

Primary health care practitioner perspectives on the management of insomnia: a pilot study

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Abstract. This paper reports a qualitative pilot study exploring primary care health practitioners' perspectives on the management of insomnia following the extensive media coverage on the adverse effects of zolpidem in 2007–08. General practitioners and community pharmacists were recruited throughout metropolitan Sydney, New South Wales using a convenience sampling and snowballing technique. Demographic information was collected from each participant followed by a semistructured interview. In total 22 participants were interviewed, including eight general practitioners and 14 community pharmacists. Interview transcripts were analysed using 'framework analysis'. Participants' responses illuminated some of the key issues facing primary care practitioners in the management of insomnia. Practitioners perceived there to be an overreliance on pharmacotherapy among insomnia patients and inadequate support for directing patients to alternative treatment pathways if they require or prefer non-pharmacological management. Current prescribing trends appear to favour older benzodiazepines in new cases of insomnia whereas some successful sporadic users of zolpidem have continued to use zolpidem after the media coverage in 2007–08. The findings of this pilot study suggest the need to address the limitations in the management of insomnia within the current health care system, to revise and disseminate updated insomnia guidelines and to provide educational opportunities and resources to primary care practitioners concerning management options.

Additional keywords: framework analysis, general practitioner, insomnia management, pharmacist, primary care, provider perspectives, qualitative research, zolpidem.

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Introduction

Insomnia symptoms affect approximately one-third of the population at any given time (Morin *et al.* 2006). It is characterised by difficulty initiating, maintaining or obtaining quality sleep despite adequate sleep opportunity. Diagnostic nosologies further classify insomnia as a disorder when symptoms are accompanied by the presence of daytime distress and/or functional deficits (American Psychiatric Association 2000; American Academy of Sleep Medicine 2005). Health economics data indicate that insomnia is associated with substantial direct and indirect costs through reduced productivity in the workplace or increased health care utilisation for ailments related to poorly managed insomnia (Ohayon 2002; Leger and Poursain 2005).

Managing insomnia in primary care

Although insomnia is one of the most common sleep disorders, its management remains suboptimal in primary care due to low

rates of recognition coupled with inadequate treatment strategies (Leger and Poursain 2005). Literature on the prescribing patterns of hypnotics raises further concern with their widespread and prolonged use often at variance to evidence-based recommendations (Siriwardena *et al.* 2006). Recent Australian data from the 'Bettering the Evaluation and Care of Health' program also support this claim with pharmacotherapy being initiated in 93 out of 100 insomnia cases encountered by the general practitioner (GP) (Charles *et al.* 2009; Marshall *et al.* 2011).

Although low rates of insomnia recognition can be a result of the inherent resistance among insomnia patients to seek professional help (Aikens and Rouse 2005; Stinson *et al.* 2006; Angst *et al.* 2010), the suboptimal management of insomnia might reflect a more complex problem in primary care practice. Drawing on exploratory studies there appears to be a gap between clinical definitions of insomnia and patient definitions of insomnia. Chronic sufferers of insomnia focus on daytime

What is known about the topic?

- Insomnia patients who seek professional help are often managed using pharmacological agents, despite robust evidence for the effectiveness of behavioural therapies.

What does this paper add?

- Clear pathways for primary health care professionals to refer patients for behavioural treatment and providing them with skills in addressing real or perceived patient barriers to non-drug treatments would improve insomnia management.

functional deficits rather than nocturnal experiences (e.g. total sleep time) (Carey *et al.* 2005; Harvey *et al.* 2008; Kyle *et al.* 2010). This disparity may extend further into the treatment recommendations where there is an assumption that insomnia patients prefer pharmacotherapy (Dollman *et al.* 2003; Dyas *et al.* 2010). The over-use of pharmacotherapy may also result from: the anticipated difficulty in persuading patients to cease hypnotics (Iliffe *et al.* 2004); primary care practitioners being not adequately trained to deal with patients' psychosocial issues; or a health care system ill-structured for managing insomnia non-pharmacologically (Windle *et al.* 2007).

Zolpidem and the media

Insomnia management has also been further complicated by the extensive media coverage on the adverse effects of zolpidem, which was first marketed in Australia under the trade name Stilnox[®]. It became by far the most prescribed non-benzodiazepine GABA receptor ligand in 2006–07, with it being used for around 15% of insomnia problems (Charles *et al.* 2009; Marshall *et al.* 2011). Zolpidem prescriptions halved over the next 2 years following publicity concerning bizarre behaviours in some patients and a sustained media interest in the side-effect profile of zolpidem (Ben-Hamou *et al.* 2011). Although the practicing environment and culture can affect the quality of health care delivery (Eisenberg *et al.* 2001), it is unknown the extent to which these events have impacted on the routine management of insomnia among key primary care service providers. Understanding the underlying cultural and/or environmental factors that influence practitioners' clinical decisions can provide vital insight about issues that might be contributing to the suboptimal management of insomnia.

Therefore, the aim of this pilot study was to qualitatively explore Australian GPs' and community pharmacists' perspectives on the management of insomnia in primary care settings and to understand whether media publicity on zolpidem in 2007–08 has impacted on routine clinical practice.

Methods

This study was approved by The University of Sydney Human Research Ethics Committee.

Sampling

A convenience sample of practicing GPs and pharmacists known to the researchers was initially recruited throughout metropolitan Sydney, New South Wales. A snowballing technique was subsequently used whereby these initial participants were asked to discuss the study within their professional network. Colleagues who expressed an interest in participating were then provided with further information to contact the researchers. Recruitment continued until thematic saturation occurred. This sample size strategy is based on the general premise of qualitative research, i.e. qualitative research is concerned with meaning and not making generalised hypothesis statements. Frequencies are less important in qualitative research; hence, a single occurrence of the data is potentially as useful as many in understanding the process behind a topic. In our study, when interviews yielded no new thematic categories relating to the different dimensions of insomnia management, we deemed that the data was saturated and stopped recruiting more participants (Marshall 1996). Once data saturation is reached, interview continuation would only generate superfluous data in terms of constructing new meaning units (Crouch and McKenzie 2006). Since the participants all belonged to a primary health care discipline and were working professionals with practical knowledge of their practices, we expected to achieve saturation easily (Jette *et al.* 2003).

Data collection

A consent form and confidentiality agreement were obtained from each participant and demographic data were collected. Interviews were conducted independently by two researchers (KA and MM). The duration of the interviews ranged between 14 and 28 min depending on the number of issues raised by the participant. All interviews were conducted either face to face (GP interviews in their surgery or practice and pharmacist interviews in their pharmacy) or over the telephone, as per the participant's preference.

Research topics were explored using an interview guide consisting of open-ended questions and prompts developed from the literature with amendments made as new issues were raised by participants. Each interview was digitally recorded and transcribed verbatim for analysis.

Data analysis

Framework analysis (FA) evolved from applied policy research and seeks to review policies and procedures and translate the findings into actionable recommendations. It is particularly suited to exploring specific questions and *a priori* issues in a defined group to understand what is happening in a particular setting (Ritchie and Spencer 1994; Srivastava and Thomson 2009). Data were analysed using FA. FA is carried out over five distinct but interconnected stages: familiarisation; identifying a thematic framework; indexing; charting; and mapping and interpretation (Table 1) (Ritchie and Spencer 1994).

Interview transcripts were first read independently by members of the research team to identify and become familiar with the range and diversity of participant responses. A thematic framework was subsequently developed through merging *a priori* and emerging issues. Table 2 outlines the *a priori* issues included in the interview guide that this study sought to explore. Using

Table 1. Processes involved in carrying out framework analysis to analyse qualitative data

1. **Familiarisation with data** by reading transcripts iteratively to develop a comprehensive understanding of the key issues, ideas and themes that emerged from the interviews.
2. **Identify a thematic framework** by drawing on *a priori* issues that informed the original research questions as well as the key issues identified during the familiarisation stage. The thematic framework forms the basis for filtering and classifying data in the subsequent stages of analysis.
3. **Indexing** involves applying the thematic framework to the entire dataset (i.e. interview transcripts) to identify relevant sections of the data that correspond to a particular theme. Each participant represents a separate case.
4. **Charting** involves rearranging the indexed data from each case into charts of themes that typically consist of headings and subheadings derived from the thematic framework. An important part of this process also involves turning verbatim text into distilled summaries that accurately capture the views and experiences for each case.
5. **Mapping and interpretation** involves using the charts from the previous stage to map out the range and nature of phenomena, define concepts and themes, explain findings and provide recommendations using within-case and cross-case analysis. Although this process is guided by the original research aims and objectives, the findings and recommendations made are derived from participants' responses.

Table 2. Interview guide exploring general practitioners' and pharmacists' perspectives on the management of insomnia

Question	Prompts
Q1. From your experiences, please describe the level and type of insomnia presentations in your everyday practice.	<ul style="list-style-type: none"> • Number of patients per day or week • Type of insomnia • Patient type (age, sex, comorbid conditions) • Insomnia is a primary reason for presentation
Q2. What approach would you generally use when dealing with an insomnia presentation?	<ul style="list-style-type: none"> • Pharmacological v. non-pharmacological • Comorbidities • Insomnia type • Follow up and monitoring opportunities • Referral to specialists • Alternative treatments (cognitive behavioural therapy, exercise, reduce caffeine intake)
Q3. What are some of the difficulties or challenges you face in treating those with insomnia?	<ul style="list-style-type: none"> • Lack of effective medications • Medication safety issues • Patients' need for medication • Lack of clear guidelines
Q4. One of the insomnia drugs, zolpidem (Stilnox) was the subject of media publicity a few years ago. How did this affect your approach to treatment?	<ul style="list-style-type: none"> • Limited prescribing for zolpidem • Alternative drugs being prescribed e.g. benzodiazepines • Counselling or information offered when prescribing
Q5. How did the publicity about zolpidem affect your patients?	<ul style="list-style-type: none"> • Stopped requesting zolpidem? • Anxiety or fears?
Q6. Are there any comments you would like to offer about improving medication use for people with insomnia in the aftermath of the zolpidem publicity?	<ul style="list-style-type: none"> • Consumer information • Role of media • Training for health care professionals • Role of other health care professionals • Revising guidelines

QSR NVivo 9 software (QSR International Pty Ltd, Melbourne, Vic., Australia), the thematic framework was then used to filter and sift through the data systematically. Each interview was thematically indexed and then charted into matrices for further interpretation. Themes and subthemes were subsequently mapped out and interpreted through abstracting within-case and cross-case responses. Several measures were also implemented throughout the study to enhance the rigor and validity of our findings (Table 3).

Results

Twenty-two semistructured interviews (13 face-to-face and nine telephone interviews) were conducted throughout 2010 with eight GPs and 14 pharmacists. Table 4 summarises the demographic profile of the participants in this study.

GPs who participated in this study reported on average managing 12 insomnia cases each week while pharmacists

encountered an average of 32 insomnia cases each week. Overall, practitioners' descriptions indicate similar characteristics among insomnia patients presenting to their respective primary care practices. Elderly female patients who suffer from chronic and/or comorbid insomnia were the most frequently encountered in practice. Other psychological comorbidities such as anxiety and depression were also common. A subset of practitioners served a younger demographic and reported a mix of acute insomnia sufferers such as shift workers and travellers.

Thematic analysis

Analysis of interview transcripts revealed four main thematic categories: clinical practice issues; patterns of pharmacotherapy use; role perspectives; and resource needs. Where direct participant quotes are used, the codes GP and PH refer to general practitioner and pharmacist respectively, followed by a number to indicate the participant from whom the quote originated. Fig. 1

Table 3. Checklist for ensuring rigour and validity in qualitative research

Technique	Application in research protocol
Member checking (internal validity)	Throughout the interview researchers restated, paraphrased and summarised participant responses to ensure participant responses were accurately interpreted.
Disconfirming evidence	Our study sought to recruit two distinct groups of primary care health practitioners: general practitioners and community pharmacists. Different viewpoints have been highlighted in the manuscript. However, responses from the two groups were similar and cross-validated our findings.
Transferability	Given the diverse settings in which our participants practiced, we believe that our findings are generally transferrable to other primary care health settings within Australia. Internal auditing for factors that could have affected the results (e.g. patient volume, practitioner type and practice setting) was actively sought by the first author.
Confirmability (inter-rater reliability)	Data analysis was carried out independently by different researchers. Interview transcripts were randomly selected to check for consistency in thematic coding. Overarching thematic categories were then developed through discussion with the entire research team.

Table 4. Demographic details of participants

Professional group	Interviews (n)	Female (n)	Range of practice experience (years)	Specialised insomnia training (n)
General practitioners	8	4 (50%)	5–39	2
Pharmacists	14	5 (36%)	1–20	0

presents a concept map to highlight the relationships between the thematic categories.

Clinical practice issues

The interviews captured salient aspects of the disparities between practice guidelines (e.g. *Australian Medicines Handbook* (Rossi 2012) and *Therapeutic Guidelines* (Psychotropic Expert Group 2008)) and routine clinical practice. All participants revealed the importance of identifying the underlying causes for insomnia and addressing these non-pharmacologically where possible. Strategies commonly recommended by participants were limited to sleep-hygiene advice such as restricting alcohol and caffeine intake, and turning off the computer and/or television close to bedtime. Relaxation advice was given from a sleep-hygiene framework.

I basically you know go through the whole list of um talk with people about sleep; how do they sleep what are they doing when they can't sleep and sleep hygiene. (GP 1)

I tend to concentrate on non-pharmacological means looking at things like sleep hygiene and you know just education educating people about sleep. . . (GP 7)

I'll just ask them [about] sleep hygiene, go through that kind of stuff first if I'm seeing them for the first time but if they're a repeat customer then I normally just remind them about sleep hygiene and things like you know go for a walk or something like that. . . (PH 1)

I would sort of find out whether or not their sleep issues are like sitting in front of the TV at an optimal time to go to bed. . . discuss mainly with relaxation not to have anything too stimulating before going to bed you know caffeine or big heavy meal or exercise. (PH 11)

GPs commented on potential barriers in the current health care system that impinge on best practice both for the medical and pharmacy profession. One element was Australia's fee-for-service payment system that serves as a disincentive for

practitioners to delve deeply into patients' psychosocial issues embedded in their sleep complaint, which is time-consuming in nature.

The health care system where the more patients we see the more we get paid. . . similar situation pharmacists are paid for what they sell. (GP 1)

Similarly, pharmacists also considered their workplace environment and workload as a barrier to the provision of best practice.

I mean we try to provide CMI [consumer medicines information] wherever we can. . . sometimes it is very difficult to do that you know with the environment we have. (PH 11)

GPs and pharmacists attributed the most challenging part of translating evidence into routine insomnia management to patients' reliance on 'quick-fix' pharmacotherapy solutions and their reluctance to engage in non-pharmacological time-intensive interventions, rendering the latter underutilised in practice.

I think there is a pressure on doctors to prescribe and people have unreal big expectation and don't understand the limitations of drug. (GP 6)

Some other people seem to be just – with the elderly – they seem to be having a state of mind that 'this is what I need to get to sleep, this is what I need for life and I don't want you to speak to me about other non-pharmacological options or other options 'cause this is working for me now this is what I need' – 'cause the way they see it is 'don't interfere with what I'm needing'. (PH 3)

A lot of people not willing to try anything apart from what medications they used previously. (PH 10)

Patterns of pharmacotherapy use

GPs presented a dichotomised view with respect to the use of hypnotics for managing insomnia. In acute insomnia cases

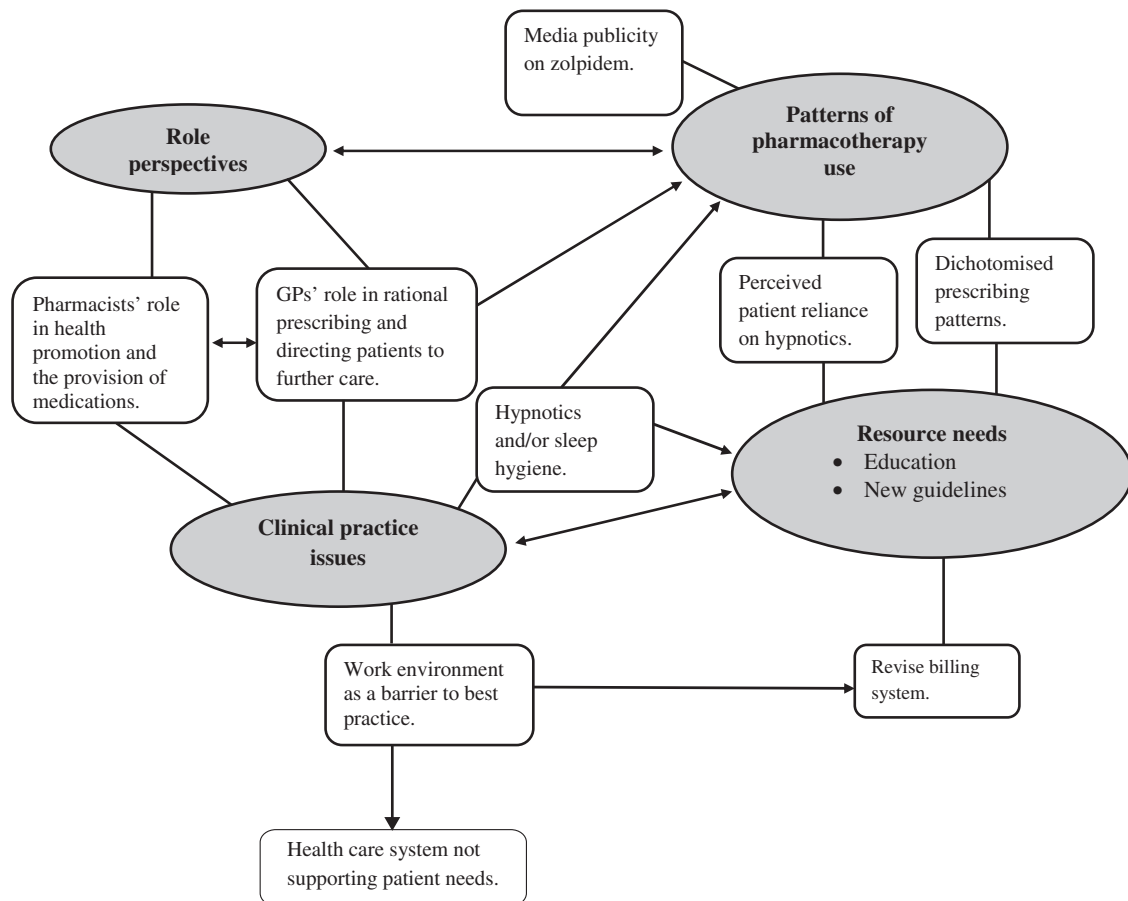


Fig. 1. Four interrelated themes were abstracted from the data. Clear 'role perspectives' were outlined for the respective practitioner group particularly in relation to the provision of pharmacotherapy to patients with insomnia. Perceived 'clinical practice issues' (e.g. workplace environment and patient beliefs) for the respective practitioner groups also played an important part in explaining 'patterns of pharmacotherapy use'. Both of these issues were important drivers to discussing 'resource needs' for improving current practice in primary care.

involving shift work or jetlag, prescribers saw a therapeutic role for hypnotics but were 'not really a fan of hypnotics generally' for managing chronic insomnia but still felt compelled to prescribe at times due to patient pressures.

I don't like to prescribe them very often. . .but I think where there is someone grieving for whatever reason or there has been a traumatic event and they have difficulties in sleeping. . . I think they can be quite effective in that way. (GP 4)

Well it depends on how long they have their problem if it is something that is easily adjusted like if it is just a plane trip problem well that's easy to just give you something just to take a tablet. But if it is an ongoing crisis probably the insomnia is a secondary and you've got to solve that problem first. (GP 8)

When asked to comment on the impact of the media attention on zolpidem prescriptions, GPs did not perceive major changes to prescription levels as zolpidem use was mainly limited to a niche market of intermittent insomnia patients as it is not listed

on the Pharmaceutical Benefits Schedule. GPs felt that these patients were well informed, and thus media focus had not shifted their preferences for using zolpidem.

Patients who have been taking [it] for years and they have never experience any side-effects. . .so it really didn't have an effect on them [patients]. (GP 2)

It's really a small number of people on it and they all feel well educated. . .so it really didn't make any difference. (GP 6)

However, on further probing, GPs did report they were less likely to prescribe zolpidem for new cases of insomnia unless directly requested by the patient. Furthermore, greater caution is now exercised in the counselling and monitoring of zolpidem use.

If I have selected Stilnox in the past I'm not selecting Stilnox that much. (GP 2)

I wasn't keen on prescribing it before. . .it definitely made me take a much more careful approach to prescribing Stilnox. (GP 4)

Guess it does make me more cautious about prescribing that medication [zolpidem]. Try to prescribe it much less often especially when patient raises concern about the side effects. (GP 5)

Some prescribers did report a slight increase in the use of benzodiazepines, with which they were more familiar.

I'm happier to prescribe that and know what I'm doing in terms of doses and what type of benzodiazepine. (GP 4)

Pharmacists reported high volumes of hypnotic prescriptions being dispensed as well as over-the-counter (OTC) requests for herbal sleep remedies and sedative antihistamines (e.g. doxylamine) on a daily basis. Participants raised concerns about the widespread prescribing of sedative medications and issues relating to the quality use of medicine.

I think they just get prescription after prescription without actually addressing the underlying problem. . . I just think a lot of the time GPs aren't going to be bothered. . . it is easier to give them a prescription. (PH 7)

I think definitely people go into a cycle just taking medications and definitely that could be a problem of overuse and dependent issues. (PH 6)

When asked to comment on zolpidem use, pharmacists had expected a drastic drop in zolpidem use. Although prescriptions have declined, pharmacists, like the GPs, noted that niche zolpidem users were well informed and maintained use despite publicity. Nonetheless, consumer enquires about the reported adverse effects of zolpidem have since subsided.

I thought it may have had more of an impact but most of the patients still wanted to take the medications as they had been. (PH 9)

There are still people that get it regularly and have done for years and still will and still do you know (PH 13).

I remember talking to people about it at the time and they were saying 'well I don't have any problem with it, works great I don't have any side-effects in that way so I'm going to keep taking it because I like it. It works well for me.' I think that was pretty much the universal answer. The people who are still on it are people who have been on it for a long time. (PH 14)

Pharmacists also felt that post-media publicity changes to the provision of zolpidem, such as smaller pack sizes and boxed warnings about mixing with alcohol, were appropriate and sufficient. However participants did emphasise the importance of providing CMI and drawing patients' attention to precautionary measures and potential side effects of zolpidem especially for treatment-naïve patients.

We reinforced the risk of alcohol and we do reinforce the risk of and sleep-related activity and the fact that it is for short-term use. (PH 7)

Same approach. It just means we dispense less of it. . . probably make sure they get a CMI. (PH 11)

One pharmacist also voiced concerns over large quantities of zolpidem still being issued to patients and the need for close monitoring of non-subsidised medicines.

Role perspectives

Pharmacist perspectives

Pharmacists thought GPs should direct greater attention toward sleep-hygiene and insomnia education for their patients. Moreover, pharmacists believed GPs should fully utilise the opportunity of one-on-one consultations to prevent inappropriate hypnotic use early on in the medication-management cycle. This was perceived to have a more significant impact than educating patients at the point of medication supply.

. . . so the doctor would have a little bit more of an impact on the direction that they take because if he sort of you know doesn't give prescriptions freely and recommends they try these other things and come and see him again, it might be you know enough for some people to think about an alternative way of treating their insomnia. (PH 2)

If you have one-on-one consultations. . . and you're the person to decide whether the [patient] got a prescription or not. I mean to me that's the ideal place for it to be discussed. (PH 14)

One pharmacist particularly noted that GPs should expand their role to direct patients to other potential avenues of treatment that are not necessarily pharmacological.

You know GPs referring to sleep clinics. . . there is more help out there and not necessarily to prescribe medications but help people to understand their physiology of sleep. (PH 13)

Similar ideas emerged from pharmacists who frequently advised patients to see the GP as part of the medicine-supply guidelines developed by the Pharmaceutical Society of Australia. Many pharmacists believed that referred patients are then directed by their GPs to further care where necessary.

If it is something that has been you know happening week after week and they are just awake all night long or just go for sleep for an hour and then wake up and can't go back to sleep and they have tried the herbal stuff, yeah I definitely do suggest they go and see their GP. (PH 11)

But I know it is not my job to make a diagnosis. So I often refer to a doctor. (PH 5)

GP perspectives

GPs thought pharmacists were ideally placed to speak to patients about their OTC and prescription medications as well as educating patients about general sleep hygiene and insomnia. One GP also noted the role of the pharmacist in monitoring patient drug usage as they are privy to patient drug-usage information that is unavailable to GPs.

Oh I think they are critical I think and in particular with pharmacists looking at the scripts that people bring in which is not always the same as from us. . . and looking at the combination of medication. . . (GP 7)

Overall GPs felt pharmacists should not intervene beyond medication-related or general sleep inquiries.

I mean pharmacists don't diagnose, they shouldn't diagnose they don't have that training... I don't see any problems with the pharmacists having an information sheet about sleep hygiene it is fine. (GP 1)

You know pharmacists are trained in medicines they are not trained in other things. (GP 3)

The GP participants also exhibited distinct patterns of sleep-related referrals. Contrary to what pharmacists anticipated, it appears that referral of patients by GPs to sleep clinics is rare with only two GPs in this study having ever referred patients for specialised insomnia care. GPs generally limited referrals to patients with sleep apnoea, parasomnias and psychological comorbidities (e.g. anxiety and depression). GPs assumed the latter group of patients will have insomnia issues addressed by the psychologist.

I haven't referred unless again there is something suspicious... in terms of that anxiety or depression you refer to counsellor or psychiatrist or psychologist but not in terms of a sleep specialist. (GP 4)

I haven't really referred anyone... anyone with a significant problem will see a psychologist and they often work on insomnia issues. (GP 6)

Resource needs

Education

GPs and pharmacists perceived a need to provide further training for health care practitioners to improve the management of insomnia in primary care. Areas for attention included rational prescribing of hypnotics and support to help extend the role of the GP into non-pharmacological management domains.

I think GPs need to have more support in education to start intervening more and not just prescribing. (PH 7)

There was also a perceived need by both groups of health care practitioners to educate patients about realistic expectations about sleep and medication use in order to deter them from relying on 'quick-fix' pharmacotherapy solutions.

Patients don't see beyond I'm not sleeping I'm tired all the time... they have to get it explained to them what is going on. (GP 1)

... I mean a lot of people 'cause you know they're just so pressed for time they just want a quick fix like – I think with everything else they prefer to just take the pill, knock off and go to sleep... (PH 1)

New guidelines

Whereas GPs indicate that they try to adhere to guidelines as closely as possible, pharmacists' dispensing experiences do not reflect this. Pharmacists felt that specific guidelines, resources and strategies for pharmacists would also be useful. Items such as shelf reminders, dispensing-software reminders and patient

information leaflets emphasising important practice points would be useful when dispensing hypnotics and sedatives to patients.

I think [pharmacists] probably need some more enablers in presenting what they know to the public. So education materials when discussing, particularly, OTC use... I don't think there's a lot of patient education material around... (PH 4)

They probably need to make it simple, and make it maybe make like a shelf talker attached to those – in front of those Restavit or something like that. (PH 5)

Most GPs and pharmacists perceived a need for updated guidelines that could be easily integrated into everyday practice and with more guidance on possible treatment pathways for patients.

Distribute it [guidelines] to doctors in a simple form to know which way to go down and have support to know if we are going to do this thing and it doesn't work what is the way to go next. (GP 5)

I think it [guidelines] probably needs an update you know a step by step approach for someone with insomnia. (PH 10)

Discussion

The interviews generated in-depth descriptions of the current management practices for insomnia in primary care. Our results highlight some of the key issues GPs and pharmacists face in the management of insomnia at their respective practices.

In relation to the management of insomnia, both GPs and pharmacists indicated that their initial approach is to address the sleep complaint non-pharmacologically wherever possible but perceived patient reluctance toward engaging in such strategies. However, studies exploring treatment preferences for insomnia increasingly show patients favouring non-pharmacological therapies over conventional pharmacotherapy (Morin *et al.* 1992; Vincent and Lionberg 2001). In a cross-sectional study investigating patients' sleep medication use ($n = 2645$), of those who had a history of hypnotic use 80.3% would prefer a non-pharmacological alternative over pharmacotherapy given that treatments were equally effective but only 9.6% have ever been offered this option (Omvik *et al.* 2010).

The inconsistencies between the findings of this study and the research literature might be related to the fact that non-pharmacological treatments initiated by the participants of this study were only limited to sleep-hygiene advice despite its poor efficacy as sole therapy (Morgenthaler *et al.* 2006). The most effective non-pharmacological interventions actually require a multicomponent framework consisting of a behavioural (e.g. stimulus control, sleep-restriction therapy or progressive muscle relaxation), a psychological and an educational component (e.g. sleep-hygiene education), collectively known as cognitive behavioural therapy for insomnia (CBT-I) (Morgenthaler *et al.* 2006). CBT-I aims to simultaneously realign patients' dysfunctional beliefs and behaviours surrounding sleep (Morin and Benca 2011, 2012).

The underutilisation of the behavioural and psychological components within the non-pharmacological repertoire of insomnia treatments may reflect the constraints of the current health care system. These constraints include high patient volume, lack of clear referral pathways for sleep psychologists and lack of public health subsidy for sleep-related psychological treatment for many instances (Dollman *et al.* 2003). These constraints serve as a disincentive for primary care doctors to delve deeply into the psychosocial domains of the patient's chronic sleep complaint. So while GPs do not want to readily prescribe hypnotics for chronic insomnia patients, they often still do due to health-system constraints and/or having inadequate training to address the insomnia-related psychosocial issues (Windle *et al.* 2007). As a result the management of chronic insomnia is still lagging behind evidence-based recommendations. On the other hand, GPs are more confident about managing acute cases of insomnia, which are often time limited (e.g. jet lag and shift work), have less psychosocial components involved and can be adequately addressed using short-term hypnotics.

Furthermore, nearly all GP-initiated referrals revealed in this study were restricted to sleep apnoea, parasomnias or psychological comorbidities with limited patient referrals to specialist insomnia services. This suggests that insomnia is perceived as a less-urgent matter. Therefore the adequacy of sleep-health coverage in the medical curricula warrants further attention given that only ~6 h is spent on sleep health by the average Australian medical school (Mindell *et al.* 2011). However, the pharmacists in this study readily referred patients to see a GP following the unsuccessful management of insomnia. This might be due to several factors such as increased awareness about sleep disorders following several successful sleep health-promotion programs (Tran *et al.* 2009; Fuller *et al.* 2011) or the recognition by pharmacists of the limitations in their capacities to diagnose and manage insomnia as there are often increased options for management available through the GP.

Both GPs and pharmacists in this study commented on the need for further training in insomnia management and the lack of clarity in current guidelines for providing and/or directing patients to appropriate care. Although the implementation of non-pharmacological strategies was limited solely to advice concerning sleep hygiene, it does suggest that GPs and pharmacists are not averse to the concept. In fact research has shown that primary health practitioners do perceive the benefits of non-pharmacological therapies but often lack the resources and training to use those interventions (Tran *et al.* 2009; Anthierens *et al.* 2010). This is a potential issue facing the participants in our study given the lack of clarity on non-pharmacological treatment approaches for insomnia in the available management guidelines.

Currently the *Australian Medicines Handbook* (Rossi 2012) and *Therapeutic Guidelines* (Psychotropic Expert Group 2008) are key pharmacotherapeutic references that guide primary care practice (Gazarian *et al.* 2006). Other sources of information about insomnia management also include publications from the Australian Prescriber or the National Prescribing Service (NPS). In relation to the management of insomnia, the *Australian Medicines Handbook* (Rossi 2012) merely lists effective

strategies whereas *Therapeutic Guidelines* briefly describes stimulus-control therapy and sleep-restriction therapy, followed by an exhaustive list on sleep hygiene. Furthermore, recommendations set out by the Australian Prescriber date back to 2003 with sleep hygiene being the focus of its non-pharmacological treatment options (Tiller 2003). The *NPS Prescribing Practice Review* briefly outlines the different behavioural and cognitive strategies (National Prescribing Service 2010). Such factors may also partially explain why the non-pharmacological interventions utilised by the participants in this study were only limited to sleep-hygiene advice given its emphasis in the current guidelines, with the exception of the *NPS Prescribing Practice Review*. However, these guidelines provide little guidance on the mechanics of implementing these CBT-I strategies at a basic level in primary care, which is potentially an overlooked area of practice given the proximity of GPs and pharmacists to the community. In fact the therapeutic benefits conferred from primary care-initiated CBT-I are well established within the insomnia literature (Espie *et al.* 2001; Edinger and Sampson 2003). Patients not responding to basic levels of CBT-I are then referred upstream to insomnia psychotherapy that is progressively more specialised through a 'stepped care' approach as proposed by Espie (2009).

In addition to the issues raised in the preceding sections of this paper, there was evidence that media coverage on the adverse effects of zolpidem may have influenced insomnia management in primary care. Although GPs and pharmacists did not think that the additional media attention caused any drastic changes to their management practices for insomnia, upon further probing there appears to be changes in their handling of zolpidem at the respective practices. GPs exhibited a distinct pattern of prescribing where patients stabilised on zolpidem continued to use this medication but zolpidem-naïve patients were unlikely to be prescribed this drug unless requested by the patient. Extra caution was also exercised by the prescribing GP in terms of discussing potential side effects with patients. For treatment-naïve patients some GPs had reverted back to prescribing older benzodiazepines that they were more familiar with. Lower rates of Z-drug (e.g. zolpidem, zopiclone) initiation for new cases of insomnia are reflected in the latest 'Bettering the Evaluation and Care of Health' data (2011), where zolpidem prescriptions were represented in 7.3 per 100 insomnia problems dealt with compared with 14.6 per 100 problems in 2004–06. Furthermore, the decline in zolpidem usage has also coincided with a rise in temazepam prescriptions (Charles *et al.* 2009; Marshall *et al.* 2011).

Pharmacist participants in our study reported a decline in zolpidem prescriptions since the media coverage on the adverse effects of zolpidem. While pharmacists felt that the current measures for the provision of zolpidem (e.g. limited pack sizes and CMI) are sufficient, they became more vigilant about integrating the available tools into their routine practice, for example, ensuring new patients received a CMI and were fully informed about the necessary precautions to take while using zolpidem.

An unexpected finding in this study was that many of the zolpidem users at the respective practices continued therapy throughout and after the media publicity. Given that insomnia affects one-third of the population at any one time (Bartlett *et al.*

2008), we expected a dramatic decline in the use of zolpidem akin to the discontinuation of hormone-replacement therapy after the findings from the Women's Health Initiative trial became widely publicised by the media (Ettinger *et al.* 2003; Lawton *et al.* 2003). One possible reason for the subdued response toward zolpidem might be that patients who had not experienced the adverse effects reported in the media were more strongly influenced by the therapeutic benefits that they derived from using zolpidem. However, it is unknown how this patient group perceived the media coverage and is therefore an area that warrants further investigation.

The limitations of our study include the relatively small sample of GPs and community pharmacists recruited from, albeit, diverse primary care practice settings throughout metropolitan New South Wales. Although participant descriptions of their practices indicate patient characteristics reflective of those found in prevalence studies of insomnia (Morin *et al.* 2006; Miranda 2009), further research should be directed toward a larger-scale study to obtain a more representative sample of primary care perspectives relating to the management of insomnia. However, despite the limitations of this pilot study, the experiences and behaviours of our participants suggest that the management of insomnia in primary care remains an important health issue that needs to be further addressed. Potential solutions include further training for service providers, increasing patient education about sleep and insomnia, consideration of a revised funding model for insomnia services and revising current referral processes and prescribing practices within clinical guidelines.

Conflicts of interest

None declared.

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