Validation of the Urdu version of the Epworth Sleepiness Scale

Asif Anwar Surani,[1] Kannan Ramar,[2] Arif Anwar Surani,[3] Jehangir Shehryar Khaliqdina,[4]
Shyam Subramanian,[5] Salim Surani[6]

Medical students, Dow University of Health Sciences, Karachi, Pakistan,[1,3,4] Department of Medicine, Division of Pulmonary, Sleep and Critical Care
Medicine, Mayo Clinic, Rochester, Minnesota, USA,[2] Department of Medicine, Baylor College of Medicine, Houston Texas, USA,[5]
Department of Medicine, Texas A&M University; Baylor College of Medicine, Houston, Texas, USA.[6]
Corresponding Author: Asif Anwar Surani. Email: asif_surani@yahoo.com

Abstract

Objective: To translate and validate the Epworth Sleepiness Scale (ESS) for use in Urdu-speaking population.

Methods: The original Epworth Sleepiness Scale was translated into the Urdu version (ESS-Ur) in three phases - translation and back-translation; committee-based translation; and testing in bilingual individuals. The final was subsequently tested on 89 healthy bilingual subjects between February and April, 2010, to assess the validity of the translation compared to the original version. The subjects were students and employees of Dow University of Health Sciences, Karachi.

Results: Both English and Urdu versions of the Epworth Sleepiness Scale were administered to 59 (67%) women and 30 (33%) men. The mean composite Epworth score was 7.53 in English language and 7.7 in the Urdu version (p=0.76). The translated version was found to be highly correlated with the original scale (rho=0.938; p<.01).

Conclusions: The study validated the scale's Urdu version as an effective tool for measuring daytime sleepiness in Urdu-speaking population. Future studies assessing the validity of such patients with sleep disorders need to be undertaken.

Keywords: Excessive daytime sleepiness, Epworth sleepiness scale (ESS), Validation, Urdu language. (JPMA 62:986; 2012).

Introduction

Excessive daytime sleepiness (EDS) is increasing in prevalence due to a decrease in overall sleep quantity and a variety of sleep disorders that are increasingly detected and diagnosed. The prevalence of EDS varies widely across different ethnicities and populations. Among the various tools to measure EDS, the Epworth sleepiness scale (ESS) is one of the most common tools. The ESS[1] is a self-reporting questionnaire that evaluates the probability of falling asleep in eight different situations involving daily activities; some known to be highly soporific. The global score ranges from 0 to 24, with scores higher than 10 suggesting EDS. The ESS has been translated to and validated for use in several languages.[2-5] ESS is a widely used tool because it is simple to use, easy to understand and can be quickly completed. The aim of the present study was to translate the ESS into Urdu and validate it for use in Urdu-speaking individuals.

Subjects and Methods

The ESS in Urdu (ESS-Ur) was developed in three different phases: translation and back-translation; committee-based comparison between the translation and the back-translation; and testing in bilingual individuals. In the first phase, the ESS was translated into Urdu by two independent translators who were unaware of the study objectives. The translations were compared by the authors, and a consensus version of ESS-UR was agreed upon. Back-translations to English was then carried out by two different translators, neither of whom had participated in any of the previous steps. The initial authors of the ESS-Ur evaluated the back-translations, and ESS-Ur was developed [Appendix-1].

Comparisons between the original and the final back-translation were made by a committee comprising individuals who were fluent in English and not involved in the study. Each of the eight items on the ESS was analysed following the method described in the literature.[2] Through this process, the committee approved a final version of ESS-Ur. In order to assess the linguistic interchangeability between the translation and the original questionnaire, we applied the two scales (both the English and Urdu versions) in a group of 14 bilingual individuals, who first completed the English version and then, two weeks later, completed the ESS-Ur. Correlations were drawn between the two scores.

Both the ESS and ESS-UR were subsequently administered to a larger population between February 2010 and April 2010. The population comprised students and employees of Dow University of Health Sciences, Karachi. The subject's selection was based on convenience, non-probability sampling and the subjects were approached directly at the University for data collection. Subjects who were 18 years and older, and spoke both English and Urdu were selected. Those who were previously diagnosed with, or had a history of, or currently being treated for obstructive sleep apnoea (OSA), insomnia, or were using sedatives, hypnotics or stimulants, were excluded. Also, subjects who were shift workers or had a history of shift work sleep disorders were excluded. Of the 100 subjects initially recruited, 89 completed both the English and Urdu questionnaires, and their data was included in the final analysis.

The study protocol was approved by the Ethical Review Committee of the University and all the participants gave informed written consent.

Data including age, gender, body mass index (BMI), co-morbids and medication use were collected for each subject. Composite ESS score was calculated for both the versions. Similarly, each of the 8 items of the ESS were analysed separately and scored independently in English and Urdu. Spearman's rank order coefficient (Spearman's rho)

Appendix-1
Epworth Sleepiness Scale

درج ذیل حالتوں میں صرف تھکن محسوس کرنے کے برخلاف، آپ کے اونگھنے یا سو جانے کا کتنا امکان ہے؟

اس درجہ بندی کا تعلق آپ کے حالیہ طرزِ زندگی سے ہے۔ پچھلے چند دنوں میں اگر مندرجہ ذیل کام آپ نے نہیں بھی کیے ہیں، تب بھی یہ اندازہ لگائیے ان کا آپ پر کیا اثر ہوتا۔

درجہ بندی کو استعمال کرتے ہوئے، جو ہند سہ آپ کی کیفیت کو بیان کرے، اس کا انتخاب کریں۔

"درجہ بندی"

0   اونگھ کا کوئی امکان نہیں —
1   اونگھ کا کچھ امکان ہے —
2   اونگھ کا درمیانہ امکان ہے —
3   اونگھ کا زیادہ امکان ہے —

اونگھ کا امکان	صورتِ حال
	۱۔ بیٹھے ہوئے مطالعہ کرنا
	۲۔ ٹی وی دیکھتے ہوئے
	۳۔ عوامی جگہوں پر فارغ بیٹھے ہوئے (مثلاً تھیٹر یا میٹنگ)
	۴۔ گاڑی میں بحیثیت مسافر مسلسل ایک گھنٹہ سفر کرتے ہوئے
	۵۔ موقع ملے تو دوپہر میں آرام کے لیے لیٹے ہوئے
	۶۔ بیٹھے ہوئے کسی سے بات کرنا
	۷۔ دوپہر کے کھانے کے بعد سکون سے بیٹھے ہوئے، جب شراب استعمال نہ کی ہو
	۸۔ جب آپ کی گاڑی کچھ منٹوں کے لیے ٹریفک جام میں رکی ہوئی ہو

was conducted to assess the correlation between ESS and ESS-Ur. Spearman's rho is a measure of the linear relationship between the two variables. A correlation of 1 suggests that the two variables being compared are monotonically related, even if their relationship is unclear.

Quantitative variables were expressed as mean ± standard deviation, and qualitative variables were expressed as frequencies and percentages. When appropriate, 95% confidence intervals (CIs) were also calculated. All statistical tests were performed using a two-tailed t-test, and values of p < 0.05 were regarded as statistically significant. All evaluations were performed using SPSS version 12.0 for Windows.

Results

Out of the 89 subjects who were included in the final analysis, 59 (67%) were women and 30 (33%) were men. Average age was 31 ± 13.3 years; average BMI was 24.4 ± 4.31.

The mean composite Epworth score in English language was 7.53±3.72, whereas in Urdu language it was

Table: ESS Score for individual questions.

ESS Questionnaire	English (Average)	Urdu (Average)	P-value
1	1.08±0.83	1.08±0.86	0.83
2	0.76±0.87	0.73±0.84	0.79
3	0.73±0.87	0.71±0.86	0.93
4	1.13±0.95	1.12±0.95	0.94
5	2.04±0.9	2.12±0.92	0.57
6	0.31±0.66	0.26±0.59	0.55
7	1.19±1.0	1.43±1.0	0.14
8	0.27±0.63	0.23±0.56	0.71

ESS: Epworth Sleepiness Score.

7.7±3.61, which was not statistically significant (p= 0.76). Similarly, there were no statistically significant differences between the scores of the 8 items of the ESS in the English version compared to the Urdu version (Table).

The Spearman's rho correlation was 0.938 between the two versions, indicating a high correlation between the ESS and ESS-Ur (p= <0.001).

Discussion

Urdu is the national language of Pakistan and is also used extensively in certain states of India such as Uttar Pradesh, Bihar, Andhra Pradesh, Jharkhand, Jammu and Kashmir and New Delhi. There are 60 to 70 million self-identified native speakers of Urdu. Outside South Asia, it is spoken by a large number of migrant South Asian workers in major urban centres of the Gulf and Middle East region. Urdu is also spoken by a large number of immigrants and their children in the major urban centers of, among others, the United Kingdom, the United States, Canada, Germany, Norway and Australia.

For the 89 individuals assessed in the present study, the scores obtained on the ESS-Ur showed internal consistency similar to other translations validated elsewhere,[3-6] despite the cultural and linguistic differences among the populations analysed. The fifth item on the ESS assesses the subjects' sleeping tendency when lying down to rest in the afternoon. The subjects scored 2.04 for English and 2.12 for Urdu for this particular item, (a score of 3 indicates a high tendency to fall asleep). The scores were higher than the other items on the ESS, possibly suggesting a cultural tendency to take naps in the afternoon in this past of the world.

Limitations of this study included the lack of heterogeneity of the study population. The Urdu-speaking population encompasses different social, cultural and economic strata, thereby limiting the generalisation of the results. This study was limited to healthy individuals in order to establish a valid ESS-Ur version before validating it in the sleep-related breathing disorders of the Urdu speaking population.

Conclusion

The results demonstrate that the ESS-Ur is a valid and reliable instrument for the assessment of daytime sleepiness, being equivalent to its original version when applied to individuals who speak Urdu. Neither major cultural adaptations nor structural modifications were necessary during the validation process. The ESS-Ur can be regarded as a useful tool in clinical practice and research. Future studies assessing the ESS-Ur validity in sleep-related breathing disorders among the Urdu-speaking population are needed.

Reference

1. Johns MW. A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep 1991; 14: 540-5.

2. Sperber AD. Translate and validate of study instrument for cross cultural research. Gastroenterology 2004; 126: S124-8.

3. Bloch KE, Schoch OD, Zhang JN, Russi EW. German version of the Epworth Sleepiness Scale. Respiration 1999; 66: 440-7.

4. Chen NH, Johns MW, Li HY, Chu CC, Liang SC, Shu YH, et al. Validation of a Chinese version of the Epworth sleepiness scale. Qual Life Res 2002; 11: 817-21.

5. Chica-Urzola H, Escobar-Córdoba F, Eslava-Schmalbach J. [Validatin the Epwarth sleepiness scale]. Rev Salud Pública (Bogota) 2007; 9: 558-67.

6. Izci B, Ardic S, Firat H, Sahin A, Altinors M, Karacan I. Reliability and validity studies of the Turkish version of the Epworth Sleepiness Scale. Sleep Breath 2008; 12: 161-8.