



THE IMPORTANCE OF MENTAL AND PHYSICAL RELAXATION IN TREATING SLEEP DISORDERS

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Abstract

Chronic insomnia is the most common form of a sleep disorder, to which, however, is not given the proper importance. This research comprised 14 subjects with various forms of insomnia, on whom an anti-stress massage intervention was performed, over the course of three months.

The results proved that insomnia and its associated symptoms have been removed, the subjects' general state of health, and, implicitly, the quality of their lives has improved.

Key words: insomnia, relaxation, anti-stress massage.

Introduction

"Sleep represents a normal and periodical physiological state of rest <http://www.archeus.ro/lingvistica/CautareDex?query=REPAUS> of living beings, necessary for recovering their strength, characterized by a total or partial stop in the functioning of their consciousness, through muscle relaxation, <http://www.archeus.ro/lingvistica/CautareDex?query=PRIN> slowing of the circulation, of the breathing and through dreams" (<http://www.archeus.ro/lingvistica>).

A normal sleep, from the point of view of duration, is considered to take more than 7 hours, and less than 9 hours, per night. Less than 7 hours suggests inadequate sleeping, and over 9 hours suggests primary hypersomnia (a state of excessive daytime somnolence), but this not a strict rule, because there are individual variations in the sleep time.

"As modern civilization is considerably different from the traditional, pre-industrial civilizations, we must not be surprised that, for this reason, the pathologies of modern civilization are also different from the preceding civilizations.... In this context, we must not be surprised by the tremendous impact this radical change in environment had on our health, or, as a consequence, by the changes in the human pathology. Among the many diseases of the century, the most frequent ones are atherosclerosis and insomnia" (Percek, 1991).

A highly regarded expert in this field, professor Thomas Roth, of Detroit, USA, writes that "30% of the world population suffers from common insomnia, which is a true plague of our times." In his turn, prof. Liviu Popoviciu, from the Institute of Medicine of Târgu Mureș, emphasized the fact that "insomnia has become today a special, if not a very serious problem. One that could not be imagined a

century ago." (Percek, 1991)

Throughout most of the modern age, the medicine of sleep suffered from a lack of a comprising, largely accepted and used definition of insomnia. There are, however, a few "components that can be considered for a general definition of insomnia, including (Sateia, Buysse, 2010):

- The symptomatic profile - most definitions included in the medical history troubles of falling asleep and of staying asleep, later including waking up early. There are debates whether unresting sleep should be included in this definition.
- The chronic element - most modern definitions differentiated between acute and chronic insomnia, although the exact time period that separates them varies significantly, from two weeks to six months.
- The subjective versus the objective researches
- Even though it was an admitted fact for a long time that insomnia is in many ways a very subjective experience, some researchers in several clinical approaches tried to define insomnia using objective parameters, such as sleep latency, the number of times the patient woke up, the waking up period after the beginning of sleep, or after the total time of sleep. Currently, the objective-quantitative criteria are top of the list in research, while the clinical diagnosis criterion is based only on the subjective aspects.
- The frequency - there is a large variety of opinions regarding whether the frequency criterion should be taken into consideration. Currently, neither the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM- IV), nor the International Classification of Sleep Disorders, 2nd edition (ICSD - 2) do not include the frequency criterion.
- The consequences during the day"

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As the field of sleep medicine has matured in the last two decades, it has become increasingly clear that sleep interruption or lacking a normal sleep have rapid adverse consequences. Chronic insomnia is the most common form of a sleep disorder, to which, however, is not given the proper importance, being considered more of a benign existential problem than a disorder that requires serious medical attention. Still, "investigations on chronic insomnia, conducted over the last 20 years, emphasize how important it is to address this problem as a component of a patient's general health. It is not only clear that chronic insomnia is associated with the injuring of the quality of life..., but the newest data show that insomnia can be a significant risk factor for the development of major physical and psychiatric problems" (Sateia, Buysse, 2010).

In the modern age, medicine has gradually progressed toward a multi-determining model of the causes for illness, and toward a multimodal treatment. It has become increasingly clearer that sleep is one of the factors determining health and the state of wellbeing. It is no longer possible for the scientists to study diseases effectively, or for the physicians to treat them effectively, without taking into consideration the role played by sleep and circadian factors in ensuring a good state of health.

Over the last 20 years, great progress has been made in understanding the nature and characteristics of chronic insomnia, and in the medical world's ability to evaluate exactly and to treat this problem. This progress has changed profoundly the way in which chronic insomnia is regarded, and most importantly, it has changed the way in which it is considered, from a secondary symptom for other disorders, to an illness that appears concomitantly with other disorders. This change is important because "chronic insomnia appears very often concomitantly with other physical or psychiatric illnesses. This perspective suggests that chronic insomnia is manifested through its unique and somewhat independent physiopathology that is not only influenced by concomitant disorders, but it also has a major influence on them" (Sateia & Buysse, 2010).

As Horne, 2008, writes, "it is remarkable that, despite the wide acceptance that sleep disorders are caused by psychological factors, the treatments were, unfortunately, mostly pharmacological in nature. Opiates, alcohol, and herbs such as Valerian, were most probably used in treating insomnia, in Greek and Sumerian civilizations. The therapies most used in the first half of the 20th century were based on barbiturates. The discovery of benzodiazepine, in 1960, was at the basis of the current pharmacological approach of insomnia."

The exact causes of insomnia are less known, but in general terms, the etiology of insomnia implies a combination of biological, psychological, and social

factors. "Insomnia is conceptualized as a state of hyperexcitation" (Perlis et al., 2005). It is believed that stress plays a main role in activating the hypothalamic and pituitary gland, and in producing the conditions for the appearance of chronic insomnia. A survey has shown that "adults with insomnia, compared with the ones with a normal sleep (after a 24 h period), have an increased level of cortisol and adrenocorticotrophic hormone (ACTH) response, released by the hypothalamic-pituitary-adrenal gland after stress exposure" (Vgontzas et al., 2001). The cortisol and ACTH secretion model for 24 hours is different, however, from the one in the persons who are chronically stressed. Partinen & Hublin (as cited in Colten & Altevogt, 2006) write that: "The cognitive factors, such as worrying, meditation, and fear of not falling asleep, continue to maintain the problem through behavioral conditioning. Other perpetuating factors include slight exposures and unstable sleep programs."

Patients with insomnia often attribute their condition to a hyperactive brain. Several evidence from pre-clinical studies to neuro-imagistic studies of sleep in patients with insomnia, suggests that there are multiple neural systems hierarchically arranged in the CNS that contribute to the excitation just as the discontents caused by insomnia. Nofzinger et al. (as cited in Colten & Altevogt, 2006), think that "the structures that regulate sleep and being awake states, such as the brainstem, the hypothalamus, and the base of the anterior side of the brain, are abnormally active during sleep in the patients with primary insomnia. The abnormal activity in the neocortical structures that control the executive function and is responsible of a modulating behavior, linked to excitation and basic emotions, has been observed in people who suffer from insomnia associated with depression."

According to Edinger & Means 2005, "the main risk factors for insomnia appear in elderly people and women."

Ford & Kamerow (as cited in Colten & Altevogt, 2006), show that "an important study highlights a double number of women suffering from insomnia, compared with the men, although there is the possibility that the results were influenced by a certain prejudice." The reason behind the apparent larger predominance in women is not understood, but most hypotheses incline toward the endocrine differences. Other risk factors for insomnia include "the history of insomnia inside the family" (Dauvilliers et al., 2005), "a stressful lifestyle, physical and psychiatric disorders, but also working in shifts" (Edinger & Means, 2005).

The earliest study on insomnia, from the modern age, was published by Bixler et al., in 1979. In this study, approximately 1000 Los Angeles area residents were interviewed, "finding a prevalence of insomnia of 42.5%" (Sateia & Buysse, 2010). The survey referred to insomnia exclusively as a symptom.



Since then, the epidemiological studies have become increasingly sophisticated, including criteria that evaluate the profile of the symptoms, the frequency, the severity, the consequences, and other characteristics. Once this progress happened, the recorded data modified, and the high percentage described by Bixler diminished.

Currently, the clear tendency in the epidemiological research is toward the consequences during the day, and toward the criterion of applying the final diagnosis.

"A study conducted on almost 25000 Europeans shows that 16.8% of the interviewed subjects reported one or more symptoms of insomnia (difficulty in falling asleep, or staying asleep, or an unresting sleep). The addition of the criterion referring to the repetition of insomnia over the course of one month reduces the percentage to 15.8, while the supplementary demand referring to the associated consequences during the day, adds to 11.1%, meeting all the other three criteria. Similar results have been recorded in the Canadian population, starting from the initial criterion of unresting sleep (17.8%). The addition of the criterion referring to the presence of a symptom of insomnia (trouble falling asleep and/or staying asleep) got a result of 11.2%. The addition of the criterion of duration and consequences during the day reduced the percentage to 4-5" (Sateia & Buysse, 2010).

Due to its chronic nature, insomnia is associated with substantial insufficiencies in an individual's quality of life. In several studies, "the insomniacs reported a drop in the quality of their lives," in practically all of the 36 points of the SF-36 study (Short Form Health Survey of the Medical Outcomes Study), which taps eight health concepts: physical functioning, role limitations due to physical health problems, bodily pain, general health perceptions, energy/fatigue, social functioning, role limitations due to personal or emotional problems, and emotional well-being. Another study compared the SF-36 results for the groups with severe and mild insomnia, with the results for the groups of patients diagnosed with depression and congestive heart failure. "The patients with severe insomnia had a larger number of functional disorders than the ones with congestive heart failure, among numerous other emotional and mental health effects" (Colten & Altevogt, 2006).

Methods and Procedures

This study aimed to identify certain possibilities of therapeutic intervention in the case of sleep disorders, other than drug therapy. As such, the following hypotheses have been established:

- Presumably, the use of anti-stress massage, correctly adapted to the needs of each patient's body, can determine the improvement of the

quality of sleep, and considerably diminish the symptoms associated with insomnia.

- Presumably, the improvement of the quality of sleep and the diminishing/ disappearance of the symptoms associated with insomnia will determine an increase in the quality of life of the patients benefiting from the anti-stress massage.

The research was conducted on a group of 14 subjects (10 women and 4 men), between 22 and 45 years old, with various forms of sleep disorders (transient insomnia, Sleep Onset Insomnia, Sleep Maintenance Insomnia, Early Morning Awakening Insomnia).

The necessary information were obtained directly from the subjects, by applying a **Insomnia Evaluation Questionnaire**

(<http://www.sleepmedcenter.com>) (Annex 1), which tried to assess the following aspects: the description of the sleep disorder, its origins and history, the insufficiencies (the measure in which insomnia affects the quality of life), the treatments (past or current), the patient's current state of health in relation to insomnia.

Even if most answers to the above-mentioned questionnaire consisted in simply choosing certain attributes corresponding to each item, the answers to some of the questions needed a clear specification, such as: How long does it usually take you to fall asleep? (minutes); How many times do you wake up during the night?; How long are you usually awake after waking up at night? (minutes); On how many nights during an average week do you experience sleep difficulties?; How long did you have sleep disorders? (weeks, months).

After clarifying the initial status, an intervention program was established, based on three anti-stress massage sessions per week. This program was applied over the course of three months.

"The anti-stress massage is a massage of re-balancing the psyche and the body and of setting them at a level that would ensure a state of well-being. It is a massage of reintegration of the body scheme, of relaxation, of restructuring the personal history. The movements are fluid, enveloping, and successive, like one movement that goes over the entire body, following its shapes and contours. The anti-stress massage aims to reestablish the unity of the body, mind, and psycho-behavior, linking these elements between them. Anti-stress massage determines the rediscovering of the body parts, through a reunification and re-harmonization of the receptive and active parts of the body, thus forming an axis that balances the whole organism." (Mârza, 2005).

All the 22 specific anti-stress massage tracks were applied, through successive approach, but also according to the needs, adapting the intervention to the each person's current mood. Each session took between 30 minutes and one hour.

Generally, starting from the similar symptoms reported by the subjects, the following goals for the massage intervention were established:

- Diminishing the sleepiness and fatigue;
- Preventing depression and anxiety;

- Improving the quality of life;
- Increasing the ability to function at work;
- Eliminating the physical and mental discomfort.



Figure 1. Pictures taken during the application of the anti-stress massage therapy

Results

In the initial testing, the subjects reported very often difficulties in staying asleep, frequent sleepiness during the day, physical discomfort, psychological tension due to thoughts and worries appeared during the periods when they could not sleep, muscle tensions associated to the psychological ones, states of irritability, and, variably, states of anxiety and depression. Because of these disorders, all of them reported a drop in their ability to function at work, frequent mood changes, memory troubles, and a decreased ability to focus. All the subjects have initially reported a gradual decrease in their interest for any kind of activity, in their appetite, and continual fatigue. Two of the women and two of the men accused even the appearance, during certain moments of the day, of cardiac arrhythmias, dizziness, and sometimes, headaches and gastro-intestinal symptoms.

The presentation of the results is based on the calculated averages for the entire group of subjects, for each of the quantifiable items in the questionnaire. Thus, the following results were obtained:

- The time it took the patients to fall asleep has decreased, from 60 minutes, in average, to 35 minutes, in average (Chart 1).
- The frequency of the wakings per night has decreased, from 5, in average, to one, in average (Chart 2).

- The time it took the patients to remain awake, after waking up during the night, has decreased, from 60 minutes, in average, to 15 minutes, in average (Chart 3).
- The frequency of insomnias per week has decreased, from 5, in average, to 1, in average (Chart 4).

In the final assessment, the answers given to the questionnaire have shown that all the symptoms associated with insomnia that were initially reported, have considerably diminished, or even disappeared, the subjects being aware of a clear improvement in the quality of their lives.

The application of anti-stress massage determined a mental relaxation in the subjects, leading to an improvement in their moods and their trust in themselves and in the ones around them, this determining the improvement of work performances, social and family relations. Also, the psychological relaxation obtained through the anti-stress massage allowed the gradual diminish of the impact of negative images from the past, and the new situations to be approached in a less stressful manner, this being a very important step forward in the patients' stress management.

Discussions

During time, sleep disorders were studied and the studies conducted in this area established, on experimental basis, different ways of therapeutic intervention (Benca, 2005; Edinger, Means, 2005; Perlis, Smith, Pigeon, 2005; Sateia, Buisse, 2010), but, in the specialty literature, it cannot be found any reference about experiments that have as an objective studying the effects of anti-stress massage on subjects suffering of sleep disorders.

The ending of the study and the obtained results allow us to see the measure in which the initial hypotheses have been confirmed or not; thus:

1. The hypothesis stating that the use of anti-stress massage, correctly adapted to the needs of each patient's body, can determine the improvement of the quality of sleep, and considerably diminish the symptoms associated with insomnia was confirmed, the results proving the fact that the sleepiness, the continual fatigue, the mood changes, the troubles of concentration, the social/working troubles, the reduced motivation, the physical and psychological discomfort, have all been reduced or eliminated.
2. The hypothesis stating that the improvement of the quality of sleep and the diminishing/disappearance of the symptoms associated with insomnia will determine an increase in the quality of life of the patients benefiting from the anti-stress massage was also confirmed, the results proving that the subjects' health has improved.

Conclusion.

The above statements support the following

conclusions:

- The application of anti-stress massage determined the considerable reduction, up to near elimination, of the sleep disorders and of the associated symptoms.
- The physical and psychological rebalance obtained as a result of the anti-stress massage had influences also on the behavior of the subjects during stressful situations, helping them to manage these situations better.
- The improvement of the quality of sleep, as a result of applying the anti-stress massage, determined the subjects to give up certain treatments they were previously taking.
- As a result of the improvement of the quality of sleep, the subjects' quality of life has also improved, the next-day consequences of insomnia disappearing.
- Once the sleep disorders have been cured, the subjects of the anti-stress massage treatment have also benefited from the removal of certain disorders of the general functionality of the body, which contributed to the improvement of their health, and to the considerable decrease in the risk of getting seriously ill in the near future.

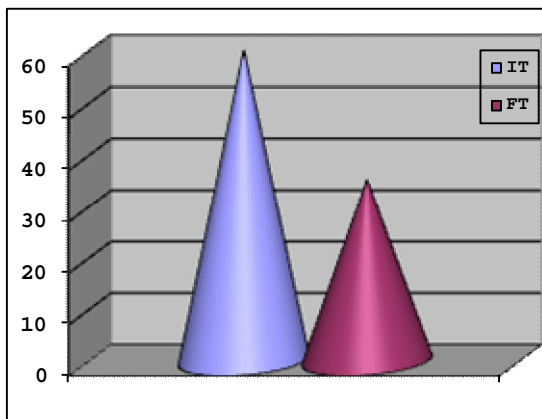


Chart 1. The evolution of the average time to fall asleep

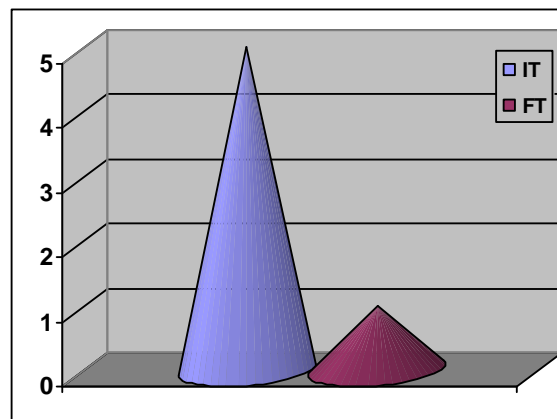


Chart 2. The evolution of the frequency of wakings per night

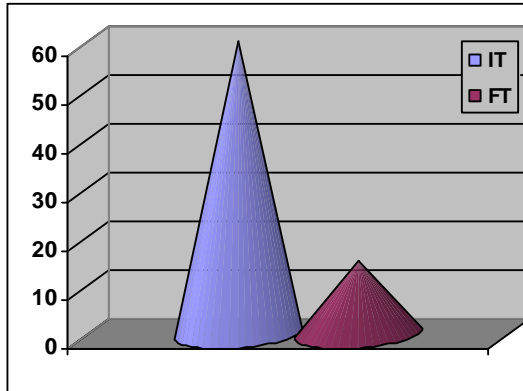


Chart 3. The evolution of the period of time during which the subjects remained awake after waking up during the night

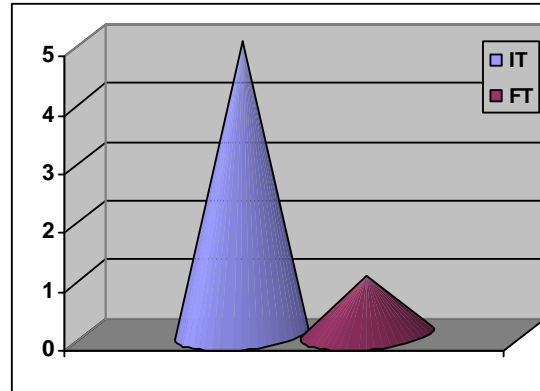


Chart 4. The evolution of the frequency of insomnias per week

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ANNEX 1

Insomnia Evaluation Questionnaire (The Center for Sleep Medicine, Insomnia Treatment and Evaluation Program, 2011, <http://www.sleepmedcenter.com>)

A. Description of the sleep disorder

1. Do you encounter the following situations:

a. Difficulty in falling asleep;

Never	Rarely	Sometimes	Often	Very often

b. Difficulty staying asleep;

Never	Rarely	Sometimes	Often	Very often

c. Problems waking too early;

Never	Rarely	Sometimes	Often	Very often

d. Sleepiness or difficulty staying awake during the day;

Never	Rarely	Sometimes	Often	Very often
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e. Unwanted behaviors during sleep;

Never	Rarely	Sometimes	Often	Very often

f. Nightmares or vivid dreams.

Never	Rarely	Sometimes	Often	Very often

2. How long does it usually take you to fall asleep? _____(minutes)
3. How many times do you wake up during the night? _____
4. How long are you usually awake after waking up at night? _____(minutes)
5. On how many nights during an average week do you experience sleep difficulties? _____
6. How long did you have sleep disorders? _____(months)

B. Origin and history

1. How much do you feel that the following factors may contribute to your sleeping disorders:

a. Mental activity (e.g. racing thoughts, worry about sleep);

Not at all	A little	Much	Very much

b. Physical discomfort (e.g.: muscle tension and pain);

Not at all	A little	Much	Very much

c. Poor sleeping habits;

Not at all	A little	Much	Very much

d. Mood (depression or anxiety);

Not at all	A little	Much	Very much

e. Natural aging (including menopause);

Not at all	A little	Much	Very much

f. A variable sleep schedule;

Not at all	A little	Much	Very much

g. Personal stressors (e.g.: family or relationships);

Not at all	A little	Much	Very much

h. Work stressors (e.g.: work demands, job security);

Not at all	A little	Much	Very much

i. Weight gain or loss;

Not at all	A little	Much	Very much

j. Medication(s);

Not at all	A little	Much	Very much

k. Medical condition(s);

Not at all	A little	Much	Very much

l. Travel schedule.

Not at all	A little	Much	Very much

C. Insufficiencies

1. How affected are you by the sleep disorders?

Not at all	A little	Much	Very much

2. How much do the sleep disorders affect your:

a. Ability to function at work;



Not at all	A little	Much	Very much

b. Family and social relations;

Not at all	A little	Much	Very much

c. Mood;

Not at all	A little	Much	Very much

d. Memory, attention, and concentration;

Not at all	A little	Much	Very much

e. Health.

Not at all	A little	Much	Very much

3. How noticeable to others do you think your sleep problem is?

Not at all	A little	Much	Very much

4. How worried/distressed are you about your current sleep problem?

Not at all	A little	Much	Very much

D. Treatments

What kinds of approaches you are have tried in the past or are currently using to address your sleep problem:

1. Alcohol;

Past use	Current use

2. Over-the-Counter sleep aids;

Past use	Current use

3. Prescription sleep aids;

Past use	Current use

4. Melatonin;

Past use	Current use

5. Herbal Supplements/Tea (e.g. Ginkgo Biloba, Valerian Root);

Past use	Current use

6. Other controlled substances (e.g. Marijuana);

Past use	Current use

7. Self Help Literature (e.g. books, pamphlets about insomnia);

Past use	Current use

8. Relaxation Exercises/Yoga/Meditation;

Past use	Current use

9. Cognitive Behavioral Treatment;

Past use	Current use

10. Psychotherapy.

Past use	Current use

E. Brief Patient Health Questionnaire



1. Over the last 2-weeks, how often have you been bothered by any of the following problems?

a. Little interest or pleasure in doing things

Not at all	Several days	More than half the days	Nearly everyday

b. Feeling down, depressed or hopeless;

Not at all	Several days	More than half the days	Nearly everyday

c. Poor appetite or overeating;

Not at all	Several days	More than half the days	Nearly everyday

d. Feeling tired or having little energy;

Not at all	Several days	More than half the days	Nearly everyday

e. Trouble falling or staying asleep; sleeping too much;

Not at all	Several days	More than half the days	Nearly everyday

f. A drop in self-confidence;

Not at all	Several days	More than half the days	Nearly everyday

g. Trouble concentrating on things, even on simple activities;

Not at all	Several days	More than half the days	Nearly everyday

h. Hyper or hypo-activity states;

Not at all	Several days	More than half the days	Nearly everyday

i. Suicidal or self-mutilation thoughts

Not at all	Several days	More than half the days	Nearly everyday