

Perception and simplified question for assessing problems sleeping among university students at a primary care unit

Varisara Luvira¹, Nisachon Butsathon², Pat Nonjui¹, Phahurat Deenok²,
Wilawan Aunruean²

¹Department of Community Medicine, Faculty of Medicine, Khon Kaen University, Khon Kaen, ²123 Primary Care Unit, Family Practice Department, Division of Nursing, Srinagarind Hospital, Khon Kaen, Thailand

ABSTRACT

Introduction: Students entering university undergo various lifestyle changes, many of which may affect their sleeping habits. This study aimed to evaluate 1) individual perception of the problems sleeping, 2) “actual” problems sleeping as detected using a simplified questionnaire, 3) the relationship between individual perceptions and actual problems sleeping, and 4) the factors affecting the problems sleeping. **Methods and Material:** This was a descriptive study of 240 university students who attended the “123 Primary Care Unit” for no sleep-related problems between March and June 2019. The tool was a self-response questionnaire that assessed the respondent’s demographic data and sleep patterns over the past year. All parameters and problems sleeping were analyzed for their association. **Results:** Most of the students (51.3%) perceived themselves as having problems sleeping. Actual problems sleeping was found in 174 (72.5%) students. Individual perception was significantly related to the presence of all four of the problems sleeping assessed, which included difficulty in initiating sleep, waking up at night and being unable fall back to sleep, the need for daytime napping, and the feeling that one is sleep deprived ($P < 0.05$). **Conclusions:** This study provides a simplified method for assessing problems sleeping among university students at a primary care facility. Most of the students had problems sleeping and accurate perceptions of those problems sleeping, but the problems sleeping were often ignored. Further improvements to the system for screening and treating problems sleeping are required.

Keywords: College students, family medicine, primary care, problems sleeping, university students

Introduction

University students are at a stage in their life in which they are transitioning into adulthood, leading to a higher risk of developing emotional and social problems. Moreover, adaptation to the lifestyle changes that accompany university life, including engagement with a new peer group and in new study patterns, might result in various problems that affect sleep.^[1,2]

Address for correspondence: Dr. Varisara Luvira,
Department of Community Medicine, Faculty of Medicine, Khon
Kaen University, Khon Kaen, Thailand.
E-mail: varisara_111@yahoo.com

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Problems sleeping among university students are common. Becker *et al.* found that 61.9% of university students in their study had the problems sleeping, with 43% spending more than 30 minutes trying to fall asleep each night.^[3] Some students seek medical attention for problems sleeping, and many others seek treatment for other problems related to problems sleeping such as those involving fatigue and social adjustment.^[1] Adolescents often go to sleep and wake up later than individuals in other age groups, and the hormonal changes they experience often affect the sleep cycle. Other causes of insomnia among adolescences include insufficient sleep hygiene, changes in the sleep cycle, mental and social problems.^[1,2]

An individual’s perception of their own health affects their health-related behavior. The individual health perception, even

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in the same issue, might be different.^[4] As we are working at a primary care unit for university students, we decided to evaluate the relationship between students' perception of problems sleeping and the problems sleeping that are actually diagnosed. We also aimed to determine the relationship between problems sleeping and other factors using a simplified questionnaire that was practical, prompt, and suitable for the lifestyles of the students. This issue has never been evaluated at the level of the primary care facility before.

Subjects and Methods

This was a descriptive study of university students who attended the "123 Primary Care Unit" for non-sleep related problems between March and June 2019. The participants were university students aged 18 years or above who were able to read and reply to the questionnaire. Students with emergency conditions were excluded. A self-response questionnaire was used to gather demographic data and information regarding the respondent's sleep patterns over the past year. The study was exempted from the requirement for ethical approval by the Institutional Review Board, Office of Human Research Ethics, Khon Kaen University (HE621065).

The definition of "actual" problems sleeping in this research was adopted from previous studies^[5,6] and consists of four possible patterns including 1) difficulty in initiating sleep, 2) waking up at night and being unable to fall back to sleep, 3) the need for daytime napping, and 4) a feeling of sleep deprivation. Details regarding these problems sleeping are provided in Table 1. Students who had at least one of the above criteria would be classified into the problems sleeping group, while the others were classified into the non-problems sleeping group.

Description of the demographic data

Frequency counts and percentages were used to represent categorical variables, and mean and standard deviation were used for numerical variables. All analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) version 19. All statistics were two-sided, and a *P* value of 0.05 was considered statistically significant.

Results

Demographic data

The mean age of the 240 participants enrolled in this study was 20.75 years (± 1.36 standard deviation), most of whom (70.4%) were women. Almost all participants (82.9) were from northeast Thailand, and the majority were studying at a non-health science faculty.

Individual perception of the problems sleeping

This study categorized the participants into three groups according to their perceptions regarding their own problems sleeping. Sixty-seven (27.9%) participants thought that they

Table 1: Sleep questions and criterion responses

Problems sleeping	Criterion response
(1) How long does it usually take you to fall asleep? 1) 0-10 min 2) 11-20 min 3) 21-30 min 4) 31-59 min 5) 1-2 h 6) 2 h+	Over 30 min
(2) How often do you wake up at night and cannot get back to sleep ? 1) never 2) less than once a month 3) more than once a month 4) more than once a week 5) more than three times a week 6) every day	More than three times per week
(3) How often do you nap during the daytime? 1) never 2) less than once a month 3) more than once a month 4) more than once a week 5) more than three times a week 6) every day	More than three times per week
(4) How often do you feel of sleep deprived? 1) never 2) less than once a month 3) more than once a month 4) more than once a week 5) more than three times a week 6) every day	More than once per week

did not have any problems with regard to sleep, 123 (51.3%) participants reported having sleep-related problems, and the remaining 50 (20.8%) did not know whether or not they had any problems sleeping. Details are provided in Table 2.

Individual perception was significantly related to all four of the actual problems sleeping examined here (difficulty initiating sleep, waking up at night and being unable to fall back to sleep, the need for daytime napping, and the feeling sleep deprived; $P < 0.05$; Table 3).

An assessment of problems sleeping using the simplified questionnaire revealed that the majority of participants (56.72%), who perceived themselves as having no sleep-related problems were correct. The highest percentage of participants (39.02%) who perceived that they had problems sleeping had 2 of the 4 problems sleeping assessed [Table 4].

Problems sleeping

According to our definition, most of the participants (72.5%) had problems sleeping. Daily coffee intake was the only factor significantly related to problems sleeping [$P = 0.008$; Table 5].

Discussion

The essential role of primary health care is not only a first-level of personal health care services but also comprehensively promotes people's health and well-being. The problems sleeping lead to many individual physical, mental, and social problems. The opportunity for taking care of problems sleeping should be primarily conducted by primary care and family physician. The simplified tools are required to early detect the problems sleeping to improve the well-being of the people.

We found that most (72.5%) of the university students in our study had the problems sleeping and 51.3% were aware of them.

Table 2: Sleep patterns according to individual perception

Sleep patterns	Perception of sleep-related problems			Total (n=240) n (%)
	No (n=67) n (%)	Yes (n=123) n (%)	Not sure (n=50) n (%)	
Sleep time				
Before 8 pm	0 (0)	0 (0)	0 (0)	0 (0)
8 pm to 10 pm	2 (3)	0 (0)	1 (2)	3 (1.3)
10 pm to 12 am	18 (26.9)	11 (8.6)	5 (10)	34 (14.2)
12 am to 2 am	39 (59.2)	55 (44.7)	33 (66)	127 (52.9)
After 2 am	2 (3)	30 (24.4)	4 (8)	36 (15)
Various	6 (9)	27 (22)	7 (14)	40 (16.7)
Wake up time				
Before 4 am	0 (0)	0 (0)	0 (0)	0 (0)
4 am to 6 am	5 (7.5)	1 (0.8)	2 (4)	8 (3.3)
6 am to 8 am	35 (52.2)	45 (36.6)	21 (42)	101 (42.1)
8 am to 10 am	22 (32.8)	48 (39)	19 (38)	89 (37.1)
After 10 am	2 (3)	7 (5.7)	3 (6)	12 (5)
Various	3 (4.5)	22 (17.9)	5 (10)	30 (12.5)
Average hours of sleep per night				
<5 h.	7 (10.4)	35 (28.5)	3 (6)	45 (18.8)
5-6 h.	24 (35.8)	51 (41.5)	23 (46)	98 (40.8)
6-7 h.	29 (43.3)	32 (26)	18 (36)	79 (32.9)
> 7 h.	7 (10.4)	5 (4.1)	6 (12)	18 (7.5)

Table 3: The relationship between Perception of problems sleeping and actual problems sleeping

Problems sleeping	Perception of sleep problems sleeping			P
	No (n=67) n (%)	Yes (n=123) n (%)	Not sure (n=50) n (%)	
Sleep initiation problems				
No	63 (94)	68 (55.3)	37 (74)	0.000*
Yes	4 (6)	55 (44.7)	13 (36)	
Waking up at night and being unable to get back to sleep				
No	67 (100)	113 (91.9)	49 (98)	0.023*
Yes	0 (0)	10 (8.1)	1 (2)	
Daytime napping				
No	59 (88.1)	88 (71.5)	40 (80)	0.030*
Yes	8 (11.9)	35 (28.5)	10 (20)	
Feeling sleep-deprived				
No	42 (62.7)	26 (21.1)	20 (40)	0.000*
Yes	25 (37.3)	97 (78.9)	30 (60)	

* P<0.05 level of significance

Table 4: Number of issues and the perception of problems sleeping

Numbers of issues that match the patient perception	Perception of problems sleeping	
	No (n=67) n (%)	Yes (n=123) n (%)
0	(0)	13 (10.57)
1	0 (0)	44 (35.77)
2	8 (11.94)	48 (39.02)
3	21 (31.34)	15 (12.2)
4	38 (56.72)	3 (2.44)

This finding is consistent with previous reports which found that 60% of university students had problems sleeping.^[3,7,8] Patients' own perceptions regarding whether they suffer from problems sleeping could be used to screen for actual problems sleeping with the little underestimation, whereas our simplified question might over-discover the problems sleeping, but the difference between these two was minimal. Interestingly, more than half of the participants who attended our clinic for no sleep-related

issues turned out to have problems sleeping. Reasons for this may include i) hormonal changes affecting the sleep cycle, ii) changes in lifestyle, iii) being in an environmental and social context in which they have more freedom than that in the past, iv) the stress involved in studying at a university or due to other personal issues, and v) the inability to adapt to the transition to adulthood. This finding also suggests that many reflect the ignorance of the sleep issues among university students.^[9-13]

Most of the students in our study reported going to sleep between 12 and 2:00 am, and sleeping an average of only 5-6 hours. Previous studies conducted in countries other than Thailand have also found that the university students usually go to sleep after midnight but that, on average, they slept for more than 6.5 hours.^[3,14,15] Another study from a different university in Thailand also found that students there got fewer hours of sleep on average.^[16] This suggests that students of Thailand are sleeping for a significantly shorter time than the average of

Table 5: General characteristics and problems sleeping

General characteristics	Problems sleeping		P
	No (n=66) n (%)	Yes (n=174) n (%)	
Sex			
Male	22 (30.99)	49 (69.01)	0.433
Female	44 (26.04)	125 (73.06)	
Faculty			
Health Sciences	17 (26.15)	48 (73.85)	0.776
Other	49 (28)	126 (72)	
Domicile			
Khon Kaen	20 (35.09)	37 (64.91)	0.192
Other provinces in the northeast	33 (23.24)	109 (76.76)	
Other	13 (31.71)	28 (68.29)	
Frequency of drinking caffeinated beverages			
Less than once per month	24 (43.64)	31 (56.36)	0.008*
More than once per month but less than once per week	14 (22.58)	48 (77.42)	
More than once per week, but not every day	26 (25.74)	75 (74.26)	
Every day	2 (9.09)	20 (90.91)	

* $P < 0.05$ level of significance

7-9 hours recommended by the National Sleep Foundation for people aged 18-25 years.^[17] This difference between students in Thailand and those in some other countries may be due to differences in both academic and non-academic aspects of university life. We also found that most participants in our study felt sleep-deprived (especially those who reported having problems sleeping), which was significantly correlated with average hours spent sleeping per night ($P < 0.001$)

We found that the individual perception of the problems sleeping was significantly related to all four sleep-related issues examined in our study. This finding is consistent with a previous report, which found that fewer individuals may perceive themselves as having problems sleeping than actually they do.^[3] More than one-third of our participants who did not perceive themselves as having problems sleeping reported feeling that they were getting inadequate sleep more than one night a week. This reflects the ignorance of the problems sleeping. On the other hand, 10.57% of the participants who reported having problems sleeping had no actual sleeping problems. Although individual perception may not perfectly predict actual problems sleeping, and the benefit of sleep hygiene awareness is currently uncertain,^[8] but we still believe that administering this simplified questionnaire as part of screening may help better identify patients with these issues, leading to better care and more appropriate counseling, which are the missions of the primary care.

Waking up at night and being unable to fall back to sleep was the least common problem in this study, and was not found at all participants who perceived themselves as having no sleep-related issues. This finding contradicts those of a study by Forquer *et al.*, which found that this problem was more frequent than that of difficulty in initiating sleep.^[18] There are various possible reasons for this difference. One is that there may have been differences in the questions used for evaluating this item. Another is possible differences in the study population. Although disturbance of sleep continuity is more commonly found in depressive

individuals,^[19] our study recruited only students who were not diagnosed with psychiatric problems. Difficulty in initiating sleep was the most common problem found in our study, especially in the participants who reported having problems sleeping. Anxiety, stress, and changes in the sleep cycle may account for this problem.^[9,20-22] Moreover, we found a significant correlation between problems sleeping and daily coffee intake. This finding has been confirmed by various studies, which have found that caffeine reduces the quality of sleep.^[20,23]

Family physicians are the front-line health care provider for the people, who remain in close contact with the patients. Especially, in the context of our primary care unit (the 123 Primary Care Unit), where providing healthcare services for the university students, those mostly departed from their parents for education. Therefore, it is the responsibility of the family physician to identify and treat the problems sleeping and, also, its causes such as mental stress, family problems, adaptation problem etc., The participants in this study were undergraduate students who presented at our primary care unit with mild illness who were willing to fill out this questionnaire while waiting to see a doctor, making them a good representation of this population. The assessment of the problems sleeping based on the individual perceptions and the simplified questionnaire was useful, easy to implement, and suitable for primary care. This assessment method must, however, be interpreted carefully. The definition of and criteria for problems sleeping in this study were adapted to the context of primary care in university in Thailand and might differ from those in other studies. Further studies should be conducted to verify this assessment method and further simplify the questionnaire.

Conclusion

This study provides a simplified method for the assessment of the problems sleeping among university students at a primary care facility. Most of the participants in this study had problems

sleeping and accurate perceptions of those problems sleeping. The majority of the participants went to sleep between 12 and 2:00 am and slept an average of 5-6 hours. Participants' individual perceptions of their problems sleeping were significantly related to the presence of actual problems sleeping.

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Conflicts of interest

There are no conflicts of interest.

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