**ORIGINAL ARTICLE**

# AGING MALE SYMPTOMS SCALE (AMS) FOR HEALTH-RELATED QUALITY OF LIFE IN AGING MEN: TRANSLATION AND ADAPTATION IN MALAY

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**ABSTRACT**

*The Aging Male Symptoms Scale (AMS) measures health-related quality of life in aging men. The objective of this paper is to describe the translation and validation of the AMS into Bahasa Melayu (BM). The original English version of the AMS was translated into BM by 2 translators to produce BM1 and BM2, and subsequently harmonized to produce BM3. Two other independent translators, blinded to the English version, back-translated BM3 to yield E2 and E3. All versions (BM1, BM2, BM3, E2, E3) were compared with the English version. The BM pre-final version was produced, and pre-tested in 8 participants. Proportion Agreement, Weighted Kappa, Spearman Rank Correlation Coefficient, and verbatim responses were used. The English and the BM versions showed excellent equivalence (weighted Kappa and Spearman Rank Coefficients, ranged from 0.72 to 1.00, and Proportion Agreement values ranged from 75.0% to 100%). In conclusion, the BM version of the AMS was successfully translated and adapted.*

***Key words:*** *aging male symptoms; rating scale; translation; validation*

## INTRODUCTION

The interest to measure health-related quality of life and symptoms in aging males has increased over recent years[1]. However, the interest to measure health-related quality of life and symptoms has been done mostly in women but not in men. The Aging Males Symptoms (AMS) scale was developed in response to the lack of standardized scales to measure the severity of aging symptoms and their impact on the health related quality of life (HRQoL) in men in the late 1990s[2]. The AMS scale was originally developed in Germany in 1999 based on the assumption that when women undergo 'transition' during their menopausal stage, men also develop some 'transition'[1]. However, the 'transition' in terms of symptoms is normally overlooked in men[1].

The AMS scale was developed mainly to (a) assess symptoms of aging (independent for those which are disease-related) between groups of males under different conditions, (b) evaluate the severity of symptoms over time, and (c) as well as to measure the pre-and post-androgen replacement therapy changes[2]. The AMS scale is being used as an international HRQoL scale in many countries. Currently, translations have been conducted in 17 languages using international methodology recommendations for linguistic and cultural adaptation[1].

However, the dilemma faced by researchers in Malaysia is the availability of translated and validated questionnaires in Bahasa Melayu (BM) to assess HRQoL in men. The lack of validated questionnaires in Malaysia limits researchers to two choices: (1) to develop a new measure or (2) to translate, modify and adapt a measure which had been developed and validated in other languages[3]. The first option has the drawbacks of high cost and is time consuming and, most importantly, comparisons with data from other countries will be limited. Thus, the second choice seems to be more economical and practical.

The translation and cultural adaptation processes of a questionnaire is an internationally acknowledged method. This process involved the translation into a preferred language and the alteration of cultural words and if necessary, complete change of some items in order to apprehend the same concept in the targeted culture. The aim of this study is to translate and cross-culturally adapt the BM version of the AMS scale among aging males.

## METHODOLOGY

### Cross-cultural adaptation process

The translation and cross-cultural adaptation into BM was carried out in five stages[4,5].

*Stage 1: Initial translation*

The first step in producing the BM version is the forward translation of the English version (E1). The E1 of the AMS is translated into BM by two

native bilingual translators with good knowledge (spoken and written) in Malay language. The two translators who have different backgrounds produced two independent translations (BM1 & BM2). Translator A, is a subject matter expert and has knowledge of the study aims, thus was not blinded to E1. While translator B, a professional translator was blinded to the study aims.

*Stage 2: Synthesis of the translation*
Synthesis of BM1 and BM2 was done by an expert committee which consists of multi-disciplinary health professionals: urologist, psychologist, family medicine specialists, and clinical epidemiologists. In the discussion, BM1 and BM2 were harmonized, producing one common BM version which was named BM3. Focus was given to the meaning of the words in BM1, BM2, and E1 in order to get hold of similar effects on study participants from different cultures in Malaysia. Other than that, potential difficulties in understanding items in the questionnaire were also identified. A written report on each of the issues addressed and how it was resolved were documented.

*Stage 3: Back translation*
Back translations to produce E2 and E3 were completed by two other translators using BM3. The back translations were conducted by individuals who were fluent in both English and Malay based on their professional achievements. One of the translator, who has knowledge of the study aims, thus was not blinded while the other translator was blinded to the study. Both of them were blinded to the original English version.

*Stage 4: Pre-final BM version*
The expert committee members as in Stage 2 were also involved in reviewing all translations (BM1, BM2, BM3, E2, E3) in order to produce the pre-final BM version. This was done with reference to the original English version of the AMS (E1). The aim of this stage was to obtain semantic equivalence in order to achieve a similar effect on study participants who speak both languages, Malay and English.

*Stage 5: Test of the pre-final version*
The pre-final BM version of the AMS was tested to a group of eight participants to probe for comprehensibility and understanding through focus group discussion.

**Study population**
The study population consisted of eight male adults aged more than 40 years old. Since Malay language is widely spoken by Malays, Chinese and Indians in Malaysia, participants from these ethnic groups were recruited. The participants were patients conveniently drawn from a few departments in the University of Malaya, Malaysia.

To ensure that the respondent's bilingual proficiency were adequate, all participants were chosen based on their knowledge and fluency of both English and Malay. This was gauged subjectively by the pretest coordinator. Participants were expected to be fluent both in English and Malay so that the measurement the semantic equivalence of the questionnaires could be assessed.

**Data collection**
Data was collected using the English version and the pre-final BM version of the AMS scale. The order of the questionnaires administration was randomly assigned with those who started with the English scale, were given the pre-final BM version next and vice-versa. Although there was no consensus on the interval time between test and retest, both tests were separated more than thirty minutes apart to minimize recall bias. Other data on demographic information such as age, ethnicity, religion and occupation were also captured in a separate questionnaire at the start of the test.

**Focus group discussion**
This discussion was conducted after the participants have answered both versions of the AMS. In this session, each question was read to the participants and they were 'randomly probed' by asking: (1) to explain their understanding from the question, (2) to state whether the question made any 'sense', (3) to state whether the question was worded correctly, and (4) to provide any alternative words that would explain the question better. The participants' explanations and responses were written verbatim onto the Participant Response Forms for documentation.

**Ethical consideration**
Approval was obtained from the University of Malaya, Malaysia Ethics Committee, prior to commencing the study. A study information sheet explaining the purpose of the study was given to each respondent. Written consent was also sought before the administration of the AMS scale. Participation in the study was voluntary and all participants were assured on the privacy and confidentiality.

**Data analysis**
Statistical analysis was conducted using STATA version 9.0. In order to establish the equivalence between the English and Malay versions, the following tests were used[6].

| | | |
|---|---|---|
| (i) | Proportion agreement | To describe the equivalence properties between the original English and BM version of the AMS scale |
| (ii) | The weighted Kappa | To measure the agreement between the English and BM version of the AMS scale<br>Kappa cut-offs:<br><0.20 = poor<br>>0.21 and <0.40 = fair moderate >0.41 and <0.60 = moderate >0.61 and <0.80 = substantial<br>>0.80 = excellent |
| (iii) | Spearman Rank Correlation Coefficient | To determine the relationship between the English and BM version of the AMS scale |
| (iv) | Intraclass Correlation Coefficient | To determine test-retest reliability between the English and BM version of the AMS scale |

**RESULTS**

Table 1 shows a summary of the participants' characteristics. The median age was 57 years (range 48-59 years). The majority of the participants were Malays (62.5%) and followed by Indians (25%) and others (12.5%). Majority of the participants were either non-government staff or unemployed.

**Table 1: Demographic characteristics of the study participants**

| | **N = 8** | **%** |
|---|---|---|
| Age (Years) | | |
| • Mean (SD) | 55.9 (3.7) | |
| • Median (Min.Max) | 57 (48,59) | |
| Ethnic group | | |
| • Malay | 5 | 62.5 |
| • Indian | 2 | 25 |
| • Others | 1 | 12.5 |
| Occupation | | |
| • Government servant | 1 | 12.5 |
| • Non-government servant | 3 | 37.5 |
| • Student | 1 | 12.5 |
| • Unemployed | 3 | 37.5 |

The AMS scale consists of 17 items which assess the health-related quality of life. A response rate of 100% was obtained for all the items in the AMS scale (Table 2). The equivalence properties between the original English and BM version of the AMS scale showed good to excellent proportion agreement with a value ranging from 75% to 100% (Table 2). However, proportion agreement did not overcome agreement that occurred by chance. Hence, weighted Kappa was calculated to measure chance-corrected agreement between English and Malay versions. The weighted Kappa calculated showed that all items of the AMS indicate substantial to excellent agreement except for 'item number 14' where the Kappa value was not calculated due to the limitation of Kappa which assigned less weight to agreement as categories were further apart.

The Spearman Rank Correlation Coefficient was used to investigate the associations between each item of the English and BM versions of the AMS scale. The result showed a good to excellent correlations between the English and BM versions, which ranged from 0.72 to 1.00. The adequacy of translation was further strengthened by the test-retest interclass correlation coefficients (ICC) analysis, which was meant to show the reliability between the English and BM versions of the AMS scale at two time points.

**Table 2 Proportion agreement, Weighted Kappa and Correlations between the original and the translated versions of the AMS scale**

| Items | N | Proportion Agreement (%) | Weighted Kappa | Spearman Rank Correlation Coefficient | Intraclass correlation |
|---|---|---|---|---|---|
| 1 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 2 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 3 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 4 | 8 | 75.0 | 0.72 | 0.91 | 0.0227 |
| 5 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 6 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 7 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 8 | 8 | 100.0 | 1.00 | 1.00 | 0 |
| 9 | 8 | 87.5 | 0.86 | 0.99 | 0.0057 |
| 10 | 8 | 87.5 | 0.68 | 0.72 | 0.0278 |
| 11 | 8 | 87.5 | 0.85 | 1.00 | 0.0052 |
| 12 | 8 | 87.5 | 0.83 | 0.99 | 0.0074 |
| 13 | 8 | 87.5 | 0.81 | 0.82 | 0.0079 |
| 14 | 8 | 87.5 | | 0.00 | 0.0667 |
| 15 | 8 | 100.0 | | 1.00 | 0 |
| 16 | 8 | 100.0 | 0.84 | 1.00 | 0 |
| 17 | 8 | 75.0 | 1.00 | 0.83 | 0 |
| | | | 1.00 | | |
| | | | 0.76 | | |

**Verbatim responses**

Generally no participant reported difficulty in understanding the items and responses in the AMS scale. No items were labeled as imprecise, irrelevant or inappropriate. All the items could be understood and fully answered by all the participants.

In order to obtain a good semantic response, the words used in the scale should be appropriate for general population. During the probing stage, the participants made several suggestions to improve the translations including words that are more accustomed across the three main ethnicities in Malaysia. For example, the word 'symptoms' was translated into "*gejala/tanda/simptom*" in the initial translation process. Although it was a right translation, "tanda-tanda" is chosen as this word has a larger usage in the target population. Another example was in item number seven, where the word 'nervousness' was translated to *"gelisah dan tidak senang duduk"*. However, in the verbatim response, the participants interpreted *"gelisah dan tidak senang duduk"* as restlessness. Therefore, the term was changed to "*resah dan gelisah"*.

**DISCUSSION**

Cross-cultural adaptation in this study was performed to ensure consistencies in the content and face validity between source (English) and target (Malay) versions of the AMS scale. Throughout the different stages of the adaptation process, we were able to progress towards the obtainment of item, semantic and operational equivalence. Semantic equivalence was sought throughout all stages of the translation process and as a result, the translated version was comprehensible. Maintaining similar questionnaire format and mode of administration resulted in the item and operational equivalence. A response rate of 100% for each item suggested that the questions and response choices used in the Malay version were easy to be understood.

If a questionnaire is well translated, one would expect that bilingual participants will provide equivalent responses to the questions in either language. Consistently, all the items in the AMS scale obtained good to excellent proportion agreement between the BM version and the original English version. For item 14, the weighted Kappa was not calculated due to some limitations to weighted Kappa, as it assigns less weight to agreement as categories[7].

Meanwhile, verbatim responses that were gathered during the focus group discussion with the participants did not point out any serious problem with the comprehension of the questionnaire. The verbatim responses gave the researchers an overview on what the participants' understanding in terms of its comprehension and readability of each item. It is also used in determining the most suitable wordings suggested by the participants.

There are a few limitations worth mentioning in this study. First, the sample size in this study was relatively small. This is because further psychometric test including reliability and validity was planned to be conducted in a bigger scale once the BM version of the AMS scale was proven to be suitable in the Malaysian adult male population. Second, the suitability of the AMS in adults greater than 60 years of age was not

assessed in this study. Third, we did not compare the different versions of E1, E2 and E3. This would help to assess conformity which may serve as a quality indicator of the BM3 version. Fourth, the participants in this study did not reflect completely the percentage of the 3 main ethnic groups in Malaysia as there was no Chinese participant.

Based on the findings of this study, a final BM version of the AMS scale is proposed to be used in the aging male population. However, success in the translation and adaptation do not ensure psychometric properties of any study instrument. A recommendation is made that this translated Malay version should be further evaluated in terms of its reliability and validity.

## CONCLUSION

The BM version of the AMS scale was successfully translated and adapted for application to Malaysian aging males. The BM version of the AMS scale proved to be easily understandable and equivalent to the English version. Further psychometric test needs to be conducted in a bigger scale to assess the reliability and validity of the BM version of the AMS scale.

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## AUTHOR DISCLOSURE STATEMENT

No competing financial interests exist.

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**APPENDIX 1**

**Soal selidik AMS**

| Yang manakah antara tanda-tanda berikut berkaitan dengan diri anda pada masa ini? Sila (√) petak yang berkenaan bagi setiap tanda-tanda. Bagi tanda-tanda yang tidak berkenaan, sila (√) 'tiada'. | | | | | |
|---|---|---|---|---|---|
| Tanda-tanda: Skor = | Tiada<br>1 | Sedikit<br>2 | Seder-hana<br>3 | Teruk<br>4 | Amat teruk<br>5 |
| 1. Perasaan anda terhadap kesihatan/ kesejahteraan diri secara menyeluruh telah merosot. (Keadaan kesihatan diri secara umumnya, perasaan dalam diri). For Peer Review Only | | | | | |
| 2. Sakit sendi dan sengal otot (sakit pada bahagian bawah belakang, sakit sendi, sakit pada kaki atau tangan, sakit belakang). | | | | | |
| 3. Berpeluh berlebihan (berpeluh yang tidak dijangka/secara tiba-tiba, panas badan tanpa sebab). | | | | | |
| 4. Masalah tidur (sukar tidur, sukar tidur nyenyak, terjaga dari tidur lebih awal dan terasa letih, tidur yang terganggu, tidak boleh tidur). | | | | | |
| 5. Memerlukan tidur yang lebih, sering berasa letih. | | | | | |
| 6. Cepat marah (berasa cepat marah, mudah berasa tersinggung terhadap perkara yang remeh, perasaan tidak menentu). | | | | | |
| 7. Gementar/gugup (rasa tertekan, resah dan gelisah). | | | | | |
| 8. Keresahan (berasa panik/cemas). | | | | | |
| 9. Keletihan fizikal/kurang cergas (prestasi keseluruhan merosot, kurang aktif, kurang berminat dalam aktiviti riadah, berasa tidak banyak yang dapat dilakukan atau dicapai dan terpaksa memaksa diri untuk melakukan aktiviti). | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 10. Kemerosotan kekuatan otot (berasa lemah badan). | | | | | |
| 11. Perasaan murung (berasa sedih, ingin menangis, kurang bersemangat, perasaan tidak menentu, merasakan segala-galanya tidak berguna). | | | | | |
| 12. Merasakan diri anda telah melewati kemuncak hidup. | | | | | |
| 13. Berasa terlalu letih dan kehabisan tenaga, langsung tidak berdaya melakukan apaapa. | | | | | |
| 14. Pertumbuhan janggut berkurangan. | | | | | |
| 15. Keupayaan/kekerapan melakukan seks menurun. | | | | | |
| 16. Kekurangan dalam bilangan ketegangan zakar di waktu pagi. | | | | | |
| 17. Kurang nafsu/keinginan seks (kurang nikmat dalam hubungan seks, kurang bernafsu untuk melakukan hubungan seks). | | | | | |
| Adakah anda mengalami sebarang tanda-tanda utama yang lain? | Ya ……. | | Tidak ……. | | |
| Jika Ya, sila huraikan: | | | | | |