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Original Article

The link between social anxiety disorder, treatment outcome, and sleep difficulties among patients receiving cognitive behavioral group therapy

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ABSTRACT

Objective: The aim of our study was to examine the association between sleep disturbances and social anxiety disorder (SAD). Another aim was to explore the impact of cognitive behavioral group therapy (CBGT) for SAD on co-occurring sleep difficulties.
Methods: Data were obtained retrospectively from patient files receiving CBGT for SAD. The sample included 63 patients with SAD (mean age, 30.42 years [standard deviation, 6.92 years]). There were 41 men and 22 women, of whom 41 participants completed the treatment protocol. Before treatment onset participants completed the Liebowitz Social Anxiety Scale (LSAS), the Beck Depression Inventory (BDI), the Pittsburgh Sleep Quality Index, and several sociodemographic questions. On completion of the treatment protocol, the same measures were completed, with the addition of the Sheehan Disabilities Scale (SDS).
Results: The results of our study suggest that: (1) subjective insomnia is associated with SAD severity even after controlling for depression severity and additional variables; (2) participants with SAD with co-occurring clinical levels of subjective insomnia present a more severe clinical picture both at treatment onset and termination; and (3) although CBGT lead to reduction in SAD and depression symptoms severity, it had no significant impact on co-occurring sleep difficulties.
Conclusions: Sleep difficulties predict SAD severity regardless of depressive symptoms and may be linked to a more severe clinical picture. Clinicians should be aware of these sleep difficulties co-occurring with SAD and consider implementing specific sleep interventions. Future studies should incorporate larger samples sizes from clinical populations outside of Israel.

1. Introduction

Social anxiety disorder (SAD) is a common psychiatric disorder, with a 7–13% estimated lifetime prevalence rate in western countries [1]. The results of a previous study [2] assessing the prevalence of SAD in an Israeli sample of 850 participants corroborated those from other studies in western countries, both regarding the high prevalence of SAD symptoms and its demographic and clinical correlates. The comorbidity of SAD and other anxiety and mood disorders is high [3,4] and has significant adverse effects on functioning and well-being [5]. The disorder usually starts in childhood or adolescence and if untreated can be a chronic lifelong disorder with a low spontaneous remission course [6].

Sleep disturbances (e.g., extended sleep onset latency, frequent night awakenings, reduced sleep efficiency) are also a common clinical concern. In the general population, more than 33% of individuals experience sleep difficulties, and between 8% and 27% experience severe sleep problems [7–9]. Sleep disturbances may have considerable negative impact on health, general and emotional functioning, and quality of life [10,11]. In addition, it has been suggested that sleep disturbance can be a risk factor for the development and maintenance of mood and anxiety disorders (AD) [12–14]. Moreover, up to 50% of individuals who report sleep problems have comorbid psychiatric disorders [12,15].

Sleep difficulties are common in patients with AD [16–19]. Previous studies examined both reports of sleep problems in those with AD, and anxiety symptoms in those with sleep disturbances [19]. One study revealed that sleep difficulties increased the likelihood to have clinically significant anxiety by 17 times [20]. In a more recent study [19] examining the relationship between

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self-reported sleep disturbance and AD, 74% of patients with AD reported that they had some kind of sleep disturbance (e.g., difficulty falling asleep, waking during the night, restless sleep).

Sleep disturbances are listed as specific diagnostic criteria in several AD [21]. For example, nightmares and insomnia symptoms (e.g., difficulty in falling or resuming sleep) are included in the posttraumatic stress disorder (PTSD) diagnostic criteria [19,21]. Between 20% and 70% of patients diagnosed with PTSD report symptoms of frequent nightmares [17,22], and approximately 70% report on difficulty falling or staying asleep [17]. Additionally 60–70% of individuals diagnosed with generalized AD (GAD) reported sleep disturbances [18,23], which are also listed as part of GAD *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5) diagnostic criteria [21]. Although not listed in the DSM-5 diagnostic criteria, sleep disturbances are also associated with other AD, such as obsessive–compulsive disorder, panic disorder with or without agoraphobia, and specific phobia [24–27].

In this context, the findings of previous studies assessing the links between sleep disturbances and SAD have been limited and inconsistent [19,28–31]. One study revealed no differences in polysomnography data when patients with SAD were compared to healthy controls [31]. However, when sleep quality and sleep disturbances were assessed in individuals with SAD compared to controls using the Pittsburgh Sleep Quality Index (PSQI), the results demonstrated that the majority of individuals with SAD reported impairments in sleep quality, longer latency to fall asleep, more nocturnal disturbance, and more daytime dysfunction than controls [28]. In another study [30], individuals with SAD frequently reported insomnia when directly questioned about sleep problems. In a more recent study [19], SAD was not associated with self-reported sleep disturbances.

Although the efficacy of cognitive behavioral therapy (CBT) for AD has been widely documented, few of these studies reported CBT effects on co-occurring sleep problems [16]. Moreover, despite the wide body of evidence linking various AD and sleep disturbances, many CBT protocols for AD do not include strategies specifically targeting sleep disturbances. In addition, although several researchers have suggested that successful treatment for AD has a positive impact on sleep disturbances [30], this notion is not well supported [16].

A recent meta-analysis indicated a moderate effect of anxiety treatment on co-occurring sleep difficulties, and it was suggested that "the current state of knowledge does not permit definitive conclusions and future research is needed" [16]. Along these lines, it has been suggested that sleep difficulties might produce or exacerbate anxiety symptoms. Previous studies linked sleep deprivation and insomnia with heightened levels of anxiety in healthy individuals [32,33]. Among patients with panic disorder, sleep deprivation and insomnia symptoms were associated with heightened anxious reactivity [34] and panic attacks [35] the following day. Moreover, sleep problems often continue without improvement after successful treatment for anxiety [36,37]. Thus it might be speculated that the impact of CBT on anxiety symptoms may not be optimal without specifically targeting sleep difficulties.

2. Methods

2.1. Participants

The aims of our study were to examine the associations between sleep disturbances, and SAD and to explore the impact of cognitive behavioral group therapy (CBGT) for SAD on co-occurring sleep difficulties. Based on previous findings, we hypothesized that sleep disturbances would be linked to higher levels of SAD both at pre- and post-treatment time points, and that minimal or no improvement of sleep disturbances would concurrently occur with reduction in anxiety level following CBGT for SAD. To the best of our knowledge, our study is the first to assess the link between sleep disturbances and SAD in the context of CBGT. Data were obtained retrospectively from patient files receiving CBGT for SAD. These data were routinely gathered as part of clinical process. The participants received treatment for SAD at an AD clinic of a regional mental health center in the greater Tel-Aviv area. The outpatient clinic provides treatment services free of charge. Participants were either self-referred or referred by a medical doctor or mental health professional. Inclusion criteria for study participation were (1) a current diagnosis of SAD according to the DSM fourth edition; (2) a minimum of a 1-year duration of SAD; (3) a primary diagnosis of SAD, that is, in cases with comorbidity SAD was deemed as the most distressing and clinically significant condition among the comorbid disorders; (4) a stable pharmacotherapy, that is, participants receiving a pharmacologic treatment who were taking a stable medication for at least 3 months before the beginning of CBGT; and (5) age between 18 and 60 years. Exclusion criteria were past or present diagnosis of psychotic state and schizophrenia, another psychotherapeutic treatment during CBGT, and change in medication status during the CBGT.

At the onset of treatment, the sample included 63 participants (mean age, 30.42 years [standard deviation, 6.92 years]). There were 41 men and 22 women who were diagnosed with SAD. Diagnoses were determined by the Mini-International Neuropsychiatric Interview and were conducted by doctorate-level clinical psychologists or experienced graduated psychology students trained in their administration. Out of the 63 participants, 41 completed the treatment, 18 participants dropped out in the process, and four additional participants were excluded from the study because they did not meet the criteria above (Fig. 1). Dropouts were defined as premature cessation of participating in CBGT (i.e., nonparticipation in the last session), or absence from six or more CBGT sessions.

2.2. Measures

2.2.1. Liebowitz Social Anxiety Scale

Social Anxiety severity was assessed using the self-report version of the Liebowitz Social Anxiety Scale (LSAS) [38], which has been shown to have high internal consistency; strong convergent, and discriminant validity; and high test–retest reliability [39,40]. The LSAS comprises 24 social situations that are each rated for level of fear (0 = none to 3 = severe) and avoidance (0 = none to 3 = usually) for the past week. The Hebrew version of the self-report LSAS has been validated in previous research [41].

2.2.2. Beck Depression Inventory

The Beck Depression Inventory (BDI) is a 21-item self-report measure that assesses depressive symptoms in the past 7 days [42,43]. It covers cognitive (e.g., thoughts about past failure), emotional (e.g., sadness), and somatic/vegetative (e.g., tiredness or fatigue) symptoms. Each item is scored from 0 to 3 with a maximum score of 63. The BDI has shown high validity and reliability scores and high internal consistency ($\alpha = 0.81–0.86$) [42].

2.2.3. Sheehan Disabilities Scale

The Sheehan Disabilities Scale (SDS) assesses the degree of impairment in work, social, and family areas [44]. The SDS evaluates the degree of impairment in work, social, and family areas on a 10-point Likert scale. The psychometric properties of the SDS are high [31] and previous studies showed that it has strong correlations with symptoms of social anxiety, depressive symptoms, and quality of life among individuals with SAD [45].