Original Article

Gender-specific Correlations of Insomnia and Attitudes toward Treatment among Community-dwelling Elderly in Northern Taiwan

Meng-Ting Tsou*

Family Medicine, Mackay Memorial Hospital, Taipei, Taiwan, ROC

A R T I C L E   I N F O

S U M M A R Y

Background: This is the first study to examine gender-specific correlations and attitudes toward treatment among community-dwelling elderly individuals with insomnia in northern Taiwan.
Methods: A cross-sectional survey was conducted among 1358 adults aged ≥65 years who underwent a senior citizen health examination between March and November 2009 at a medical center.
Results: The overall prevalence of insomnia was 41.4%, with a higher rate in women (63.3%) than in men (36.7%). Difficulty falling asleep was the most commonly reported symptom (61.7%). About 60% of the elderly individuals had insomnia for longer than 1 year. In women, gender was an independent correlation. Higher scores on the 5-item Brief Symptom Rating Scale were associated with insomnia in both genders (odds ratio [OR] = 1.41−1.44, 95% confidence interval [CI]: 1.31−1.57). The use of medication for a chronic illness increased the correlation of insomnia in women (OR = 1.9, 95% CI: 1.39−2.59), and living with family decreased the correlation of insomnia in men (OR = 0.42, 95% CI: 0.21−0.82). Further, 47.9% of individuals reported using insomnia medication. Of those, 49.3% and 82.3% with untreated insomnia desired complementary/alternative medicine and sleep hygiene as treatments, respectively.
Conclusion: Early intervention to halt the progress of sleep disturbance and avoid unnecessary medication use are important. We identified a need for improved attitudes toward sleep hygiene and treatment among elderly Taiwanese individuals.

1. Introduction

Insomnia prevalence rates as high as 50−70% have been reported among individuals aged ≥65 years.[1] National Institute on Aging (NIA) survey in the US found that 42% of elderly patients reported difficulties with both sleep initiation and maintenance.[2] Several psychiatric diseases (anxiety or depression) have altered the pattern of sleep.[3] Elderly individuals with insomnia frequently complain of fatigue, mood changes, difficulty in concentrating, and impaired daytime functioning.[4] The early detection and treatment of insomnia in elderly individuals is therefore very important.

The previous finding that most insomnia individuals did not seek medical treatment despite the awareness that insomnia can lead to further health problems.[5] Over-the-counter therapies are popular among the elderly, who frequently choose to self-medicate with drugs or other substances that they believe can alleviate their insomnia.[6] Early intervention may halt their progress of sleep disturbance and avoid unnecessary medication use.[6]

Nowadays, non-pharmaceutical strategies such as sleep hygiene education, cognitive therapy, multicomponent therapy, and herbal treatment with complementary/alternative medicine (CAM) (such as melatonin, valerian) have proven to be successful in the treatment of sleep disturbance in elderly populations.[7,8] Additionally, several other modalities such as Tai Chi, acupuncture, acupressure, yoga, and meditation have improved sleep parameters in a limited number of early trials.[8]

Insomnia in the elderly has been extensively studied in Western nations.[9] One study similar to ours was previously conducted in Taiwan, and focused on 1-month insomnia among the urban elderly.[10] The present study aimed to determine the prevalence of chronic insomnia and identify the correlations for each gender group. Another point of focus was the views and attitudes of these elderly individuals toward insomnia and the treatment methods they chose to adopt. We believe the results of this study should be

* Corresponding author. Family Medicine, Mackay Memorial Hospital, No. 92, Sec. 2, Zhong-shan N. Rd., Taipei, Taiwan, ROC.
E-mail address: mttsou@gmail.com.

taken seriously by healthcare professionals, and that common sleep complaints and sleep habits should be investigated when assessing elderly patients. Effective detection and treatment of insomnia may improve the quality of life of elderly population.

2. Methods

2.1. Study population

Data were collected using structured, face-to-face interviews in an effort to avoid errors common to self-report questionnaires. After excluding 41 individuals whose interview questionnaires were incomplete, data from 1358 individuals were included in our data analysis (recovery rate: 97.1%). All participants provided written informed consent. Our study was approved by the Institutional Review Board of our hospital and was issued a research project number (09MMHISO11).

2.2. Questionnaire

2.2.1. Insomnia syndrome

The Chinese version of the Athens Insomnia Scale (CAIS) is a self-report instrument designed to screen for insomnia symptoms. One of the specified diagnostic criterions for primary insomnia is that symptoms of insomnia occur at a frequency of ≥3 times per week in the past month. The CAIS-5 uses items 1−5 of the AIS (nighttime symptoms) to screen for and diagnose insomnia in clinical practice, and it has satisfactory reliability and validity.[11]

2.2.2. Insomnia symptoms and duration

The relevant insomnia symptoms occurring ≥3 times per week included difficulty falling asleep, difficulty maintaining sleep, non-refreshing sleep, and early morning awakenings. Insomnia duration was divided into 5 categories: 1 month, more than 1 month to 1/2 year, more than 1/2 year to 1 year, more than 1 year to 3 years, and more than 3 years.[11]

2.2.3. Brief Symptom Rating Scale

Mental health was screened using the Brief Symptom Rating Scale (BSRS-5). This self-report questionnaire asks respondents to report whether they have felt tense, blue, irritated, inferior, or had trouble falling asleep in the past week. Responses are rated on a 5-point scale from 0 ("not at all") to 4 ("extremely").[12] The BSRS-5 has a 76.3% rate of accurate classification when a score of ≥6 is used as the cut-off for psychiatric cases.[12] The BSRS-4 was used in this study, as the confounding factor "trouble falling asleep" was deleted from the questionnaire.

2.2.4. Definition of taking medication for insomnia

Participants who had ever used oral medications for insomnia, including hypnotics, melatonin, anti-depressants, anti-anxiety medications, antihistamines, relaxants, herbs, health supplements, and other kinds of substances meant to aid sleep onset during periods of insomnia were categorized as having taken medications for insomnia.

2.2.5. Complementary/alternative medicine (CAM)

Based on the definition of CAM provided by the National Center for Complementary and Alternative Medicine (NCCAM),[13] our questionnaire focused on mind−body intervention therapies such as relaxation therapy, meditation, biofeedback, hypnosis, manipulation, massage, Tai Chi, acupuncture, acupressure, yoga, and chiropractic therapy.

2.2.6. Sleep hygiene

Behavioral therapy has been commonly used for insomnia in previous studies[14] (Table 1).

2.2.7. Covariates

Detailed demographic information, including gender, education level, type of household, and detailed histories of medication use for chronic illnesses were collected during the interviews. Education levels were classified into the following 5 categories: illiterate, elementary school, junior high school, senior high school, and college or higher. Types of household were categorized as either "living alone" or "living with family."

In addition, physical activity was assessed by the Lipids Research Clinics Questionnaire and lifestyles were categorized as sedentary or non-sedentary.[15] Lifestyle characteristics, including smoking history and alcohol consumption, were measured using study-specific questionnaires.

3. Results

3.1. Demographic data

As can be seen from the characteristics of the participants shown in Table 2, women outnumbered men in this study (55.7% vs. 44.3%). Additionally, the average age of the male respondents was higher than that of the female respondents (74.69 years vs. 73.29 years, $p < 0.01$). There was no difference in BMI between the two groups. With regard to type of household, women were more likely than men to be living alone (10.7% vs. 6.3%, $p = 0.01$). Men were more likely to be undergoing medical treatment for a chronic condition and also tended to have higher education levels than women. Women scored higher on the BSRS-5 than did men (2.5 vs. 1.83, $p < 0.001$) and the percentage of BSRS-5 scores ≥6 was higher for women than men (13.1% vs. 8.7%). The average score on the BSRS-4 was also higher in women (2.12 ± 0.12) than in men (1.45 ± 0.33) ($p < 0.01$).

3.2. Prevalence of insomnia by gender

As shown in Table 3, 41.4% ($n = 562$) of the 1358 participants met the criteria for insomnia, including 206 men (36.7%) and 356 women (63.3%). The results indicate that the majority of the

Table 1
Sleep-hygiene measures.[14]

- Avoid and minimize use of caffeine, cigarettes, stimulants, alcohol, and other medications
- If medically able, increase activity level in the afternoon or early evening (not close to bedtime) by walking or exercising outdoors
- Increase exposure to natural light and bright light during day and early evening
- Avoid napping, particularly after 2:00 PM; limit naps to 1 nap of less than 30 min
- Check the effect of medications on sleep
- Go to bed only when sleepy
- Maintain comfortable temperature in bedroom
- Minimize light and noise exposure as much as possible
- Eat a light snack if hungry
- Avoid heavy meals at bedtime
- Limit liquids in the evening
- Keep a regular schedule
- Rest and retire at the same time each day
- Eat and exercise on a regular schedule
- Stress-management measures:
  Tolerance of occasional sleeplessness
  Discuss worries and stressful events enough time before bedtime
  Use relaxation techniques