

อาการแสดงของความเครียดและอารมณ์ซึมเศร้าที่สัมพันธ์ กับความง่วงมากกว่าปกติในนิสิตคณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

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**ภาควิชาโสต ศอ นาสิก และลาวิงชีวิตภา คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

บทคัดย่อ

ความง่วงในตอนกลางวันที่มากกว่าปกติพบได้บ่อยในผู้ที่มีปัญหาในการนอนหลับ ซึ่งอาจทำให้เกิดอุบัติเหตุการจราจร อุบัติเหตุในโรงงานอุตสาหกรรม ประสิทธิภาพการทำงานลดลง และปัญหาในการมีปฏิสัมพันธ์กับผู้อื่น ความง่วงที่มากกว่าปกตินี้ยังมีความสัมพันธ์กับอาการแสดงของอารมณ์ซึมเศร้าและความเครียด การศึกษานี้มีจุดมุ่งหมายเพื่อหาอาการแสดงของความเครียดและอารมณ์ซึมเศร้าในนิสิตแพทย์ที่สัมพันธ์กับความง่วงในตอนกลางวันที่มากกว่าปกติ วิธีการศึกษาใช้แบบสอบถามนิสิตคณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒทั้ง 6 ชั้นปีจำนวนทั้งสิ้น 646 คน เป็นการศึกษาเชิงวิเคราะห์แบบภาคตัดขวาง เก็บข้อมูลปลายภาคการศึกษาที่ 2 ระหว่างวันที่ 11 กุมภาพันธ์ ถึงวันที่ 4 มีนาคม 2551 โดยใช้แบบคัดกรองภาวะซึมเศร้าของกรมสุขภาพจิต (Health-Related Self-Reported Scale) แบบวัดความเครียดของโรงพยาบาลสวนปรุง และแบบวัดความง่วง (Epworth sleepiness scale) นำข้อมูลมาหาความสัมพันธ์ระหว่างข้อมูลเชิงคุณภาพด้วย Chi-square test หรือ Fisher exact test และวิเคราะห์สหสัมพันธ์ด้วย Logistic regression ทดสอบสมมติฐานแบบสองทางด้วยค่า $(p < 0.05)$ ผลการศึกษาพบว่า นิสิตตอบแบบสอบถามร้อยละ 95 ความง่วงในตอนกลางวันที่มากกว่าปกติไม่สัมพันธ์กับเพศ ชั้นปีที่เรียน และดัชนีมวลกาย แต่สัมพันธ์กับอารมณ์ซึมเศร้าและความเครียดซึ่งมีค่า Odds ratio เท่ากับ 3.3 และ 2.8 ตามลำดับ $(p < 0.05)$ อาการแสดงจากแบบคัดกรองภาวะซึมเศร้า ได้แก่ รู้สึกอ่อนเพลีย ไม่มีความสุข และรู้สึกเศร้าในตอนเช้า มีค่า Odds ratio เท่ากับ 1.74, 2.05 และ 1.5 ตามลำดับ $(p < 0.05)$ อาการแสดงจากแบบวัดความเครียดของโรงพยาบาลสวนปรุง ได้แก่ การมีอารมณ์หงุดหงิด อารมณ์ซึมเศร้า และหลงลืมง่าย ซึ่งมีค่า Odds ratio เท่ากับ 1.36, 1.4 และ 1.32 ตามลำดับ $(p < 0.05)$ สรุปผลพบว่าอาการแสดงของอารมณ์ซึมเศร้าและความเครียดที่สัมพันธ์กับความง่วงในตอนกลางวันที่มากกว่าปกติ ได้แก่ รู้สึกอ่อนเพลีย ไม่มีความสุข ซึมเศร้า หงุดหงิด และหลงลืมง่าย แต่ไม่มีความสัมพันธ์กับเพศ ชั้นปีที่เรียน และดัชนีมวลกาย

คำสำคัญ: ความง่วงที่มากกว่าปกติ, ความเครียด, อารมณ์ซึมเศร้า, นิสิตแพทย์

Stress and depressive symptoms related excessive daytime sleepiness in Thai medical students, Srinakharinwirot University

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Abstract

Excessive daytime sleepiness (EDS) is a common sleep disorder in general population which can lead to serious consequences including traffic and industrial accidents, decreased productivity, and interpersonal problems. Besides sleepiness, EDS is also related to depression and stress. The objective of this study was to determine the symptoms of stress and depression in medical students that associated to excessive daytime sleepiness. Cross-sectional study was performed. The questionnaires which composed of the diagnostic screening test for depression in Thai population: Health-Related Self-Reported (HRSR) Scale, Suanprung stress test and Epworth sleepiness scale were sent to 646 medical students of all classes at Srinakharinwirot University during February, 11th 2008 to March, 4th 2008. Categorical variables were analyzed using the Chi-square test or Fisher exact test. For binary response variables, odds ratio and significant explanatory variables were identified through logistic regressions. A two-tailed p-value of less than 0.05 was considered significant. EDS was not associated to class, gender and body mass index, but it was associated to depression and stress with odds ratios of 3.3 and 2.8, respectively ($P < 0.05$). Only three symptoms of HRSR including tired, unhappy and sad in the morning were associated to EDS with odds ratios of 1.74, 2.05 and 1.5, respectively ($P < 0.05$). From Suanprung stress test, only three symptoms, were including moody, sad and forgetful were associated to EDS with odds ratios of 1.36, 1.4 and 1.32, respectively ($P < 0.05$). In conclusion, the symptoms of depression and stress that associated to EDS were tired, unhappy, sad, moody and forgetful. The EDS was not correlated to gender, class and BMI.

Key words: excessive daytime sleepiness, stress, depression, medical students

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Sleep is an essential restorative physiologic phenomenon. Impaired sleep can have significant negative impact on health. Excessive daytime sleepiness (EDS) is a common sleep problem in general population, leading to serious consequences including traffic and industrial accidents, decreased productivity, and interpersonal problems. The prevalence of EDS among Japanese adolescents was estimated between 33% in male and 39% in female¹. And in Brazil, the prevalence of EDS was 57%².

The EDS is characterized by persistent sleepiness, and often a general lack of energy, even after adequate night time sleep. Sudden involuntary sleep onset and microsleeps are common complications. Persons with EDS are compelled to nap repeatedly during the day; fighting off increasingly strong urges to sleep during inappropriate times such as while driving, while at work, during a meal, or in conversations. Some persons lose the ability to adequately function in family, social, occupational, or other settings. EDS is the manifestation of a disorder, and not signs of a willful lack of effort³. EDS was one of symptoms that recognized as narcolepsy, which commonly manifested between the ages of 10 and 25 years⁴. They are probable associated with gender, young age, body mass index (BMI), depression and

psychological stress^{2,5,6}. Some patients with EDS had an episodic migraine and anxiety⁷.

The symptom of EDS was not only sleepiness, but it also related to depression and stress. A person with EDS may present with the symptoms similar to those with psychological problems. The objective of this study was to determine the symptoms of stress and depression in medical students that associated to EDS. If the medical students present with these symptoms, we should aware of EDS and plan the treatment program.

Materials and Methods

Study population

The cross-sectional study was performed. Six hundred and forty six medical students of Srinakharinwirot University were selected for evaluation in the study at the end of the second semester of year 2008. However, only 616 students (95%) returned the questionnaires. This project was allowed by Ethical committee of Faculty of Medicine, Srinakharinwirot University.

Operative definition

The diagnostic screening test for depression in Thai population: Health-Related Self-Reported (HRSR) Scale from Department of Mental Health, Ministry of Public Health, Thailand has 20 questions in one test. The interpretation of depressive scores was following:

1) Depressive score of 25 or more but less than 30 was defined as stress situation, depressive mood, or other psychological problems which should get early treatment.

2) Depressive score of 30 or more was defined as major depression.

Suanprung stress test from Suanprung Hospital, Thailand has 20 questions in one test. The interpretation of stress scores was following:

1) Stress score of 0 to 23 was defined as mild stress.

2) Stress score of 24 to 41 was defined as moderate stress.

3) Stress score of 42 to 61 was defined as high stress.

4) Stress score of 62 or more was defined as severe stress.

The body mass index (BMI)

$$= \frac{\text{Body weight in kilograms}}{(\text{Height in meters})^2}$$

It classified by Ministry of Public Health, Thailand as:

1) BMI of less than 18.5 was defined as underweight

2) BMI of 18.5 to 22.9 was defined as normal

3) BMI of 23 to 24.9 was defined as risk to overweight

4) BMI of 25 to 29.9 was defined as

obesity type 1

5) BMI of 30 and more was defined as obesity type 2

The Epworth sleepiness scale (ESS) is a questionnaire intended to measure excessive daytime sleepiness. A person who has the ESS of 10 or more is defined as having excessive daytime sleepiness. ESS was introduced for diagnosis of sleep disorder in Epworth Hospital in Melbourne, Australia by Dr Murray Johns in 1991^{2,8}.

Data collection

The questionnaires were composed of four parts. The first part inquired age, gender, class, weight, and height. The second part composed of the diagnostic screening test for depression in Thai population: Health-Related Self-Reported (HRSR) Scale from Psychological Department, Ministry of Public Health, Thailand. The third part composed of Suanprung stress test from Suanprung Hospital, Thailand. The fourth part composed of Epworth sleepiness scale. The questionnaires were sent to the medical students of all classes during February, 11th 2008 to March, 4th 2008. The questionnaires included identification number of each student for further follow-up.

Statistical analysis

Categorical variables were analyzed using the Chi-square test or Fisher exact test.

For binary response variables, odds ratio and significant explanatory variables were identified through logistic regressions. A two-tailed p-value of less than 0.05 was considered significant.

Results

The results of this study as follow: In 2008, 10% of the medical students of Srinakharinwirot University had obesity type1 and 2. In addition, 8%, 3.4%, and 48.9% of them had severe stress, major depression, and excessive daytime sleepiness, respectively as shown in table 1.

Table 1 The characteristics of the medical students, Srinakharinwirot University

Class	Number of students(%)	BMI	Number of students(%)	Stress	Number of students(%)
1	119(19.3)	Underweight	91(18.3)	Mild	20(3.9)
2	116(18.8)	Normal	314(62.9)	Moderate	251(48.4)
3	97(15.8)	Risk to overweight	44(8.8)	High	206(39.7)
4	127(20.6)	Obesity type1	37(7.4)	Severe	42(8)
5	86(14)	Obesity type2	13(2.6)		
6	71(11.5)				
Depression	Number of students(%)	Gender	Number of students(%)	EDS	Number of students(%)
No	481(92)	Male	243(41)	No	246(51.1)
Depressive mood	24(4.6)	Female	350(59)	Yes	235(48.9)
Major depression	18(3.4)				

EDS = Excessive Daytime Sleepiness

There was no significant difference in excessive daytime sleepiness between male (45.9%) and female (51.4%) ($p = 0.243$) as shown in figure 1.

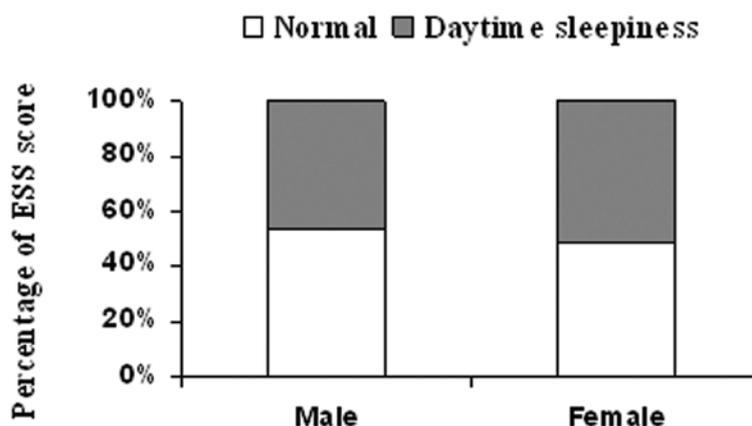


Figure 1 Percentage of Epworth sleepiness scale (ESS) score in each gender

The percentage of excessive daytime sleepiness in class 1, 2, 3, 4, 5 and 6 were 44.4%, 46.8%, 54.2%, 43.6%, 57.4% and 60.7%, respectively. There was no significantly difference between classes ($p = 0.279$) as shown in figure 2.

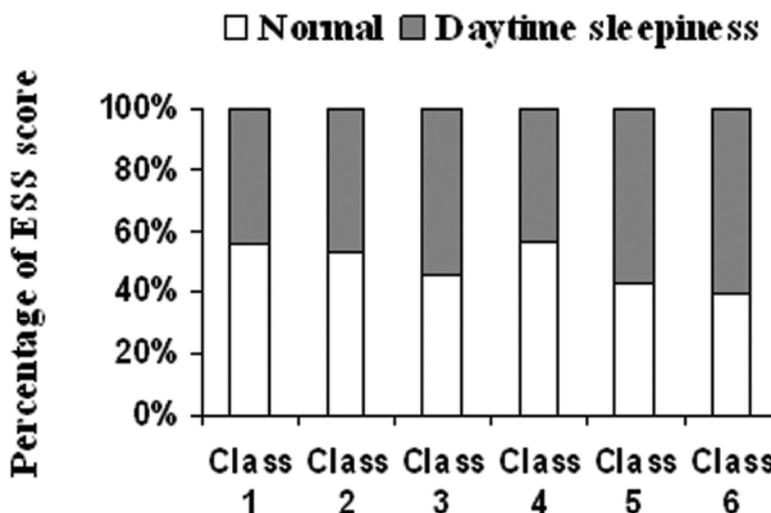


Figure 2 Percentage of Epworth sleepiness scale (ESS) score in each class

Percentage of excessive daytime sleepiness in underweight, normal weight, risk to overweight, obesity type1 and obesity type2 were 57.6%, 48.5%, 44.7%, 48.5% and 45.5%, respectively. The values were not significantly different ($p = 0.592$) as shown in figure 3.

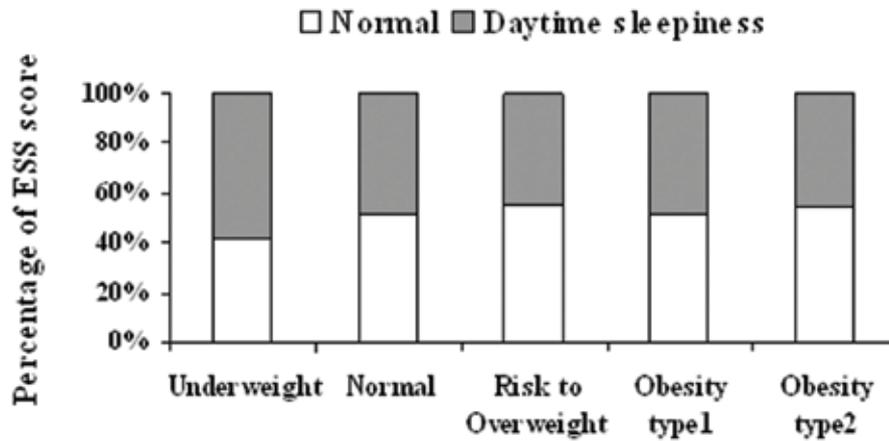


Figure 3 Percentage of Epworth sleepiness scale (ESS) score according to BMI

Logistic regression demonstrated that both depression and stress were correlated to excessive daytime sleepiness ($p < 0.05$) as shown in table 2.

Table 2 Logistic regression of depression and stress according to ESS

Variables	Odds ratio	p-value	95% Confidence interval
Depression	3.27	0.015	1.26 - 8.56
Stress	2.77	< 0.001	2.00 - 3.84

Depressive symptoms related to excessive daytime sleepiness were to be tired, to be unhappy and to be sad in the morning ($p < 0.05$) as shown in table 3.

Table 3 Logistic regression of depressive symptoms according to ESS

Variables	Odds ratio	p-value	95% Confidence interval
1 To be loss appetite	1.24	0.175	0.91 - 1.71
2 To be sleepless	0.75	0.129	0.52 - 1.09
3 To be tired	1.74	0.001	1.24 - 2.45
4 To be anxious	0.77	0.186	0.52 - 1.13
5 To be disturbed	1.05	0.764	0.77 - 1.43
6 To be bored	1.09	0.717	0.70 - 1.69
7 To be distracted	1.37	0.094	0.95 - 1.97

Variables	Odds ratio	p-value	95% Confidence interval
8 To be sluggish	1.09	0.580	0.81 - 1.46
9 To be sorrow	1.05	0.835	0.66 - 1.67
10 To despair	1.20	0.398	0.79 - 1.84
11 To weep	1.13	0.553	0.75 - 1.70
12 To be indecisive	1.27	0.188	0.89 - 1.81
13 To be unhappy	2.05	0.004	1.26 - 3.32
14 To be sad in the morning	1.50	0.029	1.04 - 2.16
15 To be low self-esteem	0.89	0.508	0.62 - 1.27
16 To be guilt	1.14	0.525	0.76 - 1.71
17 To be fed up with everything	1.09	0.706	0.71 - 1.67
18 To desire to die	0.57	0.180	0.25 - 1.29
19 Someone told you gloomy	0.84	0.369	0.57 - 1.23
20 Try to commit suicide	1.06	0.866	0.54 - 2.08

Depressive symptoms were classified by Health-Related Self-Reported (HRSR) Scale from Psychological Department, Ministry of Public Health, Thailand.

Stress symptoms related to excessive daytime sleepiness were to be moody, to be sad and to forget about something ($p < 0.05$) as shown in table 4.

Table 4 Logistic regression of stress symptoms according to ESS

Variables	Odds ratio	p-value	95% Confidence interval
1 Scare to mistake	1.24	0.093	0.96 - 1.59
2 Fail to get the mission	0.90	0.420	0.69 - 1.17
3 Conflict in the family	0.88	0.294	0.68 - 1.12
4 Nervous in pollution	1.03	0.801	0.80 - 1.34
5 Feel to contest with someone	0.96	0.755	0.77 - 1.21
6 To be in need of money	1.08	0.503	0.86 - 1.36
7 To have myalgia or spasm	1.08	0.575	0.83 - 1.40

Variables	Odds ratio	p-value	95% Confidence interval
8 To have tension headache	0.759	0.759	0.78 - 1.41
9 To have back pain	0.683	0.683	0.81 - 1.38
10 To be change of appetite	0.732	0.732	0.76 - 1.22
11 To have migraine headacth	0.711	0.711	0.71 - 1.26
12 To be anxious	0.161	0.161	0.56 - 1.10
13 To be distress by something	1.21	0.294	0.85 - 1.72
14 To be moody	1.36	0.039	1.02 - 1.83
15 To be sad	1.40	0.039	1.02 - 1.94
16 To be forgetful	1.32	0.031	1.03 - 1.70
17 To be confuse	0.91	0.570	0.67 - 1.25
18 To be wander	1.18	0.236	0.90 - 1.56
19 Easy to tried	1.17	0.274	0.88 - 1.57
20 Frequency to cold	1.11	0.332	0.90 - 1.38

Stress symptoms were classified by Suanprung stress test from Suanprung Hospital, Thailand.

Discussion

Excessive daytime sleepiness (EDS) was not associated to class, gender and body mass index (Figure 1, 2 and 3), but it was associated to depression and stress (Table 2). From the diagnostic screening test for depression in Thai population: Health-Related Self-Reported (HRSR) Scale, it was found that only three from 20 symptoms associated to EDS, including to be tired, to be unhappy and to be sad in the morning (Table 3). Similarly, Suanprung stress test, only three symptoms from 20 questions was related to EDS, including to be moody, to be sad and to be forgetful (Table 4).

Previous studies found the association of EDS with gender, young age and BMI^{2,5,6} The overall prevalence of EDS in this study was 48.9%. It was less than those of study in Brazil (57%)² but more than those of study in Japan (36%)¹. The difference of prevalence values might depend on ethnic and occupation. But depression and psychological stress were a direct effect of EDS on hypothalamic pituitary adrenocortical (HPA) axis that induced cortisol response⁹ or on obstructive sleep apnea which defined with high ESS¹⁰. Patient with depression and psychological stress may present with the symptoms of obstructive sleep apnea¹⁰. In this

study, the symptoms that were significantly associated with EDS were tired, unhappy, sad, moody and forgetful.

The results suggested that EDS may be a sign of psychological and behavioral problems¹¹. Therefore, when a medical student is found to have EDS, he/she is needed to be aware of stress and depression. It is important for early detection, intervention and ideally prevention of these problems. The medical students who presented with EDS are recommended to sleep adequately. Further investigation for the causes of EDS should be performed such as severity of respiratory disorder, nocturnal sleep duration, lack of regular exercise and personality characteristics^{6,12}.

In conclusion, the symptoms of depression and stress that were associated to EDS included tired, unhappy, sad, moody and forgetful. Moreover, no correlation was found between EDS and gender, EDS and class, or EDS and BMI.

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