Sleep problems in general practice: a national survey of assessment and treatment routines of general practitioners in Norway

BØRGE SIVERTSEN1, INGER H. NORDHUS1,2, BJØRN BJORVATN2,3 and STÅLE PALLESEN2,4
1Department of Clinical Psychology, University of Bergen, 2Norwegian Competence Center for Sleep Disorders, Haukeland University Hospital and Departments of 3Public Health and Primary Health Care and 4Psychosocial Science, University of Bergen, Bergen, Norway

Accepted in revised form 31 March 2009; received 7 January 2009

SUMMARY The aim of the current national survey of all general practitioners (GPs) practising in Norway was to explore assessment, treatment practice and perceived efficacy of treatment of sleep problems in general practice. A short questionnaire, including self-report measures of the frequency and routines of treatment and assessment of sleep problems, was sent to all 4049 GPs in Norway, of whom 1465 (36.7%) provided valid responses. The prevalence of sleep problems among patients in general practice was estimated to be 11.2%, of which almost two-thirds were believed to be caused by a medical condition. Anamnestic information and blood tests were the most common assessment of sleep problems, whereas GPs rarely referred patients to all-night polysomnographic recording. Sleep hygiene advices were the most commonly used treatment strategy, whereas hypnotics were believed to have the best short-term efficacy. Antidepressives were considered to be the best option for long-term management of sleep problems. About one-third of the patients were prescribed benzodiazepines or ‘Z-drugs’ for more than 6 months. This study demonstrates that sleep problems are recognized by GPs, but despite evidence that non-pharmacological treatment is superior in the long-term management of insomnia, the current study shows that hypnotics are still considered by GPs to be the most successful treatment.

KEYWORDS epidemiology, general practice, management, sleep problems, treatment

INTRODUCTION

Nearly 50% of all primary care patients report weekly sleep problems (Alattar et al., 2007; Blais et al., 2001; Shochat et al., 1999) which may relate to the sleep problems co-occurring frequently with other existing psychological or physical conditions. This high level of comorbidity may also explain why up to 85% of chronic insomniacs remain unidentified and thus receive no treatment for their sleep problems (Meissner et al., 1998; Mellinger et al., 1985; Riedel and Lichstein, 2001).

Among insomniacs who are treated, the large majority receive pharmacotherapy (Hohagen et al., 1994; Morin and Wooten, 1996). The majority of these hypnotics are prescribed by general practitioners (GPs), and while the prescribing rates of benzodiazepines have declined over the past decade, there has been a corresponding increase in the use of newer ‘Z-drugs’ (zopiclone, zolpidem and zaleplon) (Dundar et al., 2004).

While the short-term benefits of hypnotics have been reported in several studies (Buscemi et al., 2005; Nowell et al., 1997), it is recognized widely today that hypnotics should be used with caution and preferably avoided in patients with chronic insomnia (National Institutes of Health, 2005). Nevertheless,
hypnotics are used most commonly on a nightly basis for several years (Kripke, 2000; Kripke et al., 1998; Woods et al., 1992).

Substantial research has been directed to GPs’ attitudes regarding the use and perceptions of benzodiazepines (Hamilton et al., 1990; Iliffe et al., 2004; Siriwardena, 1995). A British study also showed recently that practitioners attributed greater efficacy and lower side effects to Z-drugs compared with benzodiazepines (Siriwardena et al., 2006).

In terms of non-pharmacological treatment options, there is now a large body of evidence showing that behavioural strategies are more effective than pharmacotherapy in management of chronic insomnia, especially in the long term. However, to our knowledge, no studies have examined specifically the use and perceived clinical effects of different interventions for insomnia in general medical practice.

Based on the above-mentioned considerations we conducted a national survey, including all GPs practising in Norway with the following three aims: first, we wanted to examine the prevalence of sleep problems among patients in general medical practices in Norway, as estimated by the GPs. We also aimed to investigate to what extent the GPs considered the sleep problems of their patients to be secondary to psychiatric or medical conditions, as well as how these patients were assessed. The final objective of the current study was to explore the GPs’ use and perceived short- and long-term efficacy of a range of pharmacological and non-pharmacological treatments.

MATERIAL AND METHODS

Participants

All GPs \((n = 4049)\) working in general medical practice in Norway as of October 2007 were invited to participate in the study. Twenty-six GPs had either moved or had invalid postal addresses, and 34 were excluded as they no longer worked as a GP. Of the remaining 3989 GPs, a total of 924 GPs provided valid responses. A reminder was sent to all non-responders after 2 months, resulting in an additional 541 GPs. This yielded an overall response rate of 36.7\%(\(n = 1465)\).

Instruments

The GPs were asked to estimate how many of their patients experienced sleep problems, as specified by Code P06 in The International Classification of Primary Care. We also asked how many of their patients they believed had sleep problems caused by either a somatic or a psychiatric condition, and how the sleep problems were assessed [anamnestic information, sleep questionnaire or sleep diary, blood tests, magnetic resonance imaging (MRI)/computed tomography (CT) or polysomnography (PSG)]. The GPs were then asked to indicate on a seven-point Likert scale to what extent they used the following treatments for sleep problems in their practice: (i) general sleep hygiene advices, (ii) non-pharmacological treatment (such as stimulus control and sleep restriction), (iii) bright light therapy, (iv) melatonin, (v) benzodiazepines (such as nitrazepam and flunitrazepam), (vi) benzodiazepine-like hypnotics/Z-drugs (such as zopiclone and zolpidem), (vii) antipsychotics (such as levomepromazin, chlorprothixen, chlorpromazine), (viii) antihistamines, (ix) antidepressives (such as mirtazapin, mianserin, trimipramin and amitriptylin) and (x) herbal or natural remedies. The listed benzodiazepines and Z-drugs comprised all types available in Norway. The GPs were also asked to assess the short-term (\(\leq 1\) month) and long-term (>1 month) effect of these treatments in their patients, using a five-point Likert scale. Finally, the GPs were asked to estimate how many of their patients were prescribed benzodiazepines and/or Z-drugs, as well as the duration of these prescriptions.

Statistics

spss (SPSS Inc., Chicago, IL, USA) for Windows 17 was used in the statistical analysis. Pearson’s chi-square tests were used to examine the relationship between gender and categorical variables, and Mann–Whitney \(U\)-tests were used to examine the differences in assessment and treatment practices among dichotomous subgroups of GPs.

RESULTS

In all, 1457 GPs completed the study, of whom 955 (65.2\%) were men. Mean age (SD) was 47.7 (10.3), and female GPs were, on average, younger than males (43.8 versus 49.5, \(P < 0.001)\). On average, the participants had practiced as a GP for 16.7 years (SD = 10.5) and had an average of 1229 patients each (SD = 362).

Prevalence of sleep problems

The GP-estimated prevalence of sleep problems in their practice was 11\%. Female GPs reported a higher prevalence than male GPs (14\% versus 10\%, \(P < 0.001)\). Among patients with sleep problems, GPs estimated medical conditions to be the primary cause of 62\% of the cases; 25\% were reported to be caused by psychiatric conditions, leaving an estimated 13\% to suffer from primary insomnia (Table 1).

Assessment of sleep problems

On average, 91\% of the GPs’ patients were assessed using anamnestic information, whereas blood samples were collected in 40\% of the patients. Eight per cent of the patients were screened by the GPs using sleep diaries or questionnaires, while use of both PSG and MRI/CT was relatively scarce (3\% and 4\%, respectively). There were no gender differences in assessment routines, except for use of anamnestic information \((P = 0.009)\) and sleep questionnaires or sleep diaries \((P = 0.048)\), which were used more by female than male...
GPs. There were no statistical differences in assessment or referral routines between urban and rural GPs.

Treatement of sleep problems

As detailed in Fig. 1, sleep hygiene advices were the most common form of treatment, followed by zopiclone and non-pharmacological treatments. Zolpidem, antihistamines and antidepressives were also prescribed frequently. The least commonly prescribed treatments were herbal or natural remedies but benzodiazepines and bright light therapy were also used infrequently.

Zopiclone was considered to have the best short-term effect, followed by benzodiazepines and zolpidem. The remainder of treatment options listed in Fig. 2 was considered to have only a medium short-term effect, whereas herbal or natural remedies were considered to have a poor effect. The treatments with the best long-term efficacy were considered to be antidepressives and zopiclone. There were no significant differences between the other treatment options, except for herbal remedies, or that GPs aged under 40 years prescribed sleep hygiene advices, non-pharmacological treatments, zolpidem and antihistamines significantly more often compared with older GPs who, on the other hand, used benzodiazepines significantly more often (see Fig. 3 for details).

Prescription duration

Benzodiazepine prescriptions of less than 1 month were prescribed to 39.4% [95% confidence interval (CI): 37.3–41.5] of the patients with sleep problems, which was somewhat higher than the proportion being prescribed Z-drugs (35.9%, 95% CI: 34.3–37.5) for the same duration. Approximately one-third of the patients with sleep problems were prescribed benzodiazepines (30.7%, 95% CI: 28.8–32.8) or Z-drugs (34.7%, 95% CI: 33.2–36.3) for more than 6 months. There were no differences in prescription patterns between urban and

Table 1  Estimated prevalence and assessment routines of sleep problems

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of sleep problems (overall)</td>
<td>10.0 (9.3–10.7)</td>
<td>13.6 (12.4–14.7)**</td>
<td>11.2 (10.6–11.8)</td>
</tr>
<tr>
<td>Primary insomnia</td>
<td>13.9 (12.1–15.7)</td>
<td>12.5 (10.1–14.9)</td>
<td>13.4 (12.0–14.8)</td>
</tr>
<tr>
<td>Secondary insomnia (due to medical condition)</td>
<td>61.5 (59.9–63.2)</td>
<td>63.7 (61.3–66.0)*</td>
<td>62.2 (60.9–63.6)</td>
</tr>
<tr>
<td>Secondary insomnia (due to mental condition)</td>
<td>24.7 (23.7–25.8)</td>
<td>23.9 (22.4–25.4)</td>
<td>24.5 (23.6–25.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment of sleep problems</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anamnestic information</td>
<td>90.2 (88.8–91.6)</td>
<td>93.9 (92.3–95.5)**</td>
<td>91.4 (90.3–92.5)</td>
</tr>
<tr>
<td>Blood tests</td>
<td>39.1 (36.8–41.4)</td>
<td>41.0 (37.8–44.2)</td>
<td>39.8 (37.9–41.6)</td>
</tr>
<tr>
<td>Sleep questionnaire or sleep diary</td>
<td>7.1 (6.0–8.2)</td>
<td>8.8 (7.0–10.6)*</td>
<td>7.7 (6.7–8.6)</td>
</tr>
<tr>
<td>MRI or CT</td>
<td>4.3 (3.7–4.8)</td>
<td>4.0 (3.3–4.8)</td>
<td>4.2 (3.8–4.6)</td>
</tr>
<tr>
<td>Polysomnography (PSG)</td>
<td>3.0 (2.5–3.5)</td>
<td>3.0 (2.2–3.7)</td>
<td>3.0 (2.6–3.4)</td>
</tr>
<tr>
<td>Referral to sleep specialist/sleep centre</td>
<td>5.4 (4.8–5.9)</td>
<td>6.6 (5.6–7.5)*</td>
<td>5.7 (5.3–6.2)</td>
</tr>
</tbody>
</table>

MRI, magnetic resonance imaging; CT, computed tomography.
Data presented as percentage and 95% confidence intervals for all characteristics.

***P < 0.001; **P < 0.01; *P < 0.05.
rural GPs. While the age of the GP was unrelated to prescription of Z-drugs, there was a significant age effect on the prescription pattern of benzodiazepines, with younger GPs (<40 years) being more likely to prescribe short-term use of benzodiazepines than GPs aged 60 years or older (47.3% versus 35.4%, \( P < 0.01 \)).

---

**Figure 2.** General practitioners’ perceptions of short- and long-term efficacy of treatments of sleep problems. Error bars represent 95% confidence intervals.

**Figure 3.** Treatment of sleep problems prescribed by general practitioners broken down by age group (1 = ‘never’, 7 = ‘always’). Error bars represent 95% confidence intervals.
DISCUSSION

In the present study of GPs in Norway, the prevalence of sleep problems among patients in general medical practice was estimated to be 11%, of which two-thirds were believed to be caused by a medical condition. The most common form of assessing sleep problems were use of anamnestic information and blood tests. Sleep hygiene advices were the most commonly used treatment strategy, especially by younger GPs, whereas hypnotics (benzodiazepines and Z-drugs) were regarded to yield the best short-term efficacy. Antidepressives were considered to be the best option for long-term management of sleep problems, followed by zopiclone. Approximately one-third of patients were prescribed benzodiazepines or Z-drugs for more than 6 months, and older GPs were more likely to prescribe long-term use and overall use of benzodiazepines.

An important limitation of the current study is the low response rate (36.5%), causing possible selection bias and thereby limiting the generalizability of our findings. Another limitation is that we examined sleep problems only among patients in general; we did not distinguish between specific sleep disorders. Also, we did not ask the GPs to rate the severity of the sleep problems among their patients, making it difficult to establish a cut-off where sleep problems were so severe that they required treatment. A final limitation is the retrospective design of the study. We had no access to the patients’ journals; instead we relied on the GPs’ subjective evaluation of their clinical practice.

Previous reports have shown that the majority of chronic insomniacs in the general population remain unidentified (Mellinger et al., 1985; Riedel and Lichstein, 2001). One possible explanation for this may be that few patients present with overt sleep complaints; instead they present with symptoms of fatigue, excessive sleepiness and impaired waking function. However, in the current study, we found an overall GP-estimated prevalence rate of sleep problems of 11% among their patients. Although this estimate was lower than previous studies on patient-reported sleep problems in primary care (Shochat et al., 1999), it was comparable with previous prevalence studies using formal diagnostic criteria (Ohayon, 1997). Therefore, in contrast to previous findings (Mellinger et al., 1985; Riedel and Lichstein, 2001), the present study indicates that GPs do recognize this group of patients, thus pointing to the need of proper assessment and treatment strategies. Also of note, whereas previous studies have shown that psychiatric conditions account for the majority of sleep problems (McCrae and Lichstein, 2001), our study showed that the GPs considered somatic conditions to be the most common cause of the sleep problems.

When assessing sleep problems, a multimodal approach encompassing use of either a sleep diary, sleep questionnaire and/or clinical sleep interview is generally recommended (Sivertsen et al., 2006a). However, the current study showed that these assessment tools were used in only 8% of the patients with sleep problems; instead the GPs relied mainly on anamnestic information and, to a lesser extent, blood tests.

In terms of treatment of sleep problems, Z-drugs were considered by the GPs to have good short-term effect, and there is more evidence to support this finding. Somewhat surprisingly, antidepressives were rated as the treatment having the best long-term effect. One explanation of this finding may be that depression very often coexists with insomnia and, as such, alleviating depressive symptoms are likely to also have a positive effect of reported sleep problems. Another reason may be that antidepressives such as benzodiazepines and Z-drugs are not considered to produce tolerance (Walsh and Schweitzer, 1999).

The current study found sleep hygiene advices to be the most commonly used intervention for sleep problems. However, the treatment effects were not considered as effective as pharmacological interventions. Although sleep hygiene is a commonly utilized treatment option, there is also general consensus that it works better when combined with other behavioural interventions, such as sleep restriction, stimulus control or cognitive therapy (Stepanski and Wyatt, 2003). In fact, an increasing body of evidence shows that cognitive behaviour therapy (CBT) is superior to pharmacotherapy (Sivertsen et al., 2006b). Also, there is now a range of low-threshold intervention programmes based on behavioural strategies that may aid GPs to reduce more successfully both the individual and societal burden of sleep problems. For example, behavioural interventions delivered by primary care nurses have been shown recently to yield similar treatment effects to those found most often in specialized sleep centres (Espie et al., 2007). Nevertheless, the scarce availability of CBT remains an important obstacle in terms of implementation. In Norway, CBT for insomnia is not widely accessible at present, with only one specialized sleep centre offering this treatment. Although unpublished data from the author group suggest that the majority of Norwegian GPs have good knowledge with regard to what are the most effective treatments of common sleep disorders (e.g. CBT for insomnia and continuous positive airways pressure for sleep apnoea), the current study shows that there is still much work to be conducted with regard to implementing CBT-based interventions in general medical practice. However, the Norwegian Competence Center for Sleep Disorders has, for several years, offered regular national courses in manualized CBT for insomnia to both GPs and hospital doctors, which we believe may serve in the long term as an important contributor for both improving knowledge and the enhance implementation of effective treatments for sleep problems in general medical practice. On a final note, we find it disturbing that antipsychotics were prescribed quite commonly by GPs due to safety concerns as well as undocumented efficacy (National Institutes of Health, 2005).

Although the current findings demonstrate that sleep problems no longer remain unidentified in general practice, there is still a clear need to improve the implementation strategies of effective interventions to treat more successfully many patients who suffer from chronic sleep problems. Although rarely treated when coexistent pathologies are present, treating sleep problems for these individuals may also
prove especially beneficial, as recent studies have shown that this may influence the prognosis of the coexistent disorder (Lichstein, 2004).

DECLARATION OF INTEREST

None.

REFERENCES


