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Original Article

Restless legs syndrome in Egyptian medical students using a validated Arabic version of the Restless Legs Syndrome Rating Scale

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ABSTRACT

Objective: Restless legs syndrome (RLS) is a common movement disorder that has a variable prevalence and impact reported from different countries and specific populations. The current study validated an Arabic version of the International Restless Legs Syndrome Study Group (IRLSSG) rating scale (IRLS) and investigated the prevalence and impact of RLS in medical students at Ain Shams University in Cairo.
Methods: Translation of IRLS was done according to standard recognized guidelines provided by the publisher. A total of 389 medical students (217 female and 172 male) participated in the study and answered four questions to detect RLS as proposed by the IRLSSG. Subjects who answered positively the first three questions were recruited for face-to-face interview to exclude RLS mimics and to answer the IRLS.
Results: A total of 46 subjects (11.8%; 27 female and 19 male) met the four criteria for RLS. Of these, 39 subjects (10%) had idiopathic RLS. Five subjects (1.3%) and two subjects (0.5%) reported association with history of anemia and diabetes mellitus respectively. Their mean total IRLS score was 16.33 ± 5.3, with moderate severity (11.62 ± 3.9) and low impact (3.1 ± 1.8). The prevalence of individuals who had two or more episodes of RLS of at least moderate severity per week was 5.9%.
Conclusion: In this specific population of Egyptian medical students, a within-average prevalence of RLS was found with low impact on quality of life similar to worldwide reported populations. RLS sufferers were of high prevalence among this cohort. The Arabic version of IRLS is reliable and valid for further research in Arabic countries.

1. Introduction

Restless legs syndrome (RLS) is considered the most common movement disorder and a common sleep disorder [1]. It is diagnosed clinically according to the four main diagnostic criteria reported by the International Restless Legs Syndrome Study Group (IRLSSG), namely: an urge to move usually associated by abnormal sensation in the legs, worse at rest, relieved by movement, and more severe at night [2]. IRLSSG validated and adopted the IRLSSG rating scale (IRLS) as a reliable instrument for diagnosis and detection of severity of RLS [3].

The prevalence of RLS is often reported to be in the range of 5–10%, yet it varies between different countries and specific populations [1,4,5] and has been shown in some studies to reach up to 24% [6,7]. European and North America countries have higher prevalence compared to reports from Asian and African countries [4,5,8]. This variation could be attributed to socio-economic status, population's lifestyle, ethnic or genetic factors [4,5], obesity and related medical chronic conditions such as diabetes, and anemia [5]. About 60% of RLS patients have a positive family history, and genetic association studies identified six genetic variants [1]. In addition, RLS is associated with depression, sleep dysfunction, and impaired quality of life (QoL) [9–11]. Yet, despite this high prevalence of RLS and its impact on QoL, RLS is underdiagnosed and undertreated [12].

To our knowledge, only one study by BaHammam et al. [13], investigated the prevalence of RLS in Arabic countries. This study used a translated Saudi-Arabic version, but we preferred to validate an Egyptian-Arabic version to overcome cultural differences and ambiguity of some expressions, especially the Arabic term of "RLS."

To promote research on RLS and its impact, we translated and validated an Arabic version of the IRLS in the current study and applied it on a specific population of medical students to detect the prevalence of RLS among this group.

2. Methods

This cross sectional study included 389 medical students (172 male and 217 female), recruited from the Faculty of Medicine, Ain Shams University in Cairo, between January and November 2013.

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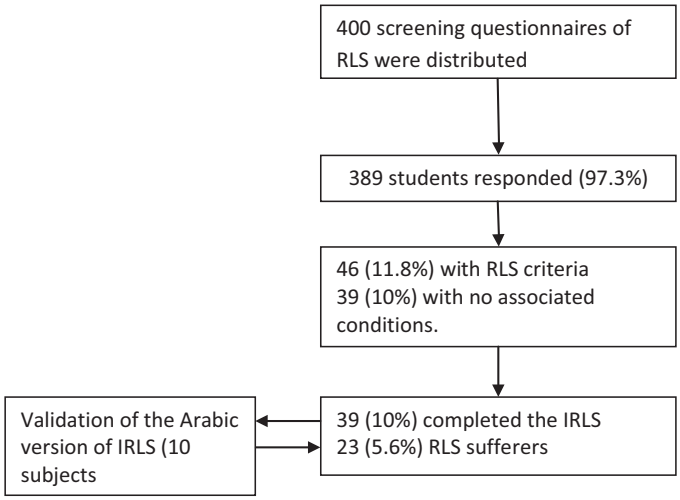

Fig. 1. Flow diagram of study design and prevalence of subjects with restless leg syndrome (RLS) and those with RLS twice or more per week and of moderate severity ("RLS sufferers"). IRLS, International Restless Legs Syndrome Study Group (IRLSSG) rating scale.

The mean age of the students was 20.67 ± 1.17 years (range 17–27 years). The participants were asked to answer the translated four-item questionnaire that was recommended by IRLSSG for epidemiological studies [2]. The questionnaire also included demographic data for the students. Those who answered positively the first three questions were recruited for a face-to-face interview by an expert physician to confirm diagnosis and exclude RLS mimics. Participants who fulfilled the four diagnostic criteria for RLS as stated by the IRLSSG were diagnosed with RLS [2]. Subsequently, those respondents completed the translated and validated Arabic version of the IRLS during an interview conducted by a trained physician. To identify primary idiopathic and secondary RLS, subjects were asked about associated diseases producing RLS, such as chronic neurological disorders, rheumatologic disorders, and about drugs related to RLS such as antidepressants, antipsychotics, dopamine agonists, and opioid abuse or withdrawal, as well as pregnancy.

The prevalence of subjects with RLS was estimated. Analysis of answered IRLS was done including the mean total values of severity and impact and the percentage of different RLS frequencies (question 7). A subgroup of RLS subjects that we termed "RLS sufferers" was then defined, which included subjects with a frequency of two or more episodes of at least moderate severity per week according to the RLS Epidemiology, Symptoms, and Treatment (REST) study definition (question 6) [14]. The prevalence of RLS sufferers among the recruited subjects was determined and an analysis of their demographic and clinical characteristics was performed (Fig. 1). Informed consent was obtained from all participants, and the study was approved by the Faculty of Medicine, Aim Shams University Local Research Ethics Committee.

2.1. Translation process

Translation proceeded after a written agreement and permission from Mapi Research Trust, and full linguistic validation process was done according to standard methodology for translation provided by the Trust [15,16]. Forward translation of IRLS from English to Arabic was performed by two bilingual professionals separately. The two translators considered clear and concise formulation, along with clarity, applicability, and suitability for different populations. Subsequently, the two Arabic versions were revised and compared by bilingual health professionals including the translators and two other doctors, and were merged into one complete translated version. Back translation from this Arabic version to English was then performed by two independent bilingual experts separately. Back translators had no knowledge of the original scale, and considered the conceptual approach and clarity of translation.

Consequently, all versions and components of the questionnaire, including the original instrument and all translated versions, were reviewed by a team to develop the pre-final version of the questionnaire for field testing. The final version was tested in ten subjects (six female and four male) with a diagnosis of RLS, under observation of the interviewer (cognitive debriefing); then the patients were asked to probe what they thought was meant by each questionnaire item and their response.

A native speaker proofread the translated Arabic version to verify the quality and accuracy and the cultural relevance. Finally, the team approved the final version of Arabic translation to be used in the current study (see Appendix S1). The final translated Arabic version was administrated for a second time after 10–14 days by 12 participants to assess test–re-test reliability.

2.2. Statistical analysis

Statistical analyses were performed using the SPSS version 20 (IBM, Armonk, NY, USA). Comparison between two independent populations was done using an independent *t* test. Fisher's exact and χ^2 tests were used to compare qualitative data. The level of statistical significance was set at 0.05. For internal consistency, Cronbach's α analysis was performed with a criterion of 0.7 to indicate adequate internal consistency.

3. Results

A total of 46 subjects (11.8%; 27 female and 19 male) met the four IRLSSG criteria for RLS. The mean age of the subjects was 20.43 ± 0.98 years (range 18–22 years). The prevalence of RLS among female and male subjects was 12.4% and 11.0%, respectively. Of the subjects, 39 (10%) had idiopathic RLS, whereas five (1.3%) with RLS reported a history of anemia and two (0.5%) reported diabetes mellitus.

The mean total score of IRLS was 16.33 ± 5.3, with moderate severity (11.62 ± 3.9) and low impact (3.1 ± 1.8). About 79.5% of RLS-positive subjects had mild (7.7%) to moderate (71.8%) symptoms, whereas 20.5% had severe symptoms. Thirty-eight subjects had a frequency of once or more per week (9.8%), and 29 subjects had a frequency of twice or more per week (7.5%) (Table 1).

A total of 23 subjects (5.9%) fulfilled the definition of RLS. Of these, 13 were male (56.5%) and ten were female (43.5%), with a main age of 20.48 ± 0.90 years. The prevalence of females and males was 4.6% and 7.6%, respectively. The mean total IRLS score was 19.26 ± 4.35; the severity score was 13.91 ± 2.75; and the impact on quality of life was 3.70 ± 1.64. A positive family history was reported by ten (25.6%) and seven (30.4%) of RLS subjects and RLS sufferers, respectively. No significant gender differences were detected regarding frequency of RLS, family history, and scores of total and individual items on the IRLS (Table 1).

3.1. Translation results

Equivalence between English source and Arabic versions was reached in four semantic, idiomatic, experiential, and conceptual perspectives. The English version was simple and applicable and could be easily translated into different languages. However, the main challenge was the name of syndrome (RLS), as Arabic translation holds different conceptual meanings, so proper description of the patients and population is recommended to avoid clinical semiology such as akathisia or involuntary movements. Also, subjects reported that Arabic translation was easy and clearly understandable,