การศึกษาภาคตัดขวางคุณภาพการนอนหลับของผู้สูงอายุในแผนกผู้ป่วยนอกโรงพยาบาลสงขลานครินทร์

Sleep Quality Among Elderly People Within the Outpatient Department of Songklanagarind Hospital, Thailand: A Cross-sectional Study

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บทคัดย่อ:

วัตถุประสงค์: เพื่อศึกษาความชุกของคุณภาพการนอนไม่ดีในผู้สูงอายุในแผนกผู้ป่วยนอก

วัสดุและวิธีการ: การศึกษาแบบภาคตัดขวางโดยสุ่มตัวอย่างตามขนาดสัดส่วนประชากรของแผนกผู้ป่วยนอกในโรงพยาบาลสงขลานครินทร์ ระหว่างเดือนตุลาคม-พฤศจิกายน พ.ศ. 2558 สัมภาษณ์กลุ่มตัวอย่างที่มีอายุตั้งแต่ 65-99 ปี จำนวน 408 ราย โดยเก็บข้อมูลพื้นฐาน ข้อมูลที่เกี่ยวข้องกับการนอน และคุณภาพการนอน คุณภาพการนอนวัดโดย Pittsburgh Sleep Quality Index (PSQI) ฉบับภาษาไทย นำเสนอผลด้วยสถิติเชิงพรรณนา และวิเคราะห์ผลโดยใช้ R-Epicalc และ R-Survey software

ผลการศึกษา: กลุ่มตัวอย่างส่วนใหญ่เป็นเพศหญิงมากกว่าชายและสถานะสมรส สัดส่วนผู้สูงอายุในช่วง 65-74 ปี เท่ากับร้อยละ 63.0 ผู้เข้าร่วมศึกษาส่วนใหญ่ (ร้อยละ 70.8) มีคุณภาพการนอนไม่ดี ค่าเฉลี่ย และค่ากลาง PSQI เท่ากับ 7.7 และ 7.0 ตามลำดับ พิจารณาในกลุ่มนอนหลับไม่ดี พบว่ามีปัญหาส่วนใหญ่เกี่ยวกับระยะเวลาในการนอนสั้น (ร้อยละ 99.7) ประสิทธิภาพการนอนไม่ดี (ร้อยละ 61.6) และมีปัญหาการทำงานในเวลากลางวัน (ร้อยละ 51.6)

สรุป: ผลการศึกษาพบว่าผู้สูงอายุจำนวนมากมีคุณภาพการนอนไม่ดีใกล้เคียงกับการศึกษาก่อนหน้านี้ ระยะเวลาการนอนที่น้อยกว่า 6 ชั่วโมงเป็นปัญหาที่สำคัญของกลุ่มที่คุณภาพการนอนหลับไม่ดี ข้อเสนอแนะควรมีการศึกษาเพิ่มเติมเกี่ยวกับคุณภาพการนอนและภาวะโรคร่วม

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Abstract:

Objective: To determine the prevalence of sleep quality in the elderly within our outpatient department.

Material and Method: A cross–sectional study was conducted by; calculating the sample size for a survey with 'proportion to size' at the outpatient department of Songklanagarind Hospital from; October to November, 2015. A total of 408 participants aged between 65 and 99 were interviewed. Demographic and sleep–related data were collected. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) – Thai version. The results were analyzed in terms of descriptive statistics and conducted using R–Epicalc and R–Survey software.

Results: Our subjects were predominantly married females. The proportion of those in the 65–74 age range was 63.0%. Most of the participants (70.8%) were poor sleepers, with mean and median PSQI scores of 7.7 and 7.0, respectively. Regarding poor sleepers, their problems were; short sleep duration (99.7%), poor sleep efficiency (61.6%) and day time dysfunction (51.6%).

Conclusion: Similarly to previous studies, our findings showed a high prevalence of poor sleep quality in the elderly population. A sleep duration of less than 6 hours was the major problem in the poor sleeper group. Gaining a better insight into sleep quality correlating with comorbidities is recommended.

Keywords: elderly, outpatient, prevalence, sleep quality

Introduction

Nowadays, the aging constitute a larger proportion within our society, compared to that of other age groups. In 2015, there were 901 million people aged over 60 worldwide. By 2,030, the number of people aged 60 years, or over, is projected to grow by 56.0%, making this current number in excess of 1.4 million people globally.[1] As the number of the elderly increases, geriatric health problems also rise up due to the related and inevitable aging process. Sleep complaints, which are common in older adults, are being found more often and usually occur secondary to other comorbidities.[2] A previous study showed that 57.0% of their elderly population reported at least one chronic sleep complaint occurring most of the time.[3] Sleep complaints are used to represent sleep quality, which subsequently affects the elderly population quality of life.[4] Some studies have shown strong associations between poor sleep quality and both physical and mental health in the elderly.[5,6] Therefore, a deeper understanding of quality of sleep is an important issue for clinical professionals.

A study on the epidemiological and clinical relevance of insomnia found that most of the subjects complained at a level of about 37.0% for things such as; short sleep duration, light sleep and global sleep dissatisfaction. Interestingly, only 9.8% of participants from this study met the criteria for insomnia.[7] In addition, elderly people frequently have their sleep disorders underdiagnosed.[8] Moreover, chronic diseases causing patients to seek health–care and also psychiatric illnesses are associated with increasing insomnia severity.[9] Hence, in the hospital

setting, elderly people presenting to treat their chronical illnesses may rarely complain of sleep problems.

In Thailand, the prevalence of insomnia in people, of more than 60 years in age, has been reported at 46.3%.[10] A study conducted in our hospital's outpatient department assessed sleep problems among patients of a wide age range 20-78 years old. Approximately half of the participants had chronic illnesses and about 57.9% and 19.5% of them had insomnia and sleepiness, respectively. Furthermore, a vast number of participants did not consult physicians, although they had habitual insomnia.[11] It is apparent, therefore, that there is a need to show more concern in regards to insomnia, in an effort to try and understand it better.

Sleep quality is a definite part of insomnia, and it has, so far, been difficult to determine in the elderly population due to rarely showing any concern towards such sleep problems. Moreover, there is a substantial need to explore sleep quality in the elderly, who visit the hospital for medical treatment, in order to fill in the existing knowledge gap, so as to better understand insomniac patients.

The objective of the study was to evaluate the prevalence of poor sleep quality among the elderly, who visited the outpatient department of Songklanagarind Hospital.

Material and Method

A cross-sectional study was conducted from October-November, 2015 in Songklanagarind Hospital, which is a tertiary-care center located in southern Thailand. The study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkhla University, which adheres to the provisions of the Declaration of Helsinki. All of the participants gave their informed consent before being interviewed.

The target population were the elderly aged between; 65 and 99 years, who were able to understand the questionnaire and communicate well. The authors excluded any persons who: (1) Refused to join the research. (2) Suffered from a physical impairment such as; paralysis, were bed-ridden or house-bound. The participants were informed regarding their ability in refusal of filling out the questionnaire anytime during the interviewing process, if they felt uncomfortable or wanted to abandon the study.

The function 'n.for.survey' in the R program was used to calculate the sample size for this survey (given delta <20% of p and alpha=0.05). The resulting sample size required was at least 375 elderly people. The allocation of samples in each outpatient department was determined using proportional allocation based on the number of patients served at each department during the January-December, 2014 period. There were 11 departments (totally combining 408 participants); internal medicine (178), ophthalmology (56), surgery (54), orthopedics (37), otolaryngology (29), radiology (17), general practice (13), obstetrics-gynecology (13), dental (5), psychiatric (4), and anesthesiology department (2). Following that, the authors asked the patients to complete the questionnaires by convenient, randomization at that department.

The independent variables were; age, sex, marital status, address, occupation and religious affiliation, while the dependent variables were the Pittsburgh Sleep Quality Index (PSQI) scores and sleep profiles obtained by means of the completed questionnaires.

The data gathered consisted of demographics, related sleep information, and the PSQI developed by Buysse et al.[12] The authors used the Thai version, that was based on the original PSQI. The PSQI is a self-rated question-naire, which assesses sleep quality and disturbances over a 1-month time interval. Its 19 items are grouped into 7 equally-weighted component scores: (1) Subjective Sleep

Quality (1 item); (2) Sleep Latency (2 items); (3) Sleep Duration (1 item); (4) Habitual Sleep Efficiency (3 items); (5) Sleep Disturbances (9 items); (6) Use of Sleeping Medication (1 item); and 7) Daytime Dysfunction (2 items). Higher global scores indicate a poorer sleep quality. The global scores of the Thai–PSQI have revealed an excellent internal consistency (Cronbach's alpha=0.837) and test–retest reliability (intraclass correlation coefficient=0.89). An empirically–derived cutoff score of >5 distinguishes poor sleepers from good sleepers (p–value<0.001), with a diagnostic sensitivity of 77.8% and a specificity of 93.3%.[13]

The results were analyzed using descriptive statistics. The demographic characteristics of the participants are shown in terms of; frequency, percentage, mean and standard deviation. The data were inputted using Epidata 3.1, and analyzed using the R software, version 2.14.2, 2012 (R Development Core Team, 2012). The associated factors; demographic characteristics as well as sleep quality, were analyzed by univariate analysis, providing as crude odds ratio. Multiple logistic regression was then used for backward–stepwise method to analyze these factors. Statistical significance refers to p–value of <0.05.

Results

Demographic data

The participants were interviewed in each out–patient clinic. A total of 408 participants were included (Table 1). The proportion of males was less than that of females. Our elderly patients had a wide age range (65–90 years) while and those aged between 65 and 74 made up the highest proportion (62.7%) of all age groups. Most of the participants were married (82.4%). Concerning religion, Buddhism had the highest percentage (92.2%), while Islam was the second highest. Primary school was the most common level of educational attainment, approximately 58.3%. Regarding occupation, 41.4% of the participants were unemployed and/or housewives at the time of the interview. The following two other occupations were agriculture or retired 22.3 and 21.6%, respectively. A little over half of the participants (55.6%) lived in Songkhla Province.

Prevalence of poor sleep quality

The PSQI scores ranged from 2 to 17, with a median and mean score of 7.0 and 7.7 (3.2), respectively. A huge proportion, 289 people (70.8%), of the present population were poor sleepers (PSQI>5). The other sleep para–meters were determined in each category as shown in Table 2.

Regarding poor sleepers, the problems they reported experiencing, within the previous month, were short sleep durations [less than 6 hours (99.7%)], poor sleep efficiency (61.6%) along with a day time dysfunction of less than once a week (51.6%).

The participants, who reported a good subjective sleep quality were 315 (77.2%), only 114 participants were good sleepers. Almost 70.0% of the elderly had sleep latency of less than 30 minutes, whereas the proportion of those reporting a sleep duration time of less than 6 hours was very close to 100.0%. However, good habitual sleep efficiency (more than 75.0% of the time spent in bed) was as high as 53.4% (218 participants); about 111 of them were good sleepers. Approximately 79.0% of the elderly experienced sleep disturbance less than once a week. Most of the participants (89.0%) had not used sleep medication within one month prior to the interview and 57.8% of them had not experienced daytime dysfunction over the same period.

Table 1 Demographic characteristics and associating factors with elderly poor sleepers in Songklanagarind Hospital (n=408)

Demographic characteristics	Total Number (%)	PSQI>5 Number (%)
Sex		
Male	174 (42.6)	125 (71.8)
Female	234 (57.4)	164 (70.1)
Age (years)		
Mean (S.D.)	72.6 (5.6)	
65–74; young–old	256 (62.7)	179 (69.9)
75–84; middle–old	137 (33.6)	99 (72.3)
>85; old–old	15 (3.7)	11 (73.3)
Marital status		
Single	15 (3.7)	14 (93.3)
Married	336 (82.4)	240 (71.4)
Separated/widowed/divorced	57 (14.0)	35 (61.4)
Religion		
Buddhism	376 (92.2)	263 (69.9)
Islam	30 (7.4)	24 (80.0)
Others	2 (0.5)	2 (100.0)
Highest level of education		
No education	24 (5.9)	19 (79.2)
Primary school	238 (58.3)	168 (70.6)
Junior high school	24 (5.9)	17 (70.8)
Senior high school	37 (9.1)	29 (78.4)
Vocational school certificate	21 (5.1)	14 (66.7)
Bachelor degree	54 (13.2)	35 (64.8)
Above Bachelor degree	9 (2.2)	6 (66.7)
Not available	1 (0.2)	–
Current occupation		
Unemployed/housewife	169 (41.4)	131 (77.5)
Employee	3 (0.7)	3 (100.0)
Retired	88 (21.6)	59 (67.0)
Agriculture	91 (22.3)	58 (63.7)
Other (merchant/personal business/not available)	57 (14.0)	38 (66.7)
Area of habitation		
Songkhla Province	227 (55.6)	160 (70.5)
Other	181 (44.4)	129 (71.3)

S.D.=standard deviation

Table 2 Sleep parameters and number of poor sleepers (PSQI>5) determined using PSQI of each category

Sleep parameters	Number (%)		
	Total n=408	PSQI<5 n=119	PSQI>5 n=289
Subjective sleep quality			
Good (0, 1)	315 (77.2)	114 (95.8)	201 (69.5)
Bad (2, 3)	92 (22.5)	4 (3.4)	88 (30.5)
Unspecified	1 (0.2)	1(0.8)	–
Sleep latency (min)			
<30 (0, 1)	274 (67.2)	114 (95.8)	160 (55.4)
>30 (2, 3)	133 (32.6)	5 (4.2)	128 (44.3)
Unspecified	1 (0.2)	–	1 (0.3)
Sleep duration (hrs.)			
>6 (0, 1)	–	–	–
<6 (2, 3)	405 (99.3)	117 (98.3)	288 (99.7)
Unspecified	3 (0.7)	2 (1.7)	1 (1.3)
Habitual sleep efficiency (%)			
>75 (0, 1)	218 (53.4)	111 (93.3)	107 (37.0)
<75 (2, 3)	183 (44.9)	5 (4.2)	178 (61.6)
Unspecified	7 (1.7)	3 (2.5)	4 (1.4)
Sleep disturbance (time per week)			
<1 (0, 1)	322 (78.9)	112 (94.1)	210 (72.7)
>1 (2, 3)	86 (21.1)	7 (5.9)	79 (27.3)
Use of sleep medication			
Never in one month (0)	363 (89.0)	117 (98.3)	246 (85.1)
Less than once a week (1–3)	44 (10.8)	2 (1.7)	42 (14.5)
Unspecified	1 (0.2)	–	1 (0.4)
Daytime dysfunction			
Never in one month (0)	236 (57.8)	96 (80.7)	140 (48.4)
Less than once a week (1–3)	172 (42.2)	23 (19.3)	149 (51.6)

PSQI=Pittsburgh Sleep Quality Index

Associating factors related to sleep quality

Our elderly had PSQI scores >5 (Table 1) and the proportions of poor sleepers in each demographic factor were similar. This was especially true in terms of; sex, age and area of habitation. There was no significant difference in the proportion of poor sleepers based on marital status, religious affiliation, and level of education or occupation.

Results from the univariate analysis were presented as crude odds ratio for indicating association between each level of demographic characteristics and sleep quality (Table 3). In addition, the multivariate logistic regression revealed no statistically significant association between poor sleep quality and demographic characteristics.

Table 3 Logistic regression of factors associated with PSQI (n=407)

Demographic characteristics	Crude odds ratio (95% CI)
Sex	
Female	1
Male	1.1 (0.7, 1.7)
Age group (years)	
65–74	1
75–84	1.1 (0.7, 1.8)
≥85	1.2 (0.4, 3.9)
Marital status	
Married	1
Single/separated/widowed/divorced	0.9 (0.5, 1.5)
Religion	
Buddhism	1
Islam+others	1.9 (0.8, 4.7)

CI=confidence interval

Sleep disturbances

The most common sleep disturbance reported by the participants, who had a poor quality of sleep, was the need to get up to use the bathroom, about 52.0%. The following most common sleep disturbances were inability to fall asleep within 30 minutes, waking up at night or early morning, and experiencing pain 46.0%, 44.9%, and 41.9%, respectively (Table 4).

Table 4 Sleep disturbances (>1 time/week) relating to poor sleeper (n=289)

Sleep disturbances	PSQI>5 Number (%)
Cannot fall asleep within 30 minutes	133 (46.0)
Wake up in the middle of the night or early morning	130 (44.9)
Need to get up to use the bathroom	150 (51.9)
Cannot breathe comfortably	38 (13.1)
Cough or snore loudly	61 (21.1)
Feel too cold	32 (11.1)
Feel too hot	37 (12.8)
Have bad dreams	21 (7.3)
Have pain	121 (41.9)
Other reason	8 (2.8)

PSQI=Pittsburgh Sleep Quality Index

Discussion

In this study, the authors interviewed a large group of elderly patients (408 participants) at the outpatient department of a tertiary healthcare center, Songklanagarind Hospital. There was a small difference in proportion between male and female participants. Most of the patients were in the young–old age group and of married status. The prevalence of poor sleepers (70.8%) was quite high. Based on the PSQI calculation, the mean and median of PSQI scores were 7.7 and 7, respectively.

A previous study, also on the elderly, found that 79.5% of the participants identified themselves as poor sleepers, which is close to the findings of this study. However, that study collected data from nursing homes, which is of course a very different setting from ours.[14] In general, the patients suffering from chronic diseases such as; hypertension, asthma and diabetes usually

(approximately 70 of the time) have insomniac problems.[15] Furthermore, poor sleep can be predicted by advanced age, poor physical and mental component summary and significant dysfunction of ADLs.[16] Nonetheless, patients seeking treatment as part of their continuity of medical care might not consider insomnia a major problem and consequently fail to inform practitioners. On the other hand, physicians who are lacking in relevant sleep disorder knowledge, might find it difficult to deal with such sleep problems, because they have only superficially studied the management of them.[17] This would lead to both an underdiagnosis and undertreatment of insomnia, despite the high prevalence of poor sleep quality among elderly patients.

Regarding sex, in our study, males tended to have a stronger association with poor sleep than females. Yet, a recent study reported a higher prevalence of poor sleepers among females. Moreover, the population size in that study was very large, 2,144 subjects, while that of our study was relatively smaller. The age ranges between the two studies was also different.[18]

The authors found that the most common disturbance among poor sleepers (51.9%) was getting up to use the bathroom, which is similar to the finding of a previous study (51.4%).[14] There is plenty of evidence to support the negative relationship between nocturia and sleep quality. As the frequency increases with age, it is, therefore, correlated with poor sleep quality 19 or high global PSQI scores.[20] The following two disturbances – difficultly with falling asleep within 30 minutes, and waking up at night or early morning – can be attributed to the inevitable physiologic changes in the sleep pattern of the elderly.[21,22] Another common disturbance in many studies, that being pain, is closely associated with insomnia and poor sleep quality.[23]

One strength of this study is its large sample size, that consisted of elderly patients from all of the out-

patient clinics within this tertiary-care hospital. Nevertheless, no correlation between poor sleep quality and individual outpatient clinics could be determined due to, the small proportion of participants in the outpatient clinics of some departments. Secondly one limitation, was our ability to find an association with comorbidities that might affect sleep quality. This was limited because, of the small number of patients that could be categorized in each comorbidity group as well as the wide variety of comorbidities in individual patients. Lastly, our elderly might have suffered from recall bias, which might have led to the presence of potential confounders in our data.

Regarding clinical management, recognizing and treating poor sleep quality should be highlighted due to current inadequacies in providing evidence-based interventions for sleep difficulties. Training clinicians in the identification of sleep difficulties; the provision of evidence-based, cost-effective and trans-diagnostic group interventions in addition to formalizing the assessment and treatment pathways for service users with sleep difficulties are strongly recommended.[24]

Conclusion

This study was an attempt to determine the prevalence of poor sleep quality among the elderly receiving care at the outpatient department of a tertiary hospital in Thailand. There was a high prevalence of poor sleep quality in our participants, whose chief associated problem was short sleep duration (less than 6 hours). In light of this study, the authors would like to suggest the following. Further studies, with a suitable sample size, should be designed in order to evaluate the association between sleep quality within each department or other comorbidities. Thereby, it would be very useful if future studies evaluated the biological, psychological and social aspects of this topic.

Acknowledgement

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