



Persian Translation and Linguistic Validation of Rapid Eye Movement Sleep Behavior Disorder Screening Questionnaire (RBDSQ)

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Abstract

Introduction: Rapid Eye Movement Sleep Behavior Disorder (RBD) is characterized by changes in muscular tone during REM sleep (loss of normal atonia) leading to motor behaviors. This disorder is diagnosed by Video Polysomnography (VPSG) as the gold standard test. RBD Screening Questionnaire (RBDSQ) is another diagnostic tool which has been developed, translated and validated in various languages. RBDSQ might be utilized as an inexpensive alternative for VPSG. In this work, we translated this questionnaire into Persian through a standard multi-step process.

Methods: Following the guideline recommended by MAPI, we provided the translation through four steps: Forward translation, backward translation, patient testing (cognitive interviews with fifteen patients) and proofreading. We performed each step-in collaboration with MAPI. Each step included discussion and revision sessions in order to form the final precise translation.

Results: Consideration of the forward and backward translations led to rewording some of the items. Cognitive interviews with the patients revealed that the translation was generally understandable. Although revisions were needed to make the translation more expressive. Some of the typing and spelling mistakes were corrected during the final proofreading.

Conclusion: Final Persian translation of RBDSQ was verified by MAPI regarding a standard translation process. This translation is now considered compatible with the original English version and available for further studies with the aim of clinical validation.

Keywords: Sleep Disorder; RBD; Questionnaire; Persian; Translation

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Introduction

Rapid Eye Movement (REM) Sleep Behavior Disorder (RBD) is a parasomnia defined by loss of normal REM sleep atonia during which simple or complex motor behaviors such as vocalization, sudden limb movements and gestures occur in association with dreams [1]. A number of studies have estimated the prevalence of RBD as nearly 0.5% to 1% in general population and 2% in older adults [2-4]. RBD can be subcategorized as idiopathic RBD (iRBD) and symptomatic RBD (sRBD) based on clinical course and etiology [5]. The idiopathic RBD (iRBD) plays an important role in later development of alpha-synuclein neuropathology. Therefore, early diagnosis of iRBD as a risk factor for Parkinson's disease, multiple system atrophy and dementia with Lewy bodies is important [6,7].

The definite diagnosis of RBD is confirmed by standard Video Polysomnography (VPSG) following clinical impression. The evaluation of RBD becomes necessary when the history taken from either patient or sleeping partner shows dream-enacting behaviors [8]. Although necessary VPSG may not be available and affordable in many cases. Thus, the diagnostic instrument, RBD Screening Questionnaire (RBDSQ), might be useful due to accessibility. RBDSQ is a 13-item self-rating questionnaire originally developed and validated by Stiasny-Kolster et al. for this purpose [9,10]. In recent years researchers have been interested in validating RBDSQ both linguistically and clinically. It has been translated into multiple languages such as English, Italian, Czech, Brazilian, Japanese, Chinese, Korean, and Turkish [5,6,11-15].

Linguistic validation of a questionnaire is a multi-step process and not simply a literal translation. This means that understanding the original concept and then adjusting it to the target language and culture is vitally important. Through this process the translation results in an acceptable and appropriate coequal [16]. To the best of the authors' knowledge, RBDSQ has never been validated

in Persian. In this study our goal was to follow a standardized translation process in order to linguistically validate the RBDSQ for Persian speaking population.

Methods

Prior to the initiation of this study ethical approval was granted by the Medical Ethics Committee, Tehran University of Medical Sciences. Moreover, permission was obtained from the Mapi Research Trust (henceforth referred to as Mapi) holding responsibility for the copyright issues and quality control of the RBDSQ linguistic validation process. The original instrument in English (United States) was then given as the source.

The translation process was followed according to the Linguistic Validation Guidance of a Clinical Outcome Assessment (COA) provided by Mapi. This method recommends the following steps:

- Phase 1: Forward translation step
- Phase 2: Backward translation step
- Phase 3: Patient testing (cognitive interviews)
- Phase 4: Proofreading

All steps were taken in coordination with Mapi. A more detailed description of the algorithm is shown in Figure 1.

Forward translation: In this step two local translators were recruited. Both translators were native in Persian and bilingual in Persian and English. After the conceptual definition of the questionnaire two independent forward translations (A and B) were produced. Hence the translations A and B were discussed to agree upon a reconciled version that could represent the items more accurately and be easily understood by the subjects. As a result, the first translated Persian version was produced.

Backward translation: In this step a native speaker of English who is bilingual in Persian and English translated the first version of RBDSQ produced in phase one back into English. The translator was not a medical professional and not provided the original questionnaire in the source language. She had no immediate access to the original version of the RBDSQ. The back-translated version was then compared with the source instrument in English to detect potential misunderstandings and inaccuracies. After a review by three clinical specialists in neurology and psychiatry including the authors of this paper additional comments were considered and the second translated Persian version was produced.

Patient testing (cognitive interviews): The aim of this step was to test the second version obtained after completing the second phase on a population in target language in order to determine whether it is acceptable and understood appropriately by respondents. A comprehension test was performed through this step. Fifteen participants aged 24 to 69 years of whom 7 were females and 8 males were recruited and interviewed. The participants were among the patients of the Neurology Clinic and their attendants. They were all native speakers of Persian and able to read and write without additional help. During individual interviews the second reconciled version was presented to the subjects. They were all instructed to read the items and declare the concepts of each. They were asked if they had any difficulty understanding the questionnaire and to suggest alternatives in case of ambiguity. The issues were discussed with the subjects and solutions were suggested and then revised by clinicians.

However, many of the items remained unchanged. This step led to the preparation of the third translated Persian version.

Proofreading: Finally, the proofreading of the third version of the translated RBDSQ was performed by a proof reader whose native language was Persian and who was proficient in English. In this step the probable typing, spelling or grammatical mistakes

Results

The whole process of standardized translation presented a linguistically validated RBDSQ meeting the criteria of a colloquial, understandable and culture-based screening instrument which is compatible with the original English version in content.

Comparing the forward translations, A and B led to rewording some of the items. The word “dream” can be translated into Persian by both “ب‌اوخ” and “ای‌ؤر”. The word “ب‌اوخ” in Persian means “sleep” and “dream” simultaneously. In both cases this word was considered more common and practical. Moreover, the term “vivid” had to become more expressive by adding the description “یع‌ق‌او راگ‌نا” “دنت‌س‌ه” which means resembling reality. Another item of this questionnaire which could not be suited in a single Persian word was “fights” as this item emphasizes on any limb movements during sleep resembling a fight. Therefore, it was translated into “یم‌اوع‌د‌ه‌ک‌ راگ‌نا” “م‌ن‌ک” to become clearer.

The translation of the word “saluting” was an important issue to discuss. It was forward-translated as showing formal military respect (“نداد یم‌اظن‌م‌الس”) as well as simply saying hello (“ندرک‌م‌الس”) which the latter was chosen. Then it was back-translated as “Greeting”. According to the Merriam-Webster Dictionary (Merriam-Webster, Inc.) the word “salute” is defined as “to give a sign of respect, courtesy or goodwill to: To greet”. Reminding that the general notion of “saluting” in this survey was the act of showing respect when greeting someone, the equivalent translation could preferably be “ندرک‌م‌الس” “م‌ارت‌ح‌ای‌ادا‌ای”. We encountered some minor discrepancies through the back-translation step. For instance, “aggressive” was back-translated as “violent” and “action-packed” as “eventful”. However, these issues led to no changes due to identical meanings. Table 1 shows an overview of the issues encountered and the changes made (if necessary) in each step of the translation process.

Fifteen individual interviews revealed no major difficulty understanding the items of Persian RBDSQ and the respondents found them expressive in general. However, some issues were discussed. Three of the subjects asked for a specific definition of “ی‌هاگ” which is the Persian translation for “sometimes”. Since the developer of this questionnaire has not explained the exact frequency of symptoms the general concept of this word seemed relevant. Three of the subjects asked the difference between item 4 (I know that I move my arms or my legs in my sleep) and 7 (At times I’m woken up by my own movements) of the questionnaire. It was explained that item 4 was referring to the move of the limbs in their sleep and item 7 was emphasizing on waking up as a result of that movement. As most of the subjects had no difficulty differentiating these items, they remained unchanged. Answering item 6 (I experience or have experienced the following phenomena during my dreams) a few of the respondents asked if any or all of the mentioned phenomena were meant to be experienced so that they could answer the question by checking “yes”. Any of the given examples could be counted as a positive point and the phrase “زا دروم دنج‌ای‌کی” (meaning one or more of the items) was added in the beginning of this item for

Table 1: An overview the translation into Persian following the algorithm of linguistic validation process.

Items of RBDSQ*	Covered concepts	Forward Translation	Backward Translation	Changes made after patient testing	Proofreading
1	Vivid dreams	"Vivid dreams" into "very clear and clear dreams as if they were real".	Same as the original version	No changes	Minor corrections
2	Aggressive or action-packed content	Straightforward	Minor literal difference with the same meaning	The phrase "My dreams in my sleep" was restated as "Dreams that I see"	No changes
3	Movements of the body corresponding to dreams	Straightforward	Same as the original version	No changes	Minor corrections
4	Knowing the movements in sleep	Straightforward	Minor literal difference with the same meaning	No changes	No changes
5	Hurting oneself or sleeping partner	Straightforward	Minor literal difference with the same meaning	No changes	No changes
6	Experienced phenomena during dreams	- "fights" into "It's like I'm fighting" - "saluting" into "Greeting or paying respects"	"saluting" into "greeting"	The phrase "one or more of" (meaning one or more items) was added in the beginning of this item	Minor corrections
7	Being woken up by movements	Straightforward	Same as the original version	No changes	No changes
8	Remembering the contents of dreams	Straightforward	Same as the original version	No changes	Minor corrections
9	Disturbed sleep	Straightforward	Minor literal difference with the same meaning	No changes	No changes
10	History of a disease of nervous system	Straightforward	Minor literal difference with the same meaning	No changes	Minor corrections

RBDSQ: Rapid Eye Movement (REM) sleep behavior disorder screening questionnaire

*Contact information and permission to use the original instrument: Mapi Research Trust, Lyon, France. Internet: <https://eprovide.mapi-trust.org>

Table 2: Characteristics of the respondents in cognitive interviews.

Age (years)	Gender	RBDSQ Score	Items expressive and understandable?	Discussion
51	M	7	Yes	- Items 4 and 6.2 share similarity - Items 4 and 7 share similarity - The Persian "sleep" is a better alternative for "dream" which are the translations for "dream" - Item 6 is investigating both subjective symptoms and given feedback by sleeping partner - Item 6 refers to one or more of the phenomena. The phrase "one or more of" (meaning one or more of the items) should be added.
32	M	5	Yes	
24	M	1	Yes	
42	F	5	Yes	
39	F	3	Yes	
54	F	4	Yes	
26	M	6	Yes	
54	M	7	Yes	
57	F	6	Yes	
28	F	5	Yes	
69	M	3	Yes	
61	F	4	Yes	
37	M	3	Yes	
31	F	2	Yes	
39	M	3	Yes	

RBDSQ: Rapid Eye Movement (REM) sleep behavior disorder screening questionnaire

M: Male / F: Female

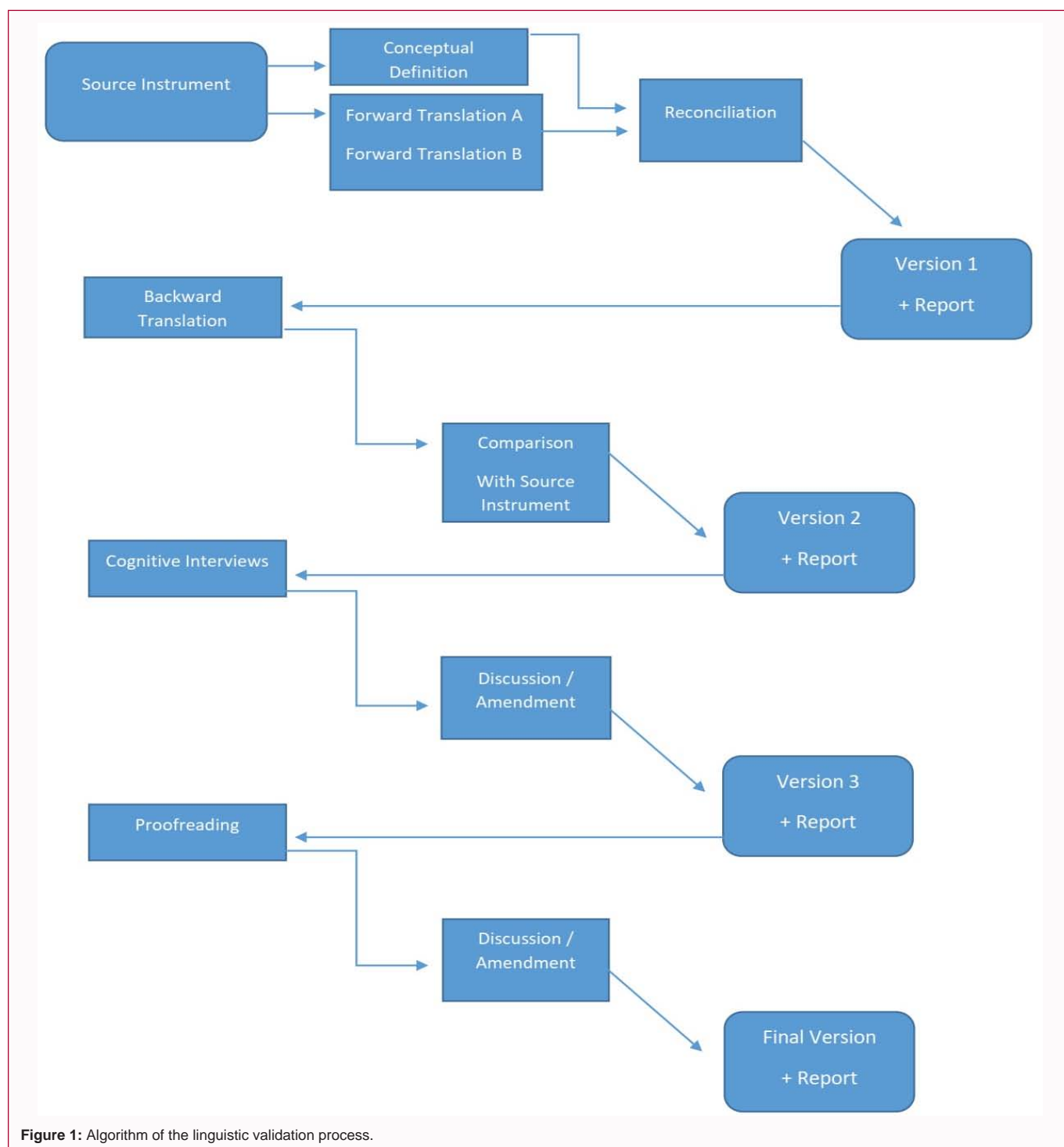
this reason. As it is not specified in the original questionnaire, it was clarified for the respondents that subjective individual experience of these phenomena could be counted a positive answer as well as the observations by their sleeping partner. Table 2 demonstrates the characteristics of the respondents in cognitive interviews including their comments.

During the final proofreading we found and resolved some spelling and typing mistakes to produce the final Persian translation of RBDSQ.

Discussion

As mentioned in the literature review, the REM Sleep Behavior Disorder Screening Questionnaire (RBDSQ) has been translated and validated into several languages. The objective of the current study

was to linguistically validate this instrument for Persian speaking patients. The present study contributes to the research domain by utilizing a step-by-step procedure to translate a Clinical Outcome Assessment (COA). Cognitive interviews with fifteen individuals revealed an important aspect of the translation process emphasizing the importance of the expressiveness and understandability of the questionnaire from the respondents' perspective. One of the limitations of this study was number of the interviewees. However, similar studies have been conducted with smaller groups of patients [17,18]. Recruiting a larger population for the pilot-testing might result in a more precise integration of the respondents' attitude and culture into this work. RBDSQ is potentially an accessible time-saving diagnostic tool which can be applied to avoid unnecessary expense. For this reason, further research is required to validate the Persian



version of RBDSQ in the clinical setting by using polysomnography as the definitive diagnostic tool for RBD.

Conclusion

This study provided a valid translation of RBDSQ into Persian which is compatible with the original version both semantically and conceptually. With respect to the importance of the proper translation and understandability of a Clinical Outcome Assessment (COA), the Persian RBDSQ can be utilized in future research work for clinical validation and application of a feasible screening tool for RBD.

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