

ORIGINAL ARTICLE

**CORRELATES BETWEEN INSOMNIA, PSYCHOLOGICAL  
DISTRESS AND DAYTIME SLEEPINESS OF MALAYSIAN  
ADULTS WITH SYMPTOMS OF INSOMNIA**

*Yasmin Othman Mydin\**, *Norzarina Mohd Zaharim\*\**,  
*Syed Hassan Ahmad Almashor\*\*\**

*\*Lecturer at Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS), Lot 77, Seksyen 22, Jalan Tun Ahmad Zaidi Adruce, 93150, Kuching, Sarawak Malaysia; \*\*Senior Lecturer, at School of Social Sciences, School of Social Sciences, Universiti Sains Malaysia, 11800, Penang; \*\*\*Professor of Psychiatry, Coordinator Psychological and Behavioural Medicine Discipline, Universiti Teknologi MARA, Hospital Selayang, Lebuhraya Selayang-Kepong, Batu Caves, Selangor.*

**Abstract**

**Objective:** The objective of this study is to identify the correlation between psychological factors and insomnia and the impact of insomnia on daytime sleepiness. **Methods and Results:** The participants were recruited through convenient sampling and consist of 173 working adults in Georgetown, Penang, aged 20 to 60 years. Participants completed the General Health Questionnaire (GHQ), Athens Insomnia Scale (AIS) and Epworth Sleepiness Scale (ESS). The results revealed that the prevalent of insomnia was 34.7%. There was a positive correlation between psychological distress and insomnia  $r = .481, p < .001$  and also a positive correlation between insomnia and daytime sleepiness  $r = .334, p < .001$ . **Conclusion:** It is concluded that psychological distress typically causes sleep difficulties, and sleep deprivation leads to daytime sleepiness. *ASEAN Journal of Psychiatry, Vol. 13 (2): July – December 2012: XX XX.*

**Keywords:** Insomnia, Psychological Distress, Daytime Sleepiness

**Introduction**

Insomnia is one of the most common sleep problems. According to the fourth edition of the Diagnostic Statistical Manual of Mental Disorders [1], symptoms of insomnia include difficulty initiating sleep and maintaining sleep, non-restorative sleep and impairment of the daytime functioning. According to World Health Organization [21] sleep problem is one of the most common complaints in general and mental health settings. It was estimated that over 20% of adults in the general population

experience insomnia, and more women experience insomnia than men [1].

Evidence has accumulated on measuring the high prevalence of insomnia among adults in the general population. According to Ohayon [13], the range of insomnia reported in the general population was between 10 to 40%. Studies in Malaysia [6,22] on sleep disorders suggested that the prevalence of insomnia was more than 20%, which is within the reported range of 10 to 40%. Psychological problems contribute to insomnia [21]. The findings of previous studies on insomnia from various countries revealed that

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psychological factors are believed to influence insomnia [8,9,10,19]. In the present study, psychological dimensions measured are depression, anxiety and somatic symptoms. WHO [21] reported that various mental disorders such as major depression and nocturnal panic attacks may lead to insomnia. General anxiety causes increased autonomic arousal and worry, and this is followed by sleep problems [1]. DSM-IV-TR [1] has also alerted clinicians that somatic symptoms may be related to sleep complaints. Lack of sleep or any difficulty in sleep at night increases the chance of sleepiness in the daytime. A major consequence to poor quality of sleep is daytime sleepiness [21]. The risk factors of being deprived of sleep are increased sleepiness in the daytime, feeling unrefreshed, tired and fatigued, irritable, less motivated, high absenteeism at work, impaired mood and difficulty in concentrating in daily tasks [21].

The objectives of this current study were to identify the association between insomnia, psychological distress and daytime sleepiness of Malaysian adults with symptoms of insomnia.

## **Methods**

The participants were 173 working adults aged 20-60 from Georgetown, Penang. They were recruited with the use of convenient sampling method and recruited from various government and private organizations and NGO offices. The management of the work places and the participants were explained about the objectives of this study. With the approval from the management staff, informed consent was obtained from the employees who were interested and able to complete the self-report instruments. Out of the 173 participants who took part, 56 were Malay, 72 were Chinese, 36 were Indian and 9 participants were of other races. There were 70 male participants and 103 female participants. Exclusion criteria include individuals who experience chronic illnesses, inability to give informed consent and inability to complete self-report instruments.

All the self-report questionnaires were bilingual (Malay and English). The translation of all the scales to Malay language was done by the researcher and checked and approved by the main supervisor. The first part of the questionnaire was on demographic background such as age, gender, race, marital status, and occupation. Psychological distress was measured with the use of General Health Questionnaire (GHQ28), which consists of 28 items. GHQ was developed by Goldberg in 1972. There are 4 sub-scales: severe depression, anxiety, somatic symptoms and social dysfunction. In the present study, only 3 of these subscales were used (severe depression, anxiety and somatic symptoms) and the total number of items were 21. These sub-scales were used because these psychological factors are more relevant to insomnia [1,5,7,9,10,14,19]. The scoring was based on the multiple response scale ranging from 'less than usual' to 'much more than usual'. The score given was 0,0,1,1. This method of scoring is called 'GHQ' score after the name of the questionnaire. The reliability of GHQ (28) by Cronbach's alpha for this present study was 0.899.

Daytime sleepiness was measured by the Epworth Sleepiness Scale (ESS). The ESS consists of 8 items, with a 4-point scale (0-3). A total score of 10 or higher suggests excessive daytime sleepiness and indicates a sleep disorder. The reliability of this scale by Cronbach's alpha was 0.737.

Insomnia was measured by the use of Athens Insomnia Scale (AIS) by Soldatos in the year 1995. AIS consists of 8 items measuring insomnia symptoms as suggested by the International Classification of Diseases (ICD-10). The reliability of this scale reported by Soldatos, Dikeos and Paparrigopoulos [16] was  $\alpha$  0.89. The reliability of this scale for present study was  $\alpha$  .823. The score of the AIS was rated on a 0-3 scale (0 corresponding to "no problem at all" to 3 "very serious problem"). The total score ranges from 0 to 24. A total score of 6 or higher indicates insomnia symptoms.

## Results

**Table 1. Demographic Characteristics of the Respondents**

Demographic information	Number of respondents	Those with insomnia symptoms (%)
Age group		
20-29	54	26 (48.1)
30-39	51	14 (27.5)
40-49	39	18 (46.1)
50-60	29	2 (6.9)
Gender		
Male	70	20 (28.6)
Female	103	40 (38.8)
Marital Status		
Single	72	25 (34.7)
Married	95	32 (33.7)
Divorce	5	3 (60)
Widow	1	0
Race		
Malay	56	20 (35.7)
Chinese	72	22 (30.5)
Indian	36	15 (41.7)
Others	9	3 (33.3)

### Prevalence

Out of 103 participants, 60, (34.4%) had insomnia symptoms. A higher percentage of females experienced insomnia symptoms compared to males. Forty females (38.8%) complained of insomnia whereas 20 males (28.6%) had such complaints. Thirty-nine respondents (46.1%) respondents of the 40-49 age group reported experiencing insomnia symptoms, and 26 (48.1%) of the 20-29 age

group reported insomnia symptoms. These two groups showed higher percentages of insomnia symptoms compared to the 30-39 and 50-60 age groups. Between married and single respondents, there was no big difference in the percentage of individuals who experienced insomnia (34.7% of singles and 33.7% of married). T-test results did not show any significant mean differences in insomnia symptoms for demographic backgrounds such as gender, marital status, age groups and races.

**Table 2. Means, Correlations and Significance Values of Psychological Distress, Daytime Sleepiness and Insomnia Symptoms**

	<i>M (SD)</i>	<i>r</i>	<i>p</i> value
Insomnia symptoms	4.39 (3.62)		
Psychological distress	1.89 (2.92)	.481**	.001
Depression	.34 (1.09)	.356**	.001
Anxiety	.91 (1.60)	.438**	.001
Somatic	.93 (1.59)	.419**	.001
Daytime sleepiness	6.91 (3.62)	.334**	.001

\*\*  $p < .001$  (two-tailed)

### **Psychological distress and daytime sleepiness**

Results in Table 2 shows that there was a positive correlation between psychological distress and insomnia symptoms,  $r = .481, p < .001$ . All three domains (depression, anxiety and somatic symptoms) were positively correlated with insomnia symptoms. There was a positive correlation between insomnia and daytime sleepiness,  $r = .334, p < .001$ . Sleepiness was reported by 18.3% of the individuals who experienced insomnia.

### **Discussion**

The results of this study found that the prevalence of insomnia was 34.7%. More females experienced insomnia symptoms compared to males (38.8% vs. 28.6%). Typically insomnia symptoms increase with age. Forty-six percent of middle-aged adults (40-49 years old) had insomnia symptoms. Surprisingly a high percentage (48%) of young adults (the age group of 20-29) experienced insomnia symptoms. It was likely that they were experiencing multiple stressful life events which affected their sleep pattern. Larger studies on general populations reported prevalence of insomnia from 10% - 40% [13]. According to Hussain, as cited in Tee [18], 10 to 35% of the world populations including Malaysia experience a few types of sleep disorders.

The most important finding was that psychological distress was the key determinant of insomnia as it was positively related with insomnia and this is consistent with the findings of previous studies [8,10,11,12,14,15]. A logical explanation to this might be stressors in life which affect psychological health. However, the stressors were not identified nor measured in this study. Theories developed on insomnia suggested that psychological stress is a major predisposing or precipitating factor for sleep disorder [5,13]. Models of stress and coping skills have suggested that daily hassles, environmental stressors and role strains, while in the absence of coping strategies, may affect psychological equilibrium.

Even though empirical studies found a consistent association between life stress and distress (e.g., depressive symptoms), the function of psychosocial resources as intervening factors to stressor-distress paradigm still remains an open question [20]. Individuals who experience insomnia reported higher numbers of stressful life events prior to the onset of their sleep problem compared to individuals who do not complain of insomnia [3]. This implies that reducing psychological distress and developing coping mechanisms in managing life may help to improve insomnia.

The present study also found that insomnia was positively correlated with daytime sleepiness. Experiencing sleep deprivation either totally or partially results in daytime sleepiness. Sleep deficiency has a negative impact on physical and cognitive performance. American Sleep Association [2] demonstrated that too little sleep causes drowsiness and difficulty to concentrate on activities the next day. Daytime sleepiness diminishes daytime functioning, it is also a risk factor for accidents on the road and at the work place. As daytime functioning diminishes, this may cause great difficulties in social life, as it may affect the enjoyment with family members, performance at the work place and also social interaction with friends.

Seeking professional help from physicians, counselors and other healthcare professionals will help the individuals recognize possible factors associated with insomnia. When they do not consider it as a health problem, very few people seek treatment from healthcare professionals. Since sleep problems are underreported and underdiagnosed, healthcare professionals should be proactive in probing about insomnia experienced by their patients.

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**Corresponding author: Yasmin Othman Mydin, Lecturer at Faculty of Medicine and Health Sciences, UNIMAS, Lot 77, Seksyen 22, Jalan Tun Ahmad Zaidi Adruce, 93150, Kuching, Sarawak.**

**Email:** yasmin\_othman@yahoo.com

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