Linguistic Validation of Medical Epidemiological and Social Aspects of Aging Questionnaire in Bengali Language

Shamima Islam Nipa[1*], Thanyaluck Sriboonreung[2], Aatit Paungmali[2], Chailert Phongnarisorn[3]

[1]*PhD Candidate, Bio-Medical Science, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand*
[2]*Associate Professor, Ph.D., Department of Physical Therapy, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand*
[3]*Assistant Professor, M.D., Faculty of Medicine, Chiang Mai University, Thailand*
Corresponding Author: Shamima Islam Nipa E-mail: shamimamrs2017@gmail.com

ARTICLE INFO	ABSTRACT
	The objective of the study was to conduct a linguistic validation of the Medical, Epidemiological and Social aspects of Aging (MESA) questionnaire for Bengali language to capture the concepts of the original English-language version of the questionnaire and is readily understand by the women with urinary incontinence. This study followed by cross sectional pilot study design and conducted between April, 2019 to August, 2019 at Centre for the Rehabilitation of the Paralysed (CRP), Bangladesh. This study recruited twenty-seven (27) native-Bengali speaking residence of Bangladesh who reported urinary incontinence. All the respondents selected purposively for this study. The mean age of the respondents was 42.12; sd± 10.41. The respondents faced mostly comprehensive difficulties in the "Initial section" (Questions 4 and 5) and conceptual difficulties in "Urge Incontinence Questions" section (Questions 1 and 2). There were not any kinds of difficulties for the respondents in the "Stress Incontinence Questions" section. Translation and adaptation raised not any major concerns. However, further study would conduct by increasing the number of women who speak Bengali exclusively or by preference in clinical research related to urinary incontinence.

1. INTRODUCTION

Urinary Incontinence is an involuntary leakage of urine. The prevalence of urinary incontinence in different countries stated about 5%-70% approximately. However, the majority of the studies have reported that the prevalence of urinary incontinence ranges from 25%-45% (Milsom &Gyhagen, 2019). It affects the physical, psychological and social aspects of women with urinary incontinence. The most common type of urinary incontinence is stress, urge and mixed urinary incontinence. The purpose of the present study was to conduct a linguistic validation of the MESA questionnaire translated into Bengali language to capture the concepts of the original English-language version of the questionnaire and is readily understand by the women with urinary incontinence. The Medical Epidemiological and Social Aspects of Aging (MESA) questionnaire is a communication tool which

is used to assess the activities related with urinary incontinence. It is a 15 items instrument divided in to 2 subscales for stress and urge urinary incontinence (Jayachandran, 2007).

2. LITERATURE REVIEW

Linguistic validation is a process to adapt a measurement tool for the target group of people culturally and linguistically. The selection of word is significantly essential to ensure the linguistic validation of a questionnaire, since not all the words would possible to translate directly to other language (Bright, Cotterill, Drake, & Abrams, 2014).

Several studies have suggested that linguistic validation is used for the consideration of clinical outcomes including patients, clinicians and observer reported outcomes. However, linguistic validation is also used for quality of life questionnaires. Most often

these questionnaires are considered as instruments that comprise instructions, response types and preference of response to the items or questions.

Linguistic validation is the process of translation of a questionnaire in a language which is conceptually equivalent to the original version. Furthermore, linguistic validation should be clear and easy to understand by all levels of determined population. As a part of linguistic validation, conceptual equivalence is the absence of the difference in respect of meaning and content between the translated version and original version (Diokno, Brock, Brown, & Herzog, 1986).

Medical, Epidemiological and social aspects of Aging (MESA) questionnaire is a communication tool designed to help patients with urinary incontinence and the health care providers to reflect on the correct diagnosis of the type of the urinary incontinence. To develop an effective treatment plan MESA score is used as a preliminary screening tool (Jayachandran, 2007).

Young, Fine, McCrery, Wren, Richter, Brubaker, Brown, Weber, and Pelvic Floor Disorders Network (2007) briefly stated that the baseline MESA questionnaire includes seven questions considering describing presence of urinary incontinence over past 12 months, duration of urinary incontinence, when usually occurs, how often, use of protection against leaked urine (type of protection, number of used protection and frequency of using protection each day/ each week, amount of urine loss, severity of leakage of urine).

The MESA urinary incontinence questionnaire is one of the research tools that is used to measure the type of urinary incontinence. It is a simple, self- administered questionnaire which includes nine questions for the type of stress urinary incontinence (SUI) and six questions for urge urinary incontinence (Diokno et al.,1986).

According to the MESA questionnaire, the frequency of urinary incontinence is measured in a 4-point scale indicating "never" to "often". Scoring of each question regarding stress and urge urinary incontinence ranges from 0 to 3. Here "0" indicates never and "3" indicates often. According to the scale the more the score indicates the more the severity of the frequency of urinary incontinence.

The score can be calculated as follows: The stress urinary incontinence can be calculated as (summation of stress score/27). In addition, the urge urinary incontinence calculated as (summation of urge score/18).

3. METHODOLOGY

3.1 Study Design

This cross-sectional study was conducted between April, 2019 to August, 2019. The translation Medical, Epidemiological and Social Aspects of Aging (MESA) questionnaire was done between April to June, 2019. Face validity was conducted through pilot tested by two qualified health professionals and twenty-seven patients who came at the outpatient unit at the Centre for the Rehabilitation of the Paralysed (CRP).

3.2 Study Population

Participants were recruited by clinical investigators. Participants had to be native-Bengali speakers residing in Bangladesh who reported urinary incontinence. There were 27 female respondents included in this study.

3.3 Sampling Procedure:

A purposive sampling procedure had followed for this study. For the inclusion criteria of the respondents this study considered those women who were suffering with the urinary incontinence, women with age ranged 18-60 years of age, who were married and were willing to participate. In addition, the exclusion criteria considered as women who were suffering from diabetes mellitus, pregnant women or women at their post partum period, women with urinary tract infection (UTI) or pelvic floor surgery, women with neurological conditions which can affect bowel and bladder function, semi-conscious/unconscious or mentally retardate patients and unmarried women.

3.4 Linguistic Validation Process of the Study

The methodology to conduct the linguistic validation of MESA was based on a typical linguistic validation process. Translations were created by linguists meeting the cultural, technical and linguistic standards of competence through a process of forward and backward translation. A harmonized translation of the MESA questionnaire was created in Bengali. The translations were then tested via interviews of patients with urinary incontinence at the Centre for the Rehabilitation of the Paralysed (CRP). The interview had been conducted by the qualified interviewers. All

interactions with participants were conducted in the target language only.

Two Bengali speaking translators who were experienced in translating health related questionnaire translated the question independently. It is called forward translation. After that, both the translators compare their translations and formed a third one of the translations. The development of this third translation by the discussion and reviewing process is known as "harmonized translation". Thus, the 3rd version had been translated again into English which was known as backward translation. Consequently, the researcher compared the original English to the backward translation and agreed or questioned on each item in the backward translation. Followed by the researcher discussed with all the translators regarding the amendment of forward or backward translation or leave the translation as it was based on the justification. Sequentially, a new harmonized translation and backward translation might be created. The survey investigator compared the original English to the harmonized back-translation and either questioned or approved each item. If any portion were not approved, then translations were sending back to the translators for necessary changes or without any amendment based on the justification providing to the survey investigator. According to the linguistic validation framework of Mapi research institute (2002) the validation process has been followed (Varni, 2002).

3.5 Study Procedure

The proposal of the study was approved by the Ethical Review Committee of the Centre for the Rehabilitation of the Paralysed (CRP). Participants were asked according to the MESA questionnaire during a baseline interview and followed by return to the questionnaire with any words, phrases or sentences circled that were difficult to understand. During the interview, the respondents were asked about each sentence of questionnaire, whether they had understood each question or faced any difficulty to understand. If there would any difficulty faced by the participants, then they were asked why the words were difficult to understand or kinds of difficulty there were facing. The interviewer judged whether any items were correctly paraphrased and recorded any comprehension problems or proposed changes to the wording. All the information that informed by the patient were captured.

222

4. RESULTS AND DISCUSSION

To ensure the linguistic validity of the MESA questionnaire, the questionnaire tested among 27 participants. Most of the questions were conceptually understandable towards the participants. The respondents mostly faced problem in the "Initial section" and "Urge Incontinence Questions" section. There were not any kinds of difficulties for the respondents in the "Stress Incontinence Questions" section.

A field test conducted among the 27 participants who had urinary incontinence and came at CRP for the intervention of other conditions. The mean age of the respondents was 42.12; sd± 10.41 with minimum age 27 years and maximum age 60 years. Among the respondents, the majority of them were housewives including 73% (n=20). However, only 18% (n=5) and 9% (n=2) of them were service holders and teachers respectively.

About 45% (n=12) respondents were from the semi-urban area. In addition, 36% (n=10) were from rural area and only 18% (n=5) respondents were from the urban area. Most of the participated respondents had secondary level of education about 33.3% (n=9) whereas about 14.8% (n=4) were secondary school certificate pass and 11.1% (n=3) had primary level of education respectively (Table: 1).

Percentage of Types of Difficulties Faced by the Respondents

Among the respondents 64% (n=17) faced comprehension difficulties regarding the baseline question 4 ("How often"). In the country context of Bangladesh, majority of them were not used to use the protection for the urinary incontinence. Only seven respondents ensured that they had used the protection. However, when the option mentioned as "Pads like those placed on furniture (ex. blue pads)", then the respondents became confused as they didn't see ever those kinds of pads. In addition, there was a spelling mistake on the Bengali version of the baseline question no. five "Adult wetness control garments (ex. Attends, Depends)". Likewise, about 55% (n=15) respondents faced conceptual difficulties at the "Urge Urinary Incontinence Question" no. 1 referred to "Some people receive very little warning and suddenly find that they are losing, or about to lose, urine beyond their control. How often does this happen to you?" On the other hand, about 27% (n=7) participants faced conceptual difficulties in the "Urge urinary

Incontinence Question" 2 heading as "If you can't find a toilet or find a toilet that is occupied and you have an urge to urinate, how often do you end up losing urine and wetting yourself ?"(Figure:1).

For the analysis of the data the researcher divided the questionnaire into three sections. The baseline section considered as section one whereas urge urinary incontinence section and stress urinary incontinence section considered as section two and three respectively.

In the initial or baseline section of the MESA questionnaire, there was a question about "How often" which was a continuation of previous question "When does the urine loss usually occur?"Majority of the respondents considered it as how often they went for urinate rather how often they had urinary incontinence in daytime or night time or daytime/night time both.

Furthermore, in the baseline section, there was a question "Do you use anything for protection against leaked urine?" Most of the respondents about 73% (n=20) did not use any kinds of protection whereas only 27% (n=7) respondents used the protection. Two of them used sanitary napkin and another five used toilet tissue as a protection of urine leakage. Under this question, there was an option "Pads like those placed on furniture (ex. blue pads)". Respondents mentioned that they were not familiar with these kinds of pads. There was a spelling mistake in Bengali version of question "Adult wetness control garments (ex. Attends, Depends)". Therefore, data collector faced difficulties to ask the question or to give instructions to the respondents.

Majority of the respondents about 55% (n=15) faced conceptual difficulties to understand the 1st question of Urge Incontinence Questions as the question was very long and the question was divided into several parts. Therefore, instructor needed to describe the concept of the question to get the answer. To make clear the concept, the question revised and simplified it as "how often do you have urine loss or about to loss with very little warning?"Additionally, about 27 % (n=7) respondents faced conceptual difficulties as well to understand the 2nd question of Urge Incontinence Questions labeled as "If you can't find a toilet or find a toilet that is occupied and you have an urge to urinate, how often do you end up losing urine and wetting yourself?" Therefore, the question revised and simplified it as "How often did you loss urine and wetting yourself, when you can't find any toilet or the

toilet is occupied though you have an urge to urinate?" (Table:2).

The study suggested that linguistic validation needs to be done to make certain that the translation affirm in the target language state the anticipated with the original language. It ensures the similarity of value of the questionnaire or instrument with the original source. Linguistic validation ensures the value of materials of data collection (Steffen, 1998). The semantic equivalence was protected by performing backward translation with independent translators. Content equivalence with the original source established, by discussion and revision after backward translation. Further strengthened was maintained by asking the open-ended questions regarding the questionnaire and requesting feedback from the participants. However, the questionnaire was revised frequently based on the responses of the participants.

The results of the cognitive debriefing interviews indicated that the translations of the MESA questionnaire into Bengali language adequately captured the concepts of the original English language version. The questionnaire was readily understood by the participants with urinary incontinence. The MESA questionnaire demonstrated that the instrument helped the clinician or the researchers to find out the frequency of urge or stress urinary incontinence.

Currently, MESA questionnaire was translated in Spanish language and the study findings suggested that the questionnaire was nearly diagonal. This study findings stated that the mean of stress score in English was 39±24 whereas the in the Spanish language the score was 35±23. Nevertheless, there was not statistically significant differences between the Spanish and English language considering the (p=0.024). Consequently, there was not statistically significant difference between the mean of urge score in English Spanish language (p=0.17). In addition, in the Spanish language all the Kappa was greater than 0.6 indicating moderate level of reliability of MESA questionnaire (Young et al., 2007). Malik, Hess, Christie, Carmel, and Zimmern (2019) conducted a research to compare the urinary incontinence related questionnaire and declared that there was a good correlation between the stress urinary incontinence (SUI) and urge urinary incontinence (UUI) with Medical, Epidemiological and Social Aspects of Aging Questionnaire (MESA).

5. CONCLUSION

There were not many concerns to translate and adapt the MESA questionnaire. Language barriers can interfere with research participation followed by diagnosis and intervention program as well. In addition, the questionnaire which translated in this study, it would be possible to increase the participation of women who speak Bengali exclusively or by preference in clinical research related to urinary incontinence. Consequently, another study would also be conducted with the bilingual women with urinary incontinence in Bangladesh to measure the statistical significance in the Bengali and English version.

ABOUT THE AUTHOR(S)

Shamima Islam Nipa*, PhD Candidate, Bio-Medical Science, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand and working as a Lecturer, Department of Rehabilitation Science, Bangladesh Health Professions Institute (BHPI), Centre for the Rehabilitation of the Paralysed (CRP) at Bangladesh. Her research interests are women's health and rehabilitation, Clinical reasoning process.

Thanyaluck Sriboonreung, Associate Professor, Ph.D., Department of Physical Therapy, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand, research interest in women's health and pediatric physical therapy.

Aatit Paungmali, Associate Professor, Ph.D., Department of Physical Therapy, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand. Interested in investigation of physiological and pain-relieving effects of physiotherapy interventions (e.g., thermal therapy, electrotherapy, therapeutic exercise, core stabilization exercise, manual and manipulative therapy, as well as traditional medicine). Evaluating disability, impairment, functions and performance related to musculoskeletal disorders and injuries, such as back pain, tennis elbow, OA, etc. Evaluating pain-related measures and orthopedic tests.

Chailert Phongnarisorn, Assistant Professor, M.D., Faculty of Medicine, Chiang Mai University, Thailand, research interests in obstetrics and gynecology.

REFERENCES

[1] Bright, E., Cotterill, N., Drake, M. & Abrams, P. (2014). Developing and validating the International Consultation on Incontinence Questionnaire bladder diary. *European urology*, *66*(2), 294-300.

[2] Diokno, A.C., Brock, B.M., Brown, M.B. & Herzog, A.R. (1986). Prevalence of urinary incontinence and other urological symptoms in the noninstitutionalized elderly. *The Journal of urology*, *136*(5), 1021-1025.

[3] Javachandran, C. (2007). Prevalence of stress, urge, and mixed urinary incontinence in women. *Masters Theses and Doctoral Dissertations*, 228.

[4] Malik, R. D., Hess, D. S., Christie, A., Carmel, M. E., & Zimmern, P. E. (2019). Domain Comparison Between 6 Validated Questionnaires Administered to Women with Urinary Incontinence. *Urology*.

[5] Milsom, I., & Gyhagen, M. (2019). The prevalence of urinary incontinence. *Climacteric*, *22*(3), 217-222.

[6] Steffen, B., (1998). *Tools and Algorithms for the Construction and Analysis of Systems: 4th International Conference, TACAS'98, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS'98, Lisbon, Portugal, March 28-April 4, 1998, Proceedings* (Vol. 1384). Springer Science & Business Media.

[7] Varni, J.W. (2002). Linguistic validation of the PedsQLTM-A quality of life questionnaire. Mapi Research Institute; 2002.

[8] Young, A.E., Fine, P.M., McCrery, R., Wren, P.A., Richter, H.E., Brubaker, L., Brown, M.B., Weber, A.M. & Pelvic Floor Disorders Network. (2007). Spanish language translation of pelvic floor disorders instruments. *International Urogynecology Journal*, *18*(10), 1171-1178.

Table 1: Socio-Demographic Characteristics of the Participants by the Target Language:

Characteristics	Number (n)	Percentage (%)
Occupation		
Housewife	**20**	**73%**
Service holder	5	18%
Teacher	2	9%
Living Place		
Semi-urban area	12	45%
Rural area	10	36%
Urban	5	18%
Educational Status		
Illiterate	5	18.5%
Primary	3	11.1%
Secondary	9	33.3%
SSC Passed	4	14.8%
HSC passed	2	7.4%
Honors	2	7.4%
Masters	2	7.4%

Table 2: Required Changes Faced by the Respondents and Data Collectors for the Validity of the Questionnaire:

Section	Item	Category	Required Changes
Section: 1	Initial Assessment question 4 " How often"	Comprehension difficulty	Instruction clarified. The question changed as "how often do you face urinary incontinence" as it was the continuation of the question 3 of baseline section.
	Initial Assessment question 5 second option "pads like those placed on furniture (ex. Blue pad)"	Cultural-adaptation difficulty	The question had kept as original one as it would not hamper the study findings. Because, most of the respondents didn't use any kinds of protection for their urinary incontinence.
	Initial Assessment question 5 third option "Adult wetness control garments (Attends/ Depends)"	Spelling mistake in the Bengali version	The spelling of the target language had corrected.

Section: 2	Urge Incontinence question "1.Some people receive very little warning and suddenly find that they are losing, or about to lose, urine beyond their control. How often does this happen to you?"	Conceptual difficulties	The question revised and simplified it as "how often do you have urine loss or about to loss with very little warning?"
	Urge Incontinence question "2. If you can't find a toilet or find a toilet that is occupied and you have an urge to urinate, how often do you end up losing urine and wetting yourself?"	Conceptual difficulties	The question revised and simplified it as "How often did you loss urine and wetting yourself, when you can't find any toilet or the toilet is occupied though you have an urge to urinate?"

Figure: 1: Percentage of Types of Difficulties Faced by the Respondents

226