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Research paper

Self management and factors associated with the impact of insomnia among older adults with chronic medical illnesses at outpatient clinic

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ABSTRACT

Objective: To demonstrate patients' strategies for insomnia, prevalence of sleep medication usage, and to determine factors associated with daytime function.
Methods: Subjects who were aged > 60 years and who attended the internal medicine outpatient clinic of Srinagarind Hospital, Thailand were randomly interviewed from March 2012 to August 2013. Information on baseline characteristics and sleep variables were collected. Descriptive statistics were used to analyze baseline data, univariate and multiple logistic regression were used to analyze associated factors on poorly perceived impacts on daily life.
Results: One hundred participants were recruited. The majority of them were female (74%). Self-help technique was used by 45%. The prevalence of sleep medication use was 45% without gender differences ($P = 0.66$). Using multiple logistic analysis, only 3 factors: diabetes with an adjusted odds ratio (OR) 5.40, being female (adjusted OR 0.28), and non-pharmacological management (adjusted OR 0.23) were independent factors of poorly perceived impacts on daily life.
Conclusion: Frequent use of sleep medication and self-help strategy among older adults with chronic medical illnesses with insomnia was high. Diabetes and male sex were risk factors of poorly perceived impacts on daily life while self-help strategy with non-pharmacological use was a protective factor.

1. Introduction

Insomnia is commonly reported in older adults and its prevalence increases with age as a consequence of age-related changes in sleep architecture, variability in sleep stage patterns, sleep related-disorders, and disease syndromes; in particular central nervous system disorders [1,2]. It is estimated that older adults experience insomnia symptoms at least a few nights, about 20–40% per month [3]. One study of more than 9000 subjects aged 65 years and older reported sleep disturbances in 88% of subjects [3]. For Thai older adults, the affected range was approximately from 46 to 58% [4,5]. The consequences of poor sleep can lead to clinically significant impairments in daytime life including falling, poor attention and memory, a slowed response time, lessened physical performance, development of other medical and mental disorders such as dementia, depression, increased health care costs and increased mortality [3].

Older persons reported using at least once, an herbal/dietary product to facilitate sleep about 15% of the time, 11% taking prescribed medication over the past 12 months and the use of self-help techniques varied from 0.2 to 32.5% depending on type of technique such as reading, listening to music, relaxation, acupuncture and hypnosis. The figures were greater in older persons with insomnia symptoms [6]. For Thai elderly with insomnia symptoms, existing data showed the prevalence of hypnotic compound users was about 62%, and 19.4% of them believed that they were hypnotic addicted [7]. The number of hypnotic drug users was rather high; it is possible from the easy availability and accessibility of hypnotic drugs in the community. There are, however, lack of data regarding non-pharmacological strategies and their efficacies in this population. Therefore, the objective of this study was to evaluate how insomnia patients treated themselves and hypnotic drug usage among older adults with chronic medical illness and also to determine factors associated with poorly perceived impacts on daily life. A better understanding of the patients' behaviors and related factors of poorly perceived health could guide healthcare workers in detecting a high risk person and developing effective health prevention and interventional strategies to promote healthy sleep.

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2. Materials and methods

2.1. Participants

Subjects were randomly selected from the patients who attended internal medicine outpatient clinic of Srinagarind Medical School Hospital, Thailand during March 2012 to August 2013. The inclusion criteria were patients who were aged 60 years old or over who attended the outpatient clinic for at least 6 months for their medical illnesses and experienced chronic insomnia symptoms according to the ICD-10 definition; a condition of unsatisfactory quantity or quality of sleep, which persists for a considerable period of time, including difficulty falling asleep, difficulty staying asleep, or early final wakening [8], and insomnia occurred at least 3 times a week for more than 4 weeks. The exclusion criteria were the patients who were not willing to participate in this study.

2.2. Measurements

A questionnaire was developed to investigate characteristics of insomnia problems over the previous month, how older adults managed with insomnia (nothing, non-pharmacological, pharmacological management, both non-pharmacological and pharmacological management), and the perceived impact of insomnia on daily life that included mood and attention problems, worsening of their underlying diseases, and impact on daily activities. In addition, factors that might be associated with sleep, such as light shining in the bedroom, hot weather, cold weather, limb movement, tingling sensation over feet, snoring, sound or movement of partner, feeling necessity to urinate, feeling thirsty, feeling hungry, heartburn, abdominal bloating, airway attack, coughing, chest pain, nightmare or alcohol use, and focusing on demographic characteristics such as age, gender, marital status, educational level, average income, source of income, duration of perceived sleep, current medical illnesses were collected.

The questionnaire of sleep characteristics and factors interfering with sleep were on a 5-point scale of responses 0 to 4; 4 being the most interfering. The presence of the variables was identified when the answers to any of the questions were 3 and 4 which meant "often" and "always".

2.3. Procedure

The potential subjects were asked about their willingness to participate in the study. Then, the subjects were asked to respond to the questionnaire by the team of researchers. The researchers were 3 persons trained for interviewing the subjects. The baseline characteristics of the subjects were collected. The sleep questionnaire was then used to assess the sleep problem, impact on daily activities and psychotropic medication use.

2.4. Sample size

Sample size calculation was based on the primary objective of primary study: the estimated prevalence of insomnia among older adults in the outpatient setting of 50% derived from the prevalence in previous studies [3–5,9]. The estimation of a population proportion with a specified absolute precision formula was used to calculate this [10]. A sample size of at least 93 participants was found to be sufficient to achieve this at the significance level of 0.05.

2.5. Statistical analyses

Demographic data variables and sleep variables were divided into dichotomous or polytomous variables. All variables used descriptive statistics, presentation in percentage, mean and standard deviation. If the distribution of these data was not a normal distribution, then medians, and inter-quartile ranges were used instead. The effects of factors associated with poorly perceived impacts on daily life were evaluated using univariate and stepwise forward multiple logistic regressions. For univariate analysis, the Chi square test or Fisher's exact test was used to examine all categorically associated factors. Factors with $P < 0.20$ were then entered into a multiple logistic regression model. $P < 0.05$ was considered to indicate statistically significant differences and adjusted odds ratios (OR) and their 95% confidence intervals (CI) were reported to consider the strength of association between possible factors and number of insomnia symptoms. All the data analyses were carried out using STATA version 10.0 (StataCorp, College Station, Texas).

3. Results

3.1. Participant characteristics

One hundred participants were recruited for this study, baseline characteristics of the study populations are shown in Table 1.

3.2. How did older adults manage their insomnia?

The majority of older adults with a sleep disorder managed their insomnia without sleep medication (45%). Twenty-nine percent used sleep medication and 16% used both medication and non-medication. Only 10% denied any strategies to deal with their sleep disorder. Stratification of how to manage with insomnia by gender is demonstrated in Fig. 1. There was no statistical significance between male and female sex ($P = 0.66$) and the use of hypnotics did not increase with age in this study ($P = 0.11$).

For non-pharmacological strategies, 59.7% used praying or meditation, 21.1% did other activities e.g. watching TV and exercise, 17.6% used trying to sleep in bed, and 1.6% used a combination of those activities.

For pharmacological treatment, 55.6% reported using benzodiazepines, 6.7% reported using amitriptyline and 4.4% an antihistamine. Unknown medication was reported as 33.3% (not recorded in medical record and participants were unable to remember).

3.3. Impact of insomnia on daily life

Fifty-one percent of the participants reported that their sleep problems interfered with their daily life. Of these, 38% said it affected mood and attention, in 22% it caused worsening of their underlying diseases and 17% reported an impact on daily activities.

The risk factors associated with poorly perceived impacts on daily life using univariate analysis models adjusted for sociodemographic, underlying diseases, and sleep variables described in the methodology part including type of insomnia symptoms, perceived to be not fresh in the morning, drugs used were evaluated. Seven factors were found to be statistically significant ($P < 0.2$): male sex, presence of diabetes, types of insomnia, interfering factors: abdominal bloating or indigestion, nightmares and coughing, and how insomnia was managed. With stepwise forward multiple logistic regression, only 3 of these factors were found to be independently related to a poorly perceived impact on daily life: the presence of diabetes and being male were risk factors whereas self management of insomnia with non-pharmacological use was a protective factor (Table 2).