Effect of Sleep Skills Education on Sleep Quality in Patients Attending a Psychiatry Partial Hospitalization Program

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ABSTRACT

Objective: To evaluate the effectiveness of cognitive-behavioral therapy for insomnia (CBT-I)–informed sleep skills education on sleep quality and initial sleep latency in patients attending a psychiatry partial hospitalization program.

Method: This retrospective chart review was conducted in a psychiatry partial hospitalization program of a teaching Veterans Affairs medical center located in Minneapolis, Minnesota. Patients typically attend the program for 1 month. Data were collected from a continuous improvement project from November 2007 to March 2009. The Pittsburgh Sleep Quality Index (PSQI) was administered to the patients at the time of entry into the program and at their discharge. Patients who completed both PSQI assessments were included in the study.

Results: A total of 183 patients completed both PSQI assessments. Of those, 106 patients attended CBT-I–informed sleep skills education and 77 did not (all patients completed the psychiatry partial hospitalization program). For all patients, the mean ± SD baseline PSQI score was 12.5 ± 4.8. PSQI scores improved by a mean of 3.14 points (95% CI, 2.5–3.8; $P < .001$) in all patients who completed the psychiatry partial hospitalization program. For all patients, there were significant reductions in sleep latency (17.6 minutes) ($t_{183} = 6.58$, $P < .001$) and significant increases in overall sleep time, from 6.1 to 6.7 hours ($t_{183} = 4.72$, $P < .001$). There was no statistically significant difference in PSQI scores of patients who attended CBT-I–informed sleep skills education and those who did not during their stay in the partial hospitalization program.

Conclusions: The quality of sleep and initial sleep latency improved in patients who completed the psychiatry partial hospitalization program regardless of whether they attended CBT-I–informed sleep skills education or not. In this study, a structured psychiatry partial hospitalization program improved perceived sleep quality and initial sleep latency. Additional randomized controlled trials with a higher intensity of CBT-I–informed sleep skills education are needed.

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Sleep disturbance is a common symptom among patients with psychiatric illness,[1] and among patients with insomnia, 35% to 40% have 1 or more comorbid psychiatric diagnoses.[2] Chronic insomnia is a highly prevalent and disabling condition that reduces quality of life. Two recent meta-analyses reported preexisting sleep disturbance as the major potentially treatable risk factor for first-episode depression.[3,4] Despite these findings, insomnia often goes unrecognized, and care of insomnia in the psychiatric population is poorly developed.[5] Benzodiazepines and sedating antidepressants are commonly prescribed, but long-term data are sparse.[6]

Cognitive-behavioral therapy for insomnia (CBT-I) offers a promising treatment approach. Three meta-analyses have demonstrated clear benefit of CBT-I in the treatment of insomnia,[6–8] but most trials excluded patients with complex psychiatric comorbidities. Additionally, CBT-I is not widely available for patients, as there is a shortage of clinicians trained in CBT-I. Group CBT-I is a potentially useful model of care for patients with insomnia but has not been well studied in those with comorbid psychiatric illness. CBT-I–informed sleep skills education, which involves teaching basics of sleep such as encouraging patients to maintain regular sleep-wake schedules and some elements of relaxation, sleep restriction, and stimulus control, can be beneficial if full-fledged CBT-I is unavailable.

METHOD

We examined the effects of a milieu program, psychiatry partial hospitalization and CBT-I–informed sleep skills education in a group setting, on sleep quality and subjective initial sleep latency in patients with comorbid psychiatric disorders. We also assessed if patients who received CBT-I–informed sleep skills education showed greater improvement in sleep quality than those who did not (all patients were attending psychiatry partial hospitalization). The study was observational in nature, which included a retrospective review of the patients' charts.

Study participants included all consecutive patients referred for psychiatry partial hospitalization at the Minneapolis VA Health Care System, University of Minnesota, Minneapolis, between November 2007 and March 2009. Patients referred to psychiatry partial hospitalization typically attend the program for 1 month. Patients participate in several group activities including a CBT-I–informed sleep skills education group facilitated by a registered nurse who is also a certified psychiatric nurse. The registered nurse uses a CBT-I–informed model to teach sleep skills. Patients in the psychiatry partial hospitalization program are either self-referred or are referred by their case managers in the program. Patients typically attend 1 to 4 group sessions of CBT-I–informed sleep skills education focusing on learning good sleep hygiene principles and encouraging use of stimulus control therapy and several sleep skills tools. Each session is 1 hour long, and the patients are encouraged to maintain sleep diaries.

Clinical Points

- Evaluation of sleep disturbance is important as sleep disorders are common in patients with psychiatric illness.
- Encouraging patients to maintain good sleep hygiene and providing education about stimulus control may improve insomnia symptoms in patients with psychiatric illness.
- Daily structure in life and sleep-wake schedules may have some beneficial effects on a patient's sleep quality.

The objectives of the CBT-I–informed sleep skills education group are as follows:

Session 1

The patient will:

1. Be able to understand basic facts about sleep (eg, sleep stages, sleep cycles, functions of sleep, etc).
2. Be able to understand how CBT works.
3. Be able to understand and begin to work with sleep diaries.

Session 2

The patient will:

1. Be able to understand how sleep scheduling can improve sleep efficiency.
2. Be able to understand how the stimulus control technique can improve sleep efficiency.
3. Be able to understand how changes in lifestyle can affect/improve sleep.

As a part of a continuous improvement project of the Department of Psychiatry, the Pittsburgh Sleep Quality Index (PSQI) was administered twice: at the time of admission to the psychiatry partial hospitalization program and at the completion of the program. The PSQI is a self-rated validated scale for measuring sleep quality in patients over the last month.[9] Scores > 5 are considered abnormal, and an improvement of 3 points is considered a significant clinical change.[10]

All patients entering psychiatry partial hospitalization who agreed to participate and to complete the PSQI were initially included in the study. Those patients who did not complete both PSQI assessments were not included in the final analysis. A total of 285 patients agreed to complete the PSQI, but 102 of those patients did not complete both PSQI assessments and so were excluded. The institutional review board of the Minneapolis VA Health Care System approved the observational, retrospective study.

RESULTS

A total of 612 patients were admitted into the psychiatry partial hospitalization program from November 2007 to March 2009. A total of 183 patients completed both PSQI assessments. Of these, a total of 106 patients attended CBT-I–informed sleep skills education and 77 did not.

Patients who participated in the CBT-I–informed sleep skills education and those who did not were similar on nearly all demographic factors (Table 1). The mean ± SD age was 48.0 ± 11.6 years for those who received CBT-I–informed sleep skills education and was 48.5 ± 13.1 years for those who did not. The majority of the study participants were male: 92.5% (n = 98) of the patients who received CBT-I–informed sleep skills education and 88.3% (n = 68) of those who did not.

Table 1. Comparison of Demographics of Patients in a Psychiatry Partial Hospitalization Program Who Attended CBT-I–Informed Sleep Skills Education and Those Who Did Not

Variable	Group CBT-I–Informed Sleep Skills Education (n = 106)	Psychiatry Partial Hospitalization Only (n = 77)
Age, mean ± SD, y	48.0 ± 11.6	48.5 ± 13.1
Male, n (%)	98 (92.5)	68 (88.3)
Ethnicity, n (%)		
White	88 (83.0)	66 (85.7)
Black	9 (8.5)	2 (2.6)
Asian	1 (0.9)	0 (0)
Native American	2 (1.9)	2 (2.6)
Unknown/no response	6 (5.7)	7 (9.1)
Married, n (%)	33 (31.1)	23 (29.5)
Unemployed, n (%)	72 (68.9)	60 (77.9)

Abbreviation: CBT-I = cognitive-behavioral therapy for insomnia.

The mean ± SD baseline PSQI score was 12.5 ± 4.8 for all patients. After completion of the psychiatry partial hospitalization program, PSQI scores improved by a mean of 3.14 points ($F_{1,182} = 96.35$, $P < .001$, partial $\eta^2 = 0.35$; 95% CI, 2.5–3.8; $P < .001$). We also observed significant reductions in sleep latency (17.6 minutes) ($t_{183} = 6.58$, $P < .001$) and significant increases in overall sleep time, from 6.1 to 6.7 hours ($t_{183} = 4.72$, $P < .001$). There was no difference in PSQI scores among patients attending 1 or more than 1 CBT-I–informed sleep skills education group. Psychiatric diagnosis did not affect PSQI scores.

When both groups of patients were evaluated separately, there was a decline in PSQI scores in both groups and a trend toward more improvement in the patients who received CBT-I–informed sleep skills education. PSQI scores of patients who received CBT-I–informed sleep skills education dropped 3.5 points versus 2.7 points in those who did not. The difference in improvement, however, in PSQI scores was not statistically different between the 2 groups ($F_{1,182} = 1.54$, $P < .22$, partial $\eta^2 < 0.01$).

Results by Medication Use

Medications were divided as follows: (1) benzodiazepines and (2) non–benzodiazepine hypnotics (zolpidem, eszopiclone, zaleplon) and sedative medications (sedating antidepressants including trazodone, mirtazapine, amitriptyline, and nortriptyline and sedating antipsychotics including quetiapine, olanzapine, clozapine, and antihistamines).

Patients who took benzodiazepines showed significantly greater improvement in PSQI scores (−4.67) compared to those not taking these medications (−2.77) ($F_{1,182} = 6.02$, $P = .015$, partial $\eta^2 = 0.032$). We also observed a significantly larger decrease in PSQI scores of subjects taking sedative

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medications (trazodone, sedating antipsychotics, or sedating antidepressants or antihistamines) compared to those not taking these medications (−3.96 vs −2.06, respectively, $F_{1,182} = 9.71$, $P = .002$, partial $\eta^2 < 0.05$). However, we did not observe any significant difference in overall sleep improvement in those taking non–benzodiazepine hypnotics compared to those not taking these medications ($F_{1,182} = 1.61$, $P = .21$).

The number of patients taking sedative medications (sedative antidepressants, sedative antipsychotics, and antihistamines) was larger than the number of patients taking benzodiazepines or non–benzodiazepine hypnotics.

DISCUSSION

Subjective sleep quality improved for all patients who completed the psychiatry partial hospitalization program. The improvement in PSQI scores was significant even after controlling for factors such as medications (all 3 groups of medications: benzodiazepines, non–benzodiazepine hypnotics, and sedative medications) and psychiatric diagnosis.

The rate of use of 3 groups of medications was not statistically different in the patients who attended CBT-I–informed sleep skills education versus those who did not. It is difficult to interpret the effects of medications on sleep quality and initial sleep latency as dosages were not taken into account. Moreover, some patients were taking more than 1 type of medication.

There was no statistically significant difference between the patients who were exposed to CBT-I–informed sleep skills education and those who were not during their stay in the psychiatry partial hospitalization program.

This is the first study to report improvement in sleep quality in a psychiatry partial hospitalization program. Moreover, most studies of psychiatric therapy report measurements of the disorder under scrutiny rather than its comorbid sleep disorders. This study also showed a reduction in subjective sleep latency by 17.6 minutes. Is this improvement due to the alleviation of psychiatric symptoms, the medication effect, or just the structure of the program? Lack of structure in life and irregular sleep-wake schedules, which are often present in patients who are unemployed with psychiatric disorders, could predispose such patients to insomnia symptoms, resulting in poor sleep quality. In a psychiatry partial hospitalization program, patients have to maintain a regular sleep-wake schedule, which could have helped with improved sleep quality and may explain lack of treatment difference between the 2 groups of patients (those who received CBT-I–informed sleep skills education and those who did not).

There were several limitations to our study. First, this was an observational analysis of retrospective data. Referral to a CBT-I–informed sleep skills education group was at the discretion of the case managers. One might hypothesize that patients with more severe, and perhaps more refractory, insomnia problems might be preferentially referred to attend CBT-I–informed sleep skills education, which would have the potential effect of biasing to the null hypothesis.

Second, there were 102 patients who did not complete both PSQI questionnaires. As such, response bias may have affected our results. Third, although we found that psychiatry partial hospitalization (with or without CBT-I–informed sleep skills education) improved sleep quality, the observational nature of our study design also does not exclude regression to the mean. Patients in a psychiatry partial hospitalization program are often referred at a time of crisis, for which even a limited intervention may lead to improvement in the psychiatric and sleep-related symptoms for which they were referred. Despite these limitations, to our knowledge, this is the first study showing effects of psychiatry partial hospitalization on sleep quality. Our data support the feasibility of using CBT-I in psychiatry partial hospitalization settings and the need for randomized controlled trials of group CBT-I to further clarify if sleep-targeted interventions are effective in patients with comorbid insomnia and psychiatric disorders.

Drug names: clozapine (Clozaril, FazaClo, and others), eszopiclone (Lunesta), mirtazapine (Remeron and others), nortriptyline (Pamelor, Aventyl, and others), olanzapine (Zyprexa), quetiapine (Seroquel), trazodone (Oleptro and others), zaleplon (Sonata and others), zolpidem (Ambien, Edluar, and others).

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