Available online at www.sciencedirect.com
SCIENCE DIRECT®
European Psychiatry 20 (2005) 243–245
EUROPEAN PSYCHIATRY
http://france.elsevier.com/direct/EURPSY/

Case report

Depression and anxiety complaints; relations with sleep disturbances

Victor I. Spoormaker *, Jan van den Bout

Department of Clinical Psychology, Utrecht University, P.O. Box 80.140, 3508 TC Utrecht, The Netherlands

Received 5 April 2004; accepted 10 November 2004

Available online 03 February 2005

Abstract

Objectives were to assess the relations of various sleep complaints with depressive and anxiety complaints in a non-clinical population. Four-hundred-and-two randomly approached adults received three questionnaires. Results showed a high interrelatedness between sleep and depressive/anxiety complaints. Both assessment and treatment of depressive and anxiety complaints should address sleep problems.
© 2005 Elsevier SAS. All rights reserved.

Keywords: Depression; Anxiety; PTSD; Sleep

1. Introduction

There has been scant research regarding the epidemiological comorbidity of mental disorders and sleep disorder symptomatology in the general population [9]. However, sleep disorder symptomatology and mental disorders/complaints seem to be highly interrelated [3,7]; in a study by Üstün et al. [12] it was found that 51.5% of those with sleep problems had a well-defined mental disorder. Moreover, 14.9% had a subthreshold mental disorder whereas 29.2% had mental complaints, leaving only 4.5% of those with sleep problems without any mental complaints.

In the general population, both anxiety and depression complaints have been associated with insomnia complaints [3,7,8,12]. PTSD-complaints have been associated with insomnia, sleep apnea, and nightmares [8]. Other relations of sleep complaints (e.g. restless legs and sleepwalking complaints) with mental complaints remain undocumented. Therefore, the current study aims to explore the relations of various sleep complaints with depressive and anxiety complaints in the general population.

2. Materials and methods

The target population consisted of all Dutch adult residents (≥18 years). Eight hundred addresses were randomly selected from the 12 provinces of the Netherlands according to the geographical distribution. The address would receive the questionnaires by mail; an adult person (of which the first letter of the name was closest to the letter A) was asked to fill out and return the questionnaires. A reminder-mail was sent to non-responders after 6 weeks. Written informed consent was obtained after the procedure had been fully explained. Four-hundred-and-thirty returned the questionnaires. Twenty-eight questionnaires were filled out incompletely and were excluded from analysis (response-rate: 50.3%).

Mean age was 56.4 years (S.D. = 16.2). Forty-eight percent were female. Most respondents had a high education: 54.2% had followed at least 1 year of education at a university or a college. Compared with the latest Dutch population data of the Central Bureau of Statistics there was a response-bias for older and higher educated people, a bias also found in former epidemiological studies [11].

Sleep complaints were measured by the SLEEP-50 (Spoormaker et al., submitted manuscript), a Dutch sleep questionnaire with good reliability outcomes (Cronbach's alpha = 0.85, test–retest reliability $r(41) = 0.78$, $P < 0.01$). The SLEEP-50 provides subscales for the impact of sleep complaints on daily functioning, insomnia, sleep apnea, circadian rhythm, restless legs, sleepwalking, and narcolepsy. Factor-analysis revealed a structure that closely matches the a priori designed structure. It showed good predictive validity for a broad range of sleep disorders in relation to diagnoses based on polysomnographic recordings in a sleep clinic: the overall sensitivity was 0.79, the specificity 0.77.

* Corresponding author. Tel.: +31 30 253 1116; fax: +31 30 253 4718.
E-mail address: v.i.spoormaker@fss.uu.nl (V.I. Spoormaker).

0924-9338/$ - see front matter © 2005 Elsevier SAS. All rights reserved.
doi:10.1016/j.eurpsy.2004.11.006

Table 1
Correlations of sleep complaints with mental complaints (n = 402)

	Apnea	Insomnia	Nightmares	Narcolepsy	Circadian[a]	Sleepwalking	RLS[b]
SCL-90							
Anxiety	0.24**	0.53**	0.11	0.52**	0.28**	0.25**	0.10
Depression	0.05	0.52**	0.12	0.42**	0.38**	0.09	0.05
SRIP							
Intrusion	0.17**	0.43**	0.22**	0.29**	0.13	0.46**	0.08
Avoidance	0.15*	0.38**	0.08	0.29**	0.41**	0.21**	–0.02
Hyperarousal	0.25**	0.73**	0.03	0.33**	0.36**	0.11	0.12

* $P < 0.01$. ** $P < 0.001$.
[a] Circadian rhythm complaints, controlled for age and education.
[b] Restless legs/periodic limb movement disorder.

Depression and anxiety complaints were measured by the Dutch version of the SCL-90, a frequently used questionnaire for several psychological complaints with good reliability and validity [2].

PTSD-complaints were measured by the Self-Rating Inventory for PTSD (SRIP) developed by Hovens et al. [5]. The items follow the PTSD-symptoms as described in the DSM-IV [1] without special reference to a traumatic event. Sum scores for intrusion, avoidance, and hyperarousal can be derived. The reliability of the scale was good (Cronbach's alpha's varying from 0.90 to 0.94 and a test–retest reliability of 0.92). A sensitivity of 0.86 and a specificity of 0.71 were found in relation to the Clinician-Administered PTSD scale.

Correlations were tested (two-tailed) for significance with Pearson's *R*-test or Spearman's Rho-test.

3. Results

Women had more insomnia complaints than men (t (397) = 3.1, $P < 0.001$). Circadian rhythm complaints were correlated with age ($r = 0.42$, $P < 0.001$) and with education ($r_s = –0.23$, $P < 0.001$).

Both anxiety and PTSD-complaints correlated with most sleep complaints. Restless legs complaints did not correlate with any mental complaints, and nightmares only correlated with the intrusion-cluster of PTSD. This correlation (0.22) was surprisingly weak since nightmares are part of the intrusion-cluster; controlled for the SRIP-item 'disturbing dreams' the correlation of nightmares with intrusion lost significance ($r = 0.08$, $P > 0.05$). Intrusion correlated moderately with insomnia (0.43) and sleepwalking (0.46) (Table 1).

Depression was correlated to narcolepsy, circadian rhythm, and insomnia complaints. The latter correlation (0.52) was about the same as the correlation of anxiety with insomnia complaints (0.53).

4. Discussion

Before discussing the results, it should be stated that there are limitations to the generalizability. The response-rate was only 50%; non-responders may have had more or—more probably—fewer sleep complaints. There was a response-bias for highly educated and older people; it is possible that the relations are different for younger people and for people with a lower education. Moreover, although the reliability and validity measures for the SLEEP-50 were promising; they are still preliminary.

Yet, the broad range of sleep complaints being correlated with anxiety complaints indicates a high interrelatedness between anxiety and sleep complaints, which is highly relevant for both assessing and treating anxiety complaints. Anxiety complaints such as worrying and rumination are named to be important in both insomnia and narcolepsy [4]; those complaints may affect more sleep complaints and should therefore be a focus of sleep research and practice.

PTSD-complaints were also related to most sleep complaints. This indicates that not only PTSD-patients have a perception of bad sleep [4], but also people with PTSD-complaints (without having the *disorder*). Furthermore, PTSD-patients tend to underestimate the amount of slept hours and overestimate the sleep latency [4]. Future research should investigate whether people with PTSD-complaints could have the same biases.

Depressive complaints were associated with insomnia, narcolepsy, and circadian rhythm but not with apnea complaints. The relation of depression with apnea found in former research [10] was not replicated and might not be applicable to the general population; apnea tended to correlate more with anxiety and hyperarousal complaints.

It was surprising that nightmares were not correlated with any mental complaints. Nightmares seem to be an independent and idiopathic complaint—not merely a nightly symptom of anxiety. The relation of sleepwalking with intrusion needs further attention, as sleepwalking might be a nightly dissociative state associated with posttraumatic stress.

In conclusion, the current study provided evidence for the interrelatedness of sleep and depressive and anxiety complaints. Anxiety/PTSD-complaints seem to be related to most sleep complaints; whereas depression was also related to several sleep complaints. Sleep complaints are highly distressing and can interfere with treatment. Moreover, since sleep problems are not frequently expressed as a main complaint [6], both assessment and treatment of mental complaints in the general health care need to focus more on sleep problems.

References

[1] American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th ed. Washington (DC): APA. 2000 [revised].

[2] Arrindell WA, Ettema JHM. Manual for the Dutch version of the SCL-90. Lisse: Swets Test Publishers; 1986.

[3] Ford DE, Kamerow DB. Epidemiologic study of sleep disturbances and psychiatric disorders. An opportunity for prevention? JAMA 1989;262:1479–84.

[4] Harvey AG, Jones C, Schmidt DA. Sleep and posttraumatic stress disorder: a review. Clin Psychol Rev 2003;23:377–407.

[5] Hovens JE, Bramsen I, Van der Ploeg HM. Handleiding bij de Zelfinventarisatielijst posttraumatische stressstoornis (ZIL). Lisse: Swets Test Publishers; 2000.

[6] Lecrubier Y, Weiler E, Privett M, Boyer P, Maier W, Üstün TB, et al. Recognition and treatment of patients with sleep problems in general health care. Eur Psychiatry 1996;11(Suppl 1):11s–14s.

[7] Nofzinger EA, Buyesse DJ, Reynolds CF, Kupfer DJ. Sleep disorders related to another mental disorder (nonsubstance/primary): DSM-IV literature review. J Clin Psychiatry 1993;54:244–55.

[8] Ohayon MM, Shapiro CM. Sleep disturbances and psychiatric disorders associated with posttraumatic stress disorder in the general population. Comp Psychiatry 2000;41:469–78.

[9] Ohayon MM, Caulet M, Lemoine P. Characteristics of anxiety and depressive disorders (DSM-IV) associated with insomnia. Eur Psychiatry 1996;11(Suppl 4):353s.

[10] Sánchez AI, Buela-Casal G. Bermúdez MP, Casas-Maldonado F. The effects of continuous positive air pressure treatment on anxiety and depression levels in apnea patients. Psychol Clin Neurosci 2001;55: 641–6.

[11] Shahar E, Folsom AR, Jackson R. The effect of nonresponse on prevalence estimates from a referent population: insights from a population-based cohort study. Ann Epidemiol 1996;6:498–506.

[12] Üstün TB, Privett M, Lecrubier Y, Weiler E, Simon G, Korten A, et al. Form, frequency and burden of sleep problems in general health care: a report from the WHO Collaborative Study on Psychological Problems in General Health Care. Eur Psychiatry 1996;11(Suppl 1):5s–10s.