Full length article

Subjective sleep quality and sleep duration of patients in a psychiatric hospital

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ABSTRACT

Sleep complaints and sleep disturbances are highly prevalent in patients with psychiatric disorders. During hospitalization the patients' condition may be even worse but little is known about the subjective sleep quality in psychiatric hospitals. Thus, we have investigated subjective sleep quality and mean sleep duration in patients with different psychiatric disorders at the end of hospitalization. For a period of one year, inpatients of a psychiatric hospital with diagnosis of substance use disorder (SUD), schizophrenia (SCZ), or anxiety/depressive disorders (AND) were routinely asked to fill in an easily comprehensible sleep quality questionnaire at the end of their hospitalization. Age, gender, subjective sleep quality, and sleep duration were analyzed; sleep duration was classified according to age-specific recommendations. Data of n=309 patients (age 52.1 ± 17.9y, 56.1% women) were analyzed (n=63 SUD, n=50 SCZ, n=196 AND). Mean sleep duration was 7.0 ± 2.0 h; 20.7% of patients had sleep durations below and 4.5% above age-specific recommendations. Non-restorative sleep during hospitalization was reported "almost always" in 38.2% (n=118), and "occasionally" in 30.1% (n=93). Subjective sleep quality was significantly associated with sleep duration ($r_s = -0.31$, $P < 0.0005$), but not with age, gender or diagnostic subgroup. The study showed that a great proportion of patients reported poor subjective sleep quality during hospitalization, regardless of age, gender and psychiatric diagnosis. As sleep quality was significantly associated with short sleep duration, a first step could be to take care to achieve recommended age-specific sleep durations in psychiatric hospitals.

1. Introduction

Sleep complaints and sleep disturbances are highly prevalent in neuropsychiatric disorders across the lifespan [1,2]. Up to 80% of patients with schizophrenia spectrum disorder (SCZ) report sleep disturbances [3], including increased sleep onset latency, shorter sleep duration (total sleep time) and decreased sleep efficiency [1,2]. Self-reported sleep disturbances are already prevalent in early psychosis and seem to be associated with symptom severity [4].

Sleep disturbances and non-restorative sleep are frequently occurring in patients with anxiety and depressive disorders (AND) [1,2,5–7]. Compared to healthy subjects, both insomnia (40–90%) and hypersomnia (5–10%) are more common in depression and related affective disorders. Persistent sleep disturbances are a major risk of developing depressive disorders, are part of the diagnostic criteria for major depressive disorders, and quite frequently continue during remission of depressive and anxiety disorders [5,7,8].

Alcohol and drugs of abuse have disruptive effects on sleep; accordingly, 50–90% of patients with substance use disorders (SUD), i.e. alcohol or drug dependence, have sleep disturbances, particularly longer sleep onset latency and shorter sleep duration as well as distorted sleep architecture [9,10]. As consequences, reduced alertness, impaired next-day function, and increased daytime sleepiness are highly prevalent in patients with SUD [2,10,11]. Insomnia and poor subjective sleep quality are present during active substance use, intensified during discontinuation and withdrawal, and often persist even in abstinent patients [1]. Moreover, longitudinal studies suggest that enduring short sleep durations and insomnia are general risk factors for the development and non-remission of neuropsychiatric disorders, particularly of anxiety/depressive disorders (AND) and SUD [1,6,7,12].

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Additionally, the unique and independent importance of sleep disorders in patients with medical or psychiatric disorders has been corroborated with the transition from the forth to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV to DSM-5). Consistent with this view a bidirectional relationship between sleep disturbances and psychiatric disorders has to be assumed [13].

Based on a systematic review of available literature relating sleep duration to health, the National Sleep Foundation (NSF) has recommended sleep times at different life stages [14] which are largely in agreement with other recommending statements [15,16]. Recommendations comprise optimum daily sleep durations for different age stages, acceptable and potentially even appropriate lower and higher sleep durations, and sleep durations outside this range (not recommendable, i.e. too low or too high). Meta-analyses have suggested that particularly short sleep durations (i.e. < 5 h) are clearly associated with a heightened risk of metabolic and cardiovascular diseases [17,18].

Taken together, all presently available findings suggest that insomnia and non-restorative sleep are highly frequent in patients with psychiatric disorders. It is assumed that due to the severity of illness and additional stress factors the poor sleep quality of patients with neuropsychiatric disorders is even worse during hospitalization [19,20]. However, little is known about the sleep duration and subjective sleep quality of patients in psychiatric hospitals [21]. Thus, we have analyzed sleep duration and subjective sleep quality in patients with SUD, SCZ or AND at the end of their hospitalization.

2. Methods

2.1. Patients and design

Questionnaire data from adult inpatients (18–65 years) were consecutively sampled for 12 months at a university-affiliated regional psychiatric clinic and retrospectively analyzed. The study is part of a larger, self-financed health services research project on chronobiology, sleep, and mood in psychiatric disorders (CSMP). All included patients were able to consent and the study was approved by the local ethics committee. All patients of 6 wards specialized for the treatment of patients with either substance use disorder (SUD) (2 wards, about 80% alcohol dependence and 20% other SUDs), schizophrenia and related disorders (SCZ) (one ward), or anxiety and depressive disorders (AND) (3 wards) were asked to fill in a short self-rating sleep questionnaire [21,22] on sleep duration and subjective sleep quality voluntarily and fully anonymously before discharge.

2.2. Assessment

The questionnaire comprises items regarding sex, age, and psychiatric disorder or complaints and problems as well as sleep-related questions. Sleep duration at night (i.e. weighted mean of workdays and weekends, mean hours) and sleep quality ("non-restorative sleep"; 3-point scale: 0=never, 1=occasionally/sometimes, 2=almost always) were assessed as an average of the period of hospitalization. As potentially influencing factors, caffeine consumption (0=no, 1= ≤ three cups of coffee/tea; 2=four or more cups of coffee/tea per day) and smoking status (0=never, 1= ≤ three cig/d; 2=three or more cig/d) were included in the present analyses; other aspects of the project will be reported in detail elsewhere.

Patients were treated according to current treatment guidelines and with sleep-promoting non-pharmacological and pharmacological measures as needed, no patient received sleep deprivation

Table 1
Recommended sleep duration in adults [14].

Recommendation	Age group	
	Young adults (18–25 years)	Adults (26–65 years)
(A) Low, not recommended	< 6 h	< 6 h
(B) Low, may be appropriate	6–7 h	6–7 h
(C) Recommended	$7 - 9$ h	$7 - 9$ h
(D) High, may be appropriate	$10 - 11$ h	$9 - 10$ h
(E) High, not recommended	> 11 h	> 10 h

Associations between variables were calculated using non-parametric rank correlations (Spearman's r_s). The level of statistical significance was set at two-tailed $\alpha = 0.05$.

treatment.

2.3. Statistics

Subjective sleep quality and sleep duration were categorically and dimensionally analyzed, and descriptive statistics were calculated (frequencies, mean, standard deviation, 95% confidence intervals). Variables were compared between different patient groups (SUD, SCZ and AND) by means of analyses of variance (ANOVA) (dimensional data) or Chi^2 tests (categorical data). To control for age effects, sleep duration was converted into age-specific categories according to the NSF recommendations [14] (Table 1).

3. Results

Data of 309 patients could be analyzed with a substantially larger number of patients with anxiety or depressive disorder (AND). In Table 2, patients' characteristics and sleep-related variables are reported for three diagnostic groups.

Age differed significantly between diagnostic groups (AND > SUD > SCZ). Significantly less females were in the group of patients with SUD compared to SCZ or AND.

More than 2/3 of all patients reported poor subjective sleep quality (occasionally or always) during hospitalization without significant differences between the diagnostic groups (see also Fig. 1). Numerically, the highest proportion of patients with persistently poor subjective sleep quality during hospitalization was found in the SUD group. Additionally, significantly higher proportions of patients with SUD were smokers or reported higher caffeine consumption (more than 3 cups of coffee or tea a day).

Mean sleep duration was significantly different between groups: SUD patients reported significantly lower sleep durations (95%CI [5.6–6.4 h]) than patients with SCZ (95% [7.3–8.2 h]) or AND (95% [6.7–7.2 h]) (Fig. 2).

The analysis of age-specific recommended sleep durations revealed similar results: the significantly highest proportion of patients with non-recommended low sleep duration (43%) was found among patients with SUD (AND 24%; SCZ 10%; c.f. Table 2).

No significant gender differences were found with respect to clinical or sleep-related variables with the exception of a lower proportion of smoking women (59.6%) than men (76.3%, Chi^2 test, P=0.006). Table 3 shows correlations of age and other sleep-related variables. Age showed a low, but significant negative correlation with sleep duration (r= -0.13, P=0.027) and a significant negative association with smoking (r= -0.40; P < 0.0005) (Table 3).

Subjective sleep quality $(0 - 2)$ was significantly correlated with the mean sleep duration controlling for age (partial correlation;