, which is a large psychiatric clinic in Germany. The patients with schizophrenia were diagnosed with schizophrenia F20.0 (paranoid schizophrenia—28 patients) or F20.5 (schizophrenic residuum—2 patients), and the patients with depression were diagnosed with depression F33.2 according to the International Classification of Disease tenth revision (ICD-10) [3]. Of the 30 patients with schizophrenia, 13 were male and 17 female; of the 30 patients with depression, three were male and 27 female. Note that it is common in Western medicine (WM) that significantly more female than male patients represent with depression [4]. Patient ages were within the range of 19–62 years [mean age = 42.90 years,

standard deviation (SD) = 10.34 years] for the schizophrenia group and 34–64 years (mean age = 49.60 years, SD = 7.51 years) for the depression group. Moreover, the mean duration of illness was 11.40 years (SD = 6.73 years) for the schizophrenia group, with a minimum of 1 year and a maximum of 26 years, and 8.00 years (SD = 6.79 years) for the depression group, with a minimum of 1 year and a maximum of 30 years. None of the participants had ever experienced acupuncture treatment previously. Oral and written informed consents were obtained from all participating adults, and all of them signed a consent form. The Ethics Committee of the Ärztekammer Nordrhein approved the study previously; moreover, the study was conducted according to the Declaration of Helsinki [5]. The *Standard Acupuncture Nomenclature* (http://www.wpro.who.int/publications/pub_9290611057.htm) and the *WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region* (http://www.wpro.who.int/publications/PUB_9789290612487.htm) published by the World Health Organization Regional Office for the Western Pacific were used in our study.

In TOM, schizophrenia is seen in the context of depression mania (diān-kuáng). As early as during the Ming Dynasty, Lǐ Chān stated the following in *Yī Xué Rù Mén*: “Mania patients are ferociously mad. In mild cases they act self-important and self-righteous, and they like to sing and like to dance; in more serious cases they throw off their clothes and run amok, climb walls and mount the roof. In even more serious cases they beat their head (against a wall) and scream, are negligent around fire and water, or can have inclinations to murder. This naturally results from inordinate exuberance of the heart fire, a superabundance of Yang Qi, the spirit failing to keep to its abode, and phlegm-fire congestion and exuberance. The crux of treating mania is to descend phlegm and down bear fire” [6]. During the Tang Dynasty, Sūn Sī Miǎo stated the following in *Qiān Jīn Yào Fāng*: “When wind enters the Yin channels, there is withdrawal (diān). The forms can have many extremes. (Some patients) are taciturn and make no sound, (while others) say many things in effusive speeches. They also may sing or cry, moan or laugh. (They may) also sleep or sit in ditches, eat feces and filth, show their naked bodies (in public), move around all day and night, and ceaselessly curse and cuss” [6].

Patients with schizophrenia often have symptoms of both kuáng and diān illnesses. Their diān symptoms include problems in persistence, less self-motivation, feeling less up for society, deep silence/mutism, weakness in answering questions, problems in forming an opinion about their surroundings, and disinterest in their own appearance. These patients have what WM calls negative symptoms, and they seem to be absent. They can also show kuáng behavior, such as excited movements, disordered

speech, explosive behavior, and spontaneous outbursts in which things are destroyed or people are hurt [7]. In TOM, bipolar disorders are often described as dian and kuóng (“mania and withdrawal”). “Mania” means a hyperactive state in which a patient is excited; the state is characterized by loud, inappropriate, and possibly aggressive behavior. Mania is mainly a result of a hyperactivity of Yang Qi caused by several patterns, such as fire because of Qi stagnation, or empty heat due to Yin deficiency. “Withdrawal” means a state of emotional depression, loss of interest, and loss of appetite, and reduced fluid intake [8]. As can be seen in Table 1 [9,10], several patterns can be distinguished in patients who receive a Western diagnosis of schizophrenia. Table 1 was created based on information from several textbooks [9,10].

From a TOM point of view, almost all patients who suffer from depression from a Western point of view present liver Qi stagnation; however, mostly this stagnation is complicated by stomach disharmony, empty heat, spleen and/or blood deficiency, Yin and/or Yang deficiency, phlegm, dampness, etc. As can be seen in Table 2 [9,10], several patterns can be distinguished in patients who might have received a diagnosis of depression according to WM.

In TOM, insomnia and other sleep disorders are caused by a dysfunction of the heart. Worrying, thinking, or feeling distressed can weaken the heart and spleen, leading to Qi and blood deficiency, and failing to nourish the heart and to house the *shen*, thus causing insomnia. Too much sexual activity weakens the kidneys, and kidney Yin deficiency causes fire, which results in an imbalance of the heart and kidneys, leading to sleep disorders. Another cause can be a poorly functioning stomach and spleen, resulting in

Table 1 Patterns that might receive a Western diagnosis of schizophrenia [9,10].

Yang illness/excess pattern (acute phase)
Yin illness/excess pattern
Liver Qi stagnation with or without liver-blood stasis
Liver-blood heat
Liver fire
Qi deficiency
Qi and blood deficiency
Phlegm and Qi stagnation (with Qi emptiness)
Internal phlegm/dampness, causing an obstruction
Phlegm (and) fire that attack the upper body/phlegm heat harassing the mind
Phlegm misting the mind
Heart–spleen deficiency
Heart-blood heat
Heart-blood stasis
Heart fire
Heart Yin deficiency (with or without empty heat)
Heart and kidney Yin deficiency with heart empty heat
Stomach and heart phlegm fire
Yang emptiness with spleen and kidney deficiency (including phlegm)
Kidney essence deficiency
Yin deficiency not controlling fire
(Internal) blood stasis
Stasis of blood in the lower burner

Table 2 Patterns that might receive a Western diagnosis of depression [9,10].

Liver Qi depression and binding
Liver depression transforming fire
Liver-blood deficiency
Liver Yin deficiency (with empty heat)
Liver fire
Blood movement depression and stagnation
Phlegm misting the mind
Phlegm Qi depression and binding
Phlegm fire (obstructing the Qi)
Depression causing detriment to the heart Qi
Heart–spleen dual vacuity
Heart and lung Qi stagnation
Heart-blood deficiency
Heart Yin deficiency
Stomach and heart phlegm fire
Spleen Yin deficiency
Spleen–kidney Yang deficiency
Kidney Yang deficiency
Kidney Yin deficiency
Kidney and liver Yin deficiency
Kidney essence deficiency
Lung and kidney Yin deficiency
Lung Yin deficiency
Yin vacuity fire effulgence
Qi deficiency
Qi and blood deficiency

dampness and phlegm obstruction and in heat followed by phlegm heat, which disturbs the heart such that it cannot house the *shen*. Moreover, anger leads to liver Qi stagnation; this may lead to liver fire, which disturbs the *shen* and it cannot be housed in the heart; hence, sleep disorders follow. Table 3 [9-11] presents an overview of the patterns that may be found in patients who are diagnosed with a sleep disorder according to WM.

Several sleep tests, such as the Epworth Sleepiness Scale [12], Munich Parasomnia Screening [13], Multiple Sleep Latency Test [14], Pittsburgh Sleep Quality Index (PSQI) [15], and sleep diaries [16], have been developed in WM in order to diagnose sleep disorders. In our study, the PSQI [15] was used in order to indicate the presence of possible sleep disorders from a WM perspective. The PSQI is a self-rated questionnaire that assesses sleep disturbances and sleep quality over a 1-month period. It consists of 19 self-rated questions, and these items are grouped into seven component scores, each weighted equally on a 0–3 scale. The global PSQI score is a summation of these seven component scores, and, as a result, the global PSQI score can range from 0 to 21. Five was originally used as the cut-off score [15], meaning that participants who score below 5 have good-quality sleep; however, in recent years, 6 has become the preferred cut-off score, in order to be more selective [17]. Note that in WM, the PSQI is frequently used as a clinical sleep instrument in schizophrenia [18] as well as in depression [19], and has been found to have high test–retest reliability and good validity [20]. In this study, a cut-off score of 6 was used.

Table 3 Patterns that might receive a Western diagnosis of a sleep disorder [9–11].

Liver-blood deficiency transforming vacuity heat
Liver fire harassing internally (also called internal heat)/ upflaring liver fire
Liver Qi stagnation
Liver-blood stasis
Liver Yin deficiency (with empty heat)
Empty heat/the rising of minister fire/empty fire
Retained heat (in the diaphragm)
Phlegm fire/heat harassing (the mind)
Phlegm by a weakness of the gallbladder
Heart fire effulgence/upflaring heart fire/heart fire blazing
Heart–spleen (blood) deficiency
Heart Yin deficiency
Heart–gallbladder (Qi) deficiency
Heart-blood deficiency
Heart-blood stasis
Heart-blood heat
Heart and lung Qi stagnation
Noninteraction or disbalance between the heart and kidneys
Food stagnation/disharmony of stomach Qi
Stomach and heart phlegm fire
Kidney essence deficiency
Yin deficiency (general)
Qi stagnation (general)
Qi deficiency
Qi and blood deficiency
Blood stasis (general)

3. Results

The 30 patients with schizophrenia showed several main patterns (for a complete overview, see Table 4). The most frequent ones were the following: phlegm misting the mind, phlegm heat harassing the mind, Qi and blood deficiency, and stomach and heart phlegm fire. In diagnosing these patients, it is important to note that most patients had been ill for a long time (more than 5 years). They had taken heavy medication for many years, which complicated the process of diagnosis. As Ronan et al [21] described, a tongue diagnosis sometimes displayed symptoms of stagnation and heat, whereas pulses were weak. Moreover, patterns tend to change with treatments. Therefore, only the patterns that were present at the first treatment are presented here.

The 30 patients with depression displayed the following main patterns (for a complete overview, see Table 4): Qi and blood deficiency and kidney essence deficiency. Note that, also in the patients with depression, diagnosis was sometimes complicated due to long-standing disease patterns and the use of Western medication over long periods of time.

As can be seen in Table 4, the PSQI values (with a cut-off score of 6) [17] showed that of the 30 patients with schizophrenia, 19 (63.33%) suffered from sleep disorders, whereas of the 30 patients with depression, 24 (80.00%) suffered from sleep disorders. In addition, the TOM

diagnosis results of our total psychiatric sample ($n = 60$) showed the following main TOM diagnostic patterns for the patients with sleep disorders: Qi and blood deficiency, kidney essence deficiency, phlegm heat harassing the mind, and phlegm misting the mind.

4. Discussion

In this study, we described the different TOM diagnostic patterns in patients with a Western diagnosis of schizophrenia, depression, or sleep disorders, from a literature and a clinical perspective. As the results of our study showed, several main TOM diagnostic patterns for schizophrenia and depression could be observed in the study population (see Table 4). The most frequent TOM diagnostic patterns in schizophrenia were as follows: phlegm misting the mind, phlegm heat harassing the mind, Qi and blood deficiency, and stomach and heart phlegm fire. The most frequent TOM diagnostic patterns in depression were found to be Qi and blood deficiency, heart Yin deficiency, and kidney essence deficiency.

Research on acupuncture and depression or schizophrenia is difficult to design, conduct, and interpret because of the fact that different patterns can be found within these groups of patients. Some patterns are more severe from a TOM point of view, indicating that acupuncture results may differ between different groups of patients. This finding suggests that the group being treated is very heterogeneous in nature and that the results obtained from any particular group may not be generalizable. To solve this problem, a very large number of patients need to be included, or inclusion criteria need to be very strict. Both points create recruiting problems in clinical practice [22]. One more point that needs attention in conducting a clinical research is the possibility of an appreciable age difference between groups. In this case, the analysis of variance showed that our group with depression was (on average) significantly older (mean age = 49.5 years; SD = 7.60 years) than our group with schizophrenia (mean age = 42.90 years; SD = 10.30 years) [$F(1, 59) = 7.938$, $p < 0.01$].

In addition, as expected, the study results of our psychiatric sample showed a high percentage of sleep disorders in both the depression group (>80%) and the schizophrenia group (>63%) (see Table 4). It is well known in WM that sleep disorders occur in depression [23], but they are often underestimated in schizophrenia [1]. From a Western point of view, logically, when patients sleep better, their concentration improves and they feel better. From a TOM point of view, explaining why both psychiatric groups suffer from sleep disorders is logical and easy. Sleep disorders occur when the *spirit* and *mind* are not calm, and the *shen* cannot house in the heart. When these problems are solved, sleep normalizes, and the whole body moves toward equilibrium. Based on the clinical results of our psychiatric sample, we hypothesize that the effects of acupuncture treatment on patients with schizophrenia and those with depression may be partially mediated through improvement in sleep [24–26].

However, more international [27] and larger studies on acupuncture and schizophrenia [28] and on acupuncture

Table 4 TOM diagnosis results with the TOM diagnostic patterns of our total psychiatric sample ($n = 60$) specified for the patients with PSQI ≥ 6 and without sleep disorders.

TOM diagnostic pattern	Number of patients	PSQI < 6	PSQI ≥ 6
<i>Group with WM diagnosis of schizophrenia</i>			
Phlegm misting the mind	4	1	3
Phlegm heat harassing the mind	4	1	3
Qi and blood deficiency resulting in phlegm misting the mind	4	2	2
Stomach and heart phlegm fire	4	3	1
Qi and blood deficiency	3	1	2
Heart-blood (Yin) deficiency	2		2
Liver fire	2		2
Liver Yin deficiency with liver Yang rising	2		2
Heart and kidney Yin deficiency	1	1	
Heart and stomach Yin deficiency	1	1	
Kidney essence deficiency with upflaring liver fire	1		1
Kidney Yang and Yin deficiency	1		1
Liver Qi stagnation from liver blood and Yin deficiency	1	1	
<i>Group with WM diagnosis of depression</i>			
Qi and blood deficiency	8	2	6
Kidney essence deficiency	4	1	3
Heart Yin deficiency	2		2
Blood deficiency	2		2
Kidney Yang deficiency	2		2
Phlegm fire flaring upward	2		2
Heart fire with empty heat	1	1	
Heart and kidney Yin deficiency with empty heat	1		1
Liver fire	1		1
Liver and kidney Yin deficiency with liver wind	1		1
Liver Qi stagnation leading to liver-blood stasis	1		1
Lung and spleen Qi deficiency resulting in phlegm misting the mind	1	1	
Qi and blood deficiency resulting in phlegm misting the mind	1		1
Stagnation of heart and lung Qi with accompanying phlegm	1		1
Stomach phlegm fire with wind phlegm	1		1
Stomach and spleen Yin deficiency	1	1	

PSQI = Pittsburgh Sleep Quality Index; TOM = Traditional Oriental Medicine; WM = Western medicine.

and depression [29] are needed, in order to better understand the effects of acupuncture in these patient groups and to test the hypothesis that there is a mediating role of sleep improvement in the treatment of patients with schizophrenia and depression [24–26]. The sleep hypothesis may explain the positive effects of acupuncture treatment observed in patients with schizophrenia [2] and depression [30]; thus, treatment of patients with schizophrenia and depression using acupuncture seems to be a promising option.

In this research, we showed that several main TOM diagnostic patterns can be found in patients with schizophrenia and depression. Acupuncture research on patients with depression or schizophrenia is difficult to design, conduct, and interpret; in addition, due to the different TOM diagnostic patterns that are treated within the schizophrenia and depression groups, results differ. Finally, we showed a high prevalence of sleep disorders in our psychiatric sample and discussed sleep quality as a treatment objective that may play a crucial role in mediating acupuncture-induced treatment effects (symptom reductions) in patients with schizophrenia and depression.

Disclosure statement

The authors declare that they have no conflicts of interest and no financial interests related to the material of this manuscript.

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