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Original research article

Validity and reliability of the Turkish version of the Visual Analog Sleep Scale

Funda Çetinkaya [a], *Neziha Karabulut* [b,*]

[a] *Department of Surgical Nursing, Health High School, Aksaray University, Aksaray, Turkey*
[b] *Department of Surgical Nursing, The Faculty oh Health Science, Atatürk University, Erzurum, Turkey*

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ABSTRACT

Objectives: The aim of this study was to adapt the English version of the Visual Analog Sleep Scale (VAS Scale) to Turkish, and to assess the validity and reliability of this Turkish version.
Material and methods: The study design was both descriptive and methodological. The study group was comprised of 75 patients, who agreed to participate in the study. Each had received total hip replacement surgery in an orthopedic clinical hospital. Data was collected using a Turkish translation of the VAS Scale. Psychometric testing of the adapted instrument was carried out to establish internal consistency, interim correlation, and construct validity. The Kaiser-Meyer-Olkin and Barlett's tests were applied to determine the sampling adequacy and suitability to the factor analysis.
Results: The Kaiser-Meyer-Olkin value was found to be 0.89, and this value indicates suitability for principal component analysis. Similarly, Barlett's test results ($X^2 = 608.74$, $p = 0.000$) also indicate the interrelationships of the data and suitability for the factor analysis. The eigenvalue of the VAS Scale reduced to 10 items was found to be 6.65 and the variance was 66.52. The VAS Scale Cronbach's alpha was 0.82 for the test items. The test–retest stability coefficient (validity of the scale) was 0.92. Alpha coefficient was found to be 0.94 for internal consistency.
Conclusion: The original VAS Scale consisted of three sub-scales and 15 items, whereas the Turkish version has one dimension and 10 items. The Turkish version of the VAS Scale adapted to the orthopedics clinic can be used as a one-factor tool.

Introduction

Sleep is a process that relaxes the individual and helps to restore mental and physical energy [1]. Adequate sleep and rest are considered to be an indicator of overall health status [2,3]. Patients often need more sleep and rest compared to healthy individuals [3]. Hospitalized individuals' rest and sleep habits may change depending on the physical and mental states of the patient and other environmental factors [4,5].

* *Corresponding author at*: Atatürk University, The Faculty of Health Science, Department of Surgical Nursing, Erzurum, Turkey.
E-mail addresses: nezihek@mynet.com, nezihekarabulut@hotmail.com (N. Karabulut).

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Comprehensive studies aimed at assessing the sleep status of patients have reported that hospitalized individuals experience sleep problems for many reasons, and that most sleep problems were experienced by patients hospitalized in surgical clinics [6,7]. In addition, the patients hospitalized in orthopedic surgery clinics were found to have more sleep problems than patients in other clinics [8]. Inadequate sleep can cause various physical and psychological problems due to the effect of sleeplessness on cardiopulmonary, gastrointestinal and neuromuscular functions [1,9]. Psychological effects of sleep disorders can lead to fatigue, decreased concentration, depression, increased anxiety, irritability, pain, muscle tremors, constipation and daytime sleepiness [10]. Early diagnosis of sleep problems in patients, in a hospital setting, is important for the prevention of such complications [5]. Sleep quality in a hospitalized patient can be measured by a variety of methods including the use of movement monitoring devices, brain electrical activity, sleep diaries and sleep scales. A sleep scale is an effective method of objectively determining the quality of sleep in hospitalized patients [11,12]. Having an instrument to assess a night's sleep is important for research factors which interfere in the sleep of hospitalized patients, as well as for studies testing interventions to relieve sleep problems deriving from or stressed by hospitalization [13]. Although there are studies with valid and reliable scales on the sleep quality of patients, there was no study evaluating the patients' previous night's sleep quality with a scale in Turkish [14–16]. Identifying the sleep disorders of patients and performing the necessary actions to prevent such issues is important to positively influence the healing process. There is currently no measurement tool in Turkish to assess the sleep quality of patients.

Valid and reliable tools are necessary in order to assess the sleep quality of patients. Verran and Snyder-Halpern have developed the ''Visual Analog Sleep Scale'' control to assess the quality of sleep of both patients and healthy subjects. The VAS Scale is conducted in English. This scale consists of 15 items and three sub-scales. In scoring the scale, each dimension's score is calculated by adding the scores of the related items. Scores taken in each dimension indicate the levels of disturbance, effectiveness and supplementation [17].

The aim of this study is to translate the Visual Analog Sleep Scale (VAS Scale) developed by Verran and Snyder-Halpern (VSH) into the Turkish language and to assess its validity and reliability for future studies.

Material and methods

Participants and settings

A descriptive and methodological research design was used for this study. The study was conducted with 75 patients who underwent a total hip replacement surgery between August 2011 and January 2012 in an orthopedics and traumatology clinic at a state hospital and private hospital. The inclusion criteria for the study was as follows. All patients had to be: (1) 18 years old or above; (2) have no communication disability or mental retardation which might prevent his/her audio-visual/verbal expressions concerning their sleep status; (3) not currently using any opiates; (4) experienced no complications developed in the pre, intra- or post-operative state for three days. Data was collected from patients who conform to the criteria research by the researcher through face-to-face interviews. A self-report questionnaire was used to capture demographic work characteristics and VAS Scale. Data were collected at the time when there were no visiting hours in the patient room. Data collection took an average of 15–20 min for each patient. In the literature, the number of subjects 5–10 times greater than the number of items in the scale is suggested when adapting the said scale to another culture. In addition, a group consisting of at least 30 people is suggested for the test-retest in order to ensure temporal stability of the scale [18,19]. In this study, test–retest reliability was ensured by using a sample size (n = 75) 5 times greater than the number of items (15) in the VAS Scale. In the literature there are some examples studied 5 times the number of items of the scale [20–23].

Ethical considerations

Written permission of one of the initial researchers – Verran Joyce – who developed the scale was obtained by e-mail in order to start the study. Ethics Committee approval (No: 2011.3.1/6) was obtained from the Ethics Committee of Ataturk University, Faculty of Health Sciences. Permission was obtained from the clinic where the study was to be conducted and written consent of the patients was obtained after informing them about the study details.

Data collection tool

The ''Visual Analog Sleep Scale (VAS Scale)'' and ''The Patient Information Form'' were used for data collection.

The Patient Information Form: The patient Introductory Information Form, which was used for data collection, was prepared by the researcher in accordance with the literature, and includes questions on age, gender, marital status, surgical history and sleep patterns of patients [7,8,17]. VAS Scale: This instrument was developed by Verran and Snyder-Halpern in 1988 to assess the quality of sleep of patients and healthy individuals. The scale consists of 15 items and three dimensions. The dimensions consist of disturbance, effectiveness, and supplementation (daytime sleep) sub-scales. The sleep disturbance sub-scale contains questions on sleep disruptions and delays in falling asleep; the effective-sleep sub-scale consists of sleep quality and sleep duration; and the supplementation sub-scale takes note of daytime sleep additions. Each item in the scale is evaluated by a visual analog technique, consisted of a scale-chart ranging from 0 (left side) to 100 (right side).

This chart is presented as a blank line for self-assessment, and the scale is then read by the researcher using a ruler. In the scale, 15 items are directly measured, and the total sleep time is calculated by summing up the scores taken in the 1st (did not awaken/was awake for ten hours) and 2nd (had no sleep/excluding time awake/had ten hours of sleep) items; and this calculated result is interpreted as the 16th item. Since the sub-scales refer to different dimensions of sleep, an overall, total score is not provided by the Visual Analog Sleep Scale, and each sub-scale is scored separately. In scoring the scale, each