

# Use of TCM Patterns in Shiatsu Diagnosis and Treatment of Co-morbid Insomnia with Psychological Complaints

Piet Leunis  
Beroepsopleiding Iokai Shiatsu  
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[piet@meridiaanshiatsu.nl](mailto:piet@meridiaanshiatsu.nl)

## **Preface**

Sleep is yin and ruled by the spirit.  
If the spirit is quiet there will be sleep.  
If the spirit is not quiet there is no sleep.

by Zhang Jing-Yue, ancient Chinese physician

## Table of Content

Abstract	3
Introduction	4
Justification of literature and case study	5
Results literature study	9
Insomnia in Western Medicine	9
Insomnia in Traditional Chinese Medicine	14
Results case study	26
Using the Chinese Medicine Insomnia Symptom Checklist	26
Case description	29
Discussion	40
Conclusion	45
References	47
List of Concepts and Abbreviations	50
Annexes	51
Annex 1: Administration literature search	52
Annex 2: Consent form	54
Annex 3: TCM pattern terminology	56
Annex 4: Chinese Medicine Insomnia Symptom Checklist	57
Annex 5: Clinical features top 10 TCM patterns for insomnia	60
Annex 6: Spreadsheet Insomnia Checklist	62
Annex 7: Maria's Chinese Medicine Insomnia Symptoms Checklist	63
Annex 8: Meridians treated per appointment	64
Annex 9: Maria's PSQI compared	65
Annex 10: The case of night sweating	66

## Abstract

Insomnia is a complaint which comes up regularly with clients in a Shiatsu practice, often together with psychological complaints. Research on the efficacy of Shiatsu treatment of insomnia is not available. Having its roots in Traditional Chinese Medicine (TCM) it is assumed that evidence from acupuncture and Chinese herbal medicine could inform the diagnostic process of Shiatsu.

The main question for this case study is if Shiatsu treatment, making use of TCM pattern diagnosis, does contribute to improvement of the sleep quality of a client with insomnia, co-morbid with psychological complaints.

Through literature research both the classification of sleeping disorders and treatment modalities are compared between Western Medicine (WM) and TCM.

In WM cognitive behavioural therapy for insomnia (CBT-I) is recommended as the first-line treatment for chronic insomnia in adults of any age, but is not easily available yet. In this situation alternative therapies which can demonstrate to be effective in improving the quality of sleep are welcome. Shiatsu is a non-invasive holistic therapy which could offer an acceptable alternative.

We learn that TCM uses the differentiation of energy patterns according to the organs, linking specific signs and symptoms to a certain pattern. Both the insomnia and the psychological complaints can be symptoms of the diagnosed disharmony. TCM offers specific treatment principles for each of the TCM patterns. Acupuncture research identified the ten most common patterns in subjects with insomnia and developed a symptom checklist for diagnostic purpose [22].

The client suffered from insomnia, nightmares, fatigue and anxiety. Traumatic stress appeared to be the underlying cause. The TCM pattern diagnosed by using the checklist did correspond with this health condition and was in line with the findings from the Shiatsu back diagnosis. Before focussing on the diagnosed pattern to treat her insomnia it turned out to be necessary to smoothen her traumatic stress first. During a period of 7 months 14 treatments were carried out. Her quality of sleep improved, as did her psychological complaints. With a reduction rate of 58% on the Pittsburgh Sleep Quality Index the clinical efficacy of the treatment was effective.

The case study shows that TCM pattern differentiation by using the Chinese Medicine Insomnia Symptom Checklist can add value to the diagnostic process for Shiatsu treatment of insomnia. Pattern based checklists for other health conditions could be explored in the Shiatsu practice as well.

## Introduction

This case study is an assignment to qualify for a bachelor degree in Iokai Shiatsu. The student should make use of evidence gathered through literature research to inform the diagnose and treatment of a client with a specific complaint.

Insomnia is a complaint which comes up regularly with clients in my practice, often in combination with psychological complaints. Iokai Shiatsu works with the Life Organic Energy Functions of the internal organs. Insomnia is considered as a symptom caused by either a deficiency or excess of energy in one or more organs. How the organs do influence each other in relation to the complaint is not always that clear. This got me motivated to learn more on how Traditional Chinese Medicine diagnoses the cause of insomnia.

In the literature research I discovered a study which identified the top 10 energy patterns in subjects diagnosed with insomnia with their signs and symptoms, which was developed into a symptom checklist. For the purpose of this case study I constructed a table linking each of the patterns to the corresponding symptoms and implemented this in a spreadsheet, so that I could use it during the anamneses of my client.

My client, a 30 years old woman, suffered from sleeplessness, nightmares, fatigue and anxiety. The case study describes the process of diagnosis and treatment, the effect of the Shiatsu treatment on her health condition, the use of TCM patterns in the diagnosis and the influence of her psychological condition on the treatment.

## Justification of literature and case study

The subject of the case study is to evaluate the effect of a Shiatsu treatment on insomnia. In this context I want to use insight from Traditional Chinese Medicine and acupuncture in particular which may contribute to the Shiatsu diagnose and treatment of insomnia.

Insomnia is a complaint which comes up regularly with clients in my practice (which I started two years ago), often together with psychological complaints. This is the case in other Shiatsu practices as well and therefore of interest for the group of Shiatsu therapists in general. The broader group of TCM practitioners may benefit from the literature and case study as well.

In the Iloai Shiatsu education the foundation is laid for a therapist to recognise and treat imbalances of Ki according to the TCM organ theory. Iloai Shiatsu works with the Life Organic Energy Functions of the internal organs. Insomnia is considered as a symptom caused by either a deficiency or excess of energy in one or more organs.

The Shiatsu therapist comes to a diagnosis by ways of Bonshin (observing), Bunshin (listening, hearing), Monshin (asking questions) and Setsushin (by touch). Setsushin can include back diagnosis<sup>1</sup>, hara diagnosis<sup>2</sup>, meridian diagnosis and pulse diagnosis. Setsushin gives the therapist information on the imbalance of separate organs (the condition of the Ki). The therapist has to consider the role of each organ and its interaction with other organs in relation to the complaint. This is not always that clear.

TCM pattern differentiation could support the selection of organs to be treated. In the case study I will make use of a Chinese Medicine Insomnia Checklist which was constructed in a research study [22] identifying the top 10 TCM (energy) patterns causing insomnia. This will be part of the Monshin (asking questions).

*The purpose of the case study is to evaluate the effect of shiatsu on the quality of sleep, making use of TCM pattern differentiation in the diagnostic process. Since insomnia often goes together with psychological complaints, the influence of these on the treatment and the effect of the treatment on those complaints will also be evaluated.*

Main question:

Does Shiatsu treatment, making use of TCM pattern diagnosis, contribute to improvement of the sleep quality of a client with insomnia, co-morbid with psychological complaints?

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<sup>1</sup> Back diagnosis is through palpation of meridian reflex zones on the back of the client

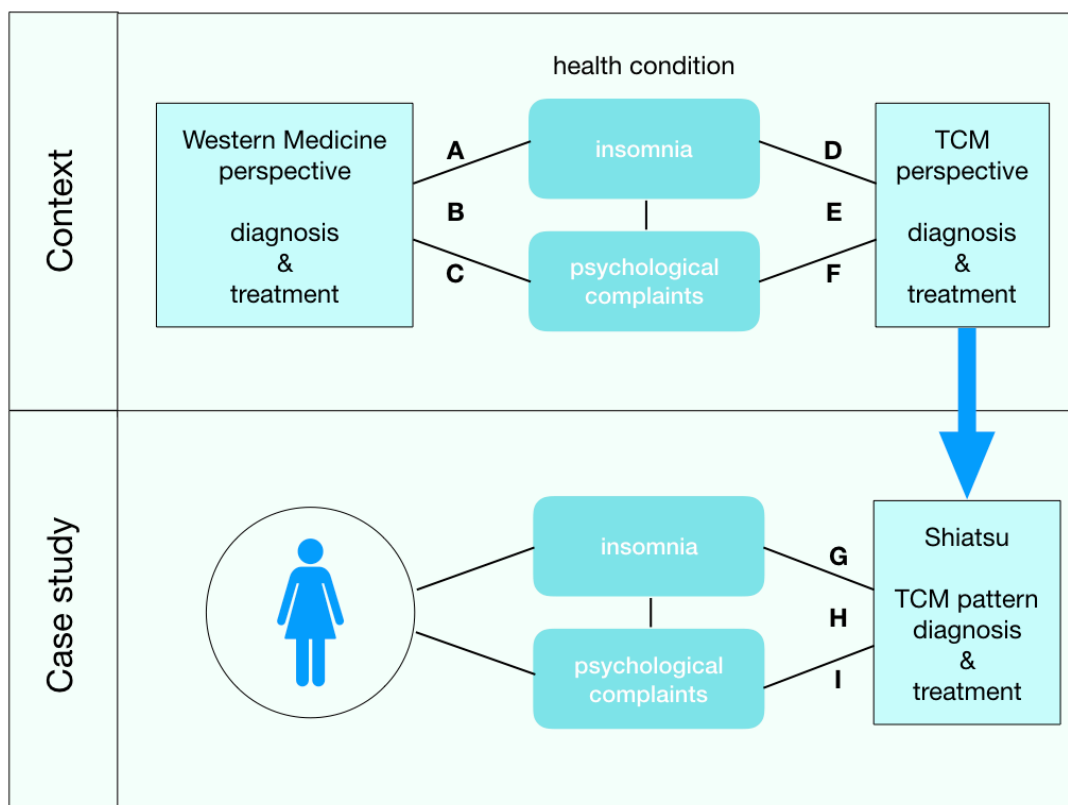
<sup>2</sup> Hara diagnosis is through palpation of meridian reflex zones on the hara of the client, Hara is the area below the navel

Subquestions:

- A. What sleeping disorders are recognised in Western Medicine?
- B. What is the recommended treatment for insomnia in Western Medicine?
- C. How is insomnia co-morbid with psychological complaints evaluated in Western Medicine and what does this implicate for the treatment?
- D. What sleeping disorders are recognised in Traditional Chinese Medicine?
- E. Which treatments based on Traditional Chinese Medicine are there for insomnia?
- F. How is insomnia co-morbid with psychological complaints evaluated in Traditional Chinese Medicine and what does this implicate for the treatment?
- G. What is the effect of Shiatsu treatment on the quality of sleep of the client?
- H. Can TCM patterns for insomnia be used in Shiatsu diagnosis?
- I. How did the psychological complaints influence the treatment and what is the effect of the treatment on the psychological complaints of the client?

The subquestions A - F, dealing with both the Western Medicine and TCM perspective on diagnose and treatment, will be answered in the literature study. The answers provide context for the case study. The TCM perspective will inform the Shiatsu diagnostic process.

The subquestion G, H and I, which are directly linked to the main question, will be answered in the Discussion chapter on the results of the case study.



For the literature study the primary source was the PubMed database. The search process has been administered in Annex 1: Administration literature search. I have used Saved Searches to get alerts on studies and literature after having completed my draft literature study to keep it up to date.

The professional literature used for the literature study and case study is:

- Montakab, Hamid. Acupuncture for Insomnia: Sleep and Dreams in Chinese Medicine [19]
- Maciocia, Giovanni; The Psyche in Chinese Medicine: Treatment of Emotional and Mental Disharmonies with Acupuncture and Chinese Herbs [20]
- Chen Jia-xu, Lara Deasy. Diagnostics in Chinese Medicine [21]
- Johannah Shergis and Xiaojia Ni, Evidence-based Clinical Chinese Medicine: Volume 7: Insomnia [40]
- Lillian Bridges, Face reading in Chinese Medicine [42]
- CT Holman, Treating Emotional Trauma with Chinese Medicine [43]

Studying the *European guideline for the diagnosis and treatment of insomnia* [9] gave me insight in the preferred treatment for insomnia in Western Medicine and its limited availability.

Key for my case study were the results from a review published in 2012 with the title Classification of insomnia using the traditional chinese medicine system: a systematic review. The study identified the top 10 TCM patterns in subjects diagnosed with insomnia with their signs and symptoms. The study team constructed a Chinese Medicine Insomnia Symptoms Checklist. In this case study I have used this checklist to identify the most probable TCM patterns as the cause of the insomnia.

For the selection of the subject/client to be treated in the context of the case study I have applied the following criteria:

Inclusion criteria:

- Sleeplessness with psychological complaints
- Serious sleeplessness due to a combination of subjective sleep quality, latency to sleep, sleep duration, sleep interruptions, use of sleep medication and daily functioning
- Longterm sleeplessness (longer than 3 weeks<sup>3</sup>)
- Treatment process includes intake and a minimum of 4 follow-up treatments

Exclusion criteria:

- Sleeplessness without any apparent cause, caused by medical (non-psychiatric) complaints, situational causes or other sleep disorders like narcolepsy, obstructive sleep apnea disorders or restless legs syndrome
- Clients who parallel follow another therapy for the improvement of their sleep quality

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<sup>3</sup> According to the standard of the Dutch scientific association of family practitioners on Sleep problems and medication insomnia is considered as long-term once the sleep problems have occurred for more than three weeks.



A client of mine, a 30 year old woman, did qualify according to these criteria<sup>4</sup> and agreed to participate and signed a consent form. The model is in Annex 2: Consent form.

To illustrate the use of the Chinese Medicine Insomnia Symptoms Checklist for the insomnia related symptom night sweating (which I will describe in chapter Discussion) I have also asked another client for consent.

To measure the sleep quality of my client at the beginning and the end of the treatment period I have used the Pittsburgh Sleep Quality Index (PSQI) [44] which is a retrospective self reporting instrument, widely used in research and clinical practice.

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<sup>4</sup> In the early stage of the treatment client was receiving psychological support but no therapy focussing on her sleeplessness. At the start of the treatment client took sleep self-medication (melatonine or valerian) once or twice a week, suggested by her psychologist, which is not considered as therapy

## Results literature study

### Insomnia in Western Medicine

*Sub-question: what sleeping disorders are recognised in Western Medicine?*

*Classification systems define sleeping disorders according to the underlying cause (obstruction of breath, circadian rhythm, restless legs) or appearance (day time sleeping). Insomnia is diagnosed if the sleep/wake difficulty is not better explained by one of the other sleep disorder categories. The basic criteria for insomnia include a report of sleep initiation or maintenance problems, adequate opportunity and circumstances to sleep and daytime consequences. Where sleeping problems earlier were considered a symptom of certain physical or psychiatric disorder, insomnia is more and more considered as a disorder on its own.*

There are currently three systems used to classify sleep disorders [1]:

- The International Classification of Sleep Disorders, Third Edition (ICSD-3), published by the American Academy of Sleep Medicine in 2014. [2]
- The Diagnostic and Statistical Manual for Mental Disorders, With Edition (DSM-5), published by the American Psychiatric Association, Washington, DC, 2013. [3]
- The International Classification of Diseases, 10th edition (ICD-10), published by the World Health Organization, Geneva, Switzerland, 1994<sup>5</sup>. [4]

The first major classification of sleep disorders, the Diagnostic Classification of Sleep and Arousal Disorders, published in 1979, organised the sleep disorders into symptomatic categories to form the basis of the current classification systems. In 1990, the *International Classification of Sleep Disorders* (ICSD) was published through the efforts of major international sleep societies at that time, such as the American Sleep Disorders Association (ASDA), European Sleep Research Society, the Japanese Society of Sleep Research, and the Latin American Sleep Society. The ICSD classification, developed primarily for diagnostic, epidemiologic, and at the time, research purposes, has been widely used by clinicians and has allowed improved international communication in sleep disorder research. [5]

The third edition of The International Classification of Sleep Disorders (ICSD-3), published in 2014, includes seven sleep disorder categories [6]:

- Insomnia: chronic insomnia disorder, short-term insomnia disorder and other insomnia disorders;
- Sleep-related breathing disorders: obstructive sleep apnea disorders, central sleep apnea syndromes, sleep-related hypoventilation disorders and sleep-related hypoxemia disorder;

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<sup>5</sup>The ICD-10 system sets aside two areas for sleep disorders: organic (ICD-10 code: G47) and nonorganic (ICD-10 code: F51), but it only includes a few actual sleep disorder diagnoses. Version ICD-11, which is under development, uses a categorisation similar to ICSD-3 and DSM-5.

- Central disorders of hypersomnolence: disorders characterised by excessive day-time sleepiness;
- Circadian rhythm sleep-wake disorders: includes shift work disorder and jet lag disorder;
- Parasomnias: non-rapid eye movement (NREM) related as sleepwalking and sleep terrors and rapid-eye-movement related as nightmare disorder;
- Sleep-related movement disorders as restless legs syndrome and sleep-related leg cramps;
- Other sleep disorders.

Diagnostic criteria for chronic insomnia disorders according to ICSD-3:

- A. The patient reports, or the patient's parent or caregiver observes, one or more of the following:
1. Difficulty initiating sleep.
  2. Difficulty maintaining sleep.
  3. Waking up earlier than desired.
  4. Resistance to going to bed on appropriate schedule.
  5. Difficulty sleeping without parent or caregiver intervention.
- B. The patient reports, or the patient's parent or caregiver observes, one or more of the following related to the nighttime sleep difficulty:
1. Fatigue/malaise.
  2. Attention, concentration or memory impairment.
  3. Impaired social, family, occupational or academic performance.
  4. Mood disturbance/irritability.
  5. Daytime sleepiness.
  6. Behavioural problems (e.g. hyperactivity, impulsivity, aggression).
  7. Reduced motivation/energy/initiative.
  8. Proneness for errors/accidents.
  9. Concerns about or dissatisfaction with sleep.
- C. The reported sleep/wake complaints cannot be explained purely by inadequate opportunity (i.e. enough time is allotted for sleep) or inadequate circumstances (i.e. the environment is safe, dark, quiet and comfortable) for sleep.
- D. The sleep disturbance and associated daytime symptoms occur at least three times per week.
- E. The sleep disturbance and associated daytime symptoms have been present for at least 3 months.
- F. The sleep/wake difficulty is not better explained by another sleep disorder.

Insomnia is diagnosed if the sleep/wake difficulty is not better explained by one of the other sleep disorder categories. The basic criteria for insomnia include (1) a report of sleep initiation or maintenance problems (three or more nights a week), (2) adequate opportunity and circumstances to sleep and (3) daytime consequences.

A distinction is made between short-term insomnia disorder (less than 3 months) and chronic insomnia disorder (more than 3 months). Between short-term insomnia and chronic insomnia only the duration criterion is specific.

Where sleeping problems earlier were considered a symptom of certain physical or psychiatric disorder, in the most recent version of the Diagnostic and Statistical Manual of Mental Disorders, DSM-5, insomnia is considered as a disorder on its own. The DSM-5 Sleep-Wake Disorders Work Group worked closely with other nosology systems (eg, International Classification of Sleep Disorders, third edition [ICSD-3]) to incorporate changes in diagnoses. [7] DSM-5 sleep-wake disorders are now more in sync with other medical disorders and sleep disorders classificatory systems.

Sleep-wake disorders in DSM-5 comprise 11 diagnostic groups:

- Insomnia disorder
- Hypersomnolence disorder
- Narcolepsy
- Obstructive sleep apnea hypopnea
- Central sleep apnea
- Sleep-related hypoventilation
- Circadian rhythm sleep-wake disorders
- Non-rapid eye movement (NREM) sleep arousal disorders
- Nightmare disorder
- Rapid eye movement (REM) sleep behavior disorder
- Restless legs syndrome and substance-/medication-induced sleep disorder

The categorisation in DSM-5 is largely coherent with ICSD-3.

Categorised now as a sleep-wake disorder, insomnia disorder is characterised by difficulty in initiating sleep, staying asleep and/or by waking early in the morning and being unable to get back to sleep.

Criteria to reach a diagnosis of insomnia disorder in DSM-5:

- Unhappiness with the quality or quantity of sleep, which can include trouble falling asleep, staying asleep or waking up early and being unable to get back to sleep
- The sleep disturbance causes significant distress or impairment in functioning, such as within the individual's working or personal life, behaviorally or emotionally
- Difficulty sleeping occurs at least three times a week and is present for at least three months
- The problem occurs despite ample opportunity to sleep
- The difficulty cannot be better explained by other physical, mental or sleep-wake disorders
- The problem cannot be attributed to substance use or medication

In both ICSD-3 and DSM-5 the contrast between primary insomnia and secondary insomnia (insomnia co-morbid with another medical or psychiatric disorder) has been abandoned due to the impossibility to define with certainty the cause/effect relationship between insomnia and the other most often associated, especially psychiatric, clinical conditions. [8]

*Sub-question: what is the recommended treatment for insomnia in Western Medicine?*

*Cognitive behavioural therapy for insomnia (CBT-I) is recommended as the first-line treatment for chronic insomnia in adults of any age, but is not easily available yet.*

According to the *European guideline for the diagnosis and treatment of insomnia* [9] Cognitive behavioural therapy for insomnia<sup>6</sup> (CBT-I) is recommended as the first-line treatment for chronic insomnia in adults of any age. A pharmacological intervention can be offered if cognitive behavioural therapy for insomnia is not sufficiently effective or not available. The recommendations are based on meta-analyses and systematic reviews on a wide range of treatments, including pharmacotherapy, light therapy and complementary and alternative medicine<sup>7</sup>.

The guidelines however stress that CBT-I, though being the first-line treatment for insomnia, is not easily available. It is assumed that only a minority of patients with chronic insomnia will receive this treatment in Europe. Thus, the widespread implementation of CBT-I will be a major challenge for the future. Apart from physicians and clinical psychologists/psychotherapists, other health professionals (e.g. nurses) should be trained in CBT-I. Furthermore, web-based delivery of CBT-I may offer a chance to improve the healthcare situation for patients with insomnia in Europe.

*Sub-question: How is insomnia co-morbid with psychological complaints evaluated in Western Medicine and what does this implicate for the treatment?*

*There is a prevalence of insomnia in various psychiatric diagnostic categories. In contrast to the longstanding view that sleep problems are symptoms of psychiatric disorders, there is growing experimental evidence that the relationship between psychiatric disorders and sleep is complex and includes bi-directional causation.*

*The longstanding view that treating some psychiatric conditions improves sleep is complemented by recent evidence suggesting that treating sleep disturbances can have important effects on the outcome of treatment of psychiatric conditions. If the insomnia is co-morbid with a mental disorder, there should be treatment of both the co-morbid disorder and the insomnia.*

There is a prevalence of insomnia in various psychiatric diagnostic categories. A study in a large cohort of Korean patients with depressive disorders [10] showed that symptoms of insomnia were present in 93% of patients. A study under first-visit patients to a psychiatric clinic in Japan [11] showed the prevalence of insomnia in many psychiatric

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<sup>6</sup> Cognitive behavioural therapy for insomnia usually consists of psycho-education/sleep hygiene, relaxation training, stimulus control therapy, sleep restriction therapy and cognitive therapy. Usually, CBT-I is applied face to face (either on an individual basis or in a group format) by a trained clinician in four to eight sessions.

<sup>7</sup> Complementary and alternative treatments (e.g. homeopathy, acupuncture) are not recommended for insomnia treatment (weak recommendation, very-low-quality evidence).

disorder groups<sup>8</sup>: organic mental disorders, schizophrenic spectrum, mood disorder spectrum, anxiety disorders, dissociative disorder and somatoform disorder.

Psychiatric disorders and sleep are related in important ways. In contrast to the longstanding view of this relationship which viewed sleep problems as symptoms of psychiatric disorders, an article in *Neurologic Clinics* in 2012 [12] stated that there is growing experimental evidence that the relationship between psychiatric disorders and sleep is complex and includes bi-directional causation.

For example, the longstanding view that treating some psychiatric conditions improves sleep is complemented by recent evidence suggesting that treating sleep disturbances can have important effects on the outcome of treatment of psychiatric conditions.

Further, contrary to the prevailing view, some sleep disorders increase the risks of developing episodes of psychiatric disorders. It is also the case that some treatments are used to treat both psychiatric disorders and sleep disorders. Also, some treatments for psychiatric disorders may trigger disturbances of sleep and some treatments for sleep disorders may increase the risks for psychiatric disorders.

With the introduction of insomnia disorder in DSM-5, greater emphasis has been placed on the diagnosis and treatment of sleep disorder even in the presence of a coexisting mental disorder.

Beyond mere symptoms of mental illnesses, a recent study [13] illustrates that a high proportion of psychiatric patients also suffer from clinically significant insomnia disorder. Evidence from the study is indicative of the need for both clinicians and patients to place greater emphasis on addressing insomnia symptoms in this population. Patients should also be educated on the importance of reporting and treating their sleep complaints. Non-medical (cognitive and behavioural) interventions for insomnia need to be further explored given their proven clinical effectiveness.

A recent article in the *Journal of Clinical Psychiatry* [14] emphasises that insomnia is an important consideration when evaluating patients with psychiatric disorders, because many of the symptoms of insomnia and psychiatric disorders overlap. Several of the most common psychiatric disorders include symptoms of irritability, depression, inattention, cognitive impairment and fatigue. These symptoms are also associated with a number of sleep disorders. Furthermore, insomnia and mental illness are frequently co-morbid, and some symptoms may be different to insomnia or the mental health disorder alone. For some patients who do respond to psychiatric treatment, their insomnia persists after their mood symptoms have remitted, indicating that their insomnia needs to be a separate focus of treatment.

According to the *European guideline for the diagnosis and treatment of insomnia* [9], if the insomnia is co-morbid with a somatic or mental disorder, there should be treatment of both the co-morbid disorder and the insomnia.

In the recent years the research community has focussed on the evaluation of the efficacy of CBT-I as independent or additional treatment of insomnia co-morbid with psychiatric disorders. On the one hand to evaluate the value of CBT-I for treating insomnia

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<sup>8</sup>Diagnosed according to the ICD-10 system of the WHO

co-morbid with the psychiatric disorder and on the other hand its added value on the treatment of the co-morbid psychiatric disorder itself.

A review published in 2016 on studies on the effect of Cognitive Behavioural Therapy for Insomnia in psychiatric disorders [15] makes the tentative clinical conclusion that CBT-I can be expected to improve co-morbid insomnia but the effects on other psychiatric symptoms are unlikely to exceed the effects from other psychological interventions. A more recent review [16] concludes that CBT-I in itself presents a promising treatment for depression co-morbid with insomnia. Insomnia improvement due to CBT-I may mediate the improvement in depressive symptoms

Research indicates that treating co-morbid insomnia with psychiatric disorders as anxiety and depression with CBT-I additional to the treatment of the psychiatric disorder improves the sleep quality / quality of life.

In a study [17] to explore the efficacy of cognitive-behaviour therapy for patients with co-morbid generalised anxiety disorder (GAD), initiating treatment for GAD first produced superior clinical benefits in anxiety and sleep. The addition of insomnia-specific treatment led to additional improvements in worry and sleep quality.

Although the efficacy of CBT-I in itself has been confirmed, dissemination depends on the balance of benefits and costs. A study into the cost-effectiveness of CBT-I [18], added to Treatment as Usual (treatment of the co-morbid depression), demonstrated an approximately 95% chance of gaining one more Quality of Life Year if a decision-maker was willing to pay 60.000 USD, and approximately 90% for 40.000 USD. The conclusion was that adding CBT-I is highly likely to be cost-effective for patients with residual insomnia and concomitant depression.

## **Insomnia in Traditional Chinese Medicine**

*Sub-question: what sleeping disorders are recognised in Traditional Chinese Medicine?*

*From a Chinese medicine perspective (sleeping) disorders are caused by patterns of disharmony of energy, excess or deficiency of Qi in the internal organs. Different sleep pathologies are explained by these patterns.*

*In the case of insomnia the dominant types of Qi are Wei Qi and Shen. Wei Qi circulates during the day and the night. During the day it is maintaining muscle tone and mobility. During the night it moves inward and allows the muscles to relax. Shen is the most rarefied form of Qi and called the spirit of spirits or mind and resides in the Heart. Shen represents the sum total of our emotions and is responsible for their manifestation. Therefore, all emotions will effect the Shen and disrupt the Heart and if they are extremely abrupt, intense or persistent, they cause sleep problems.*

*For interior and chronic diseases TCM uses the differentiation of patterns according to the organs, linking specific signs and symptoms to a certain pattern, for diagnose and treatment. In this method insomnia is one of the symptoms prevailing for a certain pattern. A systematic review to examine TCM patterns commonly diagnosed in subjects with insomnia in acupuncture studies identified the ten most common patterns and developed this into a symptom checklist for diagnostic purpose.*

In Traditional Chinese Medicine (TCM), sleep is part of the natural rhythm of yin and yang in the body. Yin and yang are opposites: When we sleep, yin is the dominant force in the body. In the day, when we are active, yang dominates. A sleeping disorder is a disruption to one's natural rhythm of yin and yang.

From a Chinese medicine perspective (sleeping) disorders are caused by patterns of disharmony of energy. These patterns can involve either excess or deficiency of Qi (energy) and Blood in the internal organs, the so called Zang Fu organs. The Zang organs: Heart, Lung, Liver, Spleen and Kidney. The Fu organs: Small Intestine, Large Intestine, Gallbladder, Stomach and Bladder. The Zang organs each houses a spirit (the most rarefied form of Qi): the Heart houses the Shen, the Liver houses the Hun, the Lung houses the Po. If the spirits are disrupted this can cause difficulties sleeping. The same goes for emotions (of which the Qi of the Zang organs constitute the material basis) if extremely abrupt, intense or persistent.

The book *Acupuncture for Insomnia: Sleep and Dreams in Chinese Medicine* [19] categorises the following sleep pathologies:

- Insomnia: inability of Wei Qi to move inward during the night and/or a disrupted Shen;
- Somnolence - Shi Shui: the inability of Yang to ascend, due to an accumulation of Yin in the upper body, or due to Yang deficiency;
- Somnambulism/Sleep-walking - Meng You: a partial disconnection of the Shen during which the Hun (ethereal soul) and Po (corporeal soul) take over. The Hun directs muscular activity;
- Sleep-talking - Meng Yi: a partial activation of the Shen
- Sleep Apnea - Shui Mian Hu Xi Zhan Ting Zong He Zheng: phlegm obstructing the orifices;
- Enuresis (bed-wetting) and Nocturia Polyuria - Yi Niao: sharing the same Zang Fu patterns: Kidney Qi deficiency, Kidney Yang deficiency, Kidney Yin and Spleen Yang deficiency, Spleen Qi and Lung Qi deficiency, Damp-heat in the lower burner and bladder
- Excessive Dreaming - Duo Meng: patterns that tend to disrupt the Shen and especially the Hun causing excessive dreaming. Blood deficiency affecting both the Shen and the Hun is the primary cause.
- Nightmares - Meng Yan: associated with fear, involves the Kidney and consequently the Liver. As the Hun travels at night and is confronted by various life challenges, some of which are perceived as life-threatening, the dream experienced as fearful, hence the nightmare.
- Night Fright/Night Terror - Ye Jing: patterns similar of those for Nightmares
- Dreams of Flying - Meng Fei: Yin deficiency with Yang rising, usually referred to as floating Yang
- Dreams of Falling - Meng Zhuo: deficiency patterns as Kidney Yang deficiency or Kidney Qi deficiency, Spleen and Kidney Yang deficiency
- Sexual Dreams - Meng Jiao: overactivity of Yang Qi causes excessive sexual dreaming
- Circadian Rhythm Desynchronisation: Jet leg and shiftwork: deviation from the mid-day-midnight rhyme as in the Chinese chrono-biological clock of Qi circulation



The 11th edition of the WHO International Classification of Diseases (ICD-11) [39], which is under development, does introduce classifications of Traditional Medicine. Insomnia disorder (SD84) is categorised under Mental and emotional disorders (TM1) and a large number of excess and deficiency patterns are categorised under the group Organ systems (but not yet described).

Sleeping disorders (as other diseases) are considered imbalances of Qi. In the case of insomnia the dominant types of Qi are Wei Qi and Shen.

Wei Qi (or Defensive Qi) protects the muscular surface, defends the body against exogenous pathogenic factors, controls the opening and closing of the pores, moistens the skin and hair, readjusts the body temperature and warms-up the Zang-Fu organs. The Chinese classical text Ling Shi (Spiritual Pivot) describes the circulation of Wei Qi during the day and the night. During the day Wei Qi flows in the so called Sinew Meridians (Jing Jin) which are the external source of energy for the tendons and muscles, maintaining muscle tone and mobility. During the night Wei Qi moves inwards and circulates in the Zang Fu organs. The process of Wei Qi moving from the surface to circulate internally allows the muscles to relax. This process is considered the first stage of sleep.

Wei Qi has a role in physical relaxation. Somatic symptoms, such as teeth grinding, restless legs, bloating, hunger, itching and so on are due to an inability of Wei Qi to move or remain inside during the night. [19]

Shen is the most rarefied form of Qi and called the spirit of spirits or mind. Shen resides in the Heart (one of the Zang Fu organs) and is responsible for consciousness, cognition, thinking and emotional life. Shen represents the sum total of our emotions and is responsible for their manifestation. Therefore, all emotions will effect the Shen and disrupt the Heart if they are extremely abrupt, intense or persistent, causing sleep problems. The Xue or Blood stores the Shen and therefore has a central role in the initiation and maintenance of sleep. This goes together with the responsibility of the Heart for the condition of Xue/Blood. Where Wei Qi has a role in physical relaxation, Shen has a role in mental relaxation. [19]

Although the Heart is the primary organ responsible for regulating sleep on account of its main function being to house the Shen, other Zang Fu organs (and their spirits) influence the Heart and the condition of Xue/Blood as well. Examples are:

- In TCM the Liver houses the spirit Hun, the Ethereal Soul. The Hun is responsible for relationships and our relating to other people in the family and in society. The Hun provides 'movement' to the psych in many ways; movement of the soul out of the body as in dreaming, movement out of one's everyday life as in life dreams and ideas, movement towards others in human relationships, movement in terms of plans and projects. The Hun is rooted in the Liver and in particular Liver-Blood. If Liver-Blood is depleted, the Hun is deprived of its residence and becomes rootless. This can result in insomnia or restless sleep with many dreams. Sleep disturbances linked to excessive dreaming are particularly related to the Hun. [20]
- The Spleen is responsible for producing Xue/Blood. If the Qi of the Spleen is weak/deficient it cannot produce blood and the Heart is not nourished.
- According to the five element theory the Kidney (Water element) controls the Heart (Fire element). If the Kidney Qi is deficient, it cannot cool the Heart fire, subsequent-

ly leading to hyperactivity of the Heart. This is known as Heart-Kidney non-interaction or Disharmony between the Heart and Kidney. [21]

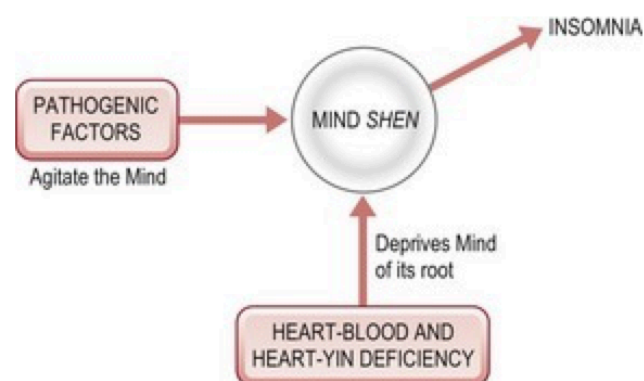
Based on the clinical manifestation of the Zang Fu organs, when the harmony between Qi and Blood is out of balance, TCM uses (the differentiation of) patterns according to the Zang Fu organs, linking specific signs and symptoms to a certain pattern, for diagnosis and treatment. This method of pattern identification is mostly used for interior and chronic diseases<sup>9</sup>.

These patterns do not relate to diseases as one to one. The organ patterns are not like the diseases in biomedicine as they are not just a collection of signs and symptoms, but rather an expression of existing disharmony in a patient. Signs and symptoms are used to identify the characteristics and nature of a disharmony, which can give an indication for the method and strategy to carry out treatment. The goal of this method is to understand how the signs and symptoms arise and how they interact with each other, in order to identify the current organ disharmony. [21]

Most literature and research using Zang Fu organ patterns to diagnose insomnia is related to treatment with acupuncture or Chinese herbs.

Textbooks describe varying patterns which include the symptom insomnia. A textbook on acupuncture for insomnia [19] describes 21 patterns, a textbook on diagnostics in Chinese medicine [21] describes 16 patterns and a book on the psyche in Chinese medicine [20] identifies 14 patterns.

The pathology of insomnia (as that of many other diseases) revolves around Fullness and Emptiness (patterns of excess and deficiency). Empty conditions of insomnia usually involve a deficiency of either Blood or Yin, which deprives the Mind and/ or Ethereal Soul of their residence; Full conditions involve a pathogenic factor (usually Heat/ Fire or Blood stasis) agitating the Mind and/ or the Ethereal Soul. In other words, the Mind and the Ethereal Soul may be restless, either because they are not rooted in Heart- and Liver-Blood/ Yin, respectively, or because a pathogenic factor is agitating them. [20]



PATHOLOGY OF INSOMNIA [20] FIGURE 18.1

<sup>9</sup> Other methods of pattern differentiation in TCM are the eight-principle pattern differentiation, pattern differentiation to aetiology and qi-blood-body fluid pattern differentiation.

A systematic review to examine TCM patterns commonly diagnosed in subjects with insomnia [22] identifies the most common patterns from a total of 103 studies and 9499 subjects. A total of 69 patterns were identified with the top 3 patterns covering 51.8% and the top 10 patterns covering 77.4% of the subjects:

1. Deficiency of both the heart and spleen;
2. Hyperactivity of fire due to yin deficiency;
3. Liver-qi stagnation transforming into fire;
4. Heart-kidney non-interaction;
5. Qi deficiency of the heart and gallbladder;
6. Internal disturbance of phlegm-heat;
7. Liver fire flaming upward;
8. Heart deficiency with timidity;
9. Stomach disharmony;
10. Stomach qi disharmony

In a follow-up study, published in an article in the European Journal of Integrative Medicine [23], the findings of the systematic review were replicated that dual deficiency of the heart-spleen, non-interaction between the heart and kidney, depressed liver qi transforming into fire, and yin deficiency with effulgent fire<sup>10</sup> were most common in the 365 subjects diagnosed with insomnia.

The systematic review further identified clinical features of individual TCM patterns from 37 of the included studies: sleep related, non-sleep related, tongue and pulse features. After grouping similar terms described in the top 10 TCM patterns for insomnia they found:

- 19 different sleep-related symptoms. In the order of frequency, the terms included excessive dreaming, insomnia, difficulty staying asleep, difficulty falling asleep, insomnia with vexation, restless sleep, frequent awakening with a start, half asleep, sleeping late at night, non-refreshing sleep, early-morning awakening, shallow sleep, daytime sleepiness, easy awakening from sleep with difficulty getting back to sleep, inability to sleep for the whole night, difficulty falling asleep alone, difficulty falling asleep at night, nightmare, and difficulty falling asleep with vexation;
- 92 non-sleep-related symptoms. The more frequently mentioned non-sleep-related symptoms, in the order of frequency, included dizziness, palpitation, vexation, poor memory, dry mouth, tinnitus, bitter taste, lassitude, feverish sensations in the palms, soles, and chest, fatigue, backache, timidity, reduction in luster complexion, irritability, poor appetite, constipation, oppression in the chest, reddish eyes, stuffiness in the chest and stomach, headache, tasteless, yellow urine, and sore knees;
- 14 tongue features, in the order of frequency, red tongue, pale tongue, thin coating, yellow coating, slimy coating, scanty coating, and white coating;
- 7 pulse features. Fine pulse was the most commonly mentioned in patients with insomnia followed by rapid pulse, string-like pulse, weak pulse, and slippery pulse.

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<sup>10</sup> note that the names of the patterns are slightly different here, but identify the same patterns

Most of the sleep-related symptoms appeared in more than one TCM pattern, dizziness, vexation, palpitation, tinnitus, and bitter taste were non-sleep-related symptoms that occurred in at least four of the top 10 TCM patterns. Similar findings were there for tongue and pulse features.

An insomnia checklist for TCM diagnostic purpose was constructed, including clinical features of the top 10 TCM patterns. In the context of a follow-up study [23] this checklist<sup>11</sup> was further developed into 92 items, consisting of 13 sleep-related, 61 non-sleep-related, 11 tongue, and 7 pulse items. The non-sleep-related items were subdivided under categories on:

- eating, taste and appetite (12 items);
- emotions (11 items);
- chest and abdominal function (8 items);
- bladder and bowel function (6 items);
- headache, dizziness and tinnitus (6 items);
- coldness, hotness and sweating (5 items);
- menstruation and sexual function (4 items);
- complexion (4 items);
- limbs and back (3 items) and
- energy (3 items).

*Sub-question: which treatments based on Traditional Chinese Medicine are there for insomnia?*

*Acupuncture, Chinese herbal medicine, moxibustion, tuina, acupressure and Shiatsu are treatments rooted in TCM. Although many patients with insomnia benefit from these treatments, the evidence from studies is weak due to methodological flaws.*

*Although the methodology of these treatments may differ, TCM offers specific treatment principles for each of the TCM patterns. Besides differences per pattern, in all treatment principles for insomnia the Shen needs to be calmed.*

The following treatments for insomnia are based on Traditional Chinese Medicine: acupuncture, Chinese herbal medicine, moxibustion, tuina, acupressure and Shiatsu. Although many patients benefit from these treatments, the evidence from studies is weak due to methodological flaws.

Several systematic reviews have been conducted to investigate the efficacy of **acupuncture** in its various forms in treating insomnia. In general, the results of the systematic reviews indicate that many of the studies suffered from methodological flaws. A systematic review [24], published in 2012, concludes as follows:

*Due to poor methodological quality, high levels of heterogeneity and publication bias, the current evidence is not sufficiently rigorous to support or refute acupuncture for treating insomnia. Larger high-quality clinical trials are required.*

Despite these limitations, it appears (in RCTs) that there is some evidence that acupuncture may be useful in the treatment of insomnia. [25]

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<sup>11</sup> The Chinese Medicine Insomnia Symptom Checklist has been included in Annex 4

There also have been certain attempts trying to explain the working of acupuncture treatment for insomnia making use of concepts from Western Medicine.

An article in the Journal of Clinical Sleep Medicine examines the possibility that the autonomous nervous system may serve to mediate acupuncture's beneficial effects in treating insomnia. It suggests possible mechanisms underlying the clinical effects of acupuncture. Hyperarousal has been examined as a correlate of insomnia in cross-sectional studies, with substantial evidence for associated pathophysiology involving both the central nervous system (CNS) and the autonomic nervous system (ANS). Acupuncture has also been shown to modulate the activities of sympathetic and parasympathetic nervous systems that are essential for cardiovascular function. In addition, both basic science and clinical studies have indicated that acupuncture regulates various neurotransmitters and hormonal factors which play major roles in sleep regulation. [26]

An article in the Journal of Alternative and Complementary Medicine explores the relationship between the concept of the Heart in Chinese Medicine as the key organ involved in insomnia and the neurophysiological evidence that supports these ancient theoretical understandings. Despite apparent differences in how the body is understood, there appear to be some points of intersection between the two medical systems. The pathogenesis of insomnia from a Western biomedical perspective is complex, and involves hyperarousal in both the CNS and ANS. The heart is involved, with changes to HRV and heart rate. The vagus nerve plays an important part in communication between the brain and other systems, including the heart, and may play a role in insomnia. There is evidence that acupuncture is able to effect physiological changes in the treatment of insomnia via its impact on the Heart and the heart<sup>12</sup>. [25]

According to a systematic review, overall, oral **Chinese Herbal Medicine** (CHM) used as a monotherapy or as an adjunct to conventional therapies appears safe, and it may improve subjective sleep in people with insomnia. However, the typical effect of CHM for insomnia cannot be determined due to heterogeneity. Further study focusing on individual CHM formula for insomnia is needed. The development of a comparable placebo is also needed to improve the successful blinding in RCTs. [27]

The effectiveness and safety of **moxibustion** for primary insomnia was explored in a systematic review and meta-analysis. It says that it is difficult to get the conclusion regarding the effectiveness and safety of moxibustion for primary insomnia due to insufficient evidence, such as the high risk of bias in the included studies, small sample sizes, and few reports on adverse effects. Moxibustion should be considered as a novel therapeutic option for insomnia, and more rigorous clinical trials of moxibustion therapy for insomnia are needed to assess its effects. [28]

For the evaluation of the efficacy of **tuina** treatment only one study could be identified, exploring the therapeutic effects of a comprehensive therapy of acupuncture-moxibustion and Chinese Tuina treatment for insomnia due to deficiency of both the heart and spleen. Of the 49 cases in the treatment group, 41 cases were clinically cured, 6 markedly effective, and 2 improved. Of the 43 cases in the control group (only receiving

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<sup>12</sup> 'Heart' used for the organ in TCM; 'heart' used for the anatomic organ in Western Medicine

the acupuncture-moxibustion treatment) 15 cases were clinically cured, 13 markedly effective, 11 improved, and 4 failed. The  $\chi^2$  tests showed a significant difference in the therapeutic effects between the two groups ( $P < 0.01$ ). [29]

A systematic review of randomised controlled trials of **acupressure**, reflexology, and auricular acupressure for insomnia concluded that, owing to the methodological limitations of the studies and equivocal results, the current evidence does not allow a clear conclusion on the benefits of acupressure, reflexology, and auricular acupressure for insomnia. [30] Another systematic review (of Shiatsu and acupressure) concludes that acupressure may be beneficial for sleep (besides pain, nausea and vomiting) [31]

No studies could be identified examining the efficacy of **Shiatsu** on insomnia. In the only systematic review covering Shiatsu [31] insomnia was not a subject of the nine studies included. For the other subjects (chronic stress, schizophrenia, promoting well-being and critical health literacy, angina, low back and shoulder pain, fibromyalgia, chemotherapy side effects/anxiety and inducing labour) the review concluded that the evidence was poor.

Although the methodology of these treatments may differ, TCM offers specific treatment principles for each of the TCM patterns. For the top 10 patterns with insomnia treatment principles were identified in various literature<sup>13</sup>:

TCM pattern	Treatment principle
<b>Deficiency of both the heart and spleen</b>	Tonify the Spleen, nourish Blood, tonify the Heart and calm the Mind. [20]
<b>Hyperactivity of fire due to yin deficiency</b>	Nourish Yin to suppress Fire, clear Heat in the heart and sedate the mind. [32]
<b>Liver-qi stagnation transforming into fire</b>	Move Qi, sooth Liver and clear Heat [33]
<b>Heart-kidney non-interaction</b>	Nourish Yin, tonify Kidneys and Heart, clear Empty Heat and calm the Mind. [20]
<b>Qi deficiency of the heart and gallbladder</b>	Tonify the Heart and Gall-Bladder, calm the Mind. [20]
<b>Internal disturbance of phlegm-heat</b>	Clear Heat, resolve Phlegm and calm the Mind. [20]
<b>Liver fire flaming upward</b>	Drain Liver-Fire, calm the Mind and settle the Ethereal Soul. [20]
<b>Heart deficiency with timidity</b>	Nourish Blood, tonify Heart and Calm the Mind [33]
<b>Stomach disharmony</b>	Promote digestion and remove food stagnation, harmonise Stomach and direct qi downward [40]
<b>Stomach qi disharmony</b>	information not available

<sup>13</sup> The terminology of TCM patterns is not consistent across textbooks and studies. A list with corresponding names of patterns is in Annex 3

Insomnia is by definition a condition in which the Shen is unsettled or overactive. In all treatment principles for insomnia the Shen needs to be calmed. [19]

*Sub-question: How is insomnia co-morbid with psychological complaints evaluated in Traditional Chinese Medicine and what does this implicate for the treatment?*

*TCM considers psychological complaints (as physiological complaints) as disharmony of energy. Emotional stress causes an imbalance in the Internal Organs, and a disharmony of these, in turn, will cause an emotional imbalance. Psychiatric disorders frequently relate to energetic disharmonies involving the five Spirits.*

*For any given psychiatric diagnosis, there is a range of possible TCM patterns. For part of these patterns insomnia is also one of the symptoms. For most of the top 10 patterns causing insomnia the relation between emotional causes of the pattern and psychiatric disorders have been identified in textbooks and research. Contrary to Western Medicine, where for each disorder, being the psychiatric disorder or the insomnia in this case, a separate treatment is given, the TCM treatment is individualised, based on the diagnosed disharmony, which may include both the symptoms of the psychiatric disorder and the insomnia.*

TCM considers psychological complaints (as physiological complaints) as disharmony of energy. Disharmony of energy, which can be caused by the environment, emotions and lifestyle.

Emotional stress is in TCM an internal cause of disease which injures the Internal Organs directly and is considered the main cause of mental-emotional disharmonies. In TCM, emotions (intended as causes of disease) are mental stimuli which impair the circulation of Qi and disturb the Mind (Shen), Ethereal Soul (Hun) and Corporeal Soul (Po) and, through these, they alter the balance of the Internal Organs and the harmony of Qi and Blood. For this reason, TCM usually refers to emotional stress as “internal” cause of disease and climate as “external” cause of disease. On the other hand, and this is a very important feature of TCM, the state of the Internal Organs affects our emotional state. The mutual interaction between the emotions and the Internal Organs and the unity of body and Mind is one of the most important and distinctive aspects of TCM.

Emotional stress causes an imbalance in the Internal Organs and a disharmony of these (from causes other than emotional stress), in turn, will cause an emotional imbalance. For example, a prolonged state of anger will affect the Liver and, conversely, a Liver disharmony (perhaps from diet and overwork) will cause an emotional imbalance and cause the person to become irritable.

Emotional stress injures the Internal Organs and, on the other hand, disharmony of the Internal Organs causes emotional imbalance. [25]

A classic text, the *Nei Jing*, cites seven basic emotions that particularly affect a person and that are still considered most important: elation, anger, sadness, grief, worry, fear, and fright. The seven emotions are also thought to correlate with the five Yin (or Zang) Organs: worry with the Spleen, anger with the Liver, fear and fright with the Kidneys,

elation with the Heart, and sadness and grief with the Lungs. The emotions also share a connection with the five Spirits. [36]

In TCM, psychiatric disorders frequently relate to energetic disharmonies involving the five Spirits. As some of them were introduced earlier, these are the Hun (the ethereal soul), the Po (the corporeal soul), the Zhi (the will), the Yi (the intellect) and the Shen (the mind). Disharmonies in energy affect each of these spirits in a different way [36]:

- The Hun is associated with the Liver Qi. Disharmonies that affect the Hun may lead to anger, frustration, resentment, unkindness, and feeling “cut-off” from the meaning of life;
- Associated with the Lung Qi, disharmonies of the Po may lead to complicated grief, sadness, a blunted affect, a tendency to overreact, or unjust/immoral behaviour;
- Zhi is the spiritual aspect that resides in the Kidneys. Disharmony that affect the Zhi may cause illogical fears or, the opposite, reckless behaviours;
- The Yi is associated with the Spleen, and disharmonies may lead to worry and overthinking (perseveration).
- Associated with the Heart Qi, disharmonies of the Shen may lead to edginess, shyness, social awkwardness or, in extreme cases, agitation and delusions.

For any given psychiatric diagnosis, there is a range of possible TCM patterns, patterns of disharmony. If we take the example of the Generalised Anxiety Disorder (GAD) the core symptoms, according to DSM-V, are anxiety and worry and other symptoms may include irritability, fatigue, muscle tension, difficulty with concentrating, memory loss, and insomnia. The relationships between TCM patterns of disharmony and symptoms of GAD are as follows [37]:

1. Pensiveness, overthinking, or worry are manifestations of a disturbance of the Yi.
2. Restlessness and feeling “uptight” or “on edge” are manifestations of disturbance of the Shen.
3. Disturbance of the Yi may be a cause or consequence of a Spleen disharmony.
4. Disturbance of the Shen may be a cause or consequence of a Heart disharmony.
5. The Spleen is affected by disharmonies in the Liver, Heart, and Lungs, in accordance with commonly held patterns of propagation among organs (e.g., the Sheng and Ke Cycles).
6. Spleen disharmonies may similarly result in disharmonies in the Lungs, Kidneys, and Heart.
7. The Heart is affected by disharmonies in the Kidneys, Liver and Spleen.
8. Heart disharmonies may similarly result in disharmonies in the Spleen, Lung, and Liver.

In this case, If GAD is the Western diagnosis, some common patterns to consider include:

1. Spleen Qi deficiency
2. Heart Yin/Blood Deficiency; Heart Fire
3. Liver Qi Stagnation, Liver Fire, LR Yin/Blood Deficiency, LR Yang rising (especially with associated migraine)
4. Lung Qi Deficiency



5. Kidney Yin Deficiency, Kidney-Heart disharmony (Kidney Yin failing to nourish Heart Yin, Heart Fire failing to nourish Kidney Yang).

As you can see, part of these patterns are also patterns where insomnia is a symptom.

In literature and research the following emotional causes and psychiatric disorders are mentioned for the top 10 patterns with insomnia:

TCM pattern	Emotional causes	Psychiatric disorders
<b>Deficiency of both the heart and spleen</b>	sadness and grief. [20] worry and anxiety [21] apprehension and anxiety, or emotional changes [21]	Depression [20] Attention deficit disorder [20]
<b>Hyperactivity of fire due to yin deficiency</b>	excessive and prolonged apprehension and anxiety [21]	Depression [23,34]
<b>Liver-qi stagnation transforming into fire</b>	long-standing anger [21]	Depression [34] Psychotic insomnia and hysteria [35]
<b>Heart-kidney non-interaction</b>	apprehension and anxiety, or by emotional changes [21]	
<b>Qi deficiency of the heart and gallbladder</b>	This pattern is seen in people who have been frightened, who worry excessively or who are pessimistic [41]	Anxiety is mild [20] Bipolar disorder with depression that may be accompanied by depressive insomnia or anxiety insomnia [35]
<b>Internal disturbance of phlegm-heat</b>	severe emotional irritation [21]	Depression, in severe cases this leads to manic-depression. [20] Bipolar affective disorder with manic symptoms [35] Mania or delirium [21] Anxiety to the point of agitation. [20]
<b>Liver fire flaming upward</b>	emotional frustration [21]	information not available
<b>Heart deficiency with timidity</b>	information not available	information not available
<b>Stomach disharmony</b>	information not available	information not available
<b>Stomach qi disharmony</b>	information not available	information not available

Contrary to Western Medicine, where for each disorder, being the psychiatric disorder or the insomnia in this case, a separate treatment is given, the TCM treatment is individualised, based on the diagnosed disharmony, which may include both the symptoms of the psychiatric disorder and the insomnia. So the treatment is given for both the insomnia and the co-morbid psychiatric disorder.

Searching the PubMed database resulted in one systematic review on the treatment of depression-related insomnia with acupuncture [38] evaluating the effectiveness of this treatment on both the insomnia and the depression. In conclusion, research evidence supported the use of acupuncture as an effective treatment to improve symptoms of depression-related insomnia. Compared with conventional Western medicine, acupuncture may be more effective in decreasing PSQI<sup>14</sup> score. With regard to HAMD<sup>15</sup> score, there is no significant difference between acupuncture and conventional Western medicine. Acupuncture combined with medicine showed to be significantly effective in decreasing score of PSQI and HAMD compared to sole medication.

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<sup>14</sup> Pittsburgh Sleep Quality Index: commonly been used to evaluate the quality of sleep in patients with sleep disorders and co-morbid mental disorders.

<sup>15</sup> Hamilton Depression scale: the most widely used scale for the clinical assessment of depression.

## Results case study

### Using the Chinese Medicine Insomnia Symptom Checklist

A unique feature in this case study is the use of the Chinese Medicine Insomnia Symptom Checklist in the process of diagnosing the underlying causes of the insomnia. The checklist was publicised in a research paper [23] as a follow-up of a systematic review to examine TCM patterns commonly diagnosed in subjects with insomnia [22].

To use the checklist in the diagnostic process the symptoms from the checklist needed to be linked with the symptoms for each of the top 10 TCM patterns. The aim was to develop a tool which could be used during the anamnesis of the client, giving a direct result of which pattern(s) met the symptoms of the client best.

The top 10 patterns identified in the systematic review were:

1. Deficiency of both the heart and spleen;
2. Hyperactivity of fire due to yin deficiency;
3. Liver-qi stagnation transforming into fire;
4. Heart-kidney non-interaction;
5. Qi deficiency of the heart and gallbladder;
6. Internal disturbance of phlegm-heat;
7. Liver fire flaming upward;
8. Heart deficiency with timidity;
9. Stomach disharmony;
10. Stomach qi disharmony

The checklist was constructed including the signs and symptoms, tongue and pulse features for each of these patterns, as diagnosed in the subjects described in the studies which were reviewed.

The checklist is included as Annex 4. The list of features for each of the 10 patterns can be found in Annex 5.

A total of 92 items were included, consisting of 13 sleep-related, 61 non-sleep-related, 11 tongue, and 7 pulse items.

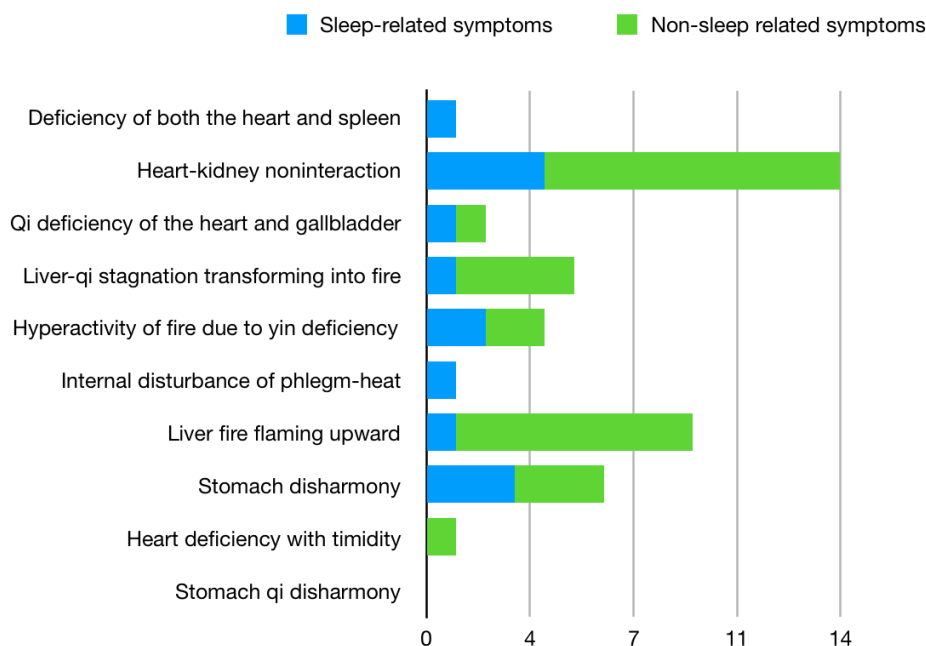
The non-sleep-related items were subdivided under categories on:

- eating, taste and appetite (12 items);
- emotions (11 items);
- chest and abdominal function (8 items);
- bladder and bowel function (6 items);
- headache, dizziness and tinnitus (6 items);
- coldness, hotness and sweating (5 items);
- menstruation and sexual function (4 items);
- complexion (4 items);
- limbs and back (3 items) and
- energy (3 items).

To use the checklist as a tool in the diagnose of a client, a table was constructed, listing the 10 TCM patterns on the horizontal axis and the 92 items on the vertical axis, where the clinical features for each of the patterns are labeled in the corresponding table cell. To enable to use the table during the Monshin (asking questions) and getting direct feedback on the results, the table has been implemented in a spreadsheet (on a tablet) where the applying features can be scored and the spreadsheet shows the number of sleep and non-sleep related symptoms for each of the patterns (full spreadsheet in Annex 6).

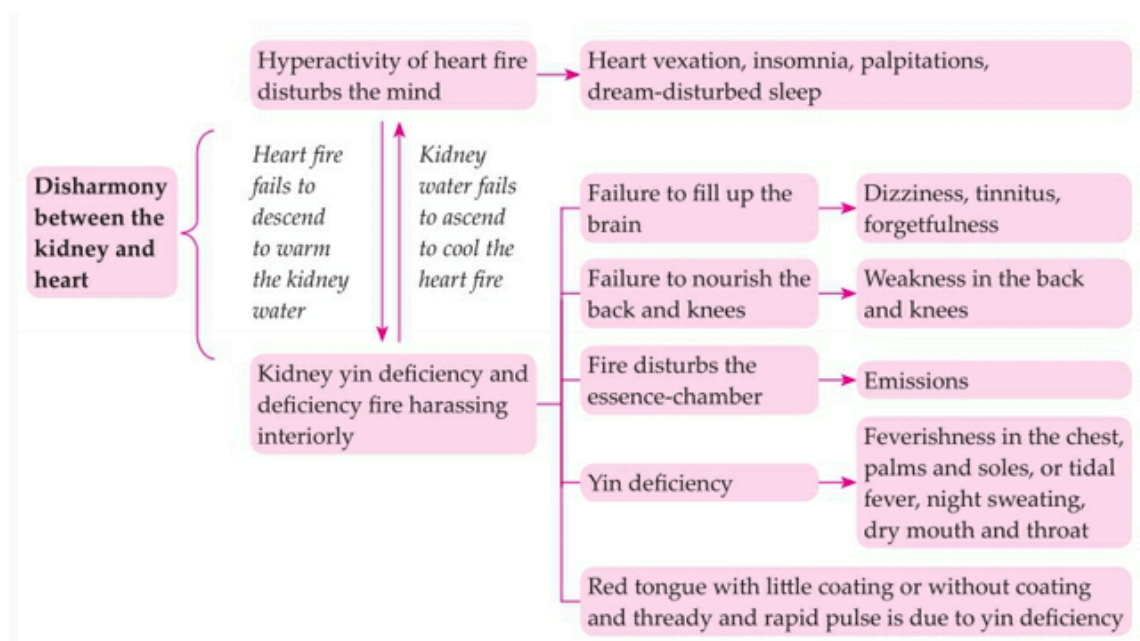
Chinese Medicine Insomnia Symptom Checklist							
During past 2 weeks		Deficiency of both the heart and spleen	Heart-kidney noninteraction	Qi deficiency of the heart and gallbladder	Liver-qi stagnation transforming into fire	Hyperactivity of fire due to yin deficiency	Internal disturbance phlegm-heat
Sleep-related symptoms	<input type="checkbox"/>	1	4	1	1	2	
Non-sleep related symptoms	<input type="checkbox"/>	0	10	1	4	2	
	<input type="checkbox"/>						
<b>SLEEP-RELATED SYMPTOMS</b>							
Difficulty falling asleep	<input checked="" type="checkbox"/>	1	1	1	1	1	
Difficulty falling asleep alone	<input type="checkbox"/>			0			
Difficulty falling asleep with vexation	<input checked="" type="checkbox"/>		1				
Difficulty staying asleep	<input type="checkbox"/>	0	0	0		0	
Excessive dreaming	<input type="checkbox"/>	0	0	0	0	0	
Frequent awakening with a start	<input type="checkbox"/>			0			
Half asleep	<input type="checkbox"/>	0					
Insomnia	<input type="checkbox"/>	0	0	0	0	0	
Insomnia with vexation	<input checked="" type="checkbox"/>		1				1
Restless sleep	<input checked="" type="checkbox"/>		1				
Shallow sleep	<input type="checkbox"/>						
Sleeping late at night	<input type="checkbox"/>						
Unrefreshing sleep	<input type="checkbox"/>						
<b>NON-SLEEP-RELATED SYMPTOMS</b>							
<b>Appetite</b>							
Aphthous stomatitis (inflammation of oral mucosa with ulcers)	<input checked="" type="checkbox"/>		1				
Dry mouth	<input checked="" type="checkbox"/>		1			1	
Bitter taste	<input type="checkbox"/>				0	0	
Dry throat	<input checked="" type="checkbox"/>		1			1	
Thirst	<input type="checkbox"/>				0		

Added was a graphical presentation of the scores allowing for a quicker view of the appearance of the patterns.



It should be noted here that in this case study I did not score the pulse and tongue features. My experience with the pulse diagnose is still premature and I cannot rely on what I feel in the pulse yet. Tongue diagnose is not included in the lokai Shiatsu education.

To be able to use the results of the checklist, the TCM patterns need to be understood from the concepts used in Shiatsu diagnose and therapy. Various textbooks explain the patterns well in terms of TCM concepts. The books *Diagnostics in Chinese Medicine* [21] and *The Psyche in Chinese Medicine* [20] offer clear explanations for most of the top 10 patterns. The TCM concepts deficiency and excess do clearly correspond with the Shiatsu concepts Kyo and Jitsu. Understanding TCM concepts as wind, phlegm and heat may depend on the Shiatsu education received (and are not part of the lokai Shiatsu education).



Explanation of the Heart-Kidney noninteraction pattern [21] (an example)

## Case description

The period of treatment I describe in this case report includes 33 weeks covering 16 treatments. As illustrated in the timeline of treatments on the next page, 4 different stages in the treatment can be distinguished:

1. Identifying the main complaint (1-3)
2. Treating the insomnia and the traces of emotional trauma (4-7)
3. Focus on the quality of sleep (8-12)
4. Stabilising the quality of sleep (13-16)

### ***Stage 1: Identifying the main complaint***

This stage is covering 3 treatments in a period of 5 weeks and is characterised by:

- looking for the cause of the symptoms
- work situation not cooperative
- unhelpful psychological support

### *Diagnosing*

Maria (not her real name) asks for an appointment for Shiatsu treatment mentioning that she is dealing with a burn-out.

When Maria enters my practice for the *first appointment* she makes a faint expression and during the talking she sometimes falls back into an almost absent state of mind. Her voice is soft (spirit could be weak) and her eyes do not shine (the Shen is weak). I learn that the burn-out was diagnosed by her psychologist two months ago; her complaints began two months earlier. She tells me that the worst period is already behind her but she still feels exhausted and has anxiety complaints. She is obsessively worrying about mistakes she has made, in conversations, was she too emotionally or too aggressive? She begins to cry uncontrollably in public. Her sleep quality is low, she does wake up every night at 3 or 4 o'clock and has difficulties falling asleep again. When she wakes up, she directly starts worrying again. She also has nightmares.

Maria is 30 years old and has a job as project manager in a small company. She is responsible for several projects and enjoys her job. She has only recently discussed her burn-out with her boss.

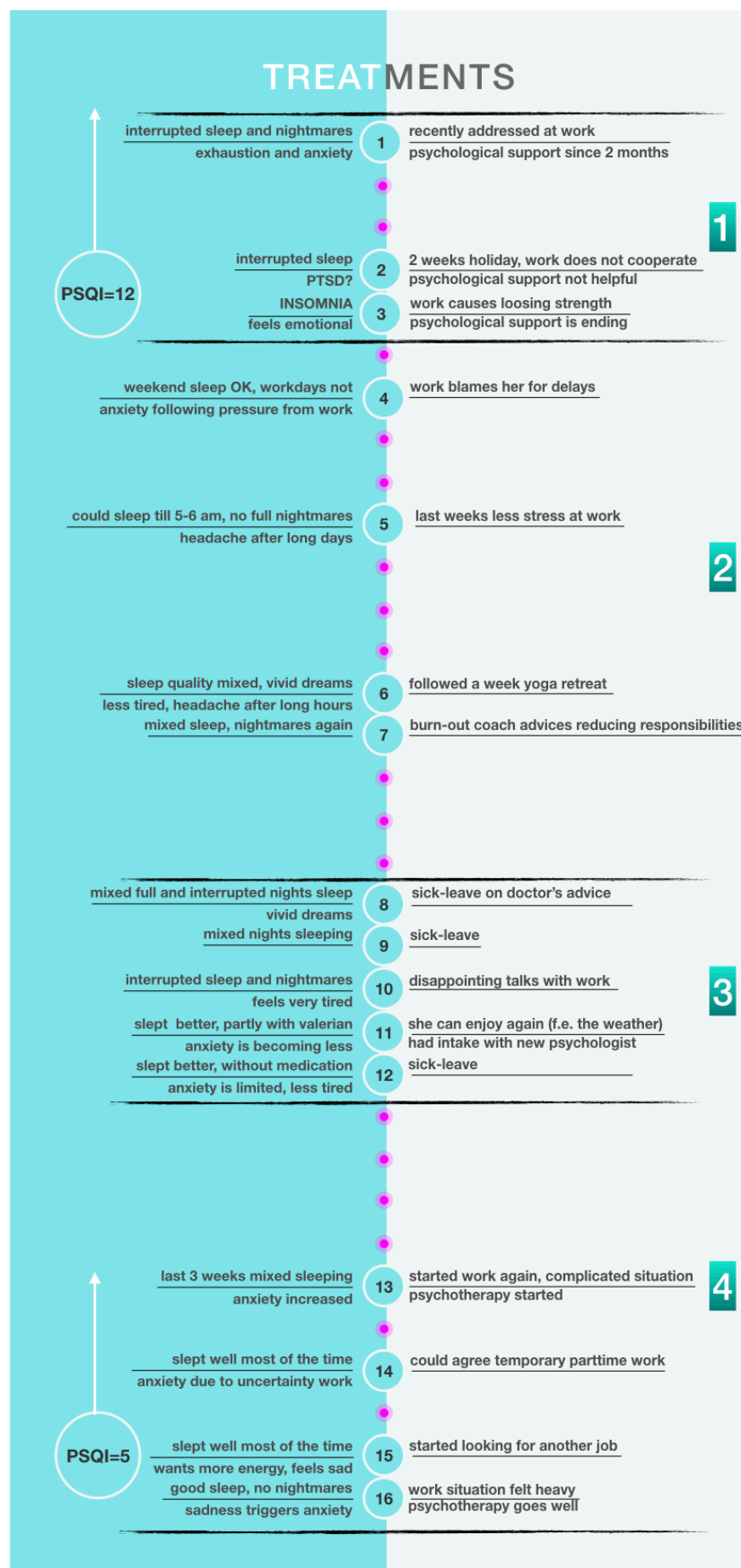
During the back diagnosis I felt that the the Lung, Kidney and Large Intestine zones were Kyo<sup>16</sup>. The Liver zone also to a lesser extent. During Hara diagnose the Kidney, Lung and Liver zones felt empty.

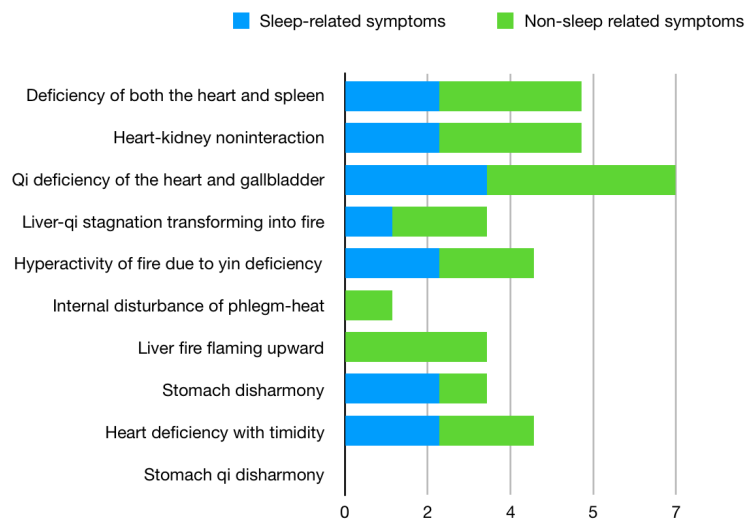
According to the Eight Ramifications<sup>17</sup> the energy trends were intern (chronic, psychological), yin (weakness, feeling empty, pale facial color), cold (cold extremities, asked for a blanket during treatment) and Kyo (weak, tired, soft voice).

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<sup>16</sup> During Iokai Shiatsu education I learned to focus on the zones with a Kyo tendency. Kyo means deficiency of ki. Jitsu on the contrary means excess of ki.

<sup>17</sup> The Eight Ramifications or Eight principles describe the basic qualities of a disease. The notion refers to four pairs of mutual opposites: Yin and Yang, Interior and Exterior, Heat and Cold, Deficiency and excess.





At the *second appointment* Maria told me that the last two weeks, during which she had holidays, her sleeping was bad during 70% of the nights, waking up between 3 and 4 o'clock and dreaming about work. She takes melatonin as medication, but this does not seem to help any more. No anxiety during that period, but lack of energy. When I asked about the nightmares she told me that some time ago she was confronted with the violent death of a close friend and the nightmares were about what her friend went through. Maria: 'It could have been me'. In the same period that she was confronted by this her complaints came up. This made me realise that Maria may not be experiencing a burn-out, but post-traumatic stress.

It is not within my competence as a Shiatsu therapist to diagnose a mental disorder like Post-Traumatic Stress Disorder (PTSD), but it seemed that Maria met the DSM-5 criteria for PTSD [42]:

- She was confronted with the violent death of a close friend (criterion A)
- The traumatic event is re-experienced in nightmares (criterion B)
- She tries to avoid thinking of the traumatic event (criterion C)
- Overly negative thoughts and decreased interest in activities (criterion D)
- Irritability and difficulty sleeping (criterion E)
- Symptoms last for more than 1 month (criterion F)
- Symptoms create dysfunctional impairment occupationally (criterion G)
- Symptoms are not due to medication, substance, or other illness (criterion H)

She told me she felt sad, because her employer, despite a promise that she could start working 50%, did not want to implement this.

Back diagnosis showed the following zones having a Kyo tendency: Lung, Spleen, Kidney, Liver, Gallbladder and Large Intestine.

At the *third appointment* Maria told me that sleeping had somewhat improved after the last treatment. She is now (only) awaking at 5 AM. We agreed that the treatments would



focus on the insomnia. Maria would fill in the PSQI questionnaire to establish a zero measure for her sleep quality during the last month.

I used the Chinese Medicine Insomnia Symptoms Checklist to identify the most likely TCM pattern causing the insomnia. The scoring table for all patterns is in Annex 7: Maria's Chinese Medicine Insomnia Symptoms Checklist.

The pattern Qi deficiency of the heart and gallbladder came out with most related symptoms:

- Sleep-related: difficulty staying asleep, excessive dreaming and frequent awaking with a start
- Non-sleep-related: dyspnea, fatigue, pale and large amount of urine, irritability and palpitation

An article on strategies in the treatment of insomnia describes this pattern rather clear in relation to the possible cause and symptoms of my case: 'This pattern is seen in people who have been frightened, who worry excessively or who are pessimistic. Fright and worry deplete gallbladder qi, which affects its child, the heart. These patients awake and then stay awake. They show signs of qi deficiency, including fatigue and low spirit'. [41] This corresponds with my assumption that the cause of the insomnia is related to traumatic stress.

When I told Maria that the complaints she has could have developed from the traumatic experience she had and the stress this caused, she agreed that the stress could not have developed from work which she does with pleasure. She told me she had mentioned the traumatic experience to her psychologist, who had diagnosed a burn-out nevertheless. The last session in her current treatment plan is coming up; she is not satisfied with what her psychologist has to offer and considers looking for another psychotherapist with a broader look into her situation (not limited to a burn-out). I gave her the advice to bring up her traumatic experience than again, because I consider that as the source of her stress.

Maria feels emotional. She worries about her work situation and specifically how her boss deals with her complaints: 'Now I have returned to work and I feel I have lost some of the strength I had gained during the holidays. I still don't feel like myself'.

Back diagnosis showed the following zones having a Kyo tendency: Spleen, Kidney, and Gallbladder.

The results of the PSQI questionnaire on the sleep quality (sleep habits during the past month), filled in by Maria were as follows:

***PSQI total score of 12***

*Sleeps 6 hours from 9 hours in bed*

*Wake up middle of night or early morning: Three or more times a week*

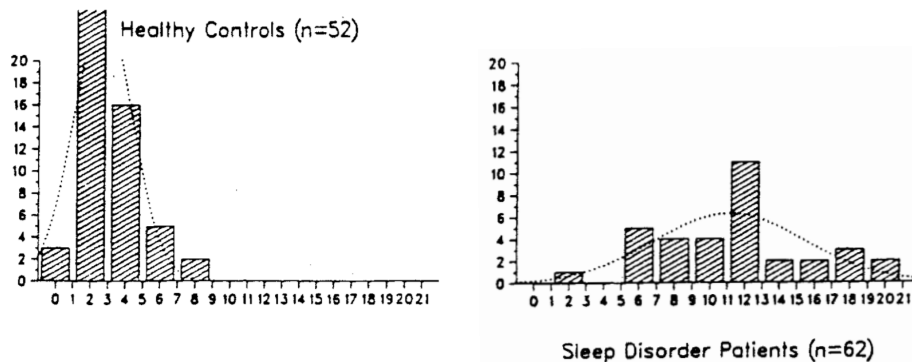
*Have bad dreams: Three or more times a week*

*Taken medicine to help you sleep: Once or twice a week*

*Keeping up enough enthusiasm to get things done: Fairly badly*

*Rates sleep quality as: Fairly badly*

In a study to assess clinical and clinimetric properties of the PSQI [44] ‘good’ sleepers mostly scored 3-4 while ‘bad’ sleepers scored around 12.



According to the criteria of DSM-5 Maria has an insomnia disorder co-morbid with PTSD.

### *Treatment*

(An overview of the treatments is given in the Annex 8: Meridians treated per appointment)

During the *first appointment* I decided to focus on the Kidney energy (tiredness and anxiety), Liver and Lung energy (periods of waking-up correspond with highest activity of these organs according to the TCM Body Clock). Strengthening the yin energy. I did tonify the Kidney meridian on feet, legs and sacrum and rested my hand on Kikai-tanden (feeling empty). I did tonify the Liver meridian on feet and legs and the Lung meridian on hand and arms and stretched the Lung meridian on the arms in contact with Chufu (LU1). The treatment confirmed the Kyo condition of these meridians.

Written feedback<sup>18</sup> Maria gave two days after the treatment:

‘I liked that there was no talking required during the treatment. Emotionally I felt that I could give you some of my troubles. Afterwards I felt very tired and slept the whole night (which I had not done in a long time). The day after I had an abnormally large appetite and felt generally a bit restless. I was able to be without working for a whole day (during the weekend).’

For the *second treatment* I decided to focus on Liver and Lung energy because of the relationship with the waking-up times at night. I did tonify the Liver meridian on both feet, legs, hara and chest, arms and hands. I did tonify the Lung meridian again on hands and arms and did the Lung stretch, in contact with Chufu. During the treatment Maria had a superficial breath (as she also had during the first treatment), which became somewhat more normal during the treatment.

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<sup>18</sup> I ask clients to send me feedback after each treatment, on how they liked the treatment and what they experienced afterwards, by filling in a short feedback questionnaire

Written feedback after the treatment:

‘After the last treatment, I felt very emotional for the rest of the evening (worrying about work). I did sleep through the night though. Now I have returned to work and I feel I have lost some of the strength I had gained during the holidays. I still don't feel like myself.’

Before the third appointment I studied the book *Treating Emotional Trauma with Chinese Medicine: Integrated Diagnostic and Treatment Strategies* [45]. According to the author the initial trauma scatters the ki, distresses the earth element and disturbs the Shen. In reliving the trauma memory (PTSD) emotions intensify and blockages, disrupting the flow of ki, increase. This leads to an unresolved trauma in the body.

To treat the emotional trauma three stages are identified:

- Stage One: Gathering the Qi  
The patient's qi must be centered by supporting their earth element, stabilizing their Shen, regulating their pericardium, and releasing blockages - connect to “Mother Earth” (yin)
- Stage Two: Smoothing the Trauma Memory  
The charge of the trauma memory must be soothed, the fire and wind reduced, and the Shen calmed by bringing down cosmic water - connect to “Father Sky” (yang).
- Stage Three: Treating the Individual Imbalances  
Each patient reacts differently to trauma and presents with unique signs and symptoms. After the qi is gathered and the charge of the trauma memory is reduced, these can now be addressed - harmonize the flow of energy between Mother Earth (yin) and Father Sky (yang).

Given the symptoms Maria had I concluded that ‘gathering of the Qi’ should be included in the treatment. The book even said that ‘If treatments targeted at specific complaints (whiplash, digestive upset, memory loss, body pains, insomnia, etc.) are given while the patient is still in the throes of the trauma, the systems are in chaos and will not respond properly’.

For the *third appointment* my treatment strategy was gathering the ki, by strengthening the earth element (to release Maria's traumatic stress). At this appointment I used the symptom checklist resulting in the Qi deficiency of Heart and Gallbladder pattern as most likely cause of the insomnia. The treatment principle for this pattern is to tonify the Heart and Gall-Bladder and calm the Mind. Additionally I decided to tonify the Kidney energy, addressing her anxiety.

I started to tonify the Gallbladder meridian around the shoulder blades and towards the chest, which felt very tense but smoothed during the treatment. Maria told me afterwards that this was the moment that she almost fell asleep. I did tonify the Kidney meridian on the sacrum and the feet. The Spleen meridian was tonified on the feet and legs, hips, hands and arms. Both during the treatment of the Kidney and Spleen meridian subtle shocks went through her body, signalling the flow of energy.

Written feedback after the treatment:

'I felt more relaxation during the treatment than during the earlier ones. Physically I felt stillness and stability, emotionally I felt calmness. The day of the treatment I slept the whole night again.'

### ***Stage 2: Treating the insomnia and the traces of emotional trauma***

This stage is covering 4 treatments in a period of 13 weeks and is characterised by:

- sleep quality was mixed, nightmares reduced in frequency
- more and less stressful full work weeks alternated with weeks off
- periods of 2-3 weeks unavailable for treatment
- no psychological support

#### *Diagnosing*

Maria's sleep quality was very mixed during this period. Some days she sleeps better but other days she awakes very early and it is hard to get into sleep again. For the first time she had weeks without nightmares and just vivid dreams. Most positive experience she had from the treatments was that she is sleeping well the night following the treatment.

Having to meet deadlines at work made it difficult to work for 50% as required for her health condition. She was working (more than) full-time some weeks and taking off others. Her anxiety seems to come up directly with the stress in the work situation. Not so much the work itself, but the attitude of her boss (who directly blames her in the communication with clients for delays) makes her worry. Her burn-out coach now supports her in reducing her responsibilities at work. Should that not be possible she is considering quitting the job.

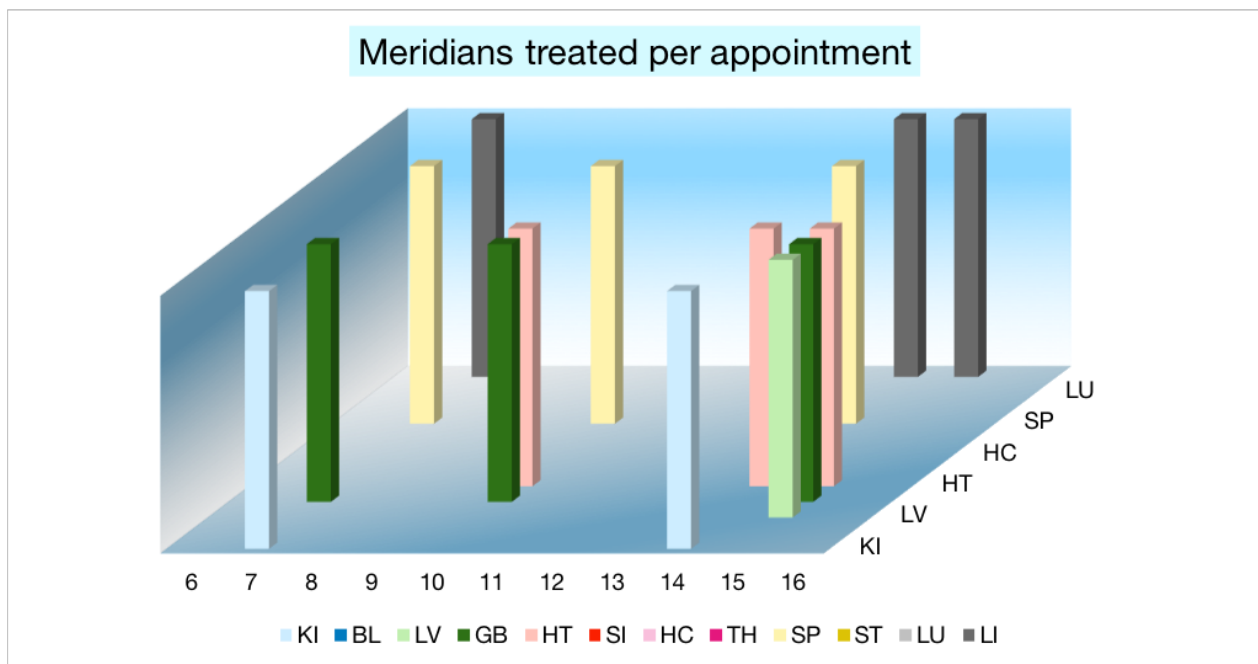
She is searching for another psychologist and did not receive any psychological support in this period.

Back diagnose in this period showed a Kyo tendency in Heart, Spleen, Kidney, Large intestine and Gallbladder zones during most of the appointments.

#### *Treatment*

The treatments in this period were characterised by strengthening the earth element (traumatic stress) and treating Gallbladder and Heart energy (insomnia). Some treatments the Kidney meridian (anxiety) or Large intestine meridian (difficulty letting go) was added.

What she likes is that she is not in her head during the treatment.



### **Stage 3: Focus on the quality of sleep (8-12)**

This stage is covering 5 treatments in a period of 5 weeks and is characterised by:

- sleep quality is becoming better and anxiety is becoming less
- she has sick leave from work
- weekly treatments
- introductory meetings with a new psychologist

#### *Diagnosing*

In this period of five weeks with a treatment every week the sleep quality during the first two weeks was still problematic. Waking up between 3 and 4 AM and staying awake till 5 or 6 AM caused her to start taking valerian as sleep medication again. Also some nightmares again. However in the week thereafter her sleeping improved, some of the nights with valerian, but nevertheless. Then she slept through more nights without sleep medication. She gave me a high five to celebrate. Her anxiety is becoming less as well as is her tiredness.

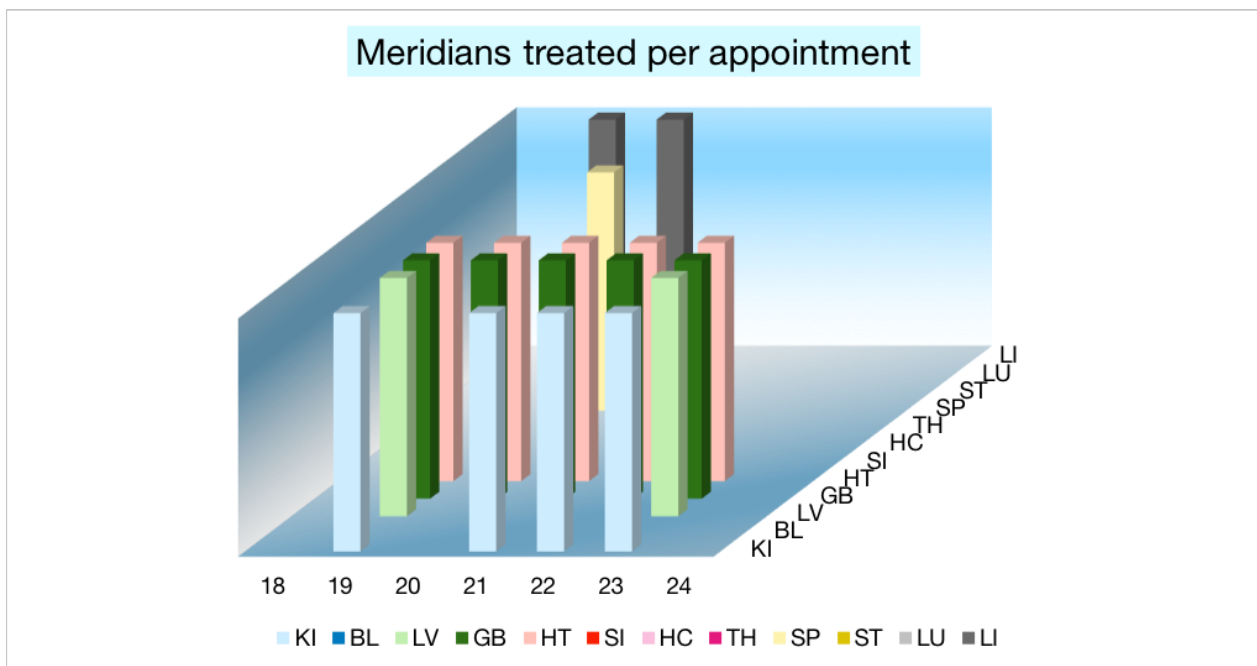
After advice from her physician she is on sick leave during this period. Some talks with her employer in the beginning of this period still caused stress. After the improvement in her sleeping she begins to feel better and can enjoy (f.e. the weather) again. She had introductory meetings with a new psychologist and feel good about it, so will get psychological support soon again.

Back diagnose during this period showed a Kyo tendency in the Heart, Kidney, Large Intestine and Gallbladder zones. The Kyo tendency of the Gallbladder zone during the last appointments in this period became less.

The Spleen zone generally was not Kyo any more. Strengthening the earth element in earlier sessions (gathering the Qi) seemed to be successful.

### *Treatment*

My treatment consistently focussed on the Qi deficiency of Heart and Gallbladder. Additionally the Kidney energy was tonified in relation to her tiredness and anxiety. In a typical treatment the Gallbladder meridian was tonified from neck via shoulder blades to the chest, The Heart meridian was treated on feet, legs and HT6 (calming the Shen). The kidney meridian was tonified on feet, legs and sacrum and sometimes hands and arms. For Maria the treatments felt relaxing and almost in a sleep-like state.



### **Stage 4: Stabilising the quality of sleep (13-16)**

This stage is covering 4 treatments in a period of 10 weeks and is characterised by:

- 5 weeks without appointments at the start
- after a backlash in sleeping the sleep quality did improve again
- restarted working part-time
- anxiety keeps playing a role
- she gets psychological support

### *Diagnosing*

After 5 weeks without appointments Maria returned with the complaint that her sleeping got worse again during the last weeks. The nightmares however had not returned. After the first treatment in this period the sleep quality improved again and she slept well most of the period.

Looking back at the very beginning of the Shiatsu treatments, now four and half months ago, she explains that at that time she slept badly as a rule and when she was tired she could not sleep, while she has a good sleep now most of the time and bad sleep is an exception and when she is tired she can sleep now. I asked her to fill in the PSQI questionnaire again.

She restarted working part-time but the situation became uncertain again after her employer decided to extend the contract of the person replacing her. This makes her sad and triggers her anxiety. Although to a lesser extent her anxiety keeps playing a role.

She started having sessions with her new psychologist, who's diagnose was an unspecified burn-out and possibly a General Anxiety Disorder. She did not bring up her traumatic experience yet. She recognises that this experience is playing a role in her health condition, but had put it away while she was dealing with the situation at work.

Back diagnose during this period gave a much more varying picture, where the Large intestine zone (difficulty letting go) had a Kyo tendency at most appointments. The Heart zone was normalised (neither Kyo nor Jitsu) during this period and the Gallbladder zone just came up with a Kyo tendency during two treatments (the first and the third). This made me conclude that the treatment of the Qi deficiency of Heart and Gallbladder had been successful. During the last treatments the only zones feeling Kyo were the Lung (sadness) and Liver zones.

### *Treatment*

The treatments varied according to the variation in Kyo tendencies. A focus on the Qi deficiency of Heart and Gallbladder in the first treatment (to improve the sleep quality) and treating Lung, Large intestine and Liver energy in the later appointments.

### *Outcome*

Maria filled in the PSQI questionnaire with the following result. A comparison of the scoring at the beginning and the end of the treatments has been added as Annex 9: Maria's PSQI compared.

#### ***PSQI total score of 5***

*Sleeps 8 hours from 8 hours in bed*

*Wake up middle of night or early morning: Once or twice a week*

*Have bad dreams: Less than once a week*

*Taken medicine to help you sleep: Less than once a week*

*Keeping up enough enthusiasm to get things done: Fairly badly*

*Rates sleep quality as: Fairly good*

From the total of 5 points, 2 point originate from the question 'Keeping up enough enthusiasm to get things done' which she still scores as Fairly badly. She explains this by still feeling not having enough energy to do other things beyond her work.

Compared with the PSQI before the treatments (which was 12) the reduction rate<sup>19</sup> is 58%, so the clinical efficacy of the treatment was effective.

Maria emailing me: 'I am so happy to be sleeping full nights most nights now, even with anxiety during the day.'

I also asked her about the other symptoms she had before the start of the treatments. She does rate her vitality as 7 now on a scale of 1-10. Her anxiety is less than before. The following non-sleep related symptoms (related to the Qi deficiency of Heart and Gallbladder pattern) have disappeared: fatigue (for a big part), irritability and palpitations. The dyspnea is still there.

*Maria continued with Shiatsu treatments, focussing on her stress and anxiety, but with larger periods in between treatments. She was able to take more distance from her work situation and has started searching for other work. She also started to train her physical condition again, additional to the softer kinds of yoga classes she had been following. So more initiatives again, which is a sign of recovery. She also told her psychologist about her traumatic experience and hopes he will incorporate this in his treatment.*

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<sup>19</sup> Reduction rate = (score before treatment – score after treatment) / score before treatment × 100%.



## Discussion

The literature study learned me how Western Medicine categorises sleep disorders and the criteria for diagnosing insomnia. And that, where sleeping problems earlier were considered a symptom of certain physical or psychiatric disorder, insomnia is more and more considered as a disorder on its own.

Another result I gained from the literature study is that cognitive behavioural therapy for insomnia (CBT-I) is recommended in Western Medicine as the first-line treatment for insomnia. However the European guideline for the diagnosis and treatment of insomnia also notes that this treatment is not easily available. It is assumed that only a minority of patients with chronic insomnia will receive this treatment in Europe.

In this situation alternative therapies which can demonstrate to be effective in improving the quality of sleep are welcome. Shiatsu is a non-invasive holistic therapy which could offer an acceptable alternative. Moreover, since the treatment is not aimed at conducting conversations, it has a low threshold for clients, specifically in a situation when they experience emotional stress. As Maria wrote me after the first treatment 'I liked that there was no talking required during the treatment'.

The literature study into TCM learned me that TCM uses (the differentiation of) patterns according to the Zang Fu organs, linking specific signs and symptoms to a certain pattern, for diagnose and treatment. The study 'Classification of insomnia using the traditional chinese medicine system: a systematic review' opened my eyes about the multiple energy patterns which can be identified as a cause for insomnia. Before, my only reference was the organ clock indicating which energy is most active in certain periods during the night which could cause interruption of sleep if this energy was out of balance. Now I learned how many organs could play a role in relation to the Heart energy influencing the quality of sleep and the other symptoms which go together with a certain TCM pattern.

What makes this approach of TCM patterns unique is that the diagnosis is more relational than particular in that they account for the entire set of signs and symptoms a person is experiencing, not just the main complaint, insomnia in this case. TCM does apply a treatment protocol for each individual that would account for their set of symptoms but would also treat their insomnia. In other words, in TCM there is not a set treatment for insomnia but a range of diagnoses which contain insomnia as a major indicator.

The reference study identified the top 10 patterns covering 77.4% of the subjects in the 103 studies reviewed from which a checklist was developed linking signs and symptoms to each of these patterns: the Chinese Medicine Insomnia Symptom Checklist. TCM offers specific treatment principles for each of these TCM patterns. Besides differences per pattern, in all treatment principles for insomnia the Shen needs to be calmed.

According to Western Medicine there is a prevalence of insomnia in various psychiatric diagnostic categories. In contrast to the longstanding view that sleep problems symptoms are of psychiatric disorders, there is growing experimental evidence that the relationship between psychiatric disorders and sleep is complex and includes bi-directional causation. If the insomnia is co-morbid with a mental disorder, there should be treatment of both the co-morbid disorder and the insomnia.

Contrary to Western Medicine, where for each disorder, being the psychiatric disorder or the insomnia in this case, a separate treatment is given, the TCM treatment is individualised, based on the diagnosed disharmony, which may include both the symptoms of the psychiatric disorder and the insomnia.

Following is how this all worked out in the case study.

*Sub-question: What is the effect of Shiatsu treatment on the quality of sleep of the client?*

*The Shiatsu treatment of Maria led to a reduction rate of 58% on the Pittsburgh Sleep Quality Index (PSQI), turning her from a 'bad' sleeper into a 'good' sleeper. The clinical efficacy of the treatment was effective.*

The process of improving Maria's sleep quality went through several stages. Because of the traumatic stress she experienced it seemed that she was not receptive for the treatment from the very start. What made her continue with the treatments nevertheless was that 'I am not in my head during the treatment' and 'I am sleeping well the night following the treatment'.

The situation at work (not supportive in offering a reasonable accommodation towards her health complaints) and the (lack of) psychological support was not beneficial for her recovery during the period of treatment. Maria's attending yoga classes and retreats and her meditating on the contrary may have had a positive effect.

The break-through in the treatment came after the traumatic stress had somewhat smoothened out by first focussing the treatment on centering of her energy, in a period of sick-leave and weekly appointments, consistently treating the energy pattern which had been identified as the cause of her insomnia. After weeks of bad sleeping, changing into week of mixed sleeping and reduction in the nightmares, she experienced better sleep without nightmares, first partly still with support of valerian, later without any sleep medication.

The centering of her energy went together with the reduction in the Kyo tendency of the Spleen energy. The improvement in sleep quality went together with more balance in both the Gallbladder and Heart energy. Both were noticeable in the back diagnosis.

The improvement in sleep quality shows in the PSQI scores at the end of the treatments compared with those at the start. The overall score was reduced from 12 to 5 which is a reduction rate of 58%, so the clinical efficacy of the treatment was effective. There was a reduction in sleep disturbance and use of sleep medication and an improvement in sleep latency, sleep duration and sleep efficiency. And the subjective sleep quality was changed from fairly badly towards fairly good.

*Sub-question: Can TCM patterns for insomnia be used in Shiatsu diagnosis?*

*By using the Chinese Medicine Insomnia Symptom Checklist in the diagnosis of my client I could identify the Qi deficiency of Heart and Gallbladder pattern as the most probable cause for her insomnia. The back diagnosis did correspond with this finding. My treatment of a client with night sweating does illustrate another use of the checklist. Similar TCM checklists for osteoarthritis of the hip or knee, lateral elbow pain and chronic low-back pain are worth to explore in Shiatsu diagnosis and treatment.*

By using the Chinese Medicine Insomnia Symptom Checklist in the Shiatsu diagnosis (as part of the Monshin, asking questions) the symptoms of the client are more systematically explored in relation to their complaint of sleeplessness and linked to one or more TCM patterns as the probable cause of the insomnia.

To be able to use the results of the checklist, the TCM patterns need to be understood in terms of the concepts used in Shiatsu diagnosis. The TCM concepts deficiency and excess do clearly correspond with the Shiatsu concepts Kyo and Jitsu. Understanding TCM concepts as wind, phlegm and heat may depend on the Shiatsu education received (and are not part of the Iokai Shiatsu education).

In the case of Maria I was able to identify the Qi deficiency of Heart and Gallbladder pattern as the most probable cause for her insomnia by using the checklist. Although the Heart and Gallbladder energy showed imbalances in the Shiatsu back diagnosis (and therefore corresponded with this outcome), other organ energies showed imbalances as well, so without the checklist I had never reached the same conclusion.

In my practice of using the checklist on more clients it became clear that trial and error will continue to be part of the treatment process. Multiple patterns can play a role in the insomnia and it is not automatically clear if treating one of them or more that one at the same time will lead to improvement of the quality of sleep.

Both the checklist in itself and using it has limitations:

- While the checklist mentions a number of sleep related symptoms, some of them seem to overlap. It is not clear what the difference is between 'half asleep' and 'shallow sleep', 'sleeping late at night' and 'difficulty falling asleep', scoring 'insomnia' versus one or more of the other sleep related symptoms
- Some patterns include more possible symptoms than others. In how far needs this to be taken in consideration while interpreting the results based on the number of scores per pattern?
- How much importance should be given to a symptom which is experienced by the client as very problematic? Should that result in excluding patterns where this symptom is not part of (see also my description of a case with night sweating below)?

- A number of symptoms are part of multiple patterns, in which case the distinctive symptoms scored should get more weight.
- Given that I was not able to include pulse and tongue features in my assessment, those parts of the checklist could not be scored. Although the results without these were convincing, adding pulse and tongue diagnosis would further add value.
- Knowledge of the TCM patterns and their treatment principles is important for using them in the treatment. Concepts used in the treatment principles for some of the patterns like 'nourishing blood', 'clear empty heat' and 'resolve Phlegm' were not part of my Shiatsu education, which can limit the conversion of a pattern identified into the treatment.

Overall did the case show me that the use of the checklist enabled me to make a distinction between the multiple TCM patterns as a possible cause for the insomnia and giving me a direction in the treatment.

To show the potential of the Chinese Medicine Insomnia Symptoms Checklist beyond the use for insomnia complaints I have included in Annex 10 a description of a case of a woman of 42 suffering from night sweating. The night sweating started six and half years ago, following the delivery of her third child. Since three of the top 10 TCM patterns for insomnia have night sweating as one of the symptoms, I decided to use the checklist to identify which of these patterns might cause her complaint. Both the Heart-Kidney non-interaction pattern and the Stomach disharmony pattern came out with a significant number of symptoms. After eight treatments during a period of three months, focussing on these two patterns, the night sweating had practically disappeared, as well as a number of the other symptoms.

The succes in using a symptom checklist for insomnia made me wonder if similar checklists had been developed in TCM for other health conditions, where different TCM patterns have been identified as a cause. I found references in literature to checklists for the following health conditions: osteoarthritis of the hip or knie [46], lateral elbow pain [47,48] and chronic low-back pain [49]. It could be worth to explore the use of checklist for these conditions in Shiatsu diagnosis and treatment as well.

*Sub-question: How did the psychological complaints influence the treatment and what is the effect of the treatment on the psychological complaints of the client?*

*During the first stage of the treatments of Maria I had good reasons to suspect that she was suffering from post-traumatic stress. Treating the insomnia in this condition required that the client did overcome the throes of the trauma and the scattering of ki caused by it first. This was reached by strengthening her earth energy, after which she started to recover, following further treatment of the Qi deficiency of the heart and gallbladder, the pattern I did identify with the checklist.*

*Not only her quality of sleep improved, but also her emotional and psychological complaints of irritability, palpations, fatigue and anxiety. The decrease of stress from the work situation may also have contributed to this.*

During the first stage of the treatments of Maria I had good reasons to suspect that she was suffering from post-traumatic stress. Not only did her condition correspond with the DSM-5 criteria for PTSD, but the most probable TCM pattern which was identified as a cause for her insomnia (by using the Chinese Medicine Insomnia Symptoms Checklist) indicated this as well.

The Qi deficiency of the heart and gallbladder pattern, which was identified, is seen in people who have been frightened and who worry excessively. These persons also show signs of fatigue and low spirit. Textbooks connected anxiety to this pattern as well. All these signs and symptoms did apply to Maria. So here we see a pattern of disharmony where both the symptom of insomnia and her psychological complaints are part off.

This led to the conclusion that the treatment principle for this pattern, tonify the Heart and Gallbladder and calming the mind, would address her insomnia and would likely have a positive effect on her psychological complaints as well.

In a situation that a client is suffering from an emotional trauma, an additional factor to come to a treatment plan is that the initial trauma scatters the ki and gathering the ki should be the first part of the treatment. As long as the patient is still in the throes of the trauma, the systems are in chaos and will not respond properly to the treatment of specific complaints like the insomnia.

This showed in the treatment, where during the second stage her earth energy was strengthened but no improvement in her quality of sleep occurred, although she had her first weeks without nightmares. The improvement in her quality of sleep only occurred in the third stage of her treatment. This was after she became more centered, which also showed in the balancing of her earth energy: the Kyo tendency of her Spleen energy had disappeared.

At the end of the treatments I asked her about the other symptoms she had at the start and specifically her emotional and psychological complaints. Her irritability and palpitations had disappeared, her fatigue was reduced (she rated her vitality now as 7 on a scale of 10) and her anxiety was less than before<sup>20</sup>.

Besides the treatment, the decrease of stress from the work situation could also have contributed to the improvement of her emotional and psychological complaints (the quality of sleep improved in a period that she was on sick leave). In the months before her recovery she did not have any psychological support.

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<sup>20</sup> Unfortunately I had not used a scale to rate her anxiety at the beginning of the treatment, so I could not assess a reduction rate.

## Conclusion

Cognitive behavioural therapy for insomnia (CBT-I) is recommended in Western Medicine as the first-line treatment for insomnia. However the European guideline for the diagnosis and treatment of insomnia also notes that this treatment is not easily available. It is assumed that only a minority of patients with chronic insomnia will receive this treatment in Europe. In this situation alternative therapies which can demonstrate to be effective in improving the quality of sleep are welcome. Shiatsu is a non-invasive holistic therapy which could offer an acceptable alternative.

Literature study learns us that, from a Chinese medicine perspective, (sleeping) disorders are caused by patterns of disharmony of energy. Shen, being the most rarified form of Qi and residing in the Heart, represents the sum total of our emotions and is responsible for their manifestation. Emotions will effect the Shen, can disrupt the Heart causing sleep problems. A systematic review to examine TCM patterns commonly diagnosed in subjects with insomnia in acupuncture studies identified the ten most common patterns and developed this into a symptom checklist for diagnostic purpose.

My client, Maria, began to sleep badly, getting nightmares and suffered from anxiety and fatigue 4 months earlier. Her condition did correspond with the DSM-5 criteria for a Post Traumatic Stress Disorder (PTSD). I did rate her quality of sleep with the Pittsburgh Sleep Quality Index (PSQI) as 12, which corresponds with 'bad' sleepers.

By using the Chinese Medicine Insomnia Symptom Checklist I identified the Qi deficiency of Heart and Gallbladder pattern as the most probable cause for her insomnia. This finding did correspond with the disharmonies found in the Shiatsu back diagnosis. This pattern is seen in people who have been frightened and who worry excessively, corresponding with Maria's traumatic stress and psychological complaints. Using TCM patterns in the Shiatsu diagnosis assumes an understanding of the patterns in terms of the concepts used in Shiatsu. The use of the Chinese Medicine Insomnia Symptoms Checklist did enable me to make a distinction between the multiple TCM patterns as a possible cause for the insomnia and gave me a direction in the treatment.

Because of the traumatic stress she experienced it seemed that she was not receptive for the treatment from the very start. This corresponded with literature emphasising that 'as long as the patient is still in the throes of the trauma, the systems are in chaos and will not respond properly to the treatment of specific complaints like insomnia'. The treatment first focussed on smoothening her traumatic stress by strengthening the earth energy. After that the diagnosed energy pattern was treated by tonifying the Heart and Gallbladder energy and calming the mind. This was in a period that the client was on sick leave which also lessened the stress from the work situation. This stage of the treatment led to improvement of her health condition.

After 7 months and 14 treatments Maria did fill in the PSQI questionnaire to rate her quality of sleep again and the score was reduced from 12 to 5 (which corresponds with 'good' sleepers), meaning a reduction rate of 58%, so the clinical efficacy of the treatment was effective. I asked her about the emotional and psychological complaints she had at the start. Her irritability and palpitations had disappeared, her fatigue was reduced and her anxiety was less than before.

The lifestyle of the client, following yoga classes and meditating, will have contributed to her recovery. Her self medication with valerian was reduced to less than once a week, so did not play much of a role any more. During the months before her quality of sleep improved she did not receive psychological support.

The results from this case study could be the basis for further research to come to conclusions on the efficacy of Shiatsu treatment of insomnia co-morbid with psychological complaints and the use of the Chinese Medicine Insomnia Symptom Checklist in Shiatsu diagnosis. This should include insomnia where other patterns of disharmony are identified than in this case and insomnia co-morbid with other psychological complaints.

Similar checklists developed in TCM for osteoarthritis of the hip or knee, lateral elbow pain and chronic low-back pain may be explored for use in Shiatsu diagnosis as well.

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## List of Concepts and Abbreviations

Back	
diagnosis	Palpation of meridian reflex zones on the back of the client
CBT-I	Cognitive behavioural therapy for insomnia
Co-morbid	Existing simultaneously with another medical condition
DSM	Diagnostic and Statistical Manual for Mental Disorders
ICD	International Classification of Diseases
ICSD	International Classification of Sleep Disorders
Jitsu	A condition of excess of energy or fullness
Ki	Life energy or Qi
Kyo	A condition of deficiency of energy or emptiness
PSQI	Pittsburgh Sleep Quality Index
PTSD	Post-Traumatic Stress Disorder
Shen	The spirit of spirits or mind; the most rarefied form of Qi
TCM	Traditional Chinese Medicine
TCM pattern	Expression of existing disharmony of the internal organs
WM	Western Medicine

## **Annexes**

## **Annex 1: Administration literature search**

Searches in the PubMed database have been conducted in relation to each of the sub-questions answered in the results of the literature study. Sometimes significant additional results were found using the 'similar articles' link. In most cases only results where the 'Free article' was available were used for the study.

Collections were created in My NCBI for 'sleeplessness' and 'TCM diagnose'.

*What sleeping disorders are recognised in Western Medicine?*

A google search led to reference [1], Sleep Disorder Classifications on the website of the National Sleep Foundation, which listed the three classification systems ICSD [2], DSM [3], and ICD [4].

*What is the recommended treatment for insomnia in Western Medicine?*

The search (guideline[Title]) AND insomnia[Title] gave 15 results and one of the results was reference [9], The European guideline.

*How is insomnia co-morbid with psychological complaints evaluated in Western Medicine and what does this implicate for the treatment?*

The search (insomnia[Title]) AND psychi\*[Title] gave 108 results. The following references came out of these: [11], [13] and [15].

*What sleeping disorders are recognised in Traditional Chinese Medicine?*

The search (insomnia[Title]) AND "traditional Chinese medicine" gave 79 results of which 3 results led to reference [22], [25] and [34].

Reference [22] is the the study identifying the 10 top TCM patterns. Looking for studies in which [22] was cited lead to the study 'Identification of Chinese medicine syndromes in persistent insomnia associated with major depressive disorder: a latent tree analysis' being a follow-up study mentioning the 'Chinese Medicine Insomnia Checklist. A google search on this checklist lead to reference [23]. an article which had the full checklist as an annex.

*Which treatments based on Traditional Chinese Medicine are there for insomnia?*

Reference [29], giving information on the efficacy of tuina resulted form the (insomnia[Title]) AND "traditional Chinese medicine" search.

*How is insomnia co-morbid with psychological complaints evaluated in Traditional Chinese Medicine and what does this implicate for the treatment?*

One of the results from the search (insomnia[Title]) AND "traditional Chinese medicine" led to reference [38] acupuncture treatment for depression related insomnia.

For the following Saved searches in PubMed weekly notifications for new results were registered:

- (insomnia[Title]) AND "traditional Chinese medicine" (generated 3 additional results but no additional references.
- (insomnia[Title]) AND psychi\*[Title] (generated multiple additional results leading to the following references: [13] and [14]).

## **Annex 2: Consent form**

Case Report: Traditional Chinese Medicine patterns for insomnia treatment  
with Shiatsu

Principal Investigator: Piet Leunis

You are being asked to consider allowing Piet Leunis to use information about your treatments to write what is called a case report. Case reports are typically used to share new unique information experienced by one patient during his/her clinical care that may be useful for other health care professionals. A case report may be published (in print and/or via internet dissemination) for others to read, and/or presented at a conference. This form explains the purpose of this case report. Please read this form carefully and take your time to make your decision and ask any questions that you may have.

The purpose of this case report is to inform Shiatsu therapists and other health care professionals about the effect of a Shiatsu treatment for insomnia, making use of energy patterns commonly diagnosed in subjects with insomnia in acupuncture studies.

Your information being used for this case report includes information on (the background of) your complain, the diagnose, treatment and effect of the treatment.

Piet Leunis is obligated to protect your privacy and not disclose your personal information (information about you and your health that identifies you as an individual e.g. name, date of birth). When the case report is published or presented, your identity will not be disclosed.

You will not directly benefit from participating in this case report. The information that can be shared with other health care professionals, however, may improve the care that is received by others in the future.

Allowing your information to be used in this case report will not involve any additional costs to you. You will not receive any compensation.

Taking part in this case report is your choice (voluntary). You may choose not to take part or you may change your mind at any time. However, once the case report is written and published, it will not be possible for you to withdraw it. Your decision will not result in any penalty or loss of benefits to which you are entitled including the quality of care you receive.

You will be told about any new information relating to this case report that may affect you.

Your signature below means that you have read the above information about this Case Report and have had a chance to ask questions to help you understand how your information will be used and that you give permission to allow your information to be used in this case report.

SUBJECT CONSENT TO PARTICIPATE

Case Report Title: Traditional Chinese Medicine patterns for insomnia treatment  
with Shiatsu

Name of Participant:

By signing this form, I confirm that:

The case report has been fully explained to me and all of my questions have been answered to my satisfaction

I have been informed of the risks and benefits, if any, of allowing my information to be used in this case report

I have been informed that I do not have to participate in this case report

I have read each page of this form

I authorize access to my personal health information (medical dossier Meridiaan Shiatsu) as explained in this form

I have agreed to participate in this case report

Name of Participant

Signature

Date



### Annex 3: TCM pattern terminology

Top 10 TCM patterns for insomnia	Corresponding patterns
<b>Deficiency of both the heart and spleen</b>	Dual deficiency of the heart-spleen Heart and spleen deficiency [20] Heart- and Spleen-Blood deficiency [20]
<b>Hyperactivity of fire due to yin deficiency</b>	Yin deficiency with effulgent fire Heart Yin Deficiency pattern [21]
<b>Liver-qi stagnation transforming into fire</b>	Depressed liver qi transforming into fire Liver Qi depression Hyperactivity of Liver Yang [21]
<b>Heart-kidney non-interaction</b>	Heart Yin Vacuity (Often Associated with Kidney Yin Vacuity: Heart and Kidney Out of Harmony) [19] Kidney Yin Vacuity, Accompanied by Heart Yin Vacuity (Also Referred to as Heart and Kidney Not in Harmony) [19] Non-interaction between the heart and kidney Heart and Kidneys not harmonised [20] Disharmony between the Heart and Kidney [21]
<b>Qi deficiency of the heart and gallbladder</b>	Heart Qi Vacuity (Often Associated with Gallbladder Qi Vacuity) [19] Gallbladder Qi Vacuity (Often Associated with Heart Qi Vacuity) [19] Heart and Gall-Bladder deficiency [20] Qi Vacuity of the Heart and Gallbladder [35]
<b>Internal disturbance of phlegm-heat</b>	Phlegm Fire Harassing the Mind [19] Phlegm-Heat harassing the Mind [20] Phlegm Fire Harassing the Heart [21] Phlegm-Fire Harassing Internally [35]
<b>Liver fire flaming upward</b>	Liver Fire [19] Liver-Fire blazing [20]
<b>Heart deficiency with timidity</b>	Heart-gall bladder deficiency and timidity
<b>Stomach disharmony</b>	Stomach lost harmony
<b>Stomach qi disharmony</b>	Stomach qi lost harmony

## Annex 4: Chinese Medicine Insomnia Symptom Checklist

### 中醫失眠症狀表

#### Chinese Medicine Insomnia Symptom Checklist

在過去兩星期, 你有沒有下列症狀呢 (如果病人有該症狀, 則在方格裡填上√) ?

In the past 2 weeks, do you have the following symptoms (put a √ on the box if the patient has the symptom)?

請列出病人最先講出的三個主訴症狀

List the first 3 symptoms that the patient complains of:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

睡眠症狀Sleep-related symptoms			非睡眠症狀Non-sleep-related symptoms	
	Difficulty falling asleep	不易入睡	精神Vitality	
	Difficulty falling asleep alone	不能獨自安臥	Dyspnea	氣短
	Difficulty falling asleep with vexation	心煩難以入睡	Fatigue	乏力
	Difficulty staying asleep	易醒	Lassitude	神疲
	Excessive dreaming	多夢		
	Frequent awakening with a start	易驚醒	望診Inspection	
	Half asleep	朦朧不實	Reddish eyes	目赤
	Insomnia	失眠	Reddened cheeks	顴紅
	Insomnia with vexation	心煩不寐	Reddened complexion	面紅
	Restless sleep	睡眠不安	Reduction in luster complexion or lusterless complexion	面色少華
	Shallow sleep	睡而不實		
	Sleeping late at night	夜寐	頭面Head	
	Unrefreshing sleep	醒後困倦	Headache	頭痛
			Head distension	頭脹
非睡眠症狀Non-sleep-related symptoms			Heavy headedness	頭重
飲食 Appetite			Dizziness	頭暈目眩

	Aphthous stomatitis	口舌生瘡		Dizziness with headache	頭暈脹痛
	Dry mouth	口乾		Tinnitus	耳鳴
	Bitter taste	口苦			
	Dry throat	咽燥	<b>四肢Limbs</b>		
	Thirst	口渴		Weary limbs	腿困
	Favour of drinking	喜飲		Sore knees	腿軟
	Poor appetite	納差		Backache	腰酸
	Tasteless	飲食無味			
	Profuse sputum	痰多	<b>寒、熱、汗Cold, heat, and sweating</b>		
	Belching	噯氣		Cold extremities	四肢發涼
	Acid regurgitation	吞酸		Feverish sensations in the palms, soles and chest	五心煩熱
	Nausea	噁心		Hot flashes	潮熱
				Night sweating	盜汗
				Sweating	出汗
<b>二便 Urination and defecation</b>					
	Constipation	便秘	<b>月經/男科Menstruation / andrology</b>		
	Yellow urine	尿黃		Menstrual disturbance	月經不調
	Oliguria	小便短小		Nocturnal emission	夢遺
	Pale and large amount of urine	小便清長		Seminal emission	遺精
	Reddish urine	小便赤		Spermatorrhea	滑精
	Sloppy stool	便溏	<b>情志Emotion</b>		
<b>胸腹Chest and abdomen</b>				Flusteredness	心慌
	Stiffness and pain in stomach and abdomen	脘腹脹痛		Frequent sighing	善太息
	Hypochondriac distension	兩脇脹痛		Fright palpitation	驚悸
	Hypochondriac pain	脇痛		Thoughtful	多慮
	Oppression in the chest	胸悶		Impatience	性情急躁

	Pain in the chest and hypochondrium	胸脇痛		Irritability	易怒
	Abdominal distention	腹脹		Palpitation	心悸
	Gastric stuffiness	脘痞		Vexation	心煩
	Stuffiness in stomach and abdomen	脘腹脹滿		Poor memory	健忘
				Vexation in sitting and lying down	坐臥不安
				Susceptibility to fright	遇事善驚
<b>舌象 Tongue features</b>			<b>脈象 Pulse features</b>		
	Dry tongue	舌燥		Fine pulse	脈細
	No coating	無苔		Rapid pulse	脈數
	Pale tongue	舌淡		Slippery pulse	脈滑
	Red in the tip of tongue	舌尖紅		String-like pulse	脈弦
	Red tongue	舌紅		Sunken pulse	脈沉
	Scanty coating	少苔		Strong pulse	脈有力
	Slimy coating	苔膩		Weak pulse	脈象無力
	Thick coating	苔厚			
	Thin coating	苔薄			
	White coating	苔白			
	Yellow coating	苔黃			

其他症狀 Other symptoms:

中醫證型診斷 (只可選以下其中一個)

**TCM diagnosis (Check only 1 of the followings):**

- |  |  |   |   |  |
|--|--|---|---|--|
| 1. 心脾兩虛 <input type="checkbox"/><br><i>Deficiency of both the heart and spleen</i> | 2. 心腎不交 <input type="checkbox"/><br><i>Heart-kidney noninteraction</i> | 3. 心膽氣虛 <input type="checkbox"/><br><i>Qi deficiency of the heart and gallbladder</i> | 4. 肝鬱化火 <input type="checkbox"/><br><i>Liver-qi stagnation transforming into fire</i> | 5. 陰虛火旺 <input type="checkbox"/><br><i>Hyperactivity of fire due to yin deficiency</i> |
| 6. 痰熱內擾 <input type="checkbox"/><br><i>Internal disturbance of phlegm-heat</i>     | 7. 肝火上擾 <input type="checkbox"/><br><i>Liver fire flaming upward</i>   | 8. 胃腑不和 <input type="checkbox"/><br><i>Stomach disharmony</i>                         | 9. 心虛膽怯 <input type="checkbox"/><br><i>Heart deficiency with timidity</i>             | 10. 胃氣失和 <input type="checkbox"/><br><i>Stomach qi disharmony</i>                      |

## Annex 5: Clinical features top 10 TCM patterns for insomnia

Source: [22] table 2

TCM patterns	Sleep-related symptoms	Non-sleep-related symptoms and signs	Tongue features	Pulse features
<u>Excess patterns</u>				
<i>Liver-qi stagnation transforming into fire</i>	<b>Insomnia</b> , difficulty falling asleep, excessive dreaming	<b>Vexation, irritability, bitter taste, constipation, reddish eyes, yellow urine</b> , headache, dizziness, hypochondriac pain, impatience, reddened complexion, thirst, poor appetite, oppression in the chest, tinnitus, hypochondriac distension, favour of drinking, reddish urine, pain in the chest and hypochondrium, frequent sighing	<b>Red tongue with yellow coating</b>	<b>Rapid and string-like pulse</b> , fine pulse
<i>Internal disturbance of phlegm-heat</i>	Insomnia, restless sleep	<b>Dizziness, vexation, bitter taste, profuse sputum, oppression in the chest, gastric stuffiness</b> , heavy headedness, acid regurgitation, poor appetite, belching, headache, nausea	<b>Red tongue with yellow and slimy coating</b>	<b>Slippery and rapid pulse</b>
<i>Liver fire flaming upward</i>	<b>Insomnia</b> , difficulty falling asleep	<b>Vexation, bitter taste, dry mouth, reddish eyes, tinnitus, irritability</b> , constipation, dizziness, dizziness with headache, dry throat, nocturnal emission, feverish sensations in the palms and soles, hypochondriac pain, impatience, reddened complexion, night sweating, palpitation and restless, aphthous stomatitis, backache, poor memory, yellow urine	<b>Thin coating, yellow coating</b> , red in the tip of tongue, red tongue, scanty coating, no coating	<b>Rapid</b> , string-like pulse, fine pulse
<i>Stomach disharmony</i>	Difficulty falling asleep, excessive dreaming, difficulty staying asleep, insomnia with vexation, restless sleep, unrefreshing sleep, insomnia, shallow sleep	<b>Vexation, belching, dizziness</b> , dry mouth, dry throat, feverish sensations in the palms, soles, and chest, night sweating, gastric stuffiness, stuffiness and pain in stomach and abdomen, sore knees, backache, hot flashes, constipation, flusteredness, poor appetite, oppression in the chest, stuffiness in stomach and abdomen, sloppy stool, tinnitus	<b>Slimy coating</b> , red tongue, scanty coating, thick coating, white coating, yellow coating	<b>Slippery pulse</b> , fine pulse, rapid pulse, string-like pulse, weak pulse
<i>Stomach qi disharmony</i>	*	<b>Abdominal distention, belching</b>	*	*

<u>Deficiency patterns</u>				
<i>Deficiency of both the heart and spleen</i>	<b>Excessive dreaming, difficulty staying asleep</b> , difficulty falling asleep, insomnia, half asleep	<b>Palpitation, lassitude, reduction in luster complexion, poor memory, dizziness, fatigue</b> , tasteless, weary limbs, poor appetite, sloppy stool	<b>Pale tongue with thin coating</b> , white thin coating	<b>Fine and weak pulse</b>
<i>Hyperactivity of fire due to yin deficiency</i>	<b>Insomnia</b> , difficulty staying asleep, insomnia with vexation, excessive dreaming, difficulty falling asleep	<b>Tinnitus, palpitation, poor memory, dizziness, feverish sensations in the palms, soles and chest, dry mouth, backache, vexation</b> , nocturnal emission, acid regurgitation, sore knees, sweating, dry throat, seminal emission, poor appetite, bitter taste, hot flashes, reddened cheeks	<b>Red tongue</b> , scanty coating, slimy coating, white coating, yellow coating	<b>Fine and rapid pulse</b> , slippery pulse
<i>Qi deficiency of the heart and gallbladder</i>	<b>Insomnia, excessive dreaming, frequent awakening with a start</b> , difficulty falling asleep, difficulty falling asleep alone, difficulty staying asleep	<b>Palpitation, fatigue, susceptibility to fright, dyspnea</b> , pale and large amount of urine, vexation in sitting and lying down, thoughtful	<b>Pale tongue</b> , thin coating	<b>Fine and string-like pulse</b>
<i>Heart-kidney noninteraction</i>	Insomnia, excessive dreaming, difficulty falling asleep, difficulty falling asleep with vexation, insomnia with vexation, difficulty staying asleep, restless sleep	<b>Backache, dizziness, tinnitus</b> , palpitation, vexation, feverish sensations in the palms, soles, and chest, seminal emission, night sweating, sore knees, dry mouth, susceptibility to fright, aphthous stomatitis, cold extremities, fright palpitation, irritability, reddened complexion, reddish eyes, poor memory, dry throat, hot flashes, impatience, nocturnal emission, spermatorrhea	<b>Red tongue</b> , scanty coating, thin coating, pale tongue, yellow coating, red in the tip of the tongue	<b>Fine and rapid pulse</b> , string-like pulse, sunken pulse, weak pulse
<i>Heart deficiency with timidity</i>	<b>Excessive dreaming, sleeping late at night</b> , frequent awakening with a start	<b>Palpitation, susceptibility to fright</b> , dyspnea, oppression in the chest, gastric stuffiness	<b>Pale tongue, thin coating</b> , white coating	<b>Fine and string-like pulse</b> , weak pulse

Symptoms mentioned in more than 50% of the studies that described the TCM pattern are bolded.

\*No study provided information regarding sleep-related symptoms and tongue and pulse features of stomach qi disharmony.

## Annex 6: Spreadsheet Insomnia Checklist

Chinese Medicine Insomnia Symptom Checklist												
Last 2 weeks		Deficiency of both the heart and spleen	Heart-kidney noninteraction	Qi deficiency of the heart and gallbladder	Liver-qi stagnation transforming into fire	Hyperactivity of fire due to yin deficiency	Internal disturbance of phlegm-heat	Liver fire flaming upward	Stomach disharmony	Heart deficiency with timidity	Stomach qi disharmony	
Latest symptoms	<input type="checkbox"/>	1	4	1	1	2	1	1	3	0		
Symptom-related symptoms	<input type="checkbox"/>	0	10	1	4	2	0	8	3	1		
RELATED SYMPTOMS												
Falling asleep	<input checked="" type="checkbox"/>	1	1	1	1	1		1	1			
Falling asleep alone	<input type="checkbox"/>			0								
Falling asleep with vexation	<input checked="" type="checkbox"/>		1									
Staying asleep	<input type="checkbox"/>	0	0	0		0			0			
Dreaming	<input type="checkbox"/>	0	0	0	0	0			0	0		
Awakening with a start	<input type="checkbox"/>		0							0		
Waking up	<input type="checkbox"/>	0										
Waking up easily	<input type="checkbox"/>	0	0	0	0	0	0	0	0			
Waking up with vexation	<input checked="" type="checkbox"/>		1			1			1			
Waking up at night	<input checked="" type="checkbox"/>		1				1		1			
Waking up late at night	<input type="checkbox"/>									0		
Waking up early	<input type="checkbox"/>								0			
DEEP-RELATED SYMPTOMS												
Stomatitis (inflammation of tongue with ulcers)	<input checked="" type="checkbox"/>		1					1				
Thirst	<input checked="" type="checkbox"/>		1			1		1	1			
Tasteless food	<input type="checkbox"/>					0	0	0	0			
Bad breath	<input checked="" type="checkbox"/>		1			1		1	1			
Excessive drinking	<input type="checkbox"/>					0						
Anorexia	<input type="checkbox"/>	0				0	0	0	0			
Regurgitation	<input type="checkbox"/>	0										
Cough	<input type="checkbox"/>											
Phlegm	<input type="checkbox"/>											
Constipation	<input type="checkbox"/>											
Diarrhea	<input type="checkbox"/>											
Red eyes	<input checked="" type="checkbox"/>		1			1		1				
Red cheeks	<input type="checkbox"/>					0						
Red complexion	<input checked="" type="checkbox"/>		1			1		1				
Pale complexion or yellowish complexion	<input type="checkbox"/>	0										
Heat	<input type="checkbox"/>					0	0					
Headache	<input type="checkbox"/>						0					
Stiff neck	<input type="checkbox"/>	0	0		0	0	0	0	0			
Stiff shoulders	<input type="checkbox"/>		0									
Stiff arms	<input type="checkbox"/>		0			0		0	0			
Stiff legs	<input type="checkbox"/>											
Stiff back	<input type="checkbox"/>											
Stiff joints	<input type="checkbox"/>											
Stiff muscles	<input checked="" type="checkbox"/>		1									
Sensations in the palms, of chest	<input type="checkbox"/>		0			0		0	0			
Flushing	<input type="checkbox"/>		0			0			0			
Feeling hot	<input checked="" type="checkbox"/>		1					1	1			
Feeling cold	<input type="checkbox"/>					0						
Excessive urination and defecation	<input type="checkbox"/>					0		0	0			
Excessive urination	<input type="checkbox"/>					0		0				
Excessive defecation	<input type="checkbox"/>											
Large amount of urine	<input type="checkbox"/>			0								
Excessive stool	<input type="checkbox"/>	0										
Excessive stool (loose stool)	<input type="checkbox"/>											
Excessive abdomen	<input type="checkbox"/>					0						
Excessive distension	<input type="checkbox"/>					0						
Excessive pain	<input type="checkbox"/>					0		0				
Excessive in the chest	<input type="checkbox"/>					0	0		0	0		
Excessive chest and abdomen	<input type="checkbox"/>					0						
Excessive distension	<input type="checkbox"/>											
Excessive fullness	<input type="checkbox"/>						0		0	0		
Excessive in stomach and abdomen	<input type="checkbox"/>								0			
DEEP-RELATED SYMPTOMS												
Excessive emission	<input type="checkbox"/>		0			0		0				
Excessive emission	<input type="checkbox"/>		0			0						
Excessive thinness	<input type="checkbox"/>									0		
Excessive sighing	<input type="checkbox"/>					0						
Excessive agitation	<input type="checkbox"/>		0									
Excessive fullness	<input type="checkbox"/>			0								
Excessive cold	<input checked="" type="checkbox"/>		1		1			1				
Excessive heat	<input checked="" type="checkbox"/>		1		1			1				
Excessive in	<input type="checkbox"/>	0	0	0		0		0		0		
Excessive in	<input type="checkbox"/>	0			0	0	0	0	0			
Excessive memory	<input type="checkbox"/>	0	0			0		0				
Excessive in sitting and lying down	<input type="checkbox"/>			0								
Excessive ability to fright	<input checked="" type="checkbox"/>		1	1						1		

Annex 7: Maria’s Chinese Medicine Insomnia Symptoms Checklist

Chinese Medicine Insomnia Symptom Checklist												
Client Maria	Deficiency of both the heart and spleen	Heart-kidney noninteraction	Qi deficiency of the heart and gallbladder	Liver-qi stagnation transforming into fire	Hyperactivity of fire due to yin deficiency	Internal disturbance of phlegm-heat	Liver fire flaring upward	Stomach disharmony	Heart deficiency with timidity	Stomach qi disharmony		
% Sleep-related symptoms	40	29	50	33	40	0	0	25	67	0		0
% Non-sleep-related symptoms	30	14	57	10	11	8	14	6	40	0		0
Sleep-related symptoms	2	2	3	1	2	0	0	2	2	0		0
Non-sleep related symptoms	3	3	4	2	2	1	3	1	2	0		0
Available Sleep-related symptoms	5	7	6	3	5	2	2	8	3	0		0
Available non-sleep-related symptoms	10	22	7	20	18	12	21	18	5	2		2
Difficulty staying asleep	1	1	1		1			1				
Excessive dreaming	1	1	1	1	1			1	1			
Frequent awakening with a start			1						1			
Dyspnea			1									1
Fatigue	1		1									
Dizziness	1	1		1	1	1	1	1	1			
Pale and large amount of urine			1									
Irritability		1		1								
Palpitation	1	1	1		1		1		1			1





## Annex 9: Maria's PSQI compared

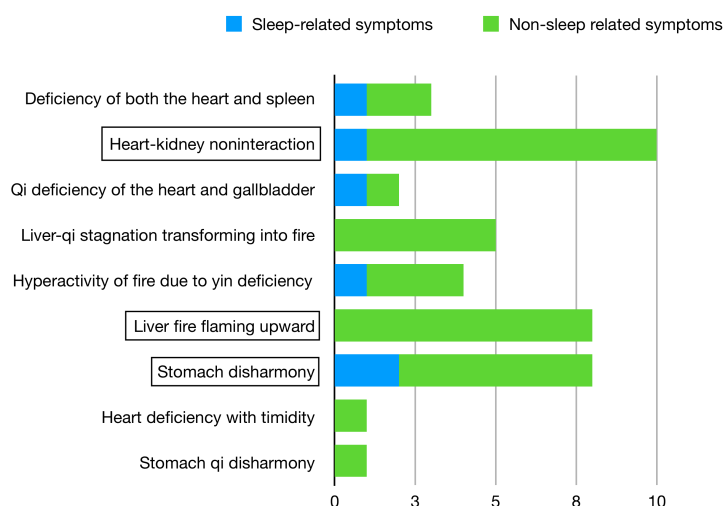
PSQI components	before the treatment	7 months into the treatment
<b>Subjective sleep quality</b>	Fairly bad (2)	Fairly good (1)
<b>Sleep latency: cannot get to sleep within 30 minutes</b>	Less than once a week (1)	Not during the past month (0)
<b>Sleep duration</b>	6 hours (2)	8 hours (0)
<b>Sleep efficiency</b>	67% (2)	100% (0)
<b>Sleep disturbance:</b>	<p>Waking up in the middle of the night or early morning: Three or more times a week (subscore 3)</p> <p>Feel too cold: Less than once a week (subscore 1)</p> <p>Have bad dreams: Three or more times a week (subscore 3)</p> <p>Total of subscores 7 (1)</p>	<p>Waking up in the middle of the night or early morning : Once or twice a week (subscore 2)</p> <p>Feel too cold: Not during the past month (subscore 0)</p> <p>Have bad dreams: Less than once a week (subscore 1)</p> <p>Total of subscores 3 (1)</p>
<b>Use of sleep medication</b>	Once or twice a week (2)	Less than once a week (1)
<b>Daytime disfunction</b>	<p>Trouble staying awake: less than once a week (subscore 1)</p> <p>A very big problem to keep up enough enthusiasm to get things done (subscore 3)</p> <p>Weighted total (2)</p>	<p>Trouble staying awake: not during past month (subscore 0)</p> <p>A very big problem to keep up enough enthusiasm to get things done (subscore 3)</p> <p>Weighted total (2)</p>
<b>TOTAL SCORE</b>	<b>12</b>	<b>5</b>

## Annex 10: The case of night sweating

A 42 years old woman, which I will call Petra, came to my practice with the complaint night sweating. The night sweating started together with anxiety complaints six and half years earlier, following the delivery of her third child. At that time she was afraid for not being able to sleep. Some anxiety is still there. Night sweating occurs almost every night and she sometimes has to change her sleepwear twice a night. She has difficulty staying asleep. She also feels emotional and complained about anger.

Since three of the 10 TCM patterns ('Heart-Kidney noninteraction', 'Liver fire flaming upward' and Stomach disharmony') have night sweating as a symptom I decided during the second appointment to use the checklist to identify which of these three patterns might cause the night sweating.

Since the sleep-related symptoms did not correspond with the Liver fire flaming upward pattern this one could be ignored. The other two stood out due to a significant amount of symptoms.



Symptoms related to both patterns: difficulty staying asleep, dizziness, night sweating and vexation.

Symptoms only related to the Heart-Kidney non interaction pattern: aphthous stomatitis, (inflammation of oral mucosa with ulcers), cold extremities, fright palpitation, impatience, irritability and poor memory.

Symptoms only related to the Stomach disharmony pattern: shallow sleep, belching, constipation and gastric stuffiness.

The first few appointments I did focus on the Heart-Kidney non interaction pattern. No notable change in night sweating occurred. Then I also started treating the Stomach disharmony pattern and slowly the night sweating reduced. A setback occurred in the week before her period, when the night sweating had always been most extreme. We planned a treatment just before that next period in her menstruation cycle.

Chinese Medicine Insomnia Symptom Checklist									
NAAM:									
During past 2 weeks	Deficiency of both the heart and spleen	Heart-kidney noninteraction	Qi deficiency of the heart and gallbladder	Liver-qi stagnation transforming into fire	Hypertativity of fire due to yin deficiency	Liver fire flaming upward	Stomach disharmony	Heart deficiency with timidity	Stomach qi disharmony
Sleep-related symptoms	1	1	1	1	0	0	2	0	0
Non-sleep related symptoms	2	9	1	1	5	8	6	0	1
Available Sleep-related symptoms	5	7	6	3	5	2	8	3	0
Available non-sleep-related symptoms	10	22	7	20	18	21	18	5	2
Difficulty staying asleep	1	1	1	1	1		1	1	
Shallow sleep							1		
Aphthous stomatitis (inflammation of oral mucosa with ulcers)		1				1			
Belching							1		1
Dizziness	1	1		1	1	1	1		
Cold extremities		1							
Night sweating		1				1	1	1	
Constipation				1		1	1		
Pale and large amount of urine			1				1		
Gastric stuffiness							1	1	
Fright palpitation		1							
Impatience		1		1		1			
Irritability		1		1		1	1		
Vexation		1		1	1	1	1		
Poor memory	1	1			1	1			

After eight treatments during a period of three months the night sweating had almost disappeared (three subsequent weeks with only minimal night sweating during two nights).

We went through the symptoms she had mentioned at the start of the treatments and the following symptoms had disappeared as well: anxiety, being emotional, feeling anger, dizziness, aphthous stomatitis, fright palpitation, belching and gastric stuffiness. Her sleep was normal now as well.