Insomnia and sleep quality among primary care physicians with low and high burnout levels

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Received 17 April 2007; received in revised form 8 October 2007; accepted 23 October 2007

Abstract

Objective: The aim of this study was to assess insomnia and sleep quality in primary care physicians with low and high burnout scores. Methods: A representative sample of 240 physicians was drawn from 70 medical centers in Madrid, Spain. Based on quartile splits of the overall index of the Shirom–Melamed Burnout Questionnaire, 55 participants were allocated to a low-burnout group, and 58 were included in a high-burnout group. The questionnaire also included sociodemographic data, insomnia symptomatology, and the Pittsburgh Sleep Quality Index. Results: Of the total sample, 18.8% met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria for insomnia diagnoses. More individuals with high burnout scores (21.1%) than individuals with low burnout scores (6.9%) fulfilled these criteria. Results of multivariate logistic regression analyses showed that burnout was the only variable related to insomnia diagnoses (odds ratio=7.56; 95% confidence interval=2.38–14.02). Furthermore, the results of multivariate analysis of covariance, after adjustments for sociodemographic variables, indicated that subjects from the high-burnout group scored significantly higher than subjects from the low-burnout group on the global sleep quality index and its components, indicating significantly greater disturbed sleep for the former. Conclusion: The results of the present study provide support for a clear relationship between burnout and disturbed sleep, as shown by the high prevalence of insomnia and poor sleep quality among physicians with high levels of burnout. © 2008 Elsevier Inc. All rights reserved.

Keywords: Burnout; DSM-IV insomnia criteria; Sleep quality; Primary care physicians

Introduction

The relationship between disturbed sleep and burnout has been documented using both subjective and objective assessment methods. Thus, based on self-reports, several studies have shown that subjects scoring high on burnout have disturbed sleep [1–3]. Other authors who assessed sleep quality with the Karolinska Sleep Diary, by comparing subjects with low, moderate, and high levels of burnout, found significant differences among groups in terms of tension at bedtime, difficulty falling asleep, fatigue upon awakening, and quality of sleep, with individuals with high burnout scores showing poorer sleep quality [2]. Another study by the same group [4] found that women scoring high on burnout reported greater sleepiness, impaired sleep quality, and more frequent awakenings than those scoring low. Finally, a recent study, using polygraphic sleep measures, found an increased number of arousals in young individuals with high burnout scores as compared to their counterparts with low burnout scores [5].
To our knowledge, there are a few studies that have addressed the prevalence of insomnia symptoms in individuals with high burnout scores. In a study with blue-collar workers, Melamed et al. [1] found that subjects complaining of chronic burnout (≥6 months) showed significantly more insomnia symptoms than those with nonchronic burnout or those without signs of burnout. On the other hand, a recent electronic diary study has examined this topic, finding that clinically burnt-out subjects complained about trouble falling asleep and nonrefreshing sleep [6].

Disturbed sleep has been considered a mechanism that is likely involved in the development of the burnout syndrome symptomatology, which is understood as the chronic depletion of an individual’s energy resources [7,8]. According to this conceptual view, burnout is a syndrome characterized by feelings of being depleted of physical, emotional, and cognitive energies, and is considered a consequence of strain from workplace stressors, without sufficient recovery [7,9,10]. This concept of burnout is based on the conservation of resources (COR) theory [11,12], which is related to loss of energy resources, as formulated by Shirom [7]. The COR model proposes that individuals seek to acquire and maintain resources, and that stress is the result of a threat to resources, loss of resources, or failure to regain resources following resource investment. Hobfoll [11] defined resources as “those objects, personal characteristics, conditions, or energies that are valued by the individual” (p. 516). Thus, burnout can occur when individuals experience a cycle of resource loss over a period of time at work which cannot be replenished [13]. This concept is best described as a “vicious circle” in which burnt-out individuals may exacerbate their losses as a result of facing stressors, causing further deterioration. Furthermore, from the viewpoint of the COR theory, it can be argued that individuals can use their sleep as an opportunity to reduce burnout symptoms and to replenish lost resources [14,15].

Due to the scarcity of research on insomnia, such as in burnout, we were interested in assessing the presence of insomnia using standardized clinical criteria in a sample of primary care physicians—a group that is well-known to be at high risk for developing burnout. We hypothesized that individuals with high levels of burnout would display a higher prevalence of insomnia symptoms and poorer sleep quality than individuals with low burnout scores.

### Methods

#### Participants and procedure

The data presented here were collected as part of a protocol with the main goal of assessing the prevalence of the burnout syndrome among physicians of primary care centers in Madrid, Spain. Participants were drawn, using stratified random sampling, from 70 centers selected from a total of 210. This design was chosen as the one that best represents the population of primary care physicians in the region. Letters of invitation were sent to the medical supervisors of each of the 70 centers. Along with this letter were included the questionnaire and a self-addressed stamped envelope, thus facilitating easy return of the questionnaires. When needed, a follow-up call to the supervisors was made for the return of the questionnaires. A final total of 53 centers participated in the study (center response rate, 75.6%).

Two-hundred forty physicians (75 men and 165 women; mean age, 41.9±7 years) participated in the study, with an individual response rate of 71.6%. Of this sample, 55 participants were allocated to a low-burnout group, and 58 were included in a high-burnout group, based on quartile splits (lower ≤2.20; upper ≥3.90) of the overall index of the Shirom–Melamed Burnout Questionnaire (SMBQ) [1,16]. Of these individuals, 30 were men and 83 were women, with a mean age of 41.4±8 years. Written informed consent was obtained from all participants. The research design was reviewed and approved by the institutional ethical committee of the Autonomous University of Madrid (no. CEI 11-184). Data collection took place between January and July 2005.

#### Measures

Quality of sleep was measured using the Spanish validation [17] of the Pittsburgh Sleep Quality Index (PSQI) [18], a standardized measure that has been widely used in sleep research. The PSQI is composed of 19 items that produce a global sleep quality index and 7 component scores reflecting sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medications, and daytime dysfunction. Each component is scored from 0 to 3 points. The total index score is between 0 and 21, with higher scores indicating a lower quality of sleep. A global score of ≥5 indicates clinically significant sleep problems. In this study, a Cronbach’s α of .80 was found. Numerous studies using the PSQI have supported high validity and good psychometric properties [18–20].

Insomnia was assessed according to the insomnia criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) [21]. The criteria are as follows: (a) “the predominant complaint is difficulty initiating or maintaining sleep, or nonrestorative sleep, for at least 1 month”; and (b) “the sleep disturbance (or associated daytime fatigue) causes clinically significant distress or impairment in daytime functioning.” The operationalization of criteria for diagnosing insomnia is included in Table 1.

The following questions were used to evaluate the abovementioned criteria:

**Criterion 1**

(a) “During the past month, how long did it usually take you to fall asleep each night?” (difficulty initiating sleep)
Table 1
Operationalization of criteria for diagnosing insomnia

Criterion 1 was fulfilled if at least one of the following three subcriteria were met:
(a) Mean sleep onset latency exceeding 30 min
(b) Mean wake time after sleep onset exceeding 30 min
(c) Waking at least 30 min earlier than preferred more often than 10 days/month

Criterion 2 was fulfilled if at least one of the following two subcriteria were met:
(a) Reporting being somewhat or very unsatisfied with current sleep during the previous month
(b) Reporting sleep being so poor that it affected daily activities or duties more often than 4 days/month

(b) “Do you wake up during the night after you have fallen asleep? If so, what is the total time during the night you are awake?” (difficulty staying asleep)
(c) “Do you wake up at least a half hour earlier than you want to? If so, how often has this happened during the previous month (never, 1–4 days, 5–10 days, 11–20 days, >20 days)? (early morning awakening)

Criterion 2
(a) During the past month, how would you rate your sleep quality overall (very good, fairly good, fairly bad, very bad)? (nonrestorative sleep).
(b) “Is your sleep so poor that it affects your daily activities or duties? If so, how often has this happened during the previous month (never, 4 days, 5–10 days, 11–20 days, >20 days)? (daytime impairment).

DSM-IV inclusion criteria for insomnia were met if both Criteria 1 and 2 were fulfilled. This operationalization has been shown to be reliable and valid [22].

The Maslach Burnout Inventory (MBI) is the instrument most frequently used for assessing burnout [23]. The MBI is a 22-item instrument that assesses Emotional Exhaustion (EE; $\alpha=88$), Depersonalization (DP; $\alpha=76$), and Personal Accomplishment (PA; $\alpha=84$). High levels of emotional exhaustion and depersonalization, and low levels of personal accomplishment are indicative of burnout. The subscale items are scored on a 7-point Likert scale ranging from 0 (never) to 6 (every day). In earlier studies, the MBI has found good support for its convergent and discriminant validity and reliability [23].

The Pines Burnout Measure (PBM) [24,25] includes 21 items evaluating physical, emotional, and mental exhaustion. All items are scored on a 7-point frequency scale ranging from 1 (never) to 7 (always). This measure has been used in several previous studies [4,25–27] and has shown excellent psychometric properties and clinical validity [28]. An overall index showing high reliability (Cronbach’s $\alpha=.95$) was used.

A shortened version (12 items) of the SMBQ [1,16] measuring various components of the burnout syndrome was used: physical fatigue (4 items; e.g., “I feel physically drained”), emotional exhaustion (4 items; e.g., “I feel emotionally burnt out in my job”), and cognitive weariness (4 items; e.g., “I have difficulty thinking about complex things”). We decided to use this version because earlier studies have pointed out that the tension and listlessness subscales of the SMBQ could be more related to general chronic stress, whereas the emotional exhaustion and physical fatigue, and cognitive weariness subscales reflect burnout components more adequately [2]. The items were rated on a 7-point scale ranging from 1 (almost never) to 7 (almost always). As in previous studies [4,5], an overall burnout index was calculated for each participant. In the present study, we calculated the correlation with other burnout scales. The SMBQ global index correlated highly with the PBM ($r=.91$, $P<.001$) and the EE subscales of the MBI ($r=.84$, $P<.001$), and, to a lesser degree, with the DP ($r=.42$, $P<.001$) and the PA ($r=-.47$, $P<.001$) subscales of the MBI. This pattern is identical to that found in a recent study of burnout among women [4]. The reliability and validity of the scales are well established [1,16,29]. The Cronbach’s $\alpha$ coefficient for the SMBQ in this study was .95.

Statistical analyses

Group differences in sociodemographic characteristics were compared using chi-square tests for categorical variables and t-tests for continuous variables. We replaced missing data by regression imputation, by means of the structural equations program Amos 6.0 [30]. This method has been found to be superior to other missing-data techniques (e.g., mean substitution method) and to generally provide unbiased parameters [31,32]. In this procedure, missing data were imputed using other items from the same scale. Scores were imputed only for respondents who had complete data on at least 80% of the items of each scale [33]. Ninety-five percent confidence intervals (95% CIs) were calculated for the prevalence of insomnia. Multivariate logistic regression was used to examine the association between burnout and insomnia while controlling for sociodemographic characteristics. Multivariate analysis of covariance (MANCOVA) was carried out to determine the existence of differences in sleep quality between the low-burnout group and the high-burnout group, as measured by the PSQI, while controlling for the possible confounder effect of sociodemographic variables. MANCOVA is more robust than the simple variance analysis (analysis of variance). Effect size was calculated using partial eta-squared ($\eta_p^2$) statistics. This index has been recommended for multivariate designs to examine the strength of the relation between an independent variable and a dependent variable that excludes the variance produced by other factors [34]. Statistical analyses were performed using Statistical Package Software System (SPSS version 13.0; SPSS Inc., Chicago, IL, USA). For all analyses, the minimum level of significance considered was $.05.$
Results

The sociodemographic characteristics of participants with low and high burnout scores are described in Table 2. There were no statistically significant differences between the groups in terms of age, number of children, education, and work experience. However, there was a significant difference in chi-square analysis between the low-burnout group and the high-burnout group in terms of sex (χ²=9.94, P=0.002) and marital status (χ²=4.76, P=0.029), with more women and individuals with no partner in the high-burnout group. In addition, as expected, physicians with high burnout levels had significantly higher values than those in the low-burnout group in terms of the EE index of the PBM (t=1.84, P=0.000) and DP subscales of the MBI, and the global index of the PBM (t=21.48, P=0.000). Similarly, the high-burnout group had significantly lower scores on the PA subscales of the MBI, and the global index of the MBI (t=11.5, P=0.000) subscales of the MBI (see Table 2).

Insomnia

The prevalence and 95% CIs of insomnia symptomatology for physicians with low and high burnout scores can be seen in Table 3. Out of the sample, 8.4% (95% CI=4.8–11.9) reported a mean sleep-onset latency exceeding 30 min. More individuals with high burnout scores (21.1%) than with low burnout scores (6.9%) reported this symptom (χ²=5.87, P=0.015). A total of 15.4% subjects (95% CI=10.8–19.9) reported mean wake time after sleep onset exceeding 30 min. The difference between the low-burnout group and the high-burnout group was significant (χ²=4.77, P=0.029). Early morning awakening, operationalized as awakening at least 30 min earlier than preferred for morning awakening, was reported by 22.5% (95% CI=19.5–30.4). Its prevalence was significantly higher for the high-burnout group (45.6%) (χ²=12.78, P=0.000).

Nonrestorative sleep was reported by 22.5% (95% CI=17.2–27.7) of the sample. Again, more subjects in the high-burnout group (50%) than in the low-burnout group (5.5%) reported having this problem (χ²=27.59, P=0.000). Similarly, there was a significant difference between the groups in terms of daytime impairment for ≥5 days during the previous month (χ²=17.26, P=0.000). A total of 14.2% (95% CI=9.7–18.6%) of the sample reported this symptom. Lastly, 18.8% (95% CI=13.8–23.7%) of the total sample met DSM-IV criteria for diagnosis of insomnia. The prevalence of insomnia in participants with high and low burnout levels was 39.7% and 7.3%, respectively, and the difference was significant (χ²=16.27, P=0.000).

We used multivariate logistic regression in order to assess the association between burnout and insomnia while controlling for sociodemographic characteristics. Results showed that burnout was the only variable related to insomnia according to DSM-IV criteria [odds ratio (OR)=7.56; 95% CI=2.38–14.02; P=0.000]. The same pattern appeared for both criteria of insomnia.

However, using a conservative approach, we conducted additional analyses that included all four quartiles of burnout. Specifically, we wanted to explore the inverse association, taking into account participants with higher levels of burnout but without insomnia. For this purpose, MANCOVA was performed to test insomnia group differences in burnout. We controlled for the possible effects of...
sex and marital status. The global score of the SMBQ served as the dependent variable. Wilks’ criterion indicated a significant difference between subjects with insomnia and subjects without insomnia \([F(2, 225) = 24.92, \, P = .000, \, \eta^2_g = .10]\). Post hoc analyses indicated that burnout scores were higher for individuals with insomnia \([M_{\text{insomnia}} = 4.01, \, M_{\text{noninsomnia}} = 2.90, \, t(236) = 5.74, \, P < .001]\). On the other hand, burnout was significantly higher among women \([M_{\text{men}} = 2.68, \, M_{\text{women}} = 3.30, \, t(235) = 3.67, \, P < .001]\) and among participants without a partner \([M_{\text{with partner}} = 2.99, \, M_{\text{without partner}} = 3.64, \, t(236) = 2.90, \, P < .01]\).

### Sleep quality

To explore possible burnout group differences in sleep quality, MANCOVA was performed. Adjustment was made for sociodemographic variables that were different for both groups: sex and marital status. The global PSQI score and its seven components served as dependent variables. Wilks’ criterion indicated a significant difference between the low-burnout group and the high-burnout group \([F(5, 107) = 6.94, \, P = .000, \, \eta^2_g = .52]\). The results showed that the high-burnout group scored significantly higher than the low-burnout group in the global sleep quality index and its components, with reduced sleep quality for the high-burnout group (for means and standard deviations, see Table 4). Furthermore, a trend in the same direction was found for the sleep disturbance PSQI subscale \([F(1, 81) = 3.80, \, P = .077]\), indicating higher sleep disturbance for the high-burnout group in spite of the fact that we found several missing values in this dimension. The covariates were not significantly related to the dependent variables, except marital status, which was significantly related to the use of medication \([F(1, 229) = 6.037, \, P = .019]\), with physicians who had no partner reporting greater use of medication than those with a partner.

Using a PSQI global score of \(\geq 5\) as the optimal cutoff for distinguishing good sleepers from subjects with clinical sleep problems, in our sample, 14.5% of the low-burnout group and 70.7% of the high-burnout group were thereby classified as having clinical sleep problems, with significantly greater disturbed sleep for subjects with high burnout scores \(\chi^2 = 36.23, \, P = .000\).

### Discussion

The aim of the present study was to investigate differences in the prevalence of insomnia symptoms and sleep quality between physicians with high burnout scores and physicians with low burnout scores. As hypothesized, physicians with high burnout scores showed a significantly higher prevalence of insomnia symptoms and poorer sleep quality compared with their colleagues with lower burnout levels, after controlling for sociodemographic differences between groups.

Results from multivariate logistic regression show that burnout was strongly associated with all the insomnia symptoms: the high-burnout group reported a significantly higher prevalence of insomnia symptomatology. The prevalence of insomnia (using DSM criteria) among subjects with high levels of burnout has practically not been addressed. The present findings thus confirm our hypothesis and, at the same time, are consistent with the study of Melamed et al. [1], which states that persons reporting high levels of burnout symptoms over a prolonged period of time suffered from greater difficulties falling asleep, more frequent early morning awakenings, greater tiredness upon waking up, and greater difficulties maintaining sleep than those with nonchronic burnout or those without burnout symptoms. In this regard, one study has found burnout to be positively associated with some insomnia symptoms, such as not feeling refreshed upon awakening and the presence of daytime sleepiness [4,6]. Additionally, another study showed that burnt-out subjects were tenser at bedtime, had greater difficulty falling asleep, and were more tired upon awakening as compared with a group with lower levels of burnout [2]. According to these results, burnt-out physicians suffer from insomnia and nonrefreshing sleep. It has been suggested that these persons may be unable to unwind after working hours [5]. In this regard, a recent qualitative study has found that, in the time preceding burnout, sleep was voluntarily curtailed in order to cope with work demands [35].

According to the COR theory, individuals feel burntout when they perceive a continuous loss of resources that cannot be replenished. The model suggests that individuals

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<th>Low burnout ((n=55))</th>
<th>High burnout ((n=58))</th>
<th>(F)</th>
<th>(P)</th>
<th>(\eta^2_g)</th>
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<tbody>
<tr>
<td>Global PSQI score</td>
<td>(2.72 , (2.22))</td>
<td>(7.24 , (4.17))</td>
<td>24.23</td>
<td>.000</td>
<td>.396</td>
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<td>Subscores</td>
<td></td>
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<td>Sleep quality</td>
<td></td>
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<td>Sleep latency</td>
<td>0.54 , (0.57)</td>
<td>1.40 , (0.83)</td>
<td>24.82</td>
<td>.000</td>
<td>.402</td>
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<tr>
<td>Sleep duration</td>
<td>0.51 , (0.80)</td>
<td>1.38 , (1.03)</td>
<td>11.12</td>
<td>.002</td>
<td>.231</td>
</tr>
<tr>
<td>Habitual sleep efficiency</td>
<td>0.45 , (0.64)</td>
<td>1.16 , (0.92)</td>
<td>9.90</td>
<td>.003</td>
<td>.211</td>
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<tr>
<td>Sleep disturbance</td>
<td>0.21 , (0.57)</td>
<td>0.77 , (0.98)</td>
<td>6.23</td>
<td>.018</td>
<td>.147</td>
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<tr>
<td>Use of medication</td>
<td>0.72 , (0.45)</td>
<td>1.05 , (0.40)</td>
<td>3.80</td>
<td>.077</td>
<td>.095</td>
</tr>
<tr>
<td>Daytime dysfunction</td>
<td>0.14 , (0.49)</td>
<td>0.57 , (0.83)</td>
<td>4.98</td>
<td>.032</td>
<td>.119</td>
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seek to acquire and maintain resources (i.e., the objects, personal characteristics, conditions, or energies that they value or that serve as a means of coping with work demands) [13]. In this regard, the quantity and the quality of sleep may be considered such a resource, as they both contribute to stopping the spiral of resource loss and, at the same time, to obtaining other kinds of resources (e.g., good performance). Our results show that the high-burnout group had poorer sleep quality than the low-burnout group, with marked differences in sleep quality, sleep latency, sleep duration, daytime dysfunction, and the global PSQI score. Partial eta-squared effect sizes were obtained: .01 (small effect), .06 (moderate effect), and .14 (large effect) [36,37]. Thus, the strength of the association between burnout and components of sleep quality is generally strong, as six of the variables considered showed a large effect, and the remaining two variables had a moderate effect. These findings are in agreement with previous research. Thus, subjects scoring high in burnout showed an increased frequency of arousal during sleep, more awakening complaints, and reduced sleep quality compared to colleagues scoring low on burnout [5]. Research has also indicated that subjects complaining of burnout awaken later, have greater tension at bedtime, and have worse sleep quality [2,4].

In contrast, our data showed some differences with the existing literature. We found significant differences in the use of medication between the groups. This finding is not in accordance with the study of Grossi et al. [4], where no differences in the self-reported use of sleeping pills/tranquilizers between groups were found. It seems reasonable to assume that this difference may be due to our sample characteristics, as physicians have greater access to medication.

There may be several explanations for the association between insomnia symptoms and poor sleep quality, and high levels of burnout, although the cognitive activation theory of stress (CATS) seems to be the most comprehensive. CATS has emphasized cognitive processes and physiological activation as key factors in this process [38]. It has been hypothesized that burnt-out persons have difficulties unwinding after working hours [5]. In addition, it has been found that individuals with insomnia tend to think excessively about their sleep and the consequences for the next day if they do not get enough sleep [39,40]. This represents a hyperactive state, which may involve increased activation of the hypothalamic–pituitary–adrenal (HPA) axis, resulting in a chronic allostatic load [41]. In this regard, Melamed et al. [42] suggested that the link between burnout and sleep disturbances may be mediated by a disturbance of the HPA axis, which is considered the central stress–physiological system for an organism’s long-term adaptation to stress [43]. Studies on burnout and cortisol levels have found inconsistent results, both with decreases and with increases in cortisol levels. For example, Melamed et al. [1] found that chronic burnout was associated with elevated cortisol levels. Other researches showed similar results [2,44]. However, few studies have found that burnout is associated with hypocortisolism [45,46]. Furthermore, an increase in cortisol levels has also been found among insomniacs [47]. Taken together, the above findings suggest that HPA axis dysregulation may be common in both burnout individuals and persons with sleep disturbances. HPA axis dysregulation may also partially explain the health problems experienced by burnt-out persons and the relationships between burnout and sleep disturbances [42,48].

Conversely, although several studies have investigated the role of sociodemographic characteristics in burnout, to date, research has yielded inconsistent results. For instance, some studies show higher burnout for men [49,50], some show higher scores for women [51], and still others find no overall differences [52]. The present results show that levels of burnout were significantly higher for women and participants without a partner. These findings are consistent with prior studies. In their comprehensive review of studies on burnout, Maslach et al. [52] found that unmarried individuals or individuals with no partner reported a higher prevalence of job burnout. Similarly, burnout has been shown to be related to age, gender, marital status, and education [51,53].

The present research has its strengths and limitations. The most notable strength is that the study population constituted a stratified random sample from the primary care physician population of Madrid. In addition, the participation rate (71.6%) of the present study is quite high, given that values in surveys among physicians are around 50% [54,55] or even lower [56]. This suggests that selection bias in the study is limited, and that we may generalize our conclusions to the primary care physician population of Madrid. In contrast, an important limitation is the cross-sectional design of the study, which precludes evaluation of the temporality and causality of the observed relationships. Another limitation is that data were collected by means of self-reports. However, empirical research has indicated that self-report measures of insomnia are highly correlated with objective measures such as polysomnography or actigraphy [57]. In addition, as we did not control for the effect of individual differences such as negative affect or level of depression, we do not know the extent to which such individual differences might have affected the relationship between sleep and burnout. In this regard, several studies have found that depression tends to correlate both with insomnia and with burnout. Regarding the association between burnout and depressive symptoms, there has been an ongoing debate about whether these two phenomena overlap, as later phases of burnout are usually accompanied by depressive symptomatology. However, the most recent developments in the field indicate that these notions, although related, are conceptually different. Previous research has found that items measuring burnout and depression load on different factors [51] and are only moderately correlated [58,59]. Similarly, the prevalence of insomnia has been found to be strongly associated with
psychiatric illnesses such as increased risk of depression [60–62]. For instance, in a community sample, it was found that people with insomnia were 10 times more likely to have depression than people without insomnia [60]. However, in spite of this close relationship, a recent study has found that disturbed sleep is involved in the lack of recovery from burnout, independently of the influence of depression [6].

In conclusion, the results of the present study provide evidence supporting a clear relationship between burnout and disturbed sleep, as indicated by the elevated frequency of insomnia symptoms and reduced sleep quality among physicians with high levels of burnout. These findings confirm and extend previous reports and will add to a small but growing field of research about sleep and burnout. In fact, as some authors have pointed out [5], as burnout is a chronic state and develops over a long period of time, it is very important to find early signs of the condition, such as disturbed sleep, to try to prevent its further development. Moreover, alleviating insomnia symptoms and sleep disturbances in individuals with burnout may be an important step in the rehabilitation process [46], which would improve the quality of life of these individuals.

References


