

Cross-cultural adaptation to Brazil of Medication Adherence Rating Scale for psychiatric patients

Adaptação transcultural para o Brasil da Medication Adherence Rating Scale para pacientes psiquiátricos

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ABSTRACT

Objective: The purpose of this research was to make a cross-cultural adaptation of the Medication Adherence Rating Scale (MARS) for psychiatric patients to the Brazilian context. **Methods:** The procedure consisted of four phases: translation of the original scale, back-translation, review by an Expert Committee and Pre-test study with a patients' sample. **Results:** The Expert Committee corrected the items' translation when necessary and modified the scale administration format and its instructions from self-report to face-to-face interview form in order to ensure easy understanding by the target population. During Pre-test, the instructions and most of the items were properly understood by patients, with the exception of three of them which had to be changed in order to ensure better understanding. The Pre-test sample was composed by 30 psychiatric patients, with severe and persistent disorders mainly single (46.7%), female (60.0%), with a mean age of 43.8 years old and an average of five years of education. **Conclusion:** The Brazilian version of MARS scale is now adapted to the Brazilian Portuguese language and culture and is easily understood by the psychiatric target population. It is necessary to do further research to evaluate the scale psychometric qualities of validity and reliability in order to use it in Brazil.

Keywords

Cross-cultural comparison, outcome assessment (health care), psychiatric status rating scales, medication adherence.

RESUMO

Objetivo: Esta pesquisa teve como objetivo fazer a adaptação transcultural do instrumento *Medication Adherence Rating Scale* (MARS) para pacientes psiquiátricos no contexto brasileiro. **Métodos:** O procedimento incluiu quatro fases: tradução da escala original, retradução, revisão por Comissão de Especialistas e Pré-teste com uma amostra de pacientes. **Resultados:** A Comissão de Especialistas adequou a redação dos itens e das instruções e mudou a forma de aplicação da escala, que passou de autoaplicação para o formato de entrevista, visando à maior facilidade de compreensão pela população-alvo. No Pré-teste, as instruções e a maioria dos itens foram bem compreendidas, com exceção de três questões que apresentaram palavras que suscitaram dúvidas nos participantes, tendo sido modificadas para melhor compreensão. A amostra do pré-teste foi composta de 30 pacientes psiquiátricos, com transtornos graves e persistentes, majoritariamente solteiros (46,7%), do sexo feminino (60,0%) com idade média de 43,8 anos e cinco anos de escolaridade, em média. **Conclu-**

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Palavras-chave

Comparação transcultural, avaliação de resultados (cuidados de saúde), escalas de medida para psiquiatria, adesão à medicação.

são: A versão brasileira da escala MARS constitui um instrumento adaptado para o contexto linguístico e cultural brasileiro e de fácil compreensão pela população-alvo de pacientes psiquiátricos. Estudos futuros deverão investigar as qualidades psicométricas de validade e confiabilidade desta escala para que ela possa ser utilizada no contexto brasileiro.

INTRODUCTION

Psychiatric disorders rate range from 4.3 to 26.4% worldwide¹. In Brazil, the 1-month prevalence of bipolar disorder and non-affective psychoses was estimated as 1.1%². Thornicroft and Tansella pointed out that psychiatric disorders were responsible for 8.1% of the total estimated number of years lost by early mortality and they were also responsible for 33% of years living with disability³. Psychiatric disorders accounted for 13% of the Global Burden of Diseases (GBD) worldwide^{3,4} and 22% of Brazilian GBD⁵.

Psychiatric disorders treatment has a high rate of non-adherence. Adherence to treatment refers to the degree of accordance between patient's behavior and professional's recommendations⁶. Approximately 20 to 50% of schizophrenic patients do not adhere to medication treatment⁶⁻¹⁰. Non-adherence rates ranges from 30 to 60% for patients with diagnostic of Schizophrenia, 51 to 69% for Major Depressive Disorder, 57% for Anxiety Disorders, 26 to 48% for Hyperactivity and Attention Deficit Disorder, and 35% for Substance Use Disorders¹¹.

The use of reliable and validated measures of adherence ensures the quality of data in mental health services evaluations and allows better cross-cultural comparisons as well¹². In order to identify the medication adherence rating scales available in the literature we conducted a systematic search in the following databases: PubMed, Science Direct, ISI Web of Knowledge, PsycInfo, Google acadêmico e SciELO. For this search we used the following keywords: *adesão, aderência, escala, psiquiatria*, compliance, adherence, medication, scale and psychiatric. We found seven medication adherence rating scales: Drug Attitude Inventory (DAI)¹³, Rating Of Medication Influences (ROMI)¹⁴, Medida de Adesão aos Tratamentos (MAT)¹⁵, Medication Adherence Rating Scale (MARS)¹⁶, Attitudes towards Neuroleptic Treatment (ANT)¹⁷, Brief Evaluation of Medication Influences and Beliefs (BEMIB)¹⁸, and Brief Adherence Rating Scale (BARS)¹⁹.

Most of these scales found in the literature have some limitations regarding its use with psychiatric patients in Brazil. Only two of them have been translated to the Portuguese language but are not appropriate for use with this target-population in Brazil. For instances, the ROMI scale has been translated to Brazilian Portuguese²⁰, but was not submitted to the cross-cultural adaptation and validation procedures

necessary for its use in Brazil. The MAT scale was adapted to Brazil but specifically for the evaluation of adherence to anti-coagulation medication so it is not appropriate for the evaluation of psychiatric medication adherence¹⁵. The most appropriate scale for use with psychiatric patients is the MARS, because it was developed for the evaluation of psychiatric medication adherence with this specific target population. It was adapted to Portugal cultural context and language¹⁰ so it still needs to be adapted and validated to Brazil. This scale is multidimensional, has ten items and has proper psychometric qualities. It has been validated in several different places worldwide, such as Germany²¹, Portugal¹⁰, Hong Kong²² and Norway²³. The present study aimed to make the cross-cultural adaptation of the MARS scale to the Brazilian language and cultural context.

METHODS

Study design

This study can be described as a Development Research²⁴, which refers to studies having the purpose of developing, enhancing or creating an intervention or a measure tool. The cross-cultural adaptation procedures adopted here followed the international literature recommendations²⁵⁻³⁰ which aim to ensure the quality of the adapted measure tool regarding its semantic and cultural equivalence to the original scale and its applicability to the target population.

Participants and sampling

The target population was the psychiatric patients assisted by a community Mental Health facility, Centro de Atenção Psicossocial (CAPS), of the city of São João del-Rei, in the state of Minas Gerais, Brazil. The inclusion criteria adopted for choosing the study sample were a) agreeing to participate in the research, b) having at least 18 years of age, c) having one of the following diagnostics: Schizophrenia, Schizotypal and Delusional Disorders, Psychotic Disorders due to Substance Use, or Mood Disorders, according to ICD-10³¹, and d) having previous use of psychiatric medication. These criteria resembled those adopted in the original scale validation study¹⁶. The exclusion criteria were the presence of visual, hearing or cognitive disability or acute clinical state that could prevent the understanding of the questions and jeopardize the inter-

view participation. Thirty subjects were selected by simple random sampling procedure from the previous list of the target population using the Statistical Package for Social Sciences (SPSS) software random selection tool. Sample size was defined by recommendation of Beaton *et al.*²⁵ and Pasquali²⁶ for cross-cultural adaptation research. In the present study, only one subject was excluded by being clinically unstable at interview time.

Instruments

Medication Adherence Rating Scale (MARS). The original instrument was developed to evaluate the psychiatric medication adherence by psychiatric patients' target population¹⁶. It is a self-report questionnaire with ten items having dichotomy response options (yes or no), corresponding to zero (non adherence) or one (adherence). The scale global score is obtained by summing the items values, so that the result ranges from 0 (low probability of adherence) to 10 (high probability of adherence). This scale was constructed based in two other adherence scales: the DAI¹³ and the Medication Adherence Questionnaire (MAQ)³⁰. Their items were analyzed and the decision to exclude or maintain them in the MARS scale was based in Item Response Theory (IRT) analysis.

The original scale validation analysis was accomplished by two different studies. The first one assessed the scale reliability by means of internal consistency analysis (Cronbach's $\alpha = 0.75$) and a temporal stability evaluation using two weeks test-retest correlation analysis ($r = 0.72$)¹⁶. Construct validity was evaluated by Exploratory Factorial Analysis using a Principal Components Analysis with Varimax rotation, which identified three dimensions, accounting for 59% of total variance: the first one evaluating the medication adherence behavior, the second one measuring the subjects' attitude toward taking medication and the third one referring to the negative side-effects and attitudes toward psychotropic medication¹⁶. Criterion validity was assessed by correlating the MARS scores with an independent adherence criterion referring to the blood levels of medication, resulting in a significant correlation coefficient ($r = 0.60$; $p < 0.05$).

The second validation study analysed the scale convergent validity by correlating it with two other scales evaluating theoretically related constructs: the Positive and Negative Syndrome Scale (PANSS) assessing symptom severity and the Assess Unawareness of Mental Disorder (SUMD) evaluating patients' insight ability³². Significant and negative correlation was obtained between MARS and PANSS positive symptom subscale scores ($r = -0.14$; $p = 0.019$), meaning that the presence of more positive symptoms was related to less adherence. MARS scores also correlated significantly with SUMD two subscales, one concerning general current awareness of mental disorder ($r = 0.13$; $p = 0.027$) and the other evaluating the current awareness of the effects of

medication ($r = 0.25$; $p < 0.001$). A Principal Components Factor Analysis with Varimax rotation confirmed the aforementioned three dimensions structure of MARS scale, accounting for 50.5% of total variance. The scale reliability was evaluated by Cronbach's α (0.60) and test-retest stability measure in 12 months ($r = 0.52$; $p < 0.001$)³². Results obtained in the two validation studies confirmed the psychometric qualities of MARS scale concerning reliability and validity, with small differences in reliability scores values explained by the authors as a result of sampling differences.

Social, demographic and clinical questionnaire. A questionnaire was applied in order to evaluate the sample's social, demographic and clinical characteristics. It was previously tested in a pilot study with the target population of psychiatric patients. The questionnaire assesses social and demographic characteristics, such as age, gender, marital status, education, working condition and income. The clinical data concerned information about diagnoses, duration of morbidity, comorbid diseases, number of hospitalizations, and duration of hospitalizations, medication.

Procedures

The cross-cultural adaptation procedures included the four phases described below.

Translation: in this first phase, the original scale written in English was translated to Brazilian Portuguese by two native Brazilian speaker translators who were also highly proficient in English. They worked independently so that they produced two distinct versions of the original scale.

Back-translation: the two Brazilian versions of the scale obtained in the first phase were back-translated independently by two native English speaking translators.

Evaluation by a Committee: the four scale' versions obtained in the previous phases were analysed and compared to the original scale by an Expert Committee in order to identify possible errors that could have occurred in the translation and back-translation procedures. The Committee was a multiprofessional bilingual team composed of one English language expert, two Brazilian mental health professionals and one cross-cultural adaptation expert. The Committee members found and corrected translation errors and checked for the semantic and cultural equivalence of the adapted scale items to the original ones, so that they produced a Preliminary Version of the Brazilian adapted scale at the end of this phase.

The Expert Committee also reviewed the scale format administration, its instructions, items wording and the answers options. The first analysis made by the committee (A1) focused on the quality of the semantic equivalence between the original and the translated scale items. Each member of the Committee indicated the percentage of correspondence observed for each scale item in a continuum from 0 to 100%. The second analysis (A2) focused on the cultural adequacy

of terms and adaptation to the target population, when each Committee member classified the translations in the following categories: unchanged (UC), some change (SC), many changes (MC) and completely changed (CC). They also followed the recommendations from Pasquali^{26,33}, requiring that scale items should: define a specific action (behavioral criterion), allow for only one answer right or wrong (objectivity criterion), express only one idea (simplicity criterion), be short and without negative statements (clearness criterion), have no puerile or hyperbolic expressions (credibility criterion). The items wordings were adapted to the target population level of education and to the Brazilian cultural background.

Pre-test study: in this phase, the Preliminary Version was applied to the sample, using the Probe Technique²⁷. According to this technique, after reading to a subject each scale item the interviewer probed his understanding asking him to explain it in his own words. If there was any doubt about one item the researcher explained it and asked the subject for synonyms and alternatives words to clarify the item. This proceeding was applied for each subject individually and when there was any doubt about one item its wording had to be replaced by a simpler one before the scale was applied again to the next subject. As a result of this procedure, the changes were incorporated cumulatively until there would be no doubt from further subjects.

Data analysis

Descriptive statistical analysis of means, standard-deviations and percentages were used to describe the sample socio-demographic and clinical characteristics. Data from scale evaluations during the cross-cultural adaptation procedures were analysed using the calculation of percentage of agreements. Data analyzes were implemented in a SPSS statistical program, version 13.0.

Ethical procedures

The research project was approved by the UFSJ Human Research Ethical Committee (Memo 06/2013 CEPES/UFSJ) and by the original scale author. The data were obtained from medical-chart and face-to-face interview. Subjects were informed about the research objectives, procedures and interview duration. They were also assured of data confidentiality and that participation should be voluntary. Subjects were invited to sign the informed consent if they accept to participate. No subject refused to participate in the research.

RESULTS

Sample characteristics

Subjects had a mean age of 43.8 years old, were mainly female (60%), single (46.7%), with low educational level (in-

complete secondary school) and an average of 5.1 years in school. Most of the sample (90.0%) did not work and the mean income per month was R\$ 485.33 (the minimum monthly wage in Brazil was R\$ 678.00 at that time). Half of the sample (50.0%) had a diagnoses of Schizophrenia (ICD-10³¹: F20), 13.1% Bipolar affective disorder (F31), 10.0% Depressive episodes (F32), 10.0% Recurrent depressive disorder (F33). The rest of the sample had other diagnostics (F29, F23, F25, F28, and F10.5) with a rate of one case for each category (3.3%). Almost two thirds (63.3%) of the sample had clinical comorbidity. Psychiatric disorders started at an average age of 29.2 and the mean time of treatment was 9.9 years. All subject used medication, with an average of 3.4 kinds of medication each. One third (33.3%) used oral haloperidol, 50.0% used deposit haloperidol. All subjects were using medication and 56.7% of them were assisted in its administration intake.

Expert Committee Results

In this phase, two structural changes were made by the Expert Committee in the Brazilian version of the scale. The first one concerned the scale administration format, which was changed from self-report to face-to-face interview format where the interviewer must read the questions and fill the answers. This new format was considered more adequate to the target population in order to reduce bias caused by patients' possible difficulty in reading, due to low educational level and to low attention/focusing ability resulting from the use of medication and cognitive deficits.

To fit in this new format all items wordings were replaced from statements to a question form. The second structural change concerned the instructions. Since the scale items were written using verbs in the present tense, implying that the evaluation was referring to present behaviors and attitudes, it was considered inadequate to have the instructions referring to the past previous week period. The new instructions were written using verbs in the present tense in order to be coherent with the items wordings.

Results from the evaluations made by the Expert Committee when comparing the translations and back-translations versions to the original scale are presented in table 1. The data show that both evaluations (A1 and A2), described in the method section, reached a high level of agreement. Percentages of correspondence between the scale versions and the original scale were mostly above 85% (column A1) and most items had only small changes or unchanged content (column A2).

Others changes made by the Expert Committee concerned the scale items wordings. Table 2 shows the original scale (second column) and the scale Preliminary Version (third column) elaborated by the Committee. Changes in item wordings can be seen when comparing these two columns.

Table 1. Expert committee evaluation for translation and back-translation versions

	Translation	Back-translation	Evaluation A1 (0 to 100%)	Evaluation A2 UC, SC, MC, CC
Title	T 1	B 1	90; 90; 80; 90 Mean: 87.50*	SC; SC; SC; UC (UC 25%; SC 75%; MC 0)*
	T 2	B 2	80; 80; 70; 80 Mean: 77.50	SC; MC; MC; SC (UC 0; SC 50%; MC 50%)
Instructions	T 1	B 1	90; 95; 90; 90 Mean: 91.25*	SC; SC; SC; UC (UC 25%; SC 75%; MC 0)*
	T 2	B 2	80; 80; 80; 60 Mean: 75.00	MC; MC; SC; MC (UC 0; SC 25%; MC 75%)
Item 1	T 1	B 1	90; 95; 100; 80 Mean: 91.25*	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
	T 2	B 2	90; 100; 90; 80 Mean: 90.00	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
Item 2	T 1	B 1	80; 95; 100; 80 Mean: 88.75	MC; SC; UC; SC (UC 25%; SC 50%; MC 25%)*
	T 2	B 2	100; 100; 80; 80 Mean: 90.00*	UC; UC; SC; SC (UC 50%; SC 50%; MC 0)
Item 3	T 1	B 1	90; 100; 100; 80 Mean: 92.50*	UC; UC; UC; SC (UC 75%; SC 25%; MC 0)*
	T 2	B 2	80; 90; 100; 90 Mean: 90.00	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
Item 4	T 1	B 1	100; 100; 100; 90 Mean: 97.50*	UC; UC; UC; SC (UC 75%; SC 25%; MC 0)*
	T 2	B 2	80; 95; 90; 80 Mean: 86.25	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
Item 5	T 1	B 1	80; 80; 100; 90 Mean: 87.50	SC; MC; UC; SC (UC 25%; SC 50%; MC 25%)
	T 2	B 2	100; 85; 90; 90 Mean: 91.25*	UC; MC; SC; SC (IN 25%; SC 50%; MC 25%)
Item 6	T 1	B 1	90; 90; 90; 90 Mean: 90.00	SC; SC; SC; SC (UC 0; SC 100%; MC 0)
	T 2	B 2	100; 95; 100; 80 Mean: 93.75*	UC; SC; UC; SC (UC 50%; SC 50%; MC 0)*
Item 7	T 1	B 1	80; 90; 90; 80 Mean: 85.00	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
	T 2	B 2	90; 95; 100; 80 Mean: 91.25*	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
Item 8	T 1	B 1	80; 80; 100; 80 Mean: 85.00	SC; MC; SC; SC (UC 0; SC 75%; MC 25%)
	T 2	B 2	100; 90; 100; 90. Mean: 95.00*	UC; SC; SC; SC (UC 25%; SC 75%; MC 0)*
Item 9	T 1	B 1	100; 95; 100; 90 Mean: 96.25*	UC; SC; UC; SC (UC 50%; SC 50%; MC 0)*
	T 2	B 2	80; 85; 80; 80 Mean: 91.25	SC; SC; SC; SC (UC 0; SC 100%; MA 0)
Item 10	T 1	B 1	100; 100; 100; 90 Mean: 97.50*	UC; UC; UC; SC (UC 75%; SC 25%; MC 0)*
	T 2	B 2	90; 90; 100; 80 Mean: 90.00	SC; SC; UC; SC (UC 25%; SC 75%; MC 0)
Alternatives	T 1	B 1	100; 100; 100; 100	UC; UC; UC; UC
	T 2	B 2	100; 100; 100; 100	UC; UC; UC; UC

UC: unchanged; SC: some change; MC: many change (MC); CC: completely changed.

Table 2. Original scale, preliminary version and final version of MARS adapted scale

	Original scale	Preliminary version after Expert Committee analysis of translation and back- translation versions	Final version after the Pretest phase
Title	Medication Adherence Rating Scale	Escala de Avaliação de Adesão à Medicação	Escala de Avaliação de Adesão à Medicação
Instructions	Please respond to the following statements by circling the response which best describes your behaviour or the attitude you have held toward your medication in the past week.	Eu vou fazer algumas perguntas sobre como você toma seus remédios psiquiátricos e o que você pensa sobre eles. Por favor, responda sinceramente cada pergunta	Eu vou fazer algumas perguntas sobre como você toma seus remédios psiquiátricos e o que você pensa sobre eles. Por favor, responda sinceramente cada pergunta
Item 1	Do you ever forget to take your medication?	Você, às vezes, se esquece de tomar seus remédios?	Você, às vezes, se esquece de tomar seus remédios?
Item 2	Are you careless at times about taking your medicine?	Às vezes, você se descuida de tomar seus remédios?	Às vezes, você se descuida de tomar seus remédios?
Item 3	When you feel better, do you sometimes stop taking your medicine?	Quando você se sente melhor, você, às vezes, para de tomar seus remédios?	Quando você se sente melhor, você, às vezes, para de tomar seus remédios?
Item 4	Sometimes if you feel worse when you take the medicine, do you stop taking it?	Às vezes, se você sente pior quando toma seus remédios, você para de tomá-los?	Às vezes, se você sente pior quando toma seus remédios, você para de tomá-los?
Item 5	I take my medication only when I am sick	Você toma seus remédios só quando está passando mal?	Você toma seus remédios só quando está passando mal?
Item 6	It is unnatural for my mind and body to be controlled by medication	Você acha anormal sua mente e corpo serem controlados por remédios?	Você acha estranho a pessoa ser controlada por remédios?
Item 7	My thoughts are clearer on medication	Seus pensamentos ficam mais claros quando você está tomando remédios?	Seus pensamentos ficam mais claros quando você está tomando remédios?
Item 8	By staying on medication I can prevent getting sick	Você acha que, tomando seus remédios, você evita ficar doente?	Você acha que, tomando seus remédios, você evita ficar doente?
Item 9	I feel weird, like a "zombie", on medication	Você se sente esquisito, como um zumbi, quando está tomando seus remédios?	Você se sente esquisito(a) quando está tomando seus remédios?
Item 10	Medication makes me feel tired and sluggish	Os remédios fazem você se sentir cansado e lento?	Os remédios fazem você se sentir cansado(a) ou lento(a)?
Response options	Yes/No	Sim/Não	Sim/Não

Some terms were considered too technical and had to be replaced by simpler ones in order to best fit the educational level and everyday situations and language habits of the target-population. For instance, the word “medication” (*remédios*) was used in all scale items and in the scale instructions of the Preliminary Version, avoiding too technical terms as *medicamentos*, *medicações* or *fármacos*. The only exception was the scale title where the word *medicação* was maintained. Another example was the terms “behavior” and “attitude” which were replaced by two phrases, the first one asking how the subject uses the medication (*como você toma seus remédios?*) and the second one asking him what he thinks about the medication (*o que você pensa sobre os remédios?*). Item 5 expression “when I am sick” was translated as *quando está passando mal* in order to maintain the original meaning of a temporary state implying the idea that someone uses the medication to immediately relieve this uncomfortable state.

Pre-test results

Table 2 shows the final version scale elaborated during the Pre-test phase (last column). The instructions and response options (yes and no) were properly understood by the participants so that no change was necessary in this part of the scale. Regarding the items wordings, three of them aroused some doubts and had to be replaced (items 6, 9 and 10). For instance, in item 6, *Você acha anormal sua mente e corpo serem controlados por remédios?*, the word *anormal* and the words *mente e corpo* were misunderstood so that this item had to be replaced by the phrase *Você acha estranho a pessoa ser controlada por remédios?*. After this change no further subject showed any doubt regarding this item. In item 9, *Você se sente esquisito, como um zumbi, quando está tomando seus remédios?*, the word *zumbi* was misunderstood and had to be eliminated from the question so that the final phrase became *Você se sente esquisito quando está tomando seus remédios?*. The new item phrasing was properly understood by further subjects. The item 10, *Os remédios fazem você se sentir cansado e lento?*, had to be modified because it contained two ideas in the same question (tired and slow) resulting in ambiguity and confusion because a person could feel tired but not slow or vice versa. In fact, one subject answered yes to the word “tired” (*cansado*) and no to the word “slow” (*lento*). For this reason the item was replaced by the phrase *Os remédios fazem você se sentir cansado ou lento?*. This new item wording was properly understood with no doubt by further subjects. After these three items changes no other doubts were observed during the interviews and the final version of Brazilian MARS scale was well understood by the patients.

DISCUSSION

The cross-cultural procedures followed in the present study were useful to obtain an instrument adapted to our culture

and easy to understand by the target population. Recommendations for items wordings were followed to avoid misunderstandings during interviews in future research using this scale because this may result in inconsistent data^{26,33}. During the Pre-test phase, the Probe Technique was very useful for the identification of ambiguous words and for their replacement by more appropriate terms easily understood by the target-population^{27,34,35}. The need for simpler terms, which can assure understanding by the target population, cannot be underestimated since problems of misunderstanding in data collection may result in loss of scale reliability^{26,36}.

The change in the scale application format from self-report to face-to-face interview was necessary in order to adapt the scale to the target population, as recommended by the literature, because of their lower education and the presence of symptoms which can interfere with the understanding and filling of reading materials. Perreault and Leichner highlighted that self-report questionnaires are not appropriate for psychiatric patients, especially in mental health services and recommended the interview format scale³⁷. These authors pointed out that in using self-report scales many patients would be excluded from studies' samples due to their difficulty in filling this type of instrument, what may result in sampling bias. Herdman *et al.* also noted the drawback of self-report measure tools, especially for lower educational level subjects³⁸. Since rating scales can be administered in both manners, as a self-report or as an interview, the interview format was considered more appropriate by the Expert Committee.

Semantic equivalence from the Brazilian adapted scale to the original one was assured by the cross-cultural adaptation procedures. Conceptual equivalence was also obtained as the content of the original scale items expressing the adherence construct was considered similar to this concept in Brazilian culture, regarding behaviors, beliefs, cognition and attitudes about the use of medication, symptoms prevention and negative aspects of medication. Behaviors such as those specified in the scale items are easily seen in psychiatric practice in Brazil and in other studies comprising the content definition of adherence construct^{6,11,39,40}. Experiential equivalence between the adapted scale and the original one was also obtained since the scale items describe situations that are usual to Brazilian culture and everyday life.

One limitation of this study is that it was conducted in only one Mental Health facility (CAPS) of one city in Minas Gerais State. However, to assure that the scale would be adequate to the general target population of psychiatric patients several procedures were undertaken by the Expert Committee, such as avoiding regional expressions in the items wording, using short phrases containing only one idea, maintaining simple terms understandable by people with low level of education and adapting the items wording to the cultural context²⁶. In addition to these cautions,

the Pre-test phase was conducted with the careful use of the Probe Technique. This procedure contributed to preserve the scale items straightforward and warranted its understanding by the general target population of psychiatric patients. The literature guidelines for cross cultural adaptation process followed in the present research aims to assure easy understanding of scale items by any person from the target population.

CONCLUSIONS

We can conclude that the Brazilian version of MARS scale has semantic and cultural equivalence to the original one and is easily applicable to the target population. This is the first step in the establishment of an adapted measure instrument. It is necessary to do further research in order to evaluate the validity and reliability psychometric qualities of the Brazilian scale version. After validation studies, this scale will be ready to be used in our context and to allow for comparisons of Brazilian results with other international studies in order to understand the similarities and differences between cultures, as recommended by WHO¹². The scale is available online at the LAPSAM site of UFSJ (www.ufsj.edu.br/lapsam).

INDIVIDUAL CONTRIBUTIONS

Icaro Carvalho Moreira – Contributed to conception and design of the study, executed the research, drafting of the article, interpreting data, revising the article critically and approved its final version.

Marina Bandeira – Contributed to conception and design of the study, analysis of results, preparation of the article, interpreting data, revising the article critically and approved its final version.

Tatiana Cury Pollo – Contributed to conception and design of the study, analysis of results, interpreting data, revising the article critically and approved its final version.

Marcos Santos de Oliveira – Contributed to analysis and interpretation of data, revising the article critically and approved its final version.

CONFLICTS OF INTEREST

The authors have no conflict of interest to report.

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