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Translation, adaptation and validation of the MICA-4 scale in Brazil with application for medical students

Tradução, adaptação e validação da escala MICA-4 no Brasil com aplicação para acadêmicos de Medicina

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ABSTRACT

Introduction: Psychiatric diseases are increasing in prevalence in recent decades, being also the pathologies in which stigmatizing attitudes are most often observed.

Objective: To translate the MICA-4 scale into Portuguese with cross-cultural adaptation for use in Brazil and to verify the possibility for the contribution of the tool to assess improvements in medical training through its application to medical students.

Method: Seven steps were required for its translation and validation. Moreover, the work consisted of applying the test in two moments to a group of 60 medical students who participated in an internship rotation in a psychiatric hospital in a Brazilian city.

Result: The validation of the MICA-4 scale consisted of the steps of translation, synthesis, back-translation, expert committee, pre-test, textual verification and application, which were successfully performed. The scale achieved an agreement among the experts and there was no difficulty among the students during the test application. In the data analysis after application of the questionnaire during the two moments, of the 16 items of the scale, item 9 obtained statistical relevance ($p<0.05$).

Conclusion: This study analyzed the students' perception of stigmatizing situations, and most of the answers were consistent with less prejudiced actions even before the internship experience, being corroborated after this period. The issues that still showed stigmatizing attitudes demonstrate the need to improve teaching tools that can reduce these negative attitudes and contribute to the training of good professionals and, consequently, better quality of care.

Key words: Mental Disorders; Medical students; Social Stigma.

RESUMO

Introdução: *As doenças psiquiátricas estão em crescente prevalência nas últimas décadas, sendo também as patologias nas quais mais se observam atitudes estigmatizantes.*

Objetivo: *Este estudo teve como objetivos traduzir a escala MICA-4 em língua portuguesa com adaptação de forma transcultural para uso no Brasil e verificar a possibilidade de a ferramenta contribuir para avaliações de melhorias na formação médica por meio da aplicação em estudantes de Medicina.*

Método: *Foram sete etapas para sua tradução e validação. Além disso, o trabalho consistiu na aplicação do teste em dois momentos em um grupo de 60 estudantes de Medicina que participaram de um rodízio de estágio em um hospital psiquiátrico do Brasil.*

Resultado: *A validação da escala MICA-4 consistiu nas etapas de tradução, síntese, back-translation, comitê de experts, pré-teste, averiguação textual e aplicação, que foram executadas com sucesso. A escala obteve concordância entre os experts, e não houve dificuldade entre os estudantes durante a aplicação do teste. Na análise dos dados após aplicação do questionário durante os dois momentos, dentre os 16 itens da escala, o item 9 obteve relevância estatística ($p < 0,05$).*

Conclusão: *Este estudo analisou a percepção dos estudantes em relação a situações estigmatizantes, e a maioria das respostas foi condizente com ações menos preconceituosas antes mesmo da experiência do estágio, sendo corroboradas após esse período. As questões que ainda expressaram atitudes estigmatizantes demonstram a necessidade de aprimoramento de ferramentas de ensino que possam diminuir essas atitudes negativas e contribuir para a formação de bons profissionais e, consequentemente, melhor qualidade de atendimento.*

Palavras-chave: *Transtornos Mentais; Estudantes de Medicina; Estigma Social.*

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INTRODUCTION

Stigma is a social phenomenon very present in our society, which leads to the marginalization of a certain member or group of the community, leading to discrimination and, often, the loss of dignity as a result of the prejudice of other individuals in society[1]. Among the most varied forms of stigma, stigma in the health area stands out, which compromises not only citizenship, but also the right to health, since the lack of quality and well-being in medical care due to the present stigma weakens the doctor-patient relationship.

Therefore, we searched for a scale that would correspond to the objective of evaluating whether the contact of medical students with psychiatric patients reduces stigmatizing actions and thoughts, for which the "MICA-4" scale proved to be one of the most appropriate. The "Mental Illness: Clinicians' Attitudes Scale 2" (MICA-2) was developed in 2010 as a survey among medical students to assess stigma regarding psychiatric disorders. Subsequently, other modifications were made so that the scale could be directed at all health professionals, in which the modified version (MICA-4) is presented. This instrument was validated with a sample of nursing students but can be applied to all health professionals/students. It becomes an important tool for evaluating stigmatizing situations, modifying the teaching of future health professionals and, thus, transforming care[11].

The human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) epidemic illustrates this context well, in which the origin of its stigma was mirrored in the population most affected in the 1990s, such as prostitutes, gays and injecting drug users, considering their forms of transmission. The removal of these individuals from the social environment makes it difficult for them to seek health units and hospitals, increasing their vulnerability to the disease[2].

Individuals with mental disorders are diagnosed as having a behavioral and/or emotional disorder that causes deficits and limitations in their usual life functions. In addition to the great negative impact generated by these diseases, more than 40% of the countries neglect mental health and less than 1% of their total resources are allocated to such morbidities, generating low-quality diagnoses and high costs[3].

The literature shows a higher morbidity and mortality rate in groups with mental illness, when compared to the general population. Adults with schizophrenia have a significantly higher risk of premature death compared to other adults in a sample of the North American population[4,5], in addition to a higher probability of suicide in this psychiatric class[6]. This is partly due to the marked exclusion, discrimination, criminalization and, finally, the widespread stigma related to these individuals[7].

The media, social groups, personal reports and the scientific community have shown that significant portions of the population, including health professionals and students, have a highly stigmatized view of people with mental disorders, which can contribute to the low quality of care[8]. Medical students, physicians, nurses and other health professionals, despite having more contact with people with mental disorders, are often influenced by "medical bias", on which they seek to base their attitudes on bad clinical experiences in treating people with psychiatric disorders[9]. Thornicroft et al.[10] report that health professionals are more pessimistic about the recovery or even complete cure of these patients, which makes them disseminators of stigma related to psychiatric disorders[10].

However, despite the growing interest in studying stigma, there are no Brazilian studies published with medical students using the Mental Illness: Clinicians' Attitudes Scale version 4 (MICA-4) as a research instrument. Therefore, the main objective of this study was to describe the stages of the translation process, testing and approval of the cultural adaptation of the Mental Illness: Clinicians' Attitudes Scale 4 (MICA-4) into Brazilian Portuguese. Moreover, we aimed to evaluate the degree of stigma among medical students who participated in a medical rotation at a psychiatric hospital in Brazil, carried out at two moments: before contact with the mental health service and after contact with the service and patients with psychiatric disorders. Additionally, through these applications of the MICA-4 scale, evaluate whether the contact of medical students with psychiatric patients is capable of reducing stigmatizing actions and thoughts, since it is necessary to reduce the prejudice of health professionals towards the psychiatric population. Therefore, the translation and adaptation of the scale were carried out carefully, as it is necessary to guarantee an adequate linguistic and cultural adaptation of the original instrument so that it satisfies the necessary quantitative and qualitative rigor required in the health system.

METHODS

The "MICA-4" scale was used, which includes a list of subjective questions asked through hypothetical situations, consisting of 16 items with the Likert scale (1-6), which had been previously described in other scientific projects with similar objectives. The translated and validated version of the MICA-4 scale for Brazilian Portuguese is available in Chart 1 below. The students answer the questions, marking, on a scale of 1 to 6: "strongly agree", "agree", "partially agree", "partially disagree", "disagree", or "strongly disagree". The translation and adaptation of the instrument were based on the structure proposed in the literature, which consists of a series of steps, presented in Chart 2 below. The first 4 (four) stages related to the translation and validation of the MICA-4 scale included the participation of several linguistic experts. During the

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synthesis, the initial translated version of the instrument aimed to adapt semantics, expressions and cultural equivalences. Subsequently, during the back-translation, the authors met with a linguistic specialist native to the original language of the scale (English). Together, the context of each situation was interpreted, associating correct cultural expressions, checking language and compatibility of concepts and semantics. As a result of this phase, some terms in the adapted version were modified, such as prepositions and verbs.

The adapted version of MICA-4 was administered 118 times, divided between pre-test (with 60 students) and post-test (with 58 students and 02 students were excluded - absent) during a period of three months, from November 2017 to January 2018, which corresponded with the practice period of the medical students. This period in which medical students are closest to their real professional experience is the internship (internship/practice period). In Brazil, this period corresponds to the last two years of undergraduate school, in which the student goes through several medical rotations in services with different and important specialties for their curriculum. Therefore, it became essential to apply the MICA-4 before and after the internship experience in a psychiatric hospital, where stigmatizing situations predominate in the health system, aiming at obtaining genuine information. During the pre- and post-test activities, we assured the participants of the anonymity and confidentiality of the provided information. The study was evaluated and approved by the Ethics Committee (Plataforma Brasil – 2,068,462 - May 17, 2017). Data were expressed as absolute and percentage frequencies and analyzed using Fisher's exact test or Pearson's chi-square test, with a confidence level of 95%, using the IBM® SPSS® Statistics software version 20.0 for Windows.

The translated and synthesized version of the MICA-4 was evaluated by a committee of four psychiatrists with a Master's Degree and/or Ph.D. Regarding the adequacy, most questions were considered useful or essential, with only one of them considered useless. Regarding relevance, half of the questions (eight) received the maximum score (four), and only one question received the minimum score (one). In terms of clarity, the majority of scores were above three of a total of four points, and in the last criterion, simplicity, all questions received scores above three out of a total of four points.

Translation and validation stages of the MICA–4 scale:

(a) Translation: the original instrument was translated by two independent English language teachers from the University of Cambridge;

(b) Synthesis: four native Portuguese-speaking research authors, fluent in English, merged the two translations into an initial translated version of the instrument, adding adaptation of semantics, expressions and cultural equivalences to it;

(c) Back-translation or Reverse Translation: back-translation into the original language (English) was carried out by a professional translator native to the

Chart 1. Questionnaire translated and validated into Brazilian Portuguese: Mental Illness: Clinicians' Attitudes Scale version 4 (MICA-4).

Question 01	I only read about mental health when I need to, but I wouldn't mind reading additional material about it.
Question 02	People with serious mental illnesses never recover enough to have a good quality of life.
Question 03	Working in the mental health field is just as respectable as in other areas of health or social care.
Question 04	If I had a mental illness, I would never admit it to my friends for fear of being treated differently.
Question 05	People with serious mental illnesses are often more dangerous.
Question 06	Medical/social care professionals know more about the lives of people treated for mental illness than family members or friends.
Question 07	If I had a mental illness, I would never admit it to my colleagues for fear of being treated differently.
Question 08	Being a good mental health/social care professional is not the same as being an actual mental health/social care professional.
Question 09	If a more experienced colleague instructed me to treat people with metal illness in a disrespectful manner, I would not follow their instructions.
Question 10	I feel just as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.
Question 11	It is important that any medical/social care professional who is caring for a person with a mental illness also ensures that their physical health is assessed.
Question 12	Society does not need to be protected from people with mental illness.
Question 13	If a person with mental illness complained of physical symptoms (such as chest pain), I would attribute it to the mental illness.
Question 14	General practitioners should not be expected to carry out a full assessment of people with psychiatric symptoms because they may be referred to psychiatrists.
Question 15	I would use terms such as 'crazy', 'mad, 'insane', etc., to describe people with mental illnesses that I saw at work to my co-workers.
Question 16	If a colleague told me they had a mental illness, I would want to work with that person.

Source: The authors.

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Chart 2. Stages of translation and validation of the MICA–4 scale into Brazilian Portuguese.

STAGE 1	**Translation** The original instrument was translated by two language experts.
STAGE 2	**Synthesis** Merging of two independent translations, creating a single document.
STAGE 3	**Back-translation** The document in (step 2) was back-translated into the original language by a professional translator who is native to the language.
STAGE 4	**Expert committee** The document in (step 2) was evaluated by four experts on the questionnaire content regarding adequacy, relevance, clarity and simplicity
STAGE 5	**Pre-test** The final translated version was applied to medical students who were going to start internship in a psychiatric hospital, as a test of understanding.
STAGE 6	**Textual investigation** Evaluation and correction of the questionnaire by a teacher of Portuguese.
STAGE 7	**Application** The questionnaire was applied to medical students in a psychiatric hospital.

Source: the authors.

language of the original scale, without knowledge of the original document;

(d) Expert committee: the translated version of the scale was sent to four experts in the scope of the used questionnaire (Psychiatry), in which each professional evaluated all items on the scale in the following terms: adequacy for the instrument (essential; useful, but not essential; or useless), relevance, clarity and simplicity with scores ranging from 1 (one) to 4 (four), with 1 (one) being the minimum score for the item and 4 (four) the maximum score;

(e) Pre-test: the final translated version was applied to a sample of 60 medical students;

(f) Textual investigation: textual verification of the questionnaire by a teacher specialized in the Portuguese language: There was no need to modify the questionnaire presented in the pre-test;

(g) Application: the questionnaire was administered in a psychiatric hospital to medical students from two universities in Ceará who were allocated for internship in this service.

During the pre-test, the questionnaire was administered on the first working day of each month, in a Mental Health Hospital, by a psychiatrist, in an auditorium, individually, before the students had contact with any activity in this hospital. The internship consisted of a period of one month, in which students participated in some activities. The students' routine consisted in assessing, on average, 3 (three) patients, daily in the male and female wards, always under the supervision of psychiatry residents, preceptors and the multidisciplinary team (nurses, psychologists, occupational therapist, among others). These patients could have any psychiatric pathology, such as schizophrenia, bipolar affective disorder, depressive disorder, among others. In the afternoon, the students participated in specialized psychiatric outpatient clinics, also under the supervision of a psychiatric preceptor. Moreover, the students attended night shifts, on average 2 (two) shifts during the month in the psychiatric emergency, in which they had contact with patients experiencing a psychotic episode and/or other urgent demands.

After the end of the month, on the last working day, the same students were invited to answer the questionnaire again, individually, which was applied under the supervision of a psychiatrist, in an auditorium, but this time considering their answers based on their experiences during the internship. The participants were students who completed an internship from November 2017 to January 2018, at a Mental Health Hospital. The inclusion criteria covered all present students (60 students), enrolled in the medical course. The exclusion criteria were applied to students who did not agree to sign the Informed Consent Form or did not attend it (two students did not attend the post-test carried out in January 2018).

RESULTS

In the pre-test analysis, 50% of the sample were female (thirty women) and 50% male (thirty men), with 68.3% being under 25 years of age and 95% were unmarried. Only 2 (two) participants had children. Of those initially interviewed, 41.6% said they suffered or had already suffered from a psychiatric disorder. Furthermore, 73.3% stated that they had a relative with a psychiatric disorder, and the most frequently mentioned in descending order were: uncles, mothers, cousins and grandparents (the last two had the same number of mentions when the questionnaire was applied).

In the pre-test, the final adapted version of the MICA-4 was applied to medical students to evaluate clarity, understanding and acceptability of the translated instrument for its target audience. Comprehension of the questionnaire was assessed using Cronbach's alpha coefficient. There was no need to modify the instrument and, thus, the translated version was finalized. Therefore, the instrument continued to be applied to the same individuals after their participation within a period

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of one month (post-test) with the aim of analyzing whether the internship period would modify stigmatizing behaviors among medical students.

Of the 16 analyzed questions, only question number 9 (nine) showed statistical significance (p<0.05), as recorded in Table 1 below. When evaluating the answers to this question, the vast majority of those interviewed at the pre-test had already refused the advice to treat patients with psychiatric illness disrespectfully. Subsequently, in the post-test, more than 80% of the participants had a response that strongly agreed to refuse the advice.

When analyzing question 10 (ten), in the pre-test, only 31.7% of the respondents felt comfortable talking to a person with a mental illness; after the internship, 63.8% started to feel comfortable (p=0.087). When evaluating the questions according to the variables gender, age, marital status, having children, having a mental illness and contact with a family member with mental illness and the moment of filling out the questionnaire (pre-test and post-test), interesting and significant results (P<0.05) were evidenced, as shown in Table 2 below.

Regarding the variables "marital status" and "having children", they were the most significant ones. The study showed an equivalent proportion between men and women; however, in relation to other variables such as "being married" and "being over 25 years old" they showed a much lower number, demonstrating little heterogeneity in a group with very similar characteristics, which made the study analysis difficult.

Table 1. Analysis of responses at different times (Pre-test and Post-test).

Questions/ Answers	Pre-test	Post-test	p-value	Questions/ Answers	Pre-test	Post-test	p-value
Q1				*Q9*			
1	12 (20.0%)	13 (22.4%)	0.666	**1**	43 (71.7%)	50 (86.2%)	0.013
2	25 (41.7%)	27 (46.6%)		**2**	14 (23.3%)	8 (13.8%)	
3	11 (18.3%)	10 (17.2%)		**3**	1 (1.7%)	0 (0.0%)	
4	6 (10.0%)	2 (3.4%)		**4**	0 (0.0%)	0 (0.0%)	
5	5 (8.3%)	6 (10.3%)		**5**	1 (1.7%)	0 (0.0%)	
6	1 (1.7%)	0 (0.0%)		**6**	1 (1.7%)	0 (0.0%)	
Q2				*Q10*			
1	0 (0.0%)	0 (0.0%)	0.13	**1**	6 (10.0%)	10 (17.2%)	0.087
2	0 (0.0%)	0 (0.0%)		**2**	13 (21.7%)	27 (46.6%)	
3	6 (10.0%)	1 (1.7%)		**3**	18 (30.0%)	10 (17.2%)	
4	8 (13.3%)	4 (6.9%)		**4**	11 (18.3%)	7 (12.1%)	
5	21 (35.0%)	27 (46.6%)		**5**	8 (13.3%)	4 (6.9%)	
6	25 (41.7%)	26 (44.8%)		**6**	4 (6.7%)	0 (0.0%)	
Q3				*Q11*			
1	50 (83.3%)	47 (81.0%)	0.267	**1**	35 (58.3%)	46 (79.3%)	0.707
2	7 (11.7%)	11 (19.0%)		**2**	21 (35.0%)	10 (17.2%)	
3	2 (3.3%)	0 (0.0%)		**3**	3 (5.0%)	2 (3.4%)	
4	0 (0.0%)	0 (0.0%)		**4**	0 (0.0%)	0 (0.0%)	
5	0 (0.0%)	0 (0.0%)		**5**	0 (0.0%)	0 (0.0%)	
6	1 (1.7%)	0 (0.0%)		**6**	1 (1.7%)	0 (0.0%)	
Q4				*Q12*			
1	1 (1.7%)	0 (0.0%)	0.335	**1**	5 (8.3%)	4 (6.9%)	0.661
2	3 (5.0%)	2 (3.4%)		**2**	17 (28.3%)	23 (39.7%)	
3	10 (16.7%)	14 (24.1%)		**3**	16 (26.7%)	13 (22.4%)	
4	13 (21.7%)	20 (34.5%)		**4**	15 (25.0%)	10 (17.2%)	
5	19 (31.7%)	14 (24.1%)		**5**	5 (8.3%)	7 (12.1%)	
6	14 (23.3%)	8 (13.8%)		**6**	2 (3.3%)	1 (1.7%)	

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Table 1. Continuation.

Questions/ Answers	Pre-test	Post-test	p-value	Questions/ Answers	Pre-test	Post-test	p-value
Q5				*Q13*			
1	0 (0.0%)	0 (0.0%)	0.393	**1**	0 (0.0%)	0 (0.0%)	0.414
2	0 (0.0%)	0 (0.0%)		**2**	0 (0.0%)	1 (1.7%)	
3	14 (23.3%)	8 (13.8%)		**3**	6 (10.0%)	5 (8.6%)	
4	18 (30.0%)	11 (19.0%)		**4**	14 (23.3%)	16 (27.6%)	
5	20 (33.3%)	29 (50.0%)		**5**	21 (35.0%)	23 (39.7%)	
6	8 (13.3%)	10 (17.2%)		**6**	19 (31.7%)	13 (22.4%)	
Q6				*Q14*			
1	3 (5.0%)	1 (1.7%)	0.458	**1**	1 (1.7%)	0 (0.0%)	0.864
2	10 (16.7%)	7 (12.1%)		**2**	1 (1.7%)	1 (1.7%)	
3	18 (30.0%)	22 (37.9%)		**3**	7 (11.7%)	2 (3.4%)	
4	15 (25.0%)	13 (22.4%)		**4**	10 (16.7%)	10 (17.2%)	
5	14 (23.3%)	12 (20.7%)		**5**	21 (35.0%)	18 (31.0%)	
6	0 (0.0%)	3 (5.2%)		**6**	20 (33.3%)	27 (46.6%)	
Q7				*Q15*			
1	1 (1.7%)	1 (1.7%)	0.397	**1**	0 (0.0%)	1 (1.7%)	0.072
2	10 (16.7%)	3 (5.2%)		**2**	2 (3.3%)	1 (1.7%)	
3	19 (31.7%)	22 (37.9%)		**3**	3 (5.0%)	2 (3.4%)	
4	11 (18.3%)	13 (22.4%)		**4**	3 (5.0%)	3 (5.2%)	
5	13 (21.7%)	15 (25.9%)		**5**	17 (28.3%)	18 (31.0%)	
6	6 (10.0%)	4 (6.9%)		**6**	34 (56.7%)	33 (56.9%)	
				Invalid[d]	1 (1.7%)	0 (0.0%)	
Q8				*Q16*			
1	1 (1.7%)	1 (1.7%)	0.274	**1**	23 (38.3%)	26 (44.8%)	0.341
2	2 (3.3%)	0 (0.0%)		**2**	22 (36.7%)	28 (48.3%)	
3	2 (3.3%)	1 (1.7%)		**3**	11 (18.3%)	2 (3.4%)	
4	8 (13.3%)	5 (8.6%)		**4**	3 (5.0%)	1 (1.7%)	
5	14 (23.3%)	9 (15.5%)		**5**	0 (0.0%)	1 (1.7%)	
6	33 (55.0%)	42 (72.4%)		**6**	1 (1.%)	0 (0.0%)	

Source: The authors.

Table 2. Analysis of responses at different moments together with the variables.

Questions and Answers	Moment	Variable		P value	Questions and Answers	Moment	Variable		P Value
	POST-TEST	*HAVING CHILDREN*				*PRE-TEST*	*BEING MARRIED*		
Q1		NO	YES	0.001	Q2		NO	YES	0.029
1		13 (23.2%)	0 (0.0%)		1		0 (0.0%)	0 (0.0%)	
2		27 (48.2%)	0 (0.0%)		2		0 (0.0%)	0 (0.0%)	
3		10 (17.9%)	0 (0.0%)		3		6 (10.5%)	0 (0.0%)	
4		2 (3.6%)	0 (0.0%)		4		8 (14.0%)	0 (0.0%)	
5		4 (7.1%)	2 (100%)		5		19 (33.3%)	2 (66.7%)	
6		0 (0.0%)	0 (0.0%)		6		24 (42.1%)	1 (33.3%)	

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Table 2. Continuation.

Questions and Answers	Moment	Variable		P value	Questions and Answers	Moment	Variable		P Value
	PRE-TEST	*HAVING CHILDREN*				*PRE-TEST*	*HAVING CHILDREN*		
Q3		NO	YES	0.003	Q4		NO	YES	0.000
1		49 (84.5%)	1 (50.0%)		1		0 (0.0%)	1 (50.0%)	
2		7 (12.1%)	0 (0.0%)		2		3 (5.2%)	0 (0.0%)	
3		1 (1.7%)	1 (50.0%)		3		10 (17.2%)	0 (0.0%)	
4		0 (0.0%)	0 (0.0%)		4		13 (22.4%)	0 (0.0%)	
5		0 (0.0%)	0 (0.0%)		5		18 (31.0%)	1 (50.0%)	
6		1 (1.7%)	0 (0.0%)		6		14 (24.1%)	0 (0.0%)	
	POST-TEST	*HAVING CHILDREN*				*PRE-TEST*	*AGE*		
Q5		NO	YES	0.019	Q6		<25	25+	0.019
1		0 (0.0%)	0 (0.0%)		1		3 (7.5%)	0 (0.0%)	
2		0 (0.0%)	0 (0.0%)		2		6 (15.0%)	4 (20.0%)	
3		8 (14.3%)	0 (0.0%)		3		13 (32.5%)	5 (25.0%)	
4		11 (19.6%)	0 (0.0%)		4		11 (27.5%)	4 (20.0%)	
5		29 (51.8%)	0 (0.0%)		5		7 (17.5%)	7 (35.0%)	
6		8 (14.3%)	2 (100%)		6		0 (0.0%)	0 (0.0%)	
	PRE-TEST	*BEING MARRIED*				*PRE-TEST*	*HAVING CHILDREN*		
Q7		NO	YES	0.000	Q7		NO	YES	0.000
1		1 (1.8%)	0 (0.0%)		1		0 (0.0%)	1 (50.0%)	
2		9 (15.8%)	1 (33.3%)		2		9 (15.5%)	1 (50.0%)	
3		19 (33.3%)	0 (0.0%)		3		19 (32.8%)	0 (0.0%)	
4		11 (19.3%)	0 (0.0%)		4		11 (19.0%)	0 (0.0%)	
5		11 (19.3%)	2 (66.7%)		5		13 (22.4%)	0 (0.0%)	
6		6 (10.5%)	0 (0.0%)		6		6 (10.3%)	0 (0.0%)	
	PRE-TEST	*GENDER*							
Q8		MALE	FEMALE	0.017					
1		1 (3.3%)	0 (0.0%)						
2		1 (3.3%)	1 (3.3%)						
3		2 (6.7%)	0 (0.0%)						
4		5 (16.7%)	3 (10.0%)						
5		8 (26.7%)	6 (20.0%)						
6		13 (43.3%)	20 (66.7%)						
	POST-TEST	*BEING MARRIED*				*PRE-TEST*	*HAVING A PSYCHIATRIC DISORDER*		
Q12		NO	YES	0.001	Q12		NO	YES	0.044
1		4 (7.4%)	0 (0.0%)		1		3 (8.6%)	2 (8.0%)	
2		22 (40.7%)	1 (25.0%)		2		11 (31.4%)	6 (24.0%)	
3		13 (24.1%)	0 (0.0%)		3		12 (34.3%)	4 (16.0%)	
4		10 (18.5%)	0 (0.0%)		4		7 (20.0%)	8 (32.0%)	
5		5 (9.3%)	2 (50.0%)		5		0 (0.0%)	5 (20.0%)	
6		0 (0.0%)	1 (25.0%)		6		2 (5.7%)	0 (0.0%)	

Continue...

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Table 2. Continuation.

Questions and Answers	Moment	Variable		P value	Questions and Answers	Moment	Variable		P Value
	POST-TEST	*GENDER*				*POST-TEST*	*BEING MARRIED*		
Q13		MALE	FEMALE	0.043	Q13		NO	YES	0.003
1		0 (0.0%)	0 (0.0%)		1		0 (0.0%)	0 (0.0%)	
2		1 (3.6%)	0 (0.0%)		2		0 (0.0%)	1 (25.0%)	
3		4 (14.3%)	1 (3.3%)		3		4 (7.4%)	1 (25.0%)	
4		5 (17.9%)	11 (36.7%)		4		15 (27.8%)	1 (25.0%)	
5		12 (42.9%)	11 (36.7%)		5		22 (40.7%)	1 (25.0%)	
6		6 (21.4%)	7 (23.3%)		6		13 (24.1%)	0 (0.0%)	
	PRE-TEST	*HAVING A FAMILY MEMBER WITH MENTAL ILLNESS*				*PRE-TEST*	*HAVING CHILDREN*		
Q13		NO	YES	0.022	Q16		NO	YES	0.000
1		0 (0.0%)	0 (0.0%)		1		23 (39.7%)	0 (0.0%)	
2		0 (0.0%)	0 (0.0%)		2		21 (36.2%)	1 (50.0%)	
3		2 (12.5%)	4 (9.1%)		3		11 (19.0%)	0 (0.0%)	
4		8 (50.0%)	6 (13.6%)		4		3 (5.2%)	0 (0.0%)	
5		3 (18.8%)	18 (40.9%)		5		0 (0.0%)	0 (0.0%)	
6		3 (18.8%)	16 (36.4%)		6		0 (0.0%)	1 (50.0%)	

Source: the authors.

Question 13 (thirteen) was the one that showed to be the most significant in relation to variables such as: gender, marital status and having contact with a family member with mental illness.

When evaluating the response between female and male genders in relation to item 8 (eight) of the questionnaire, women mostly disagree, with 96.7% of the sample. In relation to male students, the majority also disagree with the statement. However, 13.3% strongly agree, agree or partially agree with this question. This shows that a portion of men potentiate stigmatizing thoughts.

Another topic highlights a discrepant difference in attitude between the male and female genders. Question 13 (thirteen) reveals that men (17.9%) agree or strongly agree in attributing physical symptoms to the mental illness itself, even after the internship, compared to 3.3% of the women. Also in relation to item 13 (thirteen), at the post-test moment, there is also a difference in the answers regarding being married or not. Married participants showed that 50% agreed or partially agreed; whereas among the vast majority of the participants who are not married, 92.6% of the sample partially disagrees, disagrees and strongly disagrees with question 13 (thirteen).

Still analyzing item 13 (thirteen), it was observed that at the time of the pre-test, in relation to participants who have no contact with a family member with a mental disorder, 12% partially agreed and 50% partially disagreed with the statement. In the group with family members with mental illness, the majority disagreed (40.9%) or strongly disagreed (36.4%), even before the internship intervention (Graph 1 below).

Regarding question 6 (six), which consists of stating that health professionals know more about the lives of people treated for mental illness than their family members or friends, participants aged over 25 years showed less stigma compared to younger participants, even before the internship.

Regarding question 12 (twelve), the majority of married people, even after the internship, reported disagreeing with the fact that society does not need to be protected from people with mental illness. Meanwhile, single participants agree with this statement, which implies a less stigmatizing behavior. However, it is important to highlight the difference in the number of married participants (sample less than 10% of students) and single participants. When analyzing this question between interviewees who have children and those who do not, both groups disagree with the aforementioned statement.

Also regarding question 12 (twelve), when evaluating the variable "suffering from mental illness at a time prior to the internship experience", the majority of the group of students who did not have mental illness answered "I strongly agree, agree or partially agree" with the statement (74.3%), that is, the majority of this group supports a less stigmatizing attitude.

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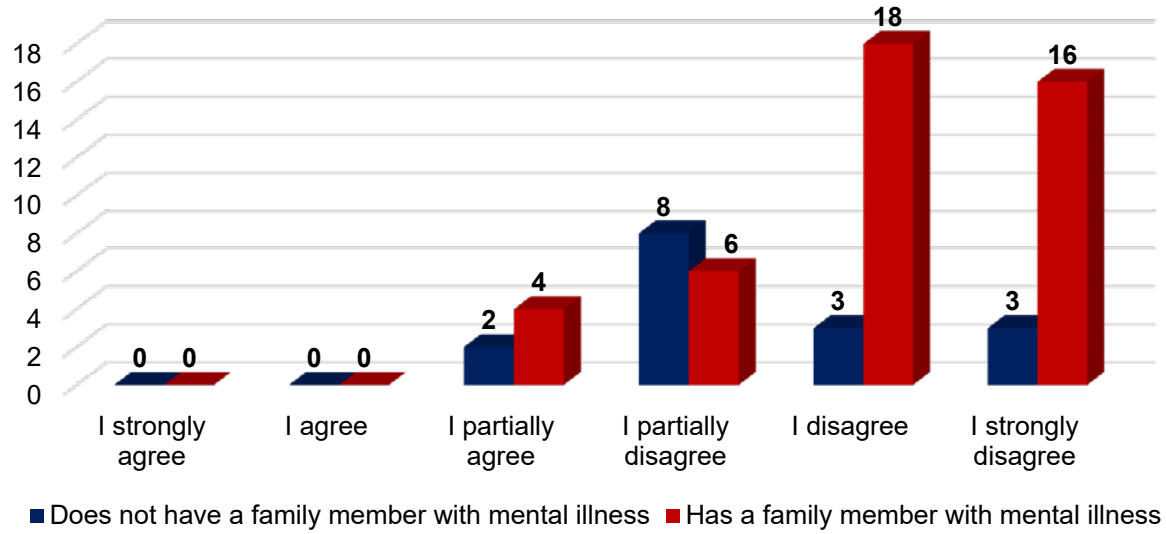
Graph 1. Question 13 (thirteen): "If a person with a mental illness complained of physical symptoms (such as chest pain), would I attribute it to the mental illness"? (p = 0.022).



Source: the authors.

When evaluating students who have or have had a psychiatric pathology, they showed mostly stigmatizing answers, as only 48% said they "strongly agree, agree or partially agree" with the question statement.

Only two interviewees reported having children. Of this small sample, in question 1 (one), after the internship, the majority of the interviewees who do not have children only read about mental health when they need to. Those with children disagreed with this statement, which may demonstrate more interest in mental health.

DISCUSSION

Psychiatric disorders are increasingly prevalent throughout the world. It is believed that about 40% of the adults have the diagnostic criteria for some mental disorder worldwide[12]. Over the years, several changes have occurred in relation to psychiatric knowledge, aiming at the comprehensive and humanized care for psychiatric patients. However, it is of the utmost importance to verify the effectiveness of these actions in work environments (psychiatric hospitals) and higher education centers[13]. Based on the pessimistic thinking analyzed by Thornicroft et al.[10], many health professionals promote stigmatizing actions regarding the recovery and/or cure of psychiatric patients.

In two questions, gender showed a statistically significant difference, which were items 8 (eight) and 13 (thirteen). In these questions, males showed more prejudiced actions in relation to females. It was observed that there was no change in the perception of stigma by male students, even after the internship, as they still "agree or strongly agree" in attributing physical symptoms to the mental illness itself. The question to be considered is whether being a woman translates into more empathetic attitudes towards the psychiatric population.

When evaluating the answers to question 13 (thirteen), even before participating in the mental health inpatient rotation, students who had a family member with a psychiatric disorder already showed less stigmatizing behavior in relation to psychiatric patients (P<0.05). In other words, previous contact with people with mental illness can influence a less prejudiced attitude towards other patients with this profile.

Another result of the study that showed to be important in this discussion is contact with a family member with a psychiatric disorder, as more than 70% of the sample reported having a family member with a mental illness. This shows that many participants already have, in some way, some type of experience with psychiatric disorders.

Regarding the other variables discussed in the study, it is interesting to highlight the percentage of medical students who have or have had a psychiatric disorder; this number is similar in several studies. A Brazilian study[14] published in 2019 showed a prevalence of 50.9% of common mental disorders in medical students, with women and younger students being the most prevalent ones.

Compared to the sample analyzed in this study, the prevalence rate of psychiatric disorders was somewhat similar among medical students, with almost 42% of those interviewed stating they suffer or have suffered from some mental illness.

Another study carried out in the United States showed a prevalence rate of 46% of medical students who had at least one symptom suggestive of a psychiatric disorder[15]. Among

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the triggering factors, the stress of the course and the high workload stand out.

When exploring the statistical analysis between the different variables of the study together with the items of the MICA-4 scale translated and adapted to Brazilian Portuguese, question 12 (twelve) brought to light an important issue, as, when checking the data from this cross-reference, students who have or have had a psychiatric pathology showed more rejection towards psychiatric patients than students who had never suffered from a mental illness. This highlights the presence of self-stigma in patients with psychiatric disorders. Stigma acts in a vicious circle, in which the individual with a psychiatric disorder, their family and mental health services participate. These labeled patients appropriate stigmatizing views of the general population, promoting self-stigma, and as a consequence, low self-esteem, a high degree of impairment and greater sensitivity to stress are observed. These fragility factors can often cause clinical worsening and restart the circle[16].

The study assessed the students' perception through 16 questions, the answers to which were consistent with less prejudiced actions before the internship. These less stigmatizing attitudes were the majority among the responses regarding the questionnaire and were strengthened after the period of close contact with the routine of a psychiatric hospital, but there was no statistical significance in relation to most of the questions. It would be interesting to have a larger and more heterogeneous sample to conclude the question that the internship experience in a psychiatric hospital can modify and/or strengthen the students' perspective, making them more humanized and empathetic health professionals.

CONCLUSION

To avoid perpetuating stigma in future medical generations, since this stigma prevents people from seeking timely help, the MICA-4 scale was translated and cross-culturally adapted.

The first objective of this study was to validate the MICA-4 scale for application in Brazil, which was carried out successfully, as all six stages were completed (Chart 2). Furthermore, the questionnaire (Chart 1) was evaluated by four experts who judged the MICA-4 scale as an instrument of good adequacy, relevance, clarity and simplicity. Later, when applying this questionnaire, it was seen that the students had no difficulty understanding the scale. Therefore, the MICA-4 scale was adequately translated and culturally adapted to the Brazilian reality.

The second objective was to evaluate the medical students' stigma in relation to patients with psychiatric disorders based on data collected using the validated MICA-4 scale, including two moments of the internship.

Apparently, there were no major changes in the medical students' responses at the different times of the questionnaire application. Of the 16 questions evaluated in the study, 11 (eleven) showed, in the majority of responses, non-stigmatizing behavior, in which these non-prejudiced attitudes were reinforced after the internship, although without statistical significance ($P > 0.01$).

Although most responses contributed to less stigmatizing actions, there were still situations of rejection, involving, for instance, male students and students with psychiatric disorders. Therefore, it is important to promote new studies and strengthen assessments among students and health professionals. Trained students become more humanized physicians, thus contributing, in different service environments, to reduce the stigma related to psychiatric patients. Therefore, making it possible to break the vicious circle and promoting greater adherence to treatment and reducing barriers to the recovery and rehabilitation of patients in need.

AUTHORS' CONTRIBUTION

Lorena Pinho Feijó, Ranna Jorge de Araújo and Sarah Gadelha Motta: responsible for the study concept, investigation, data curation, formal analysis, writing, review and editing of the manuscript. Mauro Henrique Nascimento Ramalho Filho, Marcos Kubrusly and Kristopherson Lustosa Augusto: advisors and preceptors, responsible for the study concept, methodology, supervision, formal analysis, review and editing of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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