

Cognitive-Behavioral Therapy in Sleep Dentistry: Literature Review

Terapia Cognitivo-Comportamental na Odontologia do Sono: Revisão de Literatura

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Abstract

Cognitive Behavioral Therapy - CBT is a system of psychotherapy that has been successful in treating a variety of disorders and clinical pathologies, among which are sleep disorders. CBT has as basic assumption the interpretation that a subject makes of a given situation, and that interpretation will define the emotional and behavioral response of the individual. In Sleep Dentistry the goal of this technique is to eliminate erroneous beliefs and attitudes related to sleep. The objective of this study is to perform a literature review of articles published in English and Portuguese in the last 17 years between 2001 and 2018, which relate sleep disorders to cognitive therapy in order to understand how and with what intensity therapy can improve sleep quality. Thus, a bibliographic search was performed in the Lilacs and Medline databases, using the English descriptors Cognitive therapy and Sleep dentistry, obtaining 30 articles, of which 24 were selected, including articles published in English and Portuguese, which addressed techniques of cognitive-behavioral therapy in the treatment of sleep disorders, such as Obstructive Sleep Apnea Syndrome. Sleep hygiene measures are of special interest to patients who have some sleep dysfunction, such as obstructive sleep apnea syndrome - OSAS. Although there are no studies in the literature demonstrating the significant impacts of these techniques, it is possible to note a slight contribution to patients who present with sleep disorders. Therefore, it is necessary to disseminate preventive measures for these disorders, aiming to improve the quality of life of the population.

Keywords: Dentistry. Sleep Apnea, Obstructive. Sleep Hygiene.

Resumo

A terapia Cognitiva Comportamental - TCC é um sistema de psicoterapia que tem demonstrado êxito no tratamento de variados transtornos e patologias clínicas, dentre os quais estão os distúrbios do sono. A TCC tem como pressuposto básico a interpretação que um sujeito faz de uma determinada situação, sendo que essa interpretação irá definir a resposta emocional e comportamental do indivíduo. Na Odontologia do Sono o objetivo dessa técnica é eliminar as crenças e atitudes errôneas relacionadas ao sono. O objetivo deste estudo é realizar uma revisão de literatura de artigos publicados nos idiomas inglês e português nos últimos 17 anos, período entre 2001 e 2018, que relacionam os distúrbios do sono com a terapia cognitiva, a fim de compreender de que forma e com que intensidade a terapia pode melhorar a qualidade do sono. Para isso foi realizada uma busca bibliográfica nas bases de dados Lilacs e Medline, utilizando os descritores em inglês Cognitive therapy e Sleep dentistry, obtendo-se 30 artigos, dos quais foram selecionados 24, incluindo artigos publicados no idioma inglês e português, que abordavam técnicas de terapia cognitivo-comportamental no tratamento de distúrbios do sono, como a Síndrome da Apneia Obstrutiva do Sono. As medidas de higiene do sono são de especial interesse para pacientes que possuem alguma disfunção do sono, como a síndrome da apneia obstrutiva do sono - SAOS. Embora não haja na literatura estudos que comprovem os impactos significativos dessas técnicas, é possível notar uma ligeira contribuição para os pacientes que apresentam disfunções do sono. Assim, percebe-se a necessidade de disseminação de medidas preventivas para esses transtornos, objetivando melhorar a qualidade de vida da população.

Palavras-chave: Odontologia. Apneia Obstrutiva do Sono. Higiene do Sono.

1 Introduction

Behavioral cognitive therapy - CBT has shown great importance in preventing sleep disorders, since physiological and cognitive activities can delay the onset of sleepiness, making it difficult to reconcile sleep time and the context surrounding sleep¹. The objective of cognitive therapy is to eliminate beliefs and wrong attitudes related to sleep².

Insomnia and obstructive Sleep Apnea Syndrome (OSAS) are frequent sleep disorders that lead to sleep fragmentation and a series of health repercussions such as increased cardiovascular morbidity and a higher risk of accidents³.

In view of these repercussions, CBT has as its basic assumption the interpretation that a subject makes of a certain situation, and this can be interpreted in a variety of ways by different people, and these interpretations will define the subject's emotional and behavioral response. These beliefs when activated generate automatic (positive or negative) thoughts, which ultimately interfere with behavior.

The objective of this study is to perform a literature review of articles published in English and Portuguese in the last 17 years between 2001 and 2018, which relate sleep disorders to cognitive therapy in order to understand how and with what intensity therapy can improve sleep quality, in addition to

stimulating the patients' collaboration during the therapy.

The study of this subject is of extreme importance due to the fact that cognitive therapy techniques are in their vast majority of simple execution and low cost, consisting of changes in habits, this makes the patient's adherence to cognitive tools more likely as treatment adjuvants or as a preventive means to sleep-related morbidities.

2 Development

2.1 Methodology

Thus, a bibliographic search was performed in the LILACS and MEDLINE databases, using the English descriptors Cognitive therapy and Sleep dentistry, obtaining 30 articles, of which 24 were selected, including articles published in English, Portuguese and Spanish, which addressed techniques of cognitive-behavioral therapy in the treatment of sleep disorders, such as Obstructive Sleep Apnea Syndrome.

2.2 Literature Review

According to the American *Academy of Sleep Medicine*, having insomnia is having repeated difficulties to start and/or keep sleep (initial and maintenance insomnia), early awakening (terminal insomnia) or nonrestorative sleep.

In addition to being the most common sleep disorder, insomnia is directly associated with psychiatric disorders. Epidemiological studies have shown that its persistence is a risk factor for depression². According to Molen, 2014⁴, unrealistic expectations, distorted perceptions, and concerns can become dysfunctional and contribute to affliction and sleep habits, creating a state of tension opposite the relaxation needed for sleep, leading to insomnia.

The most common treatment for chronic insomnia (a type of insomnia, which is continuously present for a long period of time, and may be related to continuous stress, depression, alcohol or drug abuse and inappropriate sleeping habits)⁵ is the drug, although the use of medicines causes some long-term damage, including tolerance and dependence⁵. In view of this situation, several studies have suggested the use of non-pharmacological therapies for the prevention and treatment of sleep disorders⁶.

Whereas the obstructive sleep apnea syndrome - OSAS is defined by recurrent episodes of total or partial airway obstruction during sleep, considered apnea and hypopnea respectively⁷. OSAS is associated with excessive daytime sleepiness, cognitive deficit, decreased quality of life and increased cardiovascular morbidity^{8,9}. Obstructive sleep apnea is estimated to occur in approximately 24% of men and 9% of middle-aged women⁹, and its treatment consists of the use of Intraoral devices, Positive Air Pressure devices (CPAP) or by surgical techniques, always having the CBT as adjuvant^{8,10}.

The main targets of CBT are the precipitating and perpetuating factors. The main behavioral and cognitive

techniques are sleep hygiene, stimulus control therapy, relaxation techniques and cognitive restructuring.

Sleep Hygiene (HS) is a method that aims to educate health-related habits such as diet, physical exercise and the use of substance abuse and behavior, for example, light, noises, temperature and mattress, which are beneficial or harmful to sleep².

Caffeine, nicotine and alcohol consumption are especially discouraged near bedtime, and abstinence is directed at least 6 hours before bedtime. Caffeine and nicotine are both stimulants of the central nervous system, producing a fragmented and light sleep. Alcohol, however, facilitates the onset of sleep (because it is a central nervous system depressor), is the substance that most likely interferes with sleep maintenance. It is recommended to have a light meal within an hour and a half before going to bed (especially if high in carbohydrate content), as it seems to be a promoter of early sleep, as opposed to abundant meals, which are counterproductive at the beginning of sleep¹.

Currently, the relationship between sleep and physical exercise has been the subject of studies and, according to the American *Sleep disorders Association*, physical exercise is considered one of the best non-pharmacological interventions to improve sleep quality. Physical exercises can help prevent some sleep-Wake cycle disturbances by reducing sleep fragmentation, increasing slow wave sleep time, and decreasing sleep latency¹³.

However, even the practice of exercises being part of medical prescriptions against insomnia, the effect may be contrary if the person practices sports shortly before going to bed, this due to the physical activity releasing a large number of endorphins and adrenaline, responsible for the increase of the warning stimulus. As for the variables related to physical exercise, intensity and volume are extremely important, because when overload is increased to an optimal level, there is a better response in sleep quality. On the other hand, when the overload imposed by exercise is too high, there is a direct negative influence on sleep quality.

Sleep hygiene measures, although being susceptible to dissemination throughout the population, regardless of the presence of sleep disorders, are of particular interest to patients who have some sleep dysfunction, such as obstructive sleep apnea syndrome - OSAS¹, untreated, it has negative effects on the patient's psychological and cognitive functioning.

There are some recommendations to improve sleep quality, including: (a) go to bed only when sleepy; (b) set a set time to go to bed and get up; (c) practice physical activities (never after 6pm); (d) do not consume caffeine, nicotine and alcohol; (e) adjust the diet (average 2h before bedtime); (f) it is not advisable to watch TV or work on the computer inside the room; (g) meditation and relaxation techniques are often important aids in inducing restful sleep^{2,15,16}.

The HS's overall objective is to facilitate a restful and

sufficient sleep. In addition to the recommendations on diet, exercise and consumption of alcohol, tobacco, coffee, other measures have been added to sleep hygiene. The most recent measures are related to stress reduction and stimulus control, being known as behavioral cognitive Therapy¹.

Stimulus control therapy is based on the premise that insomnia is a response conditioned to time (time spent in bed) and environmental (sleeping room/bed) factors related to sleep. Therefore, the main objective of this therapy is to train the restless to bind the room and bed with a fast onset of sleep. To this end, sleep-incompatible activities should be abbreviated and a consistent Wake-sleep cycle should be planned⁵.

Interventions based on relaxation were established based on the observation that, often, patients with insomnia report a high alert state (physiological and cognitive), both during the night and during the day. The most common types of relaxation are *biofeedback* and progressive muscle. The first is a technique based on the use of visual (pleasant or neutral images) and auditory (music) stimuli in order to blur the patient's attention. The second, however, consists of tensioning and relaxing different muscle groups of the whole body, aiming at a reduction in the physiological alert (muscle tension)².

In addition to these techniques, there is also the therapy of paradoxical intention, which consists of convincing the patient to face the most feared behavior, in the case of sleep disorders, to stay awake during the night. Therefore, if the patient stops trying to sleep and insists on being awake, the state of pre-sleep anxiety will be reduced and sleep onset can be more easily achieved². This technique is considered a cognitive restructuring, since it reduces anxiety and provides sleep induction.

CBT is a psychotherapy system that has demonstrated great success in the treatment of the most varied clinical disorders and pathologies, the main objective of which, in the field of sleep dentistry, is to eliminate the beliefs and wrong attitudes related to sleep. Some symptoms and sleep complaints are the targets of this therapy, including: (A) the false expectation of the necessary sleep time; (b) inadequate conception of the causes of insomnia; (c) amplification of the consequences of lack of sleep^{2,10}.

2.3 Discussion

Behavioral cognitive Therapy has been used in several clinical specialties as a form of non-pharmacological treatment. In sleep medicine, CBT has been showing positive effects on the prevention and treatment of sleep disorders, especially primary insomnia. It is a focal and direct type of therapy, in which patients play an active role and are responsible for the treatment.

Non-pharmacological treatment should always be indicated, either alone or in association with pharmacological treatment. The first choice is sleep hygiene, sleep restriction

and behavioral cognitive therapy¹⁷.

According to cognitive Therapy, individuals attribute meaning to events, people, feelings, and other aspects of their life, based on this they behave in a certain way and build different hypotheses about the future and about their own identity. People react in different ways to a specific situation and may reach different conclusions^{18,19}.

Studies addressing the use of cognitive therapy in the treatment of sleep disorders are quite rare and similar in terms of results. According to Morin²⁰ behavioral cognitive therapy is a therapeutic approach that has been recognized as an important treatment option, because it is effective and often better tolerated by patients.

Recently, research on behavioral therapies has been carried out with two new and different objectives: To help dose reduction therapies and the consequent withdrawal of medicines used to treat insomnia, and to improve the quality of life of hypnotic-dependent patients^{2,21,22}.

In a study performed by Pinto Junior¹⁶, the CBT should not be used alone, but in association with pharmacological therapy. In addition, CBT has some advantages over pharmacological treatment such as the low risk of side effects and the long-term maintenance of the improvement of sleep quality. To obtain effective therapy, self-discipline is necessary associated with the implementation of sleep hygiene (HS) measures.

Sleep hygiene is a psychoeducational intervention containing basic information about sleep habits and hygiene. It includes instructions for setting regular sleep times; go to bed only when you feel sleepy and do not use the bed as a means of trying to sleep; do not spend the day worrying about bedtime; avoid the use of stimulants (coffee, cigarettes, drugs, black tea, soft drinks and chocolate); avoid alcohol consumption before sleeping; practice regular physical activities, preferably in the morning. HS evaluates the room conditions: Comfort, temperature, noise, and stresses the importance of having a room that is quiet, airy, clean and organized^{16,24}.

Based on the results of some studies, such as those of Bahia¹ and Pinto Junior¹⁶, it was possible to realize that, despite the opinion of several health professionals that patients had bad sleep hygiene, they already had a reasonable level of adherence to HS measures.

On the other hand, the consideration that sleep hygiene measures were "slightly" reduced sleep difficulties may be due quite simply to an issue concerning social desirability and conformism. Realizing that the investigation was intended to assess the effects of something that had been recommended by the physician, individuals may have felt compelled to confirm the "effectiveness" of what the physician (figure of authority) had indicated to do to them, and that, as an aggravating person, they had low adherence rates¹.

There is a consensus in the literature on the efficacy of behavioral cognitive therapy in the prevention and treatment of sleep disorders. However, it has not yet been possible to

prove major impacts on the treatment due to the need for patient collaboration, since the therapy is dependent on the subject's discipline. Therefore, it is essential that patients participate effectively in the CBT, performing all health hygiene measures.

3 Conclusion

Although there are no studies in the literature demonstrating the significant impacts of these techniques, it is possible to note a slight contribution to patients who present with sleep disorders. Therefore, it is necessary to have the dissemination of preventive measures for sleep disorders, aiming at reducing their incidence and improving the quality of life of the population. In addition, the collaboration of individuals should be encouraged for a better evaluation of cognitive Therapy, as well as to increase research in the area.

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