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ORIGINAL ARTICLE

Reliability and validity studies of the Turkish version of the Epworth Sleepiness Scale

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Abstract The Epworth Sleepiness Scale (ESS) is a self-administered eight-item questionnaire that is widely used in English speaking countries for assessment of daytime sleepiness in adults. The aim of this study was to investigate the reliability and validity of the ESS in the Turkish language. The Turkish version of the ESS (ESStr) was applied to 194 healthy controls and 150 consecutive subjects attending the sleep centre with symptoms of sleep-disordered breathing. Test–retest reliability of the ESStr was tested in a separate group of 30 subjects. The ESStr scores of 60 subjects with mild to severe obstructive sleep apnoea (OSA) were compared with the ESStr scores of 60 healthy controls matched for age, gender, and body mass index (BMI). Concurrent validity with the Functional Outcomes of Sleep Questionnaire (FOSQtr) was also assessed in 12 subjects. The questionnaire had a high level of internal consistency as measured by Cronbach's alpha (≥0.86). The test–retest intraclass correlation coefficient was $r=0.81$ (95% confidence interval: 0.64–0.90) ($p<0.001$) and Spearman's correlation coefficient was $r=0.80$ ($p=0.01$). The control group had lower ESStr scores than subjects with sleep-disordered breathing (3.6±3 vs 12.6±6, respectively; $p<0.001$). Subjects with mild sleep-disordered breathing also had lower scores of the ESStr than those with moderate and severe sleep-disordered breathing (10±6.2 vs 14±5. and 10±6.2 vs 16±5.4, respectively; both $p<0.05$), but there were no significant differences between moderate and severe subjects with sleep apnoea. There were significant correlations between the ESStr and total FOSQtr and its subscales ($r=-0.22$ to $r=-0.92$; all $p=0.05$). Factor analysis of item scores showed that the ESStr had only one factor. The ESStr is a reliable and valid measure of daytime sleepiness. These features and the simplicity of the ESStr make it a valuable measure for clinical management and research.

Keywords Sleep-disordered breathing · Sleepiness · Validation studies

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Introduction

Excessive daytime sleepiness is the most common daytime manifestation of sleep-disordered breathing [1, 2], and it deteriorates cognitive and psychosocial functions [1, 2]. Untreated patients who suffer from sleep-disordered breathing have an increased likelihood of motor vehicle accidents, work-related accidents, and social problems compared with healthy individuals [1–4].

Excessive daytime sleepiness can be evaluated by a variety of objective and subjective tests. Objective tests for measuring daytime sleepiness include the multiple sleep latency test (MSLT), the maintenance of wakefulness test (MWT), and the OSLER (Oxford SLEep Resistance) test [1]. MSLT and MWT are conventionally preceded by an overnight PSG to document adequate sleep. However, these tests are complex, expensive, and time consuming. Moreover, they only provide information on one's sleepiness for a single day, but the Epworth Sleepiness Scale (ESS) (Appendix A) measures average sleep propensity over a recent time period [5].

The ESS is now the most commonly used means of rating sleepiness in studies of sleep disorders [5–11]. It is a simple, English language self-administered questionnaire developed by Johns [5, 6]. In it, the subject is asked to rate their likelihood of falling asleep in eight everyday situations over the previous month on a scale of 0–3 (0 = no chance of dozing, 1 = slight chance of dozing, 2 = moderate chance of dozing, 3 = high chance of dozing). The ESS score is the sum of the eight item scores and ranges from 0 to 24. Higher ESS scores indicate greater daytime sleepiness [5, 6].

The ESS' reliability and validity were examined in different study groups (students, patients, and healthy subjects). It has been shown that it has a good test–retest reliability (r=0.82) when applying the ESS scale to healthy subjects without any sleep disorders at 5 months apart and internal consistency (Cronbach alpha=0.74–0.88) [5, 6, 10]. Factor analysis indicated that the ESS has only one factor for healthy subjects and for patients with a variety of sleep disorders [6, 10].

The ESS has been validated with the MSLT in patients with a variety of sleep disorders. Johns demonstrated that there was a significant correlation between ESS scores and sleep latency measured during MSLT [5]. The ESS has a high sensitivity and high specificity with a cut-off score of >10 for an abnormal level of daytime sleepiness [12].

The subjective evaluation of sleepiness and the tendency to nap in different populations could be variable due to cultural, social, and language factors. Although the ESS is widely used to evaluate the degree of sleepiness in the Turkish population, there is at present no proper validated translation of the ESS into Turkish. The aim of this study was to provide a reliable and validated ESS in the Turkish language to maintain its usefulness and allow its results to be comparable with the results from different centres. Thus, this study was performed to clarify the validation of the ESS in Turkish.

Materials and methods

Translation of ESS into Turkish (content and face validity)

The ESS was translated into Turkish by a psychophysiologist and two clinicians, and the final text was constructed using their common sentences. Secondly, the text was administered to a small group of nine subjects with sleep-disordered breathing. Some words which caused misunderstanding were changed. Next, another translation from Turkish back to English was carried out by a bilingual professional translator to compare with the original text. Finally, some changes were made so that it would be understandable and easy to fill out. The sentence structure and presentation of the ESStr (Appendix B) were similar to those of the English version.

Subjects

A total of 150 subjects attending the sleep centre with symptoms of sleep-disordered breathing such as snoring, daytime sleepiness, etc., were consecutively recruited into our prospective study. Subjects with major systemic comorbidity such as hypertension, diabetes mellitus, cardiac failure, or with psychiatric conditions including mood disorders such as depression and mania, anxiety disorders (e.g. fear of death), panic disorder, and posttraumatic stress disorder, were excluded.

All subjects with sleep-disordered breathing answered the Turkish version of ESS (ESStr, Appendix B), which was translated according to the process described above, at the end of their initial outpatient assessment.

The complete results of polysomnography (PSG) were available for 128 out of our initial 150 subjects with sleep-disordered breathing. This discrepancy occurred because some of those with sleep apnoea could not continue with PSG for the whole night (n=5). A second reason was that some could not sleep a sufficient number of hours (less than 2 hrs) to obtain sleep study results (n=7). Third, technical problems were encountered (n=3). Fourth, some of them did not show up at the study time (n=4). Finally, the quality of the recording of PSG was not good enough for appropriate scoring (n=3).

To assess the validity of the ESStr according to the severity of sleep-disordered breathing indicated by apnoea plus hypopnoea index (AHI), 128 subjects with sleep apnoea were divided into three subgroups: group 1 was made up of subjects with AHI<15/hr, n=54; group 2 comprised those with AHI between 15 and 30/hr, n=21; and group 3 comprised those with AHI ≥30/hr, n=53.

All PSGs included recordings of electroencephalogram (C3/A2 and C4/A1), electro-oculogram, and submental and bilateral anterior tibialis electromyogram (all of these were recorded using surface electrodes). They also included recordings of airflow (using thermistors), arterial oxygen saturation (using pulse oximetry), abdominal and thoracic respiratory movements (using thoracoabdominal inductance plethysmography), electrocardiogram body position, and snoring [1, 13].

The sleep stages were analysed using an agreed criteria developed by Rechtschaffen and Kales [14]. Respiratory events and other related events were scored using the American Academy of Sleep Medicine Task Force [15] criteria and an article published by Gould et al. [16]. An apnoea was defined as complete cessation of airflow for at least 10 s. A hypopnoea was defined as a reduction in airflow by more than 50% from baseline for at least 10 s in association with a fall in arterial oxygen saturation of at least 3%. The term AHI was described as the number of apnoeas plus hypopnoea per hour of sleep.

Thirty of the 150 subjects with sleep-disordered breathing were asked to complete both the ESStr and the Turkish version of the Functional Outcomes of Sleep Questionnaire (FOSQtr). However, eight of them filled out the ESStr, but refused to fill out the FOSQtr, and ten of them failed to complete both of them properly. Thus, only 12 of them were available for this study.

The study protocol was approved by the hospitals' ethic committee.

Control subjects

The questionnaire was administrated to 194 ostensibly healthy males and females, aged 27–58 years (mostly daytime-working hospital staff, while the rest were hospital staff's partners and friends). Sixty of them, without any sleep problems, were matched with subjects with mild to severe obstructive sleep apnoea (OSA) in terms of age and body mass index (BMI) as a group. Additionally, the reproducibility of the questionnaire was tested in 30 medical students (mean age 22.3+1.1) from Hacettepe University with a 4–5-week interval between the two tests.

The data was collected between October 1998 and May 2001.

Functional Outcomes of Sleep Questionnaire (FOSQ)

In the current study, the Turkish version of the Functional Outcomes of Sleep Questionnaire (FOSQtr) was applied to subjects for concurrent validity [17]. FOSQ was designed to measure the impact of excessive daytime sleepiness and sleep disorders on activities of daily living [18]. The original FOSQ was a 30-item self-report tool which consists of five sub-scales: activity level, vigilance, sexual activities, general productivity, and social outcome [18]. For each question, subjects are asked if feeling sleepy or tired affects their ability to perform a given task. All answers are rated on a scale of 1 (yes, extreme difficulty) to 4 (no difficulty). These responses for a given subscale are then averaged to obtain a subscale score ranging from 1 to 4. The mean of these subscale scores is then multiplied by five to obtain a total score of 5 to 20.

Statistical analysis

Internal consistency reliability was tested by means of Cronbach's alphas, which is based on correlations of items on a single scale. Also, test–retest reliability was evaluated by means of intraclass correlation coefficients [19], Spearman's correlation coefficients, and the Wilcoxon's test (for paired nonparametric continuous data). Different forms of construct validity were used: concurrent and discriminant validities. Concurrent validity was also assessed by using the Spearman's correlation coefficient. Matched comparisons for discriminant validity were made using McNemar's (dichotomous), paired t test (parametric), or Wilcoxon's test (nonparametric continuous). One-way analysis of variance (ANOVA) was used to investigate differences between groups. When ANOVA showed significant differences, differences between groups were determined by the Student-Neuman-Keuls multiple comparison test. Factor analysis was also performed to test how many latent variables underlie the question set. Statistical analysis was performed using SPSS software, version 14 (SPSS, Inc. Chicago, USA). The significance was accepted at $p<0.05$ in two-tailed tests.

Results

Subjects' characteristics

The subjects' characteristics and their sleep-related data were presented in Table 1. The characteristics of both the

Table 1 Subjects' characteristics and sleep-related data

	Subjects with SDB (25% female) (n=150)	Subjects with SDB (27% female) (n=60)	Controls (27% female) (n=60)
Age (yrs)	49±10.6	43±7	43±7
BMI (kg/m^2)	32±5.6	29±4	29±4
Sleep-related data	n=128		
AHI (per hr)	28.3±26		
Average SaO2 (%)	90±5.3		
Lowest SaO2	68±14		
Sleep period time (min)	386±64		
Total sleep time (min)	295±97		
Average sleep efficiency (%)	76±20		

SDB sleep-disordered breathing

60 subjects with sleep apnoea and their 60 matched control subjects are also shown in Table 1.

Test–retest reliability and internal consistency

Cronbach's alpha coefficients for the ESStr (Table 2) indicated excellent internal consistency. Cronbach's alpha coefficient of the ESStr for 150 subjects with sleep apnoea was 0.87, and that for 60 healthy controls matched for age, gender, and BMI was 0.86. The removal of specific items did not substantially increase the internal consistency.

Reproducibility was tested in 30 subjects, and no significant differences were found in each item nor in the total score in the first and second assessments (ESStr total score 8+3.7 vs 8+3.8; $p>0.8$). The Spearman correlation coefficient was $r=0.80$ ($p=0.01$). The test–retest intraclass correlation coefficient was $r=0.81$ (95% confidence interval: 0.64–0.90; $p<0.001$), which is much higher than 0.5 as recommended for reproducibility coefficients [19].

Construct validity of ESStr

Discriminant validity: ESStr scores of controls and subjects with sleep-disordered breathing

A statistically significant difference was detected between the total ESStr scores of 60 subjects with sleep-disordered breathing and 60 controls matched for age, gender, and BMI ($p<0.001$). There were still significant differences when each item was evaluated separately ($p<0.004$). Those with sleep-disordered breathing had significantly higher ESStr scores than the control group (Table 3).

Table 2 The factor loadings from factor analysis of ESStr for 150 subjects with SDB and Cronbach's alpha values if an item of ESStr was deleted in 150 subjects with SDB and 60 matched controls

Items	Factor 1 Eigenvalue: 4.2 Variance: 52 $n=150$	Cronbach's alpha if Item deleted Subjects with SBD, $n=150$	Cronbach's alpha if item deleted Healthy controls, $n=60$
1	0.46	0.85	0.87
2	0.48	0.85	0.86
3	0.76	0.83	0.82
4	0.58	0.85	0.83
5	0.48	0.85	0.85
6	0.44	0.86	0.84
7	0.52	0.85	0.84
8	0.43	0.86	0.85

ESStr Turkish version of ESS, *SDB* sleep-disordered breathing

Table 3 Comparisons of ESStr scores of 60 subjects with SDB and 60 matched controls

ESS items	Subjects with SDB $N=60$	Controls $N=60$	p
1	2.2±1.1	0.4±0.8	<0.001
2	2±1.2	0.7±1	<0.001
3	1.6±1.1	0.3±0.7	<0.001
4	1.5±1.2	0.6±0.9	<0.001
5	2.3±1.1	1±1.2	<0.001
6	0.7±0.9	0±0	<0.001
7	1.8±1.2	0.6±0.9	<0.001
8	0.04±0.9	0±0	0.004
Total ESStr	12.6±6	3.6±3	<0.001

ESStr Turkish version of ESS, *SDB* sleep-disordered breathing

Relation of ESStr score to severity of sleep apnoea

To assess the validity of the ESStr score, three polysomnographic measures of sleep-disordered breathing severity (AHI per hour of sleep, the minimum recorded SaO_2, and mean SaO_2) in 128 subjects were correlated with total ESStr scores. There was a minor significant correlation between AHI and total ESStr scores ($r=0.44$; $p<0.001$). There were also minor negative correlations between total ESStr and the lowest SaO_2 recorded overnight ($r=-0.45$; $p<0.001$) and between total ESStr and mean SaO_2 ($r=-0.3$; $p=0.01$).

The analysis of variance also showed significant differences in the ESStr scores between group 1 (AHI<15/hr) and group 2 (AHI between 15 and 30/hr), and between group 1 and group 3 (AHI≥30/hr) (Table 4). However, there was not a significant difference between group 2 and group 3 (Table 4).

In subjects with sleep apnoea, there was no significant relationship between the ESStr and sleep efficiency ($r=0.07$; $p>1$). Similarly, no significant relationship was found between the ESStr and total sleep time ($r=-0.01$; $p>8$), nor between the ESStr and sleep period time ($r=-0.08$; $p>3$). Regarding anthropometric variables, the ESStr correlated with BMI ($r=0.22$; $p=0.05$), taking into consideration the fact that high values of BMI are a common characteristic in subjects with sleep apnoea. However, the ESStr did not correlate with age ($r=0.08$; $p>3$).

Concurrent validity: relationship of ESStr score to functional status

Concurrent validity is demonstrated when a test correlates well with a previously validated test. Thus, we compared scores of four subscales and total scores of FOSQtr with the ESStr in 12 subjects with sleep apnoea (mean age 45±9 years, BMI: 30±6, AHI:30±34). There was a minor correlation between the ESStr and general productivity

Table 4 Comparison of AHI and ESStr scores in severity groups in 128 subjects with SDB who underwent PSG using ANOVA, and the Student-Neuman-Keuls multiple comparison test where there was a significant difference in ANOVA*

Variables	Group 1 & 2	Group 2 & 3	*P* value
	Group 1 (AHI<15)	Group 2 (AHI ≥15 to <30)	
	N=54	*N*=21	
AHI	5±4.2	21.7±3.6	<0.05
ESStr	10±6.2	14±5.1	<0.05
	Group 1 (AHI<15)	Group 3 (AHI>30)	
	N=54	*N*=53	
AHI	5±4.2	55.2±16.4	<0.05
ESStr	10±6.2	16±5.4	<0.05
	Group 2 (AHI ≥15 to <30)	Group 3 (AHI>30)	
	N=21	*N*=53	
AHI	21.7±3.6	55.2±16.4	<0.05
ESStr	14±5.1	16±5.4	>1

Abbreviation: *AHI* apnoea–hypopnoea index, *ESStr* Turkish version of ESS. Values presented are mean±SD, *SDB* sleep-disordered breathing
* The *p* values between groups 1, 2, and 3 was <0.001 for both AHI and ESStr

subscale ($r=-0.22$, $p=0.01$). But activity level ($r=-0.75$, $p=0.01$), vigilance ($r=-0.92$, $p=0.01$), social outcome subscales ($r=-0.62$, $p=0.05$), and total FOSQtr ($r=-0.72$, $p=0.01$) correlated well with the ESStr.

Factor analysis

Factor analysis of the item-scores for 150 subjects with sleep apnoea yielded only one factor with an eigenvalue of 4.2. This factor accounted for a total of 52% of the variance. Items met the loading criterion of >40 [19] (Table 2).

Discussion

Our data showed that the Turkish version of the ESS measures only one factor. It is reliable. It has satisfactory discriminant validity between subjects with sleep-disordered breathing and controls matched for age, gender, and BMI.

Additionally, to maintain good content and face validity, a formal item generation phase was recommended that includes input from relevant literature, other health professionals, content experts, and most importantly, patients. [19, 20]. Our process of translation of the ESS into Turkish as regards content validity included these recommendations.

Factor analysis of the ESStr suggests that the questionnaire measures only one cohesive factor, sleep propensity, as in the original ESS [6, 10]. Cronbach's alpha was 0.87 in subjects with sleep apnoea and 0.86 in controls, similar to those reported previously (0.74–0.88) [6, 10, 21, 22]. These were well above the minimum ($\alpha=0.70$) recommended level for internal consistency [19]. The removal of specific items did not significantly increase the internal consistency, suggesting a high level of internal consistency and little overlap [23]. These values indicate that the ESStr is appropriate for use in comparison of means when groups are considered. The Spearman correlation coefficient and intraclass correlation coefficient for test–retest reliability were high ($r=0.80$ and $r=0.81$, respectively). These results demonstrate that the ESStr is highly reliable over time.

Subjects with sleep-disordered breathing had significantly higher mean ESStr score than the scores obtained from our controls. Subjects with mild sleep-disordered breathing also had lower scores of the ESStr than those with moderate and severe sleep-disordered breathing, but there were no statistically significant differences between moderate and severe subjects with mild sleep-disordered breathing. This result suggests that although the ESStr determines whether a subject with sleep-disordered breathing is sleepy or not sleepy, it is not sensitive enough to distinguish subjects with moderate to severe levels of the disease. One of the Sleep-Heart Health Studies, which are large-scale community-based studies, found similar findings to ours, reporting that the ESS score increased progressively with increasing AHI, from 7.1 in subjects with AHI <1.5 to 8.8 in subjects with AHI≥15 [24]. However, their ESS scores were lower than ESS scores in our study. It is more likely that subjects in clinical studies who were referred to sleep clinics had higher ESS scores than those in community-based studies. In fact, several clinical studies found that clinical patients had high ESS scores (e.g. 12.1±4.5 [25], 12.3±5.1 [26], and 12.26±5.35 [27]). These studies, which were similar to ours, reported that the ESS was not able to differentiate the degree of sleepiness in relation to the severity of sleep-disordered breathing [26, 27]. In some cases, patients with sleep-disordered breathing may underreport their sleepiness, perhaps because they lose their frame of reference for abnormal sleepiness [1], which is possibly due to having this problem for a long time. In other circumstances, they can deny it because of social pressures (e.g. the danger of losing their job). Therefore, the severity of excessive daytime sleepiness scored in the ESS can be higher than these estimations. Conversely, some asymptomatic individuals do not experience excessive daytime sleepiness.

In this study, there were minor associations between the ESStr score and AHI and minimum and mean SaO_2 among our subjects with sleep-disordered breathing. These findings are consistent with reports from previous studies which also demonstrated significant minor correlations between ESS scores and AHI or SaO_2 level [21, 22, 25] or no correlation [26, 27], even taking into account measures of sleep distribution [28, 29] and different definitions of microarousals [29]. Similarly, no close relationship between

daytime sleepiness and the severity of sleep-disordered breathing has been reported even when an objective method (e.g. MSLT) was used [11, 26, 27].

The ESStr correlated well with the following subscales of the FOSQtr: activity level, vigilance, and social outcome (in a negative direction). It also correlated well with total FOSQtr in a negative direction. These results indicate that higher daytime sleepiness measured by the ESStr is related with functional impairments in a broad range of activities measured by FOSQtr. The strongest relationships of the ESStr were with vigilance and the activity level. These results confirm the results from previous studies showing that the areas most effected by sleepiness were vigilance and those activities measured by FOSQ [30, 31] and also that the ESStr measures subjective daytime sleepiness.

This study has several limitations. It would increase confidence in the reliability of the ESStr if the test–retest correlations were calculated in a group of subjects with a broad spectrum of disease severity. However, even in the original study, the reliability of the ESS has not been tested in subjects with sleep apnoea. It has been evaluated in healthy medical students [10]. Thus, further studies are required for adequate test–retest reliability for the ESStr.

It would be better to compare the ESStr with the excessive sleepiness of the subjects with sleep-disordered breathing measured objectively by the MSLT; however, this test is cumbersome and costly. In many parts of the world, funding for MSLT is not available. On the other hand, studies comparing the ESS with results of the MSLT in other countries showed that the association between the ESS and mean sleep latency of the MSLT was only moderate [6, 11] in the patients with severe sleep apnoea [27], and some studies could find no significant correlation [26] in patients with mild to moderate sleep apnoea [27]. In addition, as was mentioned earlier, daytime sleepiness and the severity of sleep-disordered breathing relate in such a way that no close relationship has been found irrespective of the way they were measured. Thus, the results obtained from more expensive and time-consuming MSLTs are really no better than those of the ESS [11, 26, 27].

Healthy controls did not have PSG. However, they were selected by strict criteria derived from a detailed investigation that screened out those suffering from most sleep disorders including sleep-disordered breathing and insomnia. Furthermore, confounding factors such as age, BMI, and gender were controlled by matching subjects with sleep-disordered breathing and control subjects with these factors in mind. Thus, the significant differences between the ESStr scores of subjects with sleep-disordered breathing and matched controls strengthen the validity of the ESStr. The number of subjects who were employed to show the concurrent validity of the ESStr is small. But there was a high to moderate correlation between the ESStr and the subscales of the FOSQtr and between the ESStr and the total FOSQtr, which contributes to the ESStr's validity.

Furthermore, this ESS translation needs to be tested for its ability to distinguish those with other sleep disorders, e.g. insomnia, idiopathic hypersomnolence, narcolepsy, etc. This would extend its usefulness beyond identification of sleepiness related to sleep-disordered breathing.

In conclusion, although further studies would strengthen the test–retest reliability of the ESStr, it is nonetheless a reliable and valid measure of daytime sleepiness in patients with sleep-disordered breathing in the Turkish population. The ESStr is able to differentiate individuals with or without a pathological degree of daytime sleepiness. Therefore these features and the simplicity of the ESS, apparently irrespective of cultural, social, and language factors, make it a valuable measure for clinical management and research.

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Appendix A: The Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. Even if you have not done some of these things recently, try to work out how they would have affected you. Use the following scale to choose ***the most appropriate number*** for each situation.

Scale

- 0 = would **never** doze
- 1 = **slight** chance of dozing
- 2 = **moderate** chance of dozing
- 3 = **high** chance of dozing

Situation	Chance of dozing (enter number below)
Sitting reading	
Watching TV	
Sitting, inactive in a public place (e.g. a theatre or a meeting)	
As a passenger in a car for an hour without a break	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to someone	
Sitting quietly after lunch without alcohol	
In a car, when stopped for a few minutes in the traffic	
	TOTAL.....

Appendix B: Turkish version of Epworth Sleepiness Scale

Son zamanlarda, günlük yaşantınız içinde, aşağıda belirtilen durumlarda hangi sıklıkla uyuklarsınız (buradan yorgun hissetmek değil, uyuklamak veya uyuya kalmak anlaşılmalıdır)? Bu şeylerden birini son zamanlarda yapmamış olsanız bile, böyle bir durumun, sizi nasıl etkileyeceğini düşünmeye çalışarak cevap veriniz.

Ölçekteki herbir DURUM için, aşağıdaki ifadelere karşılık gelen sayılardan, sizin için en uygununu isaretleyiniz.

- 0 = hiçbir zaman uyuklamam
- 1 = nadiren uyuklarım
- 2 = zaman zaman uyuklarım
- 3 = büyük olasılıkla uyuklarım

	DURUM	Uyuklama olasılığım			
1	Oturmus birşeyler okurken	**0**	**1**	**2**	**3**
2	Televizyon seyrederken	**0**	**1**	**2**	**3**
3	Toplum içinde hareketsizce otururken. (örneğin: herhangi bir toplantıda veya tiyatro gibi yerlerde)	**0**	**1**	**2**	**3**
4	Ara vermeden en az bir saat süren bir araba yolculuğunda *yolcu* olarak bulunurken	**0**	**1**	**2**	**3**
5	Öğleden sonra kosullar uygun olduğunda, dinlenmek için uzanmışken	**0**	**1**	**2**	**3**
6	Birisiyle oturmuş konuşurken	**0**	**1**	**2**	**3**
7	Alkol almadığım bir öğle yemeğinden sonra sessizce otururken	**0**	**1**	**2**	**3**
8	İçinde olduğum araba, trafikte bir kaç dakika için durduğunda	**0**	**1**	**2**	**3**
	TOPLAM				

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