

Review

## Sleep and Help Seeking Behaviours in Australia: A Narrative Review

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### Abstract

Inadequate sleep is a largely under recognised problem in Australia despite researchers consistently highlighting it as a key component of health and wellbeing. Over a third of Australian adults now experience some form of inadequate sleep, which is consistently linked to a range of accompanying physical and mental health concerns. In addition to the health burden on the individual, the associated financial burden incurred by the community



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is extremely high with inadequate sleep costing over \$66.3 billion annually in Australia alone with \$26.2 billion due to financial costs and \$40.1 billion accounted for in reduced wellbeing. Given the prevalence and cost of inadequate sleep, it would appear that Australians require greater support with addressing sleep problems. This requires a better understanding of how and why Australians seek assistance for sleep problems. In particular, it is imperative to understand what drives help seeking behaviours as they are the precursor to receiving support and assistance for sleep concerns. This review examined sleep and associated help seeking behaviours with a view to better understanding the contributing factors in help seeking models. The literature suggests that inadequate sleep needs to be addressed as an urgent public health matter; however help seeking for sleep problems is poorly understood in Australia. As a community, we need to prioritise working with communities and government to identify and implement strategies to improve the state of sleep health for Australians. Theories which will aid in this progression towards improved health and wellbeing include the Behavioural Model of Health Service use and the Health Belief Model.

### **Keywords**

Sleep health; help seeking; Australia; inadequate sleep; sleep disorders

## **1. Introduction**

Sleep is a pillar of health alongside physical and mental health, yet inadequate sleep is highly prevalent in Australia [1, 2]. 'Adequate' sleep encompasses sufficient sleep duration and quality, and when within the day or night the sleep activity is occurring; and individuals are typically aware if they feel they routinely experience adequate sleep [3]. The duration aspect of adequate sleep has been defined through extensive scientific literature evaluations conducted by the National Sleep Foundation. Young adults aged 18 – 25 years are recommended to get 7 – 9 hours, though 6 to 10 or 11 may be appropriate for some individuals; adults aged 26 – 64 commonly require 7 – 9 hours also, though 6 – 10 hours may be appropriate for some individuals; and older adults aged beyond 65 years generally require 7 – 8 hours, though 5 – 6 and up to 9 hours may be appropriate. Any duration which falls outside of these boundaries is not recommended for the maintenance of good health and wellbeing [3].

There are a variety of reasons for inadequate sleep. Sleep disorders are prevalent and disruptive to sleep, with disorders such as diagnosed sleep apnoea, insomnia, and restless legs syndrome affecting 8%, 20% and 18% of adults respectively [4]. Inadequate sleep can also be a consequence of a range of health conditions including, but not limited to, pregnancy [5], thyroid conditions [6], neurological conditions (including parkinson's disease, multiple sclerosis, stroke, epilepsy, and central nervous system tumours), mental health disorders (including mood disorders, anxiety disorders, schizophrenia, and post-traumatic stress disorder), and organ failure (including congestive heart failure, chronic renal failure, and liver failure) [7]. There are also behaviours which result in voluntarily shortened sleep stemming from social choices and circumstances [8]. The prevalence of inadequate sleep has created a substantial public health burden [8, 9], and is accompanied by a heavy societal health and financial burden [10].

In recent years, a developing body of literature has highlighted the gravity of the health and social consequences of poor sleep in Australia [8]. However, a lack of health policy would suggest that this recognition may not be shared by the community. Further, there is evidence that while the broader community may have a degree of awareness surrounding the need for healthy sleep, the majority persist with poor sleep habits. Although many Australians experience sleep problems, most are not seeking help from healthcare providers for their sleeping difficulties [11]. There have only been a handful of Australian studies to date concerning help seeking behaviours for sleep related health problems. The most recent Australian figures for help seeking for sleep problems are from a 2008 study ( $n = 3,300$ ) where researchers used population survey data to measure the prevalence of primary care consultations for people with insomnia and/or sleep apnoea, and the risk factors associated with these [11]. Researchers found that help seeking rates for insomnia, sleep apnoea, and a combination of both conditions to be 11.1%, 6.2% and 2.9% respectively [11]. This is contrasted to an earlier study conducted in 1996 ( $n = 628$ ) which measured the prevalence surrounding help seeking for sleeping difficulties and found rates to be 30.8% for Australian adults [12].

There has been limited international research that reviews sleep and help seeking behaviours, and to date there has been no review of sleep and help seeking behaviours within a contemporary Australian context. The following thematic narrative review will explore inadequate sleep and help seeking behaviours as they relate to sleep health. This review aims to 1) Clarify the state of sleep health in Australia, both past and present; 2) Examine the causes and contributors of inadequate sleep; 3) Assess the impacts of inadequate sleep in Australia; 4) Summarise the factors involved in help seeking for sleeping difficulties, and 5) Assess the steps that have been taken by Australia to date in addressing the mounting concern over inadequate sleep.

## **2. The Background**

### **2.1 Overview of Sleep**

Sleep is an active resting behavioural state where the individual perceptually disengages from the environment and responsiveness is reduced [13]. It is a fundamental aspect of health and is essential for a range of processes including energy conservation, memory consolidation, mental function, emotional modulation, and cognitive function [1, 9, 10, 14, 15]. Inadequate sleep (where individuals obtain less than the recommended duration of sleep or their sleep is of poor quality) can arise from a problem with either or both of these dimensions and can be considered behavioural or clinical. Clinical sleep problems are those that can be diagnosed using a standardised set of criteria such as that outlined in the International Classification of Sleep Disorders (ICSD) [16, 17]. Sleeping difficulties that do not adhere to such criteria may be classified as behavioural sleep problems and although they may not fit within disorder criteria, may still cause considerable adverse consequences.

Inadequate sleep is associated with a range of health consequences, both physical and psychological. There have been a number of measurable changes associated with inadequate sleep and metabolic health with mounting evidence that inadequate sleep has a role in obesity [18]. A meta-analysis has revealed that in addition to obesity risks, decreased sleep duration has significant impacts on increasing the risk of diabetes mellitus [19]. A meta-analysis concerning the relationship between sleep duration and cardiovascular outcomes has also been conducted, with

shorter sleep duration associated with increased morbidity and mortality rates for coronary heart disease [20]. Furthermore, there are a number of adverse mental health consequences associated with inadequate sleep and a lowered quality of life [21]. Sleeping problems are related to frequent mental distress, anxiety and depressive symptoms, physical distress, and pain [21]. Normal daily behaviours can be adversely impacted by inadequate sleep and sleep restriction [22]. For example, individuals are more likely to engage in adverse behaviours including smoking and heavy drinking [21]. Lack of concentration and vigilance, due to sustained inadequate sleep and sleep restriction may also lower productivity and increase the risk of human error leading to elevated risk of workplace and motor vehicle accidents [22]. Previous studies have demonstrated that sleeping difficulties have impacted on work productivity [23] and have been associated with a significantly increased risk of injurious [24] and fatal workplace accidents [25]. It is clear that sleep is an important factor for a number of physical and mental health domains, and that inadequate sleep is a significant burden to the community and is a public health concern which needs to be addressed.

## **2.2 Prevalence of Inadequate Sleep Worldwide**

Inadequate sleep is not unique to Australia; its presence and effects are documented globally [26-28]. While there exists a larger body of research on clinical disorders or measures relating specifically to sleep duration, there are several studies across a number of demographically similar countries that measure inadequate or insufficient sleep and its associated trends. Research has shown that very few insomnia patients seek help [29] and we know even less about the general population and seeking help for inadequate sleep. Much of what is known regarding inadequate sleep and the general population is pieced together from collections of population studies assessing broad sleep needs and patterns. Population data concerning the general population from the longitudinal Finnish Twin Cohort Study ( $n = 12,423$ ) compared data from a series of questionnaires concerning sleep duration answered by sets of twins between 1981 and 1990 [26]. Insufficient sleep in the sample was then measured as a difference of an hour or more between subjectively reported sleep need versus sleep duration [26]. Insufficient sleep measures for the study were reported by 19.3% of the participants in 1981; this increased to 20.6% in 1990, with a Spearman Correlation for persistence of 0.334 [26]. Whilst the increase was minor, the prevalence of insufficient sleep across the population is concerning with approximately 1 in 5 experiencing insufficient sleep in Finland at the time [26]. Another population based study ( $n = 8860$ ) conducted in Norway from 1997 – 1999 examined the sleep characteristics of adults aged 40 – 45 years [28]. Similar to results found by Hublin and colleagues, researchers found that approximately 20% of adults in this age bracket experienced insufficient sleep as they reported a difference of an hour or greater between subjective sleep need and subjective sleep duration [28]. Sleep problems were measured more broadly in a 2010 ( $n = 372 – 500$ ) study where data over a 36-year period from the Population Study of Women in Gothenburg, Sweden were analysed [30]. The results indicated that there were significantly higher numbers of women with self-reported sleeping problems in the more recent study period (36.5% in 2004 – 05), when compared to the earlier period (17.2% in 1980 – 81) [30]. A Finnish study (where  $n$  varied across the studies from 2,255 participants in the Workers in Information Technology Study to 47,486 participants involved in the Finnish Public Sector Survey) that compared a number of population studies with sleep duration questions from questionnaires administered between 1972 and 2005 [31] was also conducted. A comparison of

results from the questionnaires highlighted a possible trend of an increase in insomnia symptoms over a 10 year period among working aged employed individuals [31]. A more recent 2017 study ( $n = 2089$ ) found that both sleep disorders and insufficient sleep are highly prevalent throughout the Netherlands [27]. In this study, rather than measuring the difference between subjective sleep need and actual sleep duration, a validated questionnaire, which was based on the International Classification of Sleep Disorders, was used [27]. Using this methodology the prevalence of insufficient sleep in the adult population in the Netherlands was found to be 43.2% [27]. Despite methodological differences, collectively, this body of research highlights the high prevalence of inadequate sleep and sleep problems across numerous countries assessed comprises a matter of public health concern.

### **3. Sleep and Australia**

#### **3.1 A Brief History of Inadequate Sleep in Australia**

Until relatively recently, sleep health in Australia has not been comprehensively examined beyond duration and quality at a population level. Although there has been a review of inadequate sleep in Australia [8], this narrative review provides an overview of updated findings of inadequate sleep in Australia given the current climate of inquiry into sleep health awareness in Australia. While sleep had been examined as part of general health [32], it was not until the 1980's when a study established one of the first Australian based surveys to target sleep [33]. The results from the small pool of participants ( $n = 100$ ) in Adelaide suggested that sleep problems were common: 10% of the sample had trouble falling asleep, 27% had trouble maintaining sleep throughout the night, and 24% awoke too early [33]. However, the small sample size and the concerns of non-universal access to telephone based survey at the time were some of the concerns regarding study design.

Following these concerns, another Adelaide based study a few years later built upon the Wilson and Lack study [33], with a larger sample ( $n = 216$ ) indicating that sleep difficulties were estimated to be prevalent among 13 – 20% of the sample depending on the variable measured; this was likened to similar prevalence rates in the Northern Hemisphere at the time [34]. While this did provide a slightly larger sample size, the sample size was still relatively small. Additionally, while the study design did include a question on sleep maintenance and latency, they restricted this to a single self-report question, and the self-reported specific sleeping difficulty variable was measured by simply asking the question "Would you say you experience sleeping difficulties?". This lack of operationalisation and the limited enquiry into sleeping difficulties also poses problems in understanding the true state of sleep health. A larger survey again ( $n = 535$ ) was subsequently conducted in a New South Wales (NSW) based study where similar prevalence rates were reached for poor sleep [12]. However, Olson's study was limited to a single question regarding insomnia "Have you had trouble sleeping?", and this may again not be sufficient to encapsulate inadequate sleep completely given what we now know about the complexity of inadequate sleep in the community. Following this, a study ( $n = 507$ ) was conducted with a Victorian sample and found that 10.9% of the sample experienced excessive daytime sleepiness [35]. Although these findings were limited to participants in rural Victoria, the findings were later reflected in a larger ( $n = 3,300$ ) state (NSW) based survey which found that 11.7% of the population are chronically sleepy and 1 in 5 people were chronically sleep restricted [36].

In 2004 Sleep Health Australia, in conjunction with Access Economics, produced a report that highlighted the high prevalence of sleep disorders in Australia [37]. The financial expenditure as well as lost wellbeing human costs were also explored for the first time in great detail. It was from here that the Sleep Health Foundation, with Deloitte Access Economics, further explored sleep health as a function of sleep disorders for Australian communities [38] and then more broadly as a function of inadequate sleep [10]. Across the reports it becomes evident that sleep problems are not only highly prevalent, but are also increasing throughout Australia over time. Despite the culmination of these findings, it took until 2018 for sleep health to become the focus of an Australian Government parliamentary inquiry [39], highlighting how the development of policy and practice of sleep health awareness and management is still in its infancy.

### **3.2 The Current Burden of Sleep Problems and Inadequate Sleep in Australia**

In a recent study, Adams and colleagues measured the prevalence of sleep problems including both behavioural and clinical sleep disturbance, in Australia [1]. The population-based survey ( $n = 1,011$ ) was conducted in 2016 across a nationally representative sample of Australian adults and questions were adapted from a similar survey from the Sleep in America research to allow for international comparisons. This survey was important, as although Bartlett and colleagues had examined sleepiness in 2008 [36], lifestyle behaviours that can influence sleep such as caffeine consumption, internet usage and screen time have increased in parallel [1] meaning prevalence of behavioural sleep problems has likely changed. The results highlighted that a considerable number of Australian adults self-reporting experiencing sleeping difficulties. Approximately 1 in 3 (33 – 45%) Australians experience inadequate sleep and accompanying poor sleep habits [1]. Clinical sleep disorders were common with 8.3% of the population self-reporting sleep apnoea and 20.0% experiencing symptoms of insomnia according to the ICSD criteria [1].

In addition to the health and economic costs of clinical sleep disorders, the burden of broader sleep problems is substantial [1]. This has been recently highlighted by Hillman and colleagues [9] where researchers focused on the economic costs of sleep problems on the economy. This was achieved by looking at the costs associated not just with sleep disorders in Australia, as was done in 2017 [10], but by examining inadequate sleep collectively and relating these costs to the impacts on the Australian economy. The direct financial costs incurred from inadequate sleep in the community (a population of 24.8 million) has been estimated to be a total of \$26.2 billion for the 2016 – 17 financial year [9, 10]. These costs include direct health system costs such as hospital admissions, medical expenses outside of hospitals, and also pharmaceutical expenses [10]. However, costs were not limited to healthcare burden alone. Sickness absenteeism in Australia directly attributed to a sleep problem [40] has impact on productivity in the workplace. Of note, while clinical sleep disorders accounted for a percentage of Australian individuals reporting recent sickness absenteeism due to a sleep problem, there remained a sub-population who experienced inadequate sleep that was severe enough to result in sickness absenteeism independent of clinical sleep disorders. In fact, productivity losses represented 68% of the direct financial costs incurred because of inadequate sleep [10]. In addition to direct health system costs and productivity losses, there are informal care costs (2%), and other financial costs (23%) including those due to workplace injury and motor vehicle accidents and deadweight loss (like loss of taxation revenue and increased welfare payments) that also contribute to the financial burden of inadequate sleep

[10]. Hillman and colleagues calculated the financial burden associated with inadequate sleep to be 1.55% of the Australian gross domestic product [9].

While these financial costs are important, there were also indirect financial costs incurred with inadequate sleep [9, 10]. These indirect costs were estimated for the 2016 – 17 financial year to be \$40.1 billion, as a measure of disability adjusted life years [10]. These costs are comprised primarily of the loss of wellbeing experienced by the individual including the impact on their quality of life, the loss of leisure, and their physical pain [10]. While this is not directly translatable economically, Hillman and colleagues have explained these losses in terms of burden of disease with inadequate sleep representing 4.6% of the total burden of disease in Australia [9].

### ***3.3 Impacts of Inadequate Sleep and What is Being Done to Improve Sleep Health in Australia***

Currently there is a paucity of health policy and accompanying public health campaigns to address the state of sleep health in Australia [10]. Sleep health in Australia is not yet an established national priority despite recent research highlighting the urgency of the matter [9, 10]. Insufficient effort and financial capital is being invested in the prevention and treatment of inadequate sleep and reducing the indirect cost effects [2]. In 2006 only \$146 million was spent on sleep disorders and \$313 million on conditions caused by sleep disorders. This is contrasted to the total cost the same year that these disorders cost the Australian economy, a conservatively estimated \$7.5 billion [2]. Although contemporary expenditure figures are not available, there have been no major developments in health policy in the interim to suggest the gap has lessened or closed. Analysis of these data indicate that sleep health certainly merits a place on the national health agenda, and initiatives such as public health education and regulation are needed to address the current poor state of sleep health faced by Australians today [9].

There are a number of suggestions for improving the state of sleep health in Australia which can be summarised from the Sleep Health Foundation report “Reawakening Australia”: 1) Education and awareness training 2) Research and development 3) Cost effective prevention, treatment, and management, and 4) A national co-ordination point [10]. However while the urgency of the matter has been raised, the management of sleep health in Australia remains in its infancy. As such, there are still limited pathways that have been suggested to specifically move forward within these avenues. One consideration for moving forward is to progress with pursuing a better understanding of help seeking behaviours associated with sleep and sleep problems. This is crucial in order to identify those in need of assistance, and facilitate initiatives and interventions to encourage access to healthcare where indicated.

## **4. Behavioural Model of Health Services Use (BMHSU)**

### ***4.1 Understanding Why People Do and Do Not Seek Help***

While there has been research exploring the characteristics of help seekers and predictors of help seeking behaviours for sleep related concerns, there has been limited research that applies psychology-based theory in order to understand these factors contextually.

#### **4.2 What is the Behavioural Model of Health Services Use (BMHSU)?**

The BMHSU is a multilevel model that can be used as a vehicle for understanding an individual's use of health services [41, 42]. The BMHSU is best understood by focussing on the characterisation of contributing help seeking factors into two categories: individual determinants, and contextual determinants [43]. Individual determinants focus on those factors which affect help seeking behaviours on an individual level; contextual determinants are at an aggregate level [43]. While this categorisation seems like a division, it is important to recognise that the model accounts for the interaction between the two, as well as their interactions with health behaviours (in particular the use of health services) and outcomes (including perceived, and evaluated health, and consumer satisfaction) [43]. Both the individual and contextual determinants can be further organised into three major components: 1) Predisposing factors, or those conditions which are pre-existing and predispose people to whether or not they are likely to engage in healthcare services; 2) Enabling factors, or conditions which may facilitate or prohibit the use of services, and 3) Need factors, or conditions that consumers and providers recognise as required for treatment.[44]

#### **4.3 Where has the Behavioural Model of Health Services Use Been Commonly Used?**

The attractiveness of the BMHSU lies in its ability to be able to describe health service use for a number of highly varied diseases [42]. In a systematic review conducted by Babitsch and colleagues in 2012, despite operational definitions being recognised as still needing refinement across studies, the BMHSU was shown to be able to be applicable to deepening our understanding of help seeking and healthcare utilisation and the complexities involved in this [42]. The studies examined in the aforementioned systematic review spanned general health care, mental health services including psychiatry, physician and hospital services, general practitioner services, outpatient care, and speciality care [42]. Contrastingly, studies may also take a problem centred or diagnostic approach. This is illustrated through a systematic review of studies which have used the BMHSU to examine major depression [45]. This review involved collectively synthesising and understanding the problem in terms of predisposing (primarily demographic characteristics), enabling (primary income), and need (severity) factors, as well as duration, number of episodes, comorbidity, and contextual factors [45].

While the BMHSU has not been commonly used in understanding consumers' use of health services in relation to sleep problems as is evidenced by the lack of literature in this area, it has been utilised in understanding a number of other health concerns. While neither of the aforementioned systematic reviews are directly linked to sleep, they do illustrate that the BMHSU is applicable to a wide range of health concerns and disorders. Thus, this notion has been extended to suggest that the BMHSU could be used in understanding the determinants and factors involved in help seeking behaviours surrounding sleep problems.

Table 1 illustrates the wide range of determinants that can be at play when considering why an individual did or did not seek help for their sleeping difficulties, which is evidenced by the numerous identified significant predictors of help seeking, as measured by numerous researchers [11, 46-48]. The following sections highlight the known individual and contextual determinants of help seeking for sleep problems.

**Table 1** Help seeking rates, influences, and predictors across countries.

Author and date	Country	Methodology	Data analysis	Sleep problem measured for seeking help	Help seeking %	Identified significant associations with help seeking
Olson (1996)	Australia	Phone survey	Descriptive	Sleeping difficulties	30.8	<ul style="list-style-type: none"> <li>• None identified</li> </ul>
Shochat et al (1999)	USA	Paper survey	Logistic regression	Insomnia	NA as they were already primary care patients	<ul style="list-style-type: none"> <li>• Older</li> <li>• Feeling worse physically</li> <li>• Having insomnia for long period</li> <li>• Higher income</li> </ul>
Aikens & Rouse (2005)	UK	Postal survey	Logistic regression	Sleep problems	48.0	<ul style="list-style-type: none"> <li>• More comorbid conditions</li> <li>• Better educated</li> <li>• Lower sleep duration</li> <li>• Greater daytime impairment</li> </ul>
Leger & Poursain (2005)	France Italy USA Japan	Interview	Descriptive	Insomnia symptoms in the last 12 months	France: 21.6 Italy: 13.4 USA: 14.7 Japan: 2.7	<ul style="list-style-type: none"> <li>• Very bothered by symptoms</li> </ul>
Stinson, Tang, & Harvey (2006)	UK	Interview	Descriptive	Clinical insomnia	56.5	<ul style="list-style-type: none"> <li>• Having insomnia for a long period</li> </ul>

Table 1 (continued)

Author and date	Country	Methodology	Data analysis	Sleep problem measured for seeking help	Help seeking %	Identified significant associations with help seeking
Morin et al (2006)	Canada	Phone survey	Logistic regression	General population (regarding insomnia symptoms in lifetime)	13.0	<ul style="list-style-type: none"> <li>• Fatigue</li> <li>• Psychological distress</li> <li>• Physical discomfort</li> <li>• Suggestion from a significant other</li> <li>• Reduced work productivity</li> <li>• Suggestion from another healthcare professional</li> <li>• Significant sleep loss</li> <li>• Self-referral</li> <li>• Stress</li> </ul>
Bartlett, Marshall, Williams & Grunstein (2008)	Australia	Postal survey	Logistic regression	<ul style="list-style-type: none"> <li>• Insomnia</li> <li>• Sleep apnoea</li> <li>• Both</li> </ul>	Insomnia: 11.1 Sleep apnoea: 6.2 Both: 2.9	Sleep apnoea: <ul style="list-style-type: none"> <li>• Reduced enthusiasm</li> <li>• Being older</li> <li>• Experiencing daytime sleepiness</li> <li>• Sleep duration &lt;6.5h</li> </ul>
Angst et al (2010)	Switzerland	Interview	Logistic equations	Insomnia	43.0	<ul style="list-style-type: none"> <li>• Social impairment</li> <li>• Subjective distress</li> <li>• Higher level of mastery</li> <li>• Retrospective family problems in childhood</li> <li>• DSM diagnosis of Insomnia</li> </ul>
Henry, Rosenthal, Dedrick, Taylor (2013)	USA	Interview	Qualitative	Insomnia	N/A as they were already primary healthcare patients	<ul style="list-style-type: none"> <li>• Damage to primary relationships</li> <li>• Threats to work productivity</li> </ul>
Cheung, Bartlett, Armour, Glozier, & Saini (2014)	Australia	Interview	Qualitative	Insomnia	65.0	<ul style="list-style-type: none"> <li>• Symptoms worsened</li> <li>• Indirectly sought</li> </ul>

#### **4.4 Individual Determinants of Help Seeking for Sleep Problems**

The demographic background of the individual can influence help seeking behaviour, with older individuals being more likely to seek help [46, 48]. Shochat and colleagues raised concerns at these findings as they indicate that young adults, in particular those with low income and with short insomnia duration, would be at risk of not seeking help [48]. When placing these findings in the context of inadequate sleep, their concern is compounded, as young adults are the age group who get the least amount of adequate sleep, particularly in Australia [1]. Higher income was also a positive predictor of help seeking for insomnia [48]. This was based on a measure of family income of 286 patients accessing 3 primary care facilities across the USA [48]. In addition to this, another American study has posited that those who were more highly educated may be more likely to seek help for insomnia [46]. This study was based on a final sample of 115 adults who were recruited from a primary care facility [46]. Distinctions were made between high school, some college, college degree, and advanced degree during preliminary analyses that showed there was a trend towards help seeking and education status [46], such that more highly educated patients were more likely to seek help for insomnia [46]. These findings could be troubling as those who are unemployed actually report a higher need for treatment for sleep problems [49], yet it seems may be less likely to seek help.

Individual health concerns have also been shown to be predictors of help seeking. Poor physical health, anxiety symptoms, depressive symptoms, poor mental health generally, and more co-existing medical conditions have been associated with higher rates of help seeking behaviours [46, 47]. The sleep health of the individual is also a factor influencing help seeking; shorter sleep durations and sleep problems with accompanying excessive daytime sleepiness are associated with greater help seeking behaviours [11, 46]. The clinical factors associated with sleep concern specifically can also affect help seeking behaviours. Sleep problems that have longer presentation or produce greater impairment, distress or reduced enthusiasm, or those where the individual becomes bothered by the symptoms, all produce an environment that cultivates help seeking behaviours [50-52]. The personal relationships that the individual fosters can also impact upon help seeking behaviours [53]. Damage to primary relationships have been cited as a primary reason for seeking help for sleeping difficulties, alongside threats to workplace productivity [53].

#### **4.5 Contextual Determinants of Help Seeking for Sleep Problems**

There are a number of predictors of help seeking which can be classified as contextual determinants. There are a number of beliefs shared by the community that foster a culture of coping on one's own and likely inadvertently discourage help seeking for sleeping difficulties [50, 52]. Recent research has highlighted a number of these misguided and misinformed public perceptions including those concerning what constitutes a sleep complaint that is "serious enough" to be socially acceptable to seek help for [50]. Sleep problems, particularly insomnia, have been perceived by the public as something that should be able to be coped with on one's own [52]. As well as these beliefs that sleep problems are benign, there are community beliefs that the treatment options for sleeping difficulties are unattractive and are generally limited to pharmaceutical options [54]. These can be in conjunction, or encouraged by, the common belief among those with insomnia that many healthcare professionals are ill-equipped to understand or treat sleeping disorders [50, 53].

These beliefs have led to a culture of stigma regarding sleeping difficulties. In a 2013 qualitative study ( $n = 24$ ), in-depth interviews were conducted in order to explore the beliefs surrounding the origins of insomnia, the course of insomnia, the symptoms, responses, and treatment expectations [53]. In addition to the lack of help seeking behaviours being consequential of cultural stigmatisation, it may also be a consequence of the disorder being embedded in the family culture [50]. If the insomnia is experienced by other family members it may be viewed as an acceptable way of life that does not need addressing and does not warrant help from a healthcare professional, with consequent lack of help seeking behaviours [50].

The organisation of health service facilities, its structure, and the associated personnel are also important. Whilst an extensive review of Australian sleep services is yet to be conducted, a review of New Zealand respiratory and sleep services undertaken by the Thoracic Society of Australia and New Zealand has been completed [55]. The results of the survey indicated that access for respiratory and sleep services varied, that there was a lack of national leadership and regional organisation, and that there are gaps in service provision [55]. Although not directly translatable, similar demographics, system structure, and personnel training means that Australia must be aware of and prepared to improve upon similar contextual organisational aspects of health services to allow for indirect improvement of help seeking behaviours for sleep problems.

Finally, health policy is also a key aspect to consider when understanding health service use and help seeking behaviours [44]. Unfortunately, currently in 2019, although there is mounting research to highlight the state of poor sleep health that Australians face, [1, 8, 9] there is a lack of health policy to address this. A 2017 report [10] provides a number of recommendations of ways in which to increase policy effort. The efforts include research into the causes of sleep disorders, encouragement of prevention of poor sleeping conditions and early intervention regarding this, and awareness and education on aspects of sleep health such as sleep hygiene. Currently however, while a parliamentary inquiry into inadequate sleep has been conducted [39], there remains a lack of policy, government initiated research, public education, and public awareness regarding sleep health and sleep concerns in Australia.

## **5. A Glance at What Help Seeking Looks Like**

Although help is not often sought for sleep problems broadly in the community, there is some data highlighting what help seeking looks like, particularly for those with insomnia symptoms. In a study published in 2006, Morin and colleagues examined the sleep and help seeking behaviours of 2001 randomly selected Canadian adults from Quebec (a Canadian province) [47]. Results indicated that GPs are the most common health professional consulted when insomnia is the sleeping difficulty of concern [47]. Most individuals who did choose to seek help sought help from multiple healthcare providers, and thus categories are not mutually exclusive, however Morin and colleagues found that of their sample ( $n = 2001$ ) 82.7% sought help for insomnia symptoms from a GP, 17.0% sought help from a medical specialist other than a GP, 5.9% saw a psychologist, 3% consulted a psychiatrist, while pharmacists, acupuncturists, and homeopaths were seen by less than 1% of the sample [47]. The choice of health professional was only impacted upon by the gender of the patient with more women choosing to consult GPs compared to men (86.5 versus 75.0%,  $p < .05$ ) and more men choosing to consult specialists compared to women (26.4 versus 12.4%,  $p < .001$ ) [47]. Of those who did seek help the main reasons for seeking help were fatigue

(48.1%) and psychological distress (39.7%) but also included physical discomfort (21.6%), suggestion by a significant other (13.7%), reduced work productivity (13.4%), suggestion by another health professional (11.1%), significant sleep loss (10.7%), self-referral (3.5%) and stress (3.3%) [47].

Individuals experiencing snoring and sleep apnoea associated with insomnia or insomnia related symptoms were unlikely to visit a healthcare professional for help, instead choosing to self-medicate [11]. Self-medicating options include herbal medications (16%), over-the-counter medications (8%), and prescription medication (6%). Individuals who did seek help had usually self-medicated before, or chose to self-medicate after the visit/s. In addition to these findings Sandlund and colleagues in their research on the general Swedish population were able to identify a subgroup (37.7%) in their sample of people (n = 1550) who experienced insomnia disorder but did not report a need for treatment for their sleeping difficulties [49].

The perception and experiences of treatments offered by healthcare professionals varies with the vocation. The role of the pharmacist in the cases that Cheung and colleagues examined was to dispense complementary sleep remedies or prescription sleep medications [50]. Many individuals interviewed did not engage with the pharmacist as they assumed the treatment options in the management for insomnia offered by a pharmacist would involve pharmacotherapy; this was viewed as unfavourable. Access to specialist care initiated a “less prescriptive” approach which was favoured and many felt their sleep complaint was acknowledged and understood. This was in contrast to their experiences with GPs who they viewed as not understanding the urgency of the issue, or ill equipped to treat or manage their insomnia adequately [50]. Cumulatively, these findings illustrate that there are a number of factors that are at play when examining help seeking for sleeping difficulties and inadequate sleep.

## **6. Summary and Future Directions**

A review of current literature indicates that poor sleep health is common across Australian communities, and has a high associated health and financial burden to both the individual and the community. While there are many people experiencing sleeping difficulties, most of these people are not seeking help for their sleep problems from a healthcare professional. There are varied reasons for this, which can be understood through applying the BMHSU and exploring individual and contextual reasons. Most of the research that has informed these reasons however is clinically specific; there is a lack of research that examines help seeking for inadequate sleep as a “sleep problem” generally, and particularly specific to contemporary Australian communities. Such an examination could be beneficial as it may result in being able to identify, and subsequently address, help seeking pathways and limitations as an avenue for sleep health improvement. For this to occur however, sleep would have to become a national health priority, which has not yet been achieved. An improvement in the state of sleep health would be beneficial from both a health and economic standpoint for Australian communities.

## **7. Concluding Remarks**

This review has highlighted that the state of sleep health in Australia is troubling and, in line with trends from demographically similar countries, sleep problems are increasing worldwide. This is concerning as there are number of negative impacts that are associated with inadequate sleep

and consequent large financial burden to the Australian economy. Ways in which inadequate sleep can be addressed must be explored, and one avenue for this is promoting help seeking for sleep problems. The Health Belief Model could be employed as a framework for understanding what factors could encourage or prohibit an individual from accessing or utilising healthcare services for sleeping difficulties[56]. Application of these factors to sleep related domains would lead to the consideration of the perceived severity of the sleeping difficulties, the perceived benefits that treatment may have, and the perceived barriers to those treatments. Public health orientated action forward requires consideration of each of these facets.

This review has provided an overview of the predictors involved in help seeking for a range of sleeping disorders and sleeping difficulties generally and did so with an overarching psychologically based theory. Use of the BMHSU allowed a thorough, multi-level exploration of determinants of help seeking behaviours that have been examined so far to be conducted. It is clear that although recently there have been steps taken in the form of a parliamentary inquiry we are still in the infancy of understanding sleep health in Australia, and as such, inadequate sleep in Australia is still largely unaddressed. Moving forward we need to develop ways to aid, and work with the government and communities to reduce inadequate sleep and improve the state of sleep health, and thus overall health and wellbeing in Australian communities.

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### **Competing Interests**

The authors have declared that no competing interests exist.

### **References**

1. Adams RJ, Appleton SL, Taylor AW, Gill TK, Lang C, McEvoy RD, et al. Sleep health of Australian adults in 2016: Results of the 2016 sleep health foundation national survey. *Sleep Health*. 2017; 3: 35-42.
2. Hillman DR, Murphy AS, Antic R, Pezzullo L. The economic cost of sleep disorders. *Sleep*. 2006; 29: 299-305.

3. Hirshkowitz M, Whiton K, Albert SM, Alessi C, Bruni O, DonCarlos L, et al. National sleep foundation's sleep time duration recommendations: Methodology and results summary. *Sleep Health*. 2015; 1: 40-43.
4. Adams R, Appleton S, Taylor A, McEvoy D, Antic N. Report to the sleep health foundation 2016 sleep health survey of australian adults. The Adelaide Institute for Sleep Health: University of Adelaide; 2016.
5. Skouteris H, Germano C, Wertheim EH, Paxton SJ, Milgrom J. Sleep quality and depression during pregnancy: A prospective study. *J Sleep Res*. 2008; 17: 217-220.
6. Bianchi G, Zaccheroni V, Solaroli E, Vescini F, Cerutti R, Zoli M, et al. Health-related quality of life in patients with thyroid disorders. *Qual Life Res*. 2004; 13: 45-54.
7. Slater G, Steier J. Excessive daytime sleepiness in sleep disorders. *J Thorac Dis*. 2012; 4: 608-616.
8. Hillman DR, Lack LC. Public health implications of sleep loss: The community burden. *Med J Australia*. 2013; 199: 7-10.
9. Hillman D, Mitchell S, Streatfeild J, Burns C, Bruck D, Pezzullo L. The economic cost of inadequate sleep. *Sleep*. 2018.
10. Deloitte Access Economics. Asleep on the job: Cost of inadequate sleep in australia. Sleep Health Foundation. 2017.
11. Bartlett DJ, Marshall NS, Williams A, Grunstein RR. Predictors of primary medical care consultation for sleep disorders. *Sleep Med*. 2008; 9: 857-864.
12. Olson LG. A community survey of insomnia in newcastle. *Aust NZ J Public Health*. 1996; 20: 655-657.
13. Carskadon MA, Dement WC. Normal human sleep: An overview. *Prin Pract Sleep Med*. 2005; 4: 13-23.
14. Diekelmann S, Born J. The memory function of sleep. *Nat Rev Neurosci*. 2010; 11: 114-126.
15. Siegel JM. Clues to the functions of mammalian sleep. *Nature*. 2005; 437: 1264-1271.
16. American Sleep Disorders Association. International classification of sleep disorders. Revised: Diagnostic and coding manual. <http://www.absm.org/PDF/ICSD.pdf>. 1997.
17. Sateia MJ. International classification of sleep disorders. *Chest*. 2014; 146: 1387-1394.
18. Markwald RR, Melanson EL, Smith MR, Higgins J, Perreault L, Eckel RH, et al. Impact of insufficient sleep on total daily energy expenditure, food intake, and weight gain. *P Nat Acad Sci*. 2013; 110: 5695-5700.
19. Shan Z, Ma H, Xie M, Yan P, Guo Y, Bao W, et al. Sleep duration and risk of type 2 diabetes: A meta-analysis of prospective studies. *Diabetes Care*. 2015; 38: 529-537.
20. Cappuccio FP, Cooper D, D'elia L, Strazzullo P, Miller MA. Sleep duration predicts cardiovascular outcomes: A systematic review and meta-analysis of prospective studies. *Eur Heart J*. 2011; 32: 1484-1492.
21. Strine TW, Chapman DP. Associations of frequent sleep insufficiency with health-related quality of life and health behaviors. *Sleep Med*. 2005; 6: 23-27.
22. Banks S. Behavioral and physiological consequences of sleep restriction. *J Clin Sleep Med*. 2007; 3: 519-528.
23. Rosekind MR, Gregory KB, Mallis MM, Brandt SL, Seal B, Lerner D. The cost of poor sleep: Workplace productivity loss and associated costs. *J Occup Environ Med*. 2010; 52: 91-98.

24. Uehli K, Mehta AJ, Miedinger D, Hug K, Schindler C, Holsboer-Trachsler E, et al. Sleep problems and work injuries: A systematic review and meta-analysis. *Sleep Med Rev.* 2014; 18: 61-73.
25. Åkerstedt T, Fredlund P, Gillberg M, Jansson B. A prospective study of fatal occupational accidents—relationship to sleeping difficulties and occupational factors. *J Sleep Res.* 2002; 11: 69-71.
26. Hublin C, Kaprio J, Partinen M, Koskenvuo M. Insufficient sleep—a population-based study in adults. *Sleep.* 2001; 24: 392-400.
27. Kerkhof GA. Epidemiology of sleep and sleep disorders in the netherlands. *Sleep Med.* 2017; 30: 229-239.
28. Ursin R, Bjorvatn B, Holsten F. Sleep duration, subjective sleep need, and sleep habits of 40-to 45-year-olds in the hordaland health study. *Sleep.* 2005; 28: 1260-1269.
29. Léger D, Bayon V. Societal costs of insomnia. *Sleep medicine reviews.* 2010; 14: 379-389.
30. Rowshan Ravan A, Bengtsson C, Lissner L, Lapidus L, Bjorkelund C. Thirty-six-year secular trends in sleep duration and sleep satisfaction, and associations with mental stress and socioeconomic factors—results of the population study of women in gothenburg, sweden. *J Sleep Res.* 2010; 19: 496-503.
31. Kronholm E, Partonen T, Laatikainen T, Peltonen M, Härmä M, Hublin C, et al. Trends in self-reported sleep duration and insomnia-related symptoms in finland from 1972 to 2005: A comparative review and re-analysis of finnish population samples. *J Sleep Res.* 2008; 17: 54-62.
32. Krupinski J, Stoller A. *The health of a metropolis: Heinemann;* 1971.
33. Wilson C, Lack L. Sleeping habits of people living in the adelaide metropolitan area—a telephone survey. *Aust Psychol.* 1983; 18: 369-376.
34. Lacks P, Rotert M. Knowledge and practice of sleep hygiene techniques in insomniacs and good sleepers. *Behav Res Ther.* 1986; 24: 365-368.
35. Johns M, Hocking B. Daytime sleepiness and sleep habits of australian workers. *Sleep.* 1997; 20: 844-847.
36. Bartlett DJ, Marshall NS, Williams A, Grunstein RR. Sleep health new south wales: Chronic sleep restriction and daytime sleepiness. *Intern Med J.* 2008; 38: 24-31.
37. Access Economics. *Wake up australia: The value of healthy sleep: Access Economics;* 2005.
38. Deloitte Access Economics. *Re-awakening australia: The economic cost of sleep disorders in australia, 2010. Sleep Health Foundation.* 2011.
39. Sleep Health Foundation. *National parliamentary inquiry tackles looming sleep crisis.* 2018.
40. Reynolds AC, Appleton SL, Gill TK, Taylor AW, McEvoy RD, Ferguson SA, et al. Sickness absenteeism is associated with sleep problems independent of sleep disorders: Results of the 2016 sleep health foundation national survey. *Sleep Health.* 2017; 3: 357-361.
41. Andersen RM. Revisiting the behavioral model and access to medical care: Does it matter? *J Health Soc Behav.* 1995: 1-10.
42. Babitsch B, Gohl D, von Lengerke T. Re-revisiting andersen's behavioral model of health services use: A systematic review of studies from 1998-2011. *GMS Psycho-Social-Med.* 2012; 9.
43. Andersen RM. National health surveys and the behavioral model of health services use. *Med Care.* 2008: 647-653.

44. Andersen RM, Davidson PL, Baumeister SE. Improving access to care. Changing the US health care system: key issues in health services policy and management San Francisco: Jossey-Bass. 2014: 33-69.
45. Maggaard JL, Seeralan T, Schulz H, Brütt AL. Factors associated with help-seeking behaviour among individuals with major depression: A systematic review. *PloS one*. 2017; 12: e0176730.
46. Aikens JE, Rouse ME. Help-seeking for insomnia among adult patients in primary care. *The J Am Board Fam Pract*. 2005; 18: 257-261.
47. Morin C, Leblanc M, Daley M, Gregoire J, Merette C. Epidemiology of insomnia: Prevalence, self-help treatments, consultations, and determinants of help-seeking behaviors. *Sleep Med*. 2006; 7: 123-130.
48. Shochat T, Umphress J, Israel AG, Ancoli-Israel S. Insomnia in primary care patients. *Sleep: J Sleep Res Sleep Med*. 1999.
49. Sandlund C, Westman J, Hetta J. Factors associated with self-reported need for treatment of sleeping difficulties: A survey of the general swedish population. *Sleep Med*. 2016; 22: 65-74.
50. Cheung JM, Bartlett DJ, Armour CL, Glozier N, Saini B. Insomnia patients' help-seeking experiences. *Behav Sleep Med*. 2014; 12: 106-122.
51. Leger D, Poursain B. An international survey of insomnia: Under-recognition and under-treatment of a polysymptomatic condition. *Curr Med Res Opin*. 2005; 21: 1785-1792.
52. Stinson K, Tang NKY, Harvey AG. Barriers to treatment seeking in primary insomnia in the united kingdom: A cross-sectional perspective. *Sleep*. 2006; 29: 1643-1646.
53. Henry D, Rosenthal L, Dedrick D, Taylor D. Understanding patient responses to insomnia. *Behav Sleep Med*. 2013; 11: 40-55.
54. Morin CM, Gaulier B, Barry T, Kowatch RA. Patients' acceptance of psychological and pharmacological therapies for insomnia. *Sleep*. 1992; 15: 302-305.
55. Garrett J, Chen B, Taylor DR. A survey of respiratory and sleep services in new zealand undertaken by the thoracic society of australia and new zealand (tsanz). *NZ Med J (Online)*. 2009; 122.
56. Janz NK, Becker MH. The health belief model: A decade later. *Health Educ Quart*. 1984; 11: 1-47.



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