



SCIENTIFIC ARTICLE

Prevalence and determinants of insomnia symptoms among schoolteachers

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KEYWORDS

Teachers;
Insomnia;
Prevalence;
Sociodemographic
aspects;
DSM-IV

Abstract

Introduction: Insomnia is the most common sleep disorder. In Portugal, teachers have a specific socioeconomic situation, caused by the distance between home and workplace, unstable job situation and students' behavioral problems. The aim of this study was to determine the prevalence of insomnia in a sample of Portuguese schoolteachers.

Participants and methods: In a cross-sectional study 604 teachers were assessed of seventeen public schools, from the districts of Aveiro and Viseu, Portugal. Data was collected through a self-administered questionnaire. Insomnia had been defined according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as the presence of one or more of the following symptoms: *a*) difficulty initiating sleep; *b*) difficulty maintaining sleep; *c*) early morning awakening and difficulty getting back to sleep; *d*) non-restorative sleep, that lasts for a period of 1 month.

Results: Prevalence of insomnia symptoms in the sample was 40.6%. Prevalence of the variables difficulty initiating sleep, difficulty maintaining sleep, early morning awakening and difficulty getting back to sleep and non-restorative sleep were 14.3%, 28.7%, 19.7% and 20.7%, respectively. Insomnia symptoms had been associated with marital status (divorced; OR = 1.65; 95%CI, 0.78-3.48), years of teaching experience (10 to 20 years; OR = 0.46; 95%CI, 0.28-0.75) and job satisfaction (OR = 0.74; 95%CI, 0.53-1.0).

Conclusion: Portuguese schoolteachers show a high prevalence of insomnia. Insomnia was associated with sociodemographic and occupational variables.

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Introduction

Insomnia is a primary sleep disorder in which a person has difficulty in initiating and maintaining sleep or excessive sleepiness. It is qualified as a disturbance of an individual's quantity, quality or timing of sleep. It is characterized by difficulty falling asleep, waking up frequently during the night, waking up too early and being unable to get back to sleep, or sleep for a sufficient number of hours during the night, but waking up tired.¹

Several epidemiological studies have shown that sleep disorders are highly prevalent among the general population and insomnia (or symptoms of insomnia) is the most common.² Insomnia can emerge due to lifestyle changes or different environmental factors. Moreover, there are inconsistencies in measuring both subjective and objective sleep disorders, which increases the difficulty in establishing an objective diagnosis for the disease, which could be universally used.³⁻⁵ Thus, its true prevalence is not accurately known and values presented depend, essentially, upon the definition and classification criteria used.⁶⁻⁸

Studies carried out in Western Europe and in the United States show that one third of the adult population experiences, at some point in life, insomnia symptoms.⁹⁻¹³ However a clinical diagnosis of insomnia is less common, having estimated prevalence between 6% and 10%.¹⁴

In Portugal, according to results of a 2005 epidemiological study on sleep disorders, the prevalence of insomnia, among the general population, was 28.1%. Another study, which was presented in Lisbon, in September 2010, at the XX European Sleep Society Congress, estimated a prevalence of 17.7%.^{15,16}

According to several epidemiological studies, multiple conditions were identified as insomnia's risk factors. Socio-demographic aspects, gender, age, marital and socioeconomic status are important determinants of this disorder. Lifestyle, certain job characteristics, high levels of burnout, deprivation or use of psychoactive substances such as tobacco, alcohol and drugs and other variables related to physical and mental illness, in particular pain, anxiety and depression, have been reported as risk factors.^{4,6,17-19}

In Portugal, there are few studies on insomnia's prevalence among the general population and in specific professional groups, namely teachers. On the other hand, the literature that analyzes the factors associated with it is rare.

The aim of this study was to quantify the prevalence of insomnia symptoms and analyze its determinants in schoolteachers.

Participants and methods

We conducted a cross-sectional observational epidemiological study, partially analyzed as case-control. The sample frame consisted of ninety-one schools (from preschool up to 12th grade), from the districts of Aveiro and Viseu, Portugal. From this group were selected, by simple random sampling, using the application Epi-info 6,04[®], seventeen schools. Based on the number supplied by the School Group Principals, 1780 questionnaires were provided. Thirty days after being delivered to the School Group Principal, who had proceeded to their distribution among teachers, we gathered

689 questionnaires (37%). Questionnaires without sex and age information were excluded, leaving a final sample of 604 teachers, of whom 443 (73.3%) were female.

Data was collected between January and April 2012, resorting to a self-administrated questionnaire, with questions regarding sociodemographic features and teaching work conditions. Insomnia was defined, according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), as the presence of one or more of the following symptoms: a) difficulty initiating sleep; b) difficulty maintaining sleep; c) early morning awakening and difficulty getting back to sleep; d) non-restorative sleep, that lasts for a period of 1 month.

To ensure the participants anonymity and confidentiality, the questionnaires were placed in a non-identified envelope, after filled in. Epi-Info 6.04[®] and Statistical Package for Social Sciences software (SPSS 20[®]) was used for processing and data analysis. For the analysis of the continuous variables we used measures of central tendency (mean) and dispersion measures (standard deviation). Prevalence was expressed as proportion (percentage) with confidence intervals at 95% (95%CI). To compare continuous variables, regardless of the nature of the distribution, we used the Mann Whitney and Kruskal-Wallis test; to compare proportions it was used the Chi-square test. The magnitude of the association between a factor and the disease was estimated by calculating the odds ratios (OR) with 95% confidence intervals.

Results

Among the sample (604 teachers), 443 (73.3%) were female. Concerning age groups, both genders, 2.5% are under 30 years old, 13.8% between 30 and 35, 23.8% between 35 and 40, 22.6% between 40 and 45, 17.1% between 45 and 50 and 20.3% are 50 or older. Regarding marital status, 72.8% are married or cohabiting, 16.4% single, 7.8% divorced, 2.0% separated and 1.0% widowed. As for qualifications, most of them, 70.2% hold a licentiate degree, 15.1% have a master's degree, 8.6% have a postgraduate degree, 5.8% have a bachelor degree and 0,3 % own a doctor's (PhD) degree. As for years of teaching experience, 47.2% have been working for 10 to 20 years, 28.5% between 20 and 30 years, 15.3% less than 10 years and only 8.9% of them have 30 or more years of teaching experience. Approximately one third (33.4%) of the sample teaches in secondary schools (10th, 11th, 12th grades), 21.7% in 3rd basic schools (7th, 8th, 9th grades), 21.6% in 2nd basic schools (5th, 6th grade), 19.1% in primary schools and 4.2% in preschools.

Prevalence of insomnia symptoms (having one or more symptoms) in the sample was 40.6% (95%CI, 36.5-44.6). We found that 14.3% (95%CI, 11.0-16.7) had difficulty initiating sleep, 28.7% (95%CI, 25.2-32.7) difficulty maintaining sleep, 19.7% (95%CI, 16.3-22.8) early morning awakening and 20.7% (95%CI, 17.6-24.3) non-restorative sleep. Insomnia is a prevalent condition among female (36.7% vs. 41.9%; $P < .01$). Moreover, we also found significant statistical differences between gender concerning the symptoms "difficulty initiating sleep" (9.0% vs. 16.2%; $P = .01$) and non-restorative sleep (13.0% vs. 23.4%; $P < .01$). However no significant differences were found for the symptoms

“difficulty maintaining sleep” (29.9% vs. 28.2%; $P = .37$) and “early morning awakening and difficulty getting back to sleep” (16.5% vs. 20.9%; $P = .13$).

Regarding the variable teaching years experience, we noticed significant statistical differences in insomnia symptoms prevalence: 54.8% for teachers having less than ten years of teaching practice, 35.6% for the group with ten to twenty years, 40.6% for those who have twenty to thirty years and 43.4% for teachers having over thirty years of practice ($P = .02$).

Concerning marital status variable, significant differences were also noticed. Widowed had the higher prevalence (83.3%), followed by divorced (55.0%), single (42.6%), married / cohabiting (38.3%) and separated (36.4%), with $P < .01$.

We discovered, once again, the existence of significant statistical differences when analyzing the job satisfaction variable. Teachers with higher levels of satisfaction have a lower estimated prevalence of insomnia (44.4%, vs. 37.1%; $P = .04$) (Table 1).

Table 1 Insomnia symptoms: prevalence and determinants

	N	%	95%CI	OR	95%CI
<i>Gender</i>					
Male	55	36.7	28.6-45.0	1	
Female	179	41.9	38.6-48.6	1.25	1.05-1.83
<i>P</i>		< .01			
<i>Age</i>					
< 30	6	46.2	16.8-83.2	1	
30-35	38	48.1	37.8-60.9	1.08	0.33-3.51
35-40	59	43.1	33.9-51.6	0.88	0.28-2.76
40-45	46	35.1	27.0-44.9	0.63	0.20-1.99
45-50	34	34.7	26.4-47.1	0.62	0.19-1.99
≥ 50	50	42.7	35.1-54.4	0.87	0.28-2.75
<i>P</i>		.34			
<i>Marital status</i>					
Single	40	42.6	31.6-53.1	1	
Married/cohabiting	163	38.3	35.0-44.9	0.83	0.53-1.32
Separated	4	36.4	24.7-70.3	0.77	0.21-2.82
Divorced	22	55.0	37.7-70.9	1.65	0.78-3.48
Widowed	5	83.3	40.5-90.8	6.75	0.76-60.05
<i>p</i>		.05			
<i>Crowding index</i>					
< 1,0	77	44.0	36.0-51.3	1	
1	91	39.2	33.6-46.7	0.82	0.55-1.22
> 1,0	59	42.4	33.6-50.6	0.93	0.60-1.47
<i>P</i>		.60			
<i>Academic degree</i>					
Bachelor	10	31.3	16.1-5	2.9	1
Licentiate	168	41.4	38.1-48.3	1.55	0.72-3.37
Postgraduate	24	46.2	29.5-60.9	1.89	0.75-4.76
Master	32	37.2	25.4-47.4	1.30	0.55-3.01
Doctor (PhD)	0	0.0	0.0	0.0	0.0
<i>P</i>		.60			
<i>Years of teaching experience</i>					
< 10	46	54.8	43.9-66.1	1	
oct-20	96	35.6	29.0-41.0	0.46	0.28-0.75
20-30	65	40.6	37.1-53.7	0.57	0.33-0.96
≥ 30	23	43.4	29.8-58.3	0.63	0.32-1.27
<i>P</i>		.02			
<i>Educational stage</i>					
Preschool	7	33.3	13.0-60.7	1	
Primary school	37	34.9	25.7-45.2	1.07	0.39-2.89
2nd basic (5th, 6th grades)	62	49.6	42.8-61.7	1.97	0.74-5.21
3rd basic (7th, 8th, 9th grades)	47	37.6	30.3-48.3	1.21	0.45-3.20
Secondary school	76	39.2	33.4-48.2	1.29	0.50-3.34
<i>P</i>		.15			
<i>Job satisfaction</i>					
No	128	44.4	39.5-51.5	1	
Yes	103	37.1	31.8-43.9	0.74	0.53-1.03
<i>P</i>		.04			

Discussion

We found a high prevalence of insomnia among schoolteachers, which is consistent with results of other studies, performed on other samples,²⁰⁻²² and literature by some authors²³⁻²⁵ that suggests that these professionals have an increased risk of developing psychosocial pathologies and consequently insomnia. Female teachers show higher prevalence of insomnia symptoms. This fact is consistent with most of the research conducted in this field,²⁶ which points out female gender as a risk factor for developing this pathology. Likewise, the marital state, namely widowed or divorced, might be a risk factor, which is also consistent with other studies conducted worldwide.⁹

The relation between job dissatisfaction and insomnia can show this variable importance in developing such pathology as well as the negative effects on teachers' development and functioning. Teaching career dissatisfaction and constant organizational changes, together with the current devaluation of teaching role may justify, at least in part, teachers' work dissatisfaction. It may explain insomnia's high prevalence registered in this professional group, as pointed out in other studies with other professional groups.^{26,27}

An important finding in this research is the fact that early career teachers (with less than ten years) and those who are at the end of their careers (more than 30 years of teaching) have a higher prevalence of insomnia symptoms. This may be explained, on one hand by concerns due to the job's instability and insecurity for early career teachers and, on the other hand, the uncertainties regarding social security and retirement for teachers who find themselves in a pre-reform stage.

Older teachers live an uncertain situation about the future due to the successive changes in retirement conditions, either by increasing retirement age or by reducing the pension they will receive. This is particularly painful, because many of them had devoted their life to school and see themselves in a situation that could compromise what they planned for the last period of their lives.²⁸

Increased bureaucracy, difficult response to daily pressures and challenges resulting from difficult social contexts and being repeatedly requested are factors that may help to explain teachers' high levels of insomnia. Such factors may inhibit teachers from having necessary serenity to deal with the school demands and often "take home" school problems, which naturally, can interfere with the necessary conditions to a peaceful sleep.

Key points

- The Portuguese schoolteachers (from preschool to secondary school) have a high prevalence of insomnia symptoms.
- Insomnia symptoms were related to sociodemographic and occupational variables.
- Health promotion programmes targeted to school teachers from these levels of education should be developed and included in the health occupational plans.

Acknowledgements

The authors are deeply indebted to the teachers and school group principals for the participation and important contribution given to this study.

Conflicts of interest

The authors declare that there are no conflicts of interests.

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