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Translation and Validation Studies of the Mental Illness Clinicians' Attitudes Scale

Julho de 2023

Faculdade de Psicologia e de Ciências da Educação
da Universidade de Coimbra

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Dissertação de Mestrado em Intervenções Cognitivo-Comportamentais em Psicologia Clínica e da Saúde orientada pela Professora Doutora Ana Ganho Ávila Costa e pela Professora Doutora Maria Cristina Cruz Sousa Portocarrero Canavarro e apresentada na Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.

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Declaração de integridade

Declaro ter atuado com integridade na elaboração do presente trabalho académico e confirmo que não recorri à prática de plágio nem a qualquer forma de utilização indevida ou falsificação de informações ou resultados em nenhuma das etapas conducente à sua elaboração.

Statement of integrity

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

Enquadramento institucional

A presente dissertação foi realizada no âmbito do projeto estratégico do Centro de Investigação em Neuropsicologia e Intervenção Cognitivo-Comportamental (CINEICC) (UIDB/00730/2020). O presente trabalho integra o projeto "Comparing parents' and midwives / obstetricians' knowledge, causal attributions and attitudes towards perinatal depression" financiado pela Fondation FondaMental.

Institutional framework

The present dissertation was developed within the strategic project of the Center for Research in Neuropsychology and Cognitive-Behavioral Intervention (CINEICC) (UIDB/00730/2020). The current work is part of the project "Comparing parents' and midwives / obstetricians' knowledge, causal attributions and attitudes towards perinatal depression" funded by Fondation FondaMental.

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Às minhas estrelas, **Pai e Avós**, por me acompanharem em cada passo.

Resumo

Objetivos: O estigma face à saúde mental é uma realidade ainda presente na atualidade. Os profissionais de saúde, como agentes críticos do sistema, podem ser, simultaneamente, promotores de estigma, alvos de estigma ou agentes anti-estigmatizantes. Pelo potencial impacto negativo nas sociedades do estigma dos profissionais de saúde face à saúde mental, a compreensão deste fenómeno é importante. Para esse efeito, é necessário que existam instrumentos de avaliação adaptados e validados para cada população que avaliem o estigma face à saúde mental por parte dos profissionais de saúde. Assim, tendo em vista este fenómeno no contexto português, neste estudo pretendemos traduzir e adaptar culturalmente a escala de autorrelato Mental Illness Clinicians' Attitudes, versão 4 (MICA V4) para a população de língua portuguesa europeia (MICAv4 – PT), e estudar as suas propriedades psicométricas e estrutura fatorial. **Métodos.** Participaram neste estudo 171 profissionais de saúde (80.7% ela/dela; 18.7% ele/dele; 0.6% outro), com idade média de 34.97 anos (DP = 10.47). Os participantes completaram um protocolo *online* constituído pelo questionário sociodemográfico e pelas versões em português europeu das escalas Atitudes Sobre Problemas de Saúde Mental e MICA V4. **Resultados.** Os resultados da análise fatorial confirmatória (AFC) confirmam a estrutura unifatorial da versão portuguesa da MICA V4 ($\chi2$ (102) = 101.737, p = .261, CFI = .97, TLI = .97, RMSEA = .02, SRMR = .07). Na nossa amostra, a escala apresentou uma consistência interna satisfatória (α = .65), a validade convergente entre a MICAv4 – PT e a escala Atitudes sobre problemas de saúde mental (ASPSM) foi considerada significativa (r (169) = .39, p < .001), a estabilidade temporal foi estimada com 20 participantes, tendo obtido um valor elevado (ICC = .93). **Conclusões**. O presente estudo contribui para a validação preliminar da escala MICA V4 para a população portuguesa, consistindo numa escala unifatorial de 16 itens. A MICAv4 – PT pode ser utilizada na língua portuguesa europeia quer para compreender o fenómeno do estigma dos profissionais de saúde em Portugal, quer ainda na avaliação de programas de intervenção e redução do estigma face à saúde mental dos profissionais de saúde. Futuros estudos deverão ser conduzidos para solidificar os resultados encontrados, com uma amostra maior e com outros métodos de recolha de amostra de forma a chegar a mais profissionais de saúde.

Palavras-chave: atitudes, estigma, saúde mental, profissionais de saúde, propriedades psicométricas, análise fatorial confirmatória.

Abstract

Objectives. Mental health stigma by clinicians toward patients diagnosed with a mental health disorder is a reality that can be currently found. Thus, health professionals can be simultaneously stigmatisers, stigma recipients or active agents of destigmatization. Due to the potential negative impact on societies of the stigma of health professionals regarding mental health, the understanding of this phenomenon is important. For this purpose, it is necessary to have assessment instruments adapted and validated for each population that assess stigma towards mental health by health professionals. Considering this phenomenon in the Portuguese realm, in this study we aimed to translate and culturally adapt the Mental Illness Clinicians' Attitudes self-report scale, version 4 (MICA V4) for the European Portuguese-speaking population (MICAv4 – PT), and to study its psychometric properties and factorial structure. **Methods.** In this study participated 171 health professionals (80.7% she/her; 18.7% he/him; 0.6% other) with a mean age of 34.97 years (SD = 10.47). The participants completed an online protocol with a sociodemographic questionnaire, and with the Portuguese version of Attitudes Towards Mental Health Problems and MICA V4. **Results.** Through a confirmatory factor analysis (CFA) we confirmed its unifactoral structure of the Portuguese version of MICA V4 ($\chi 2$ (102) = 101.737, p = .261, CFI = .97, TLI = .97, RMSEA = .02, SRMR = .07). In our sample, the scale showed a satisfactory internal consistency (α = .65), the convergent validity between MICAv4 – PT and the Portuguese version of Attitudes Towards Mental Health Problems scale was significant (*r* (169) = .39, *p* < .001), the instrument's stability over time was estimated with a sub-sample of 20 participants, and a high value was obtained (ICC = .93). **Conclusions.** This study contributes for a preliminary validation of the MICA V4 scale to the Portuguese population, consisting of a unifactorial scale with 16 items. MICAv4 – PT can be used in the European Portuguese language both to understand the stigma towards mental health of health professionals in Portugal, and to assess intervention programs aiming to reduce stigma towards mental health by health professionals. Future studies should be conducted to consolidate our results, with a larger sample and with other recruitment methods to reach more health professionals.

Keywords: attitudes, stigma, mental health, health professionals, psychometric properties, confirmatory factor analysis.

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Mental health stigma remains a persistent challenge in our society. The process of stigmatization can occur at multiple levels of the health care sector, resulting from conscious or unconscious bias. At a structural level, it can be seen on the financial investment, the standards concerning quality of care, and the organizational culture. Stigmatization can also occur at an interpersonal level, during patient-provider interactions, being often perpetuated by the very individuals who should be at the forefront of promoting its understanding and acceptance - health professionals. Health professionals stigmatizing attitudes and behaviours can include discriminatory behaviours, negative attitudes, lack of awareness, therapeutic pessimism, very often as the result of their lack of skills (Heim et al., 2018; Henderson et al., 2014; Knaak et al., 2017; Schulze, 2007). Additionally, it can occur at an intraindividual level as self-stigma, patient reluctance to seek care, or as the health professional reluctance to disclose a mental illness and/or seek care (Corrigan et al., 2014; Livingston, 2013).

Negative attitudes and behaviours can be expressed such that people diagnosed with a mental illness often report felling devalued, dismissed, and dehumanized by health professionals responsible for their treatment. These negative attitudes can be translated in long waiting periods when seeking help, being given insufficient information about the health condition or treatment options, being treated in a paternalistic or demeaning way, and being spoken to or about using stigmatizing language (Hamilton et al., 2016; Connor & Wilson, 2006).

To effectively address this issue of negative attitudes and behaviours, a Canadian qualitative study found a tendency for health professionals to "see the illness ahead of the person" which can contribute to a failure to use person-first language and/or a tendency to engage in behaviours that may be experienced as dismissive or demeaning by the health providers. The same authors found that patients with a specific mental disease, such a personality disorder, tend to be more often rejected by healthcare staff because they are perceived as difficult, manipulative patients and unworthy of care (Henderson et al., 2014; Knaak & Patten, 2016).

The lack of awareness, lack of skills and the therapeutic pessimistic opinions seem to be three core factors that contribute to the process of stigmatization. The first results in professionals' unintentional stigmatising behaviours, conveyed by their beliefs (Knaak & Patten, 2016; Sukhera & Chahine, 2016). The second, when health professionals have a lack of skills, meaning, a reduced expertise, they can experience anxiety, fear, and the desire to

avoid patients, this will negatively impact patient-provider interactions and the quality of treatment (Ross & Goldner, 2009; Jones et al., 2008; MacCarthy et al., 2013; Lauria-Horner & Patten, 2015). And, for last, closely related to knowledge are perceptions. The therapeutic pessimistic opinion that health professionals tend to hold about the reality and the probability of recovery of patients diagnosed with a mental health disorder, is experienced as a barrier to recovery. Pessimism about recovery is associated with feelings of helplessness, leading health professionals to believe that regardless of what they do, the result is going to be unfavourable (Henderson et al., 2014; Ross & Goldner, 2009; Knaak & Patten, 2016). To all, research has been shown that if the health professionals are more intensively trained in topics related to psychiatry illness, show less stigmatization behaviours and more confidence in the treatments (Gulati et al., 2014).

Finally, the culture of stigma in the workplace is another critical factor contributing to stigma toward patients with mental illnesses. Importantly, the culture of stigma is not only related with mental health, but it has also been described as a cultural problem in general. Overall, workers are discouraged to disclosure or to ask for help due to psychological problems (Abbey et al., 2012; Wallace, 2012). Research has shown that health professionals considered that it is harder to disclosure or ask for help when they have problems related with mental health than physical health, due to the stigma perceived in the workplace (Modgill et al., 2014). Within the workplace, it was also found that people diagnosed with mental health disorders are more often perceived as incompetent, dangerous, and unpredictable (Krupa, 2009).

In sum, the impact of mental health stigmatization by health professionals is pervasive and significative. It is, therefore, important to measure this phenomenon to comprehensively understand it and to be able, to implement strategies that may contribute to reduce its impact. In response to this need, the Mental Illness Clinicians' Attitudes (MICA) was developed (Kassam et al., 2010).

MICA is a self-report measure that assesses health professionals' attitudes towards mental health disorders, that can be used across distinctive categories and background of health care workers.

MICA's experimental version had 32 items. These items were developed using a focus group methodology (Kassam et al., 2010). Four groups were created: one that included five mental health service users, another with nine caretakers of people diagnosed with a mental disorder, another with seven third-year medical students and a group with five psychiatrists. An additional focus group was conducted with four medical students aiming to assess face and content validity of the items. The items allowed to assess public and providers attitudes about

people diagnosed with a mental health disorder, the belief of recovery from a mental health diagnosis, perceptions about psychiatry in medical education, practice, and diagnostic overshadowing (the process of considering physical problems of a patient more important than its mental health condition, by general practitioners (Kassam et al., 2010)).

Eleven items were excluded due to its irrelevance, redundancy, or lack of context. Two items were split into two and one item on general practice was added. Four new items were added, retrieved from the National Scottish Survey of Public Attitudes to Mental Health, Well-Being and Mental Health Problems After the development of the instrument across these stages, the first MICA version had 28 items (Kassam et al., 2010).

A sample of 77 medical students completed the 28-items MICA scale. Twelve items were eliminated due to ceiling and floor effects and a high rate of non-response (Kassam et al., 2010). The 16-item version (MICA V2) was further modified so that the instrument could be suitable for both healthcare students and professionals (MICA V3; Gabbidon et al., 2013). However, after the exploratory trial of MICA V3, the research group decided to develop MICA V4, claiming that it would be more suitable having items that cover a larger number of health care areas, rather than having items for specific professions, allowing to assess the attitudes of students and professionals across all healthcare disciplines (Gabbidon et al., 2013).

MICA V4 is easy and quick to complete, and the authors claim that it is a cost-effective instrument to assess attitudes towards people with mental health disorders by students or professionals across healthcare disciplines (Gabbidon et al., 2013). This instrument is validated in English Language (Gabbidon et al., 2013), Spanish and Brazilian Portuguese (Vistorte et al., 2021).

As of today, MICA V4 is not translated nor adequately validated to the Portuguese population. Therefore, our **main goal** is to translate, culturally adapt, and study the psychometric properties and the factorial structure of MICA V4 to European Portuguese population. This study is the preliminary stage of a larger collaboration of our team with the cross-cultural project "Comparing parents' and health providers' knowledge, causal attributions and attitudes towards perinatal depression", funded by the Fondation Fondamental. This cross-cultural study aims to compare parents' and health providers' knowledge, causal attributions and attitudes towards perinatal depression in 10 different European countries and is being conducted within the collaboration between the Center for Research in Neuropsychology and Cognitive and Behavioral Intervention (CINEICC) of the Faculty of Psychology and Educational Sciences – University of Coimbra and the CHUC – Centro Hospital e Universitário de Coimbra – Portugal, the Erasmus Medical Center – Netherlands,

the University of Milan – Italy, the Universidad Loyola Seville, the University of Malaga and the University of Madrid – Spain, the Tallinn University – Estonia, the Uppsala University – Sweden, the University of Sofia – Bulgaria, the University of Warsaw – Poland, the University of Athens – Greece, the European University Cyprus, Cyprus University of Technology – Cyprus.

Participants

  The sample was recruited between February and June of 2023 through publications on social media platforms as Instagram, Facebook, Twitter, and LinkedIn. Inclusion criteria included: being a health professional and being proficient in European Portuguese language. In total, 187 participants concluded the survey using the online platform LimeSurvey®. We excluded sixteen participants that did not meet the inclusion criteria.

  The final sample included 171 participants (80.7% She/her, 18.7% He/him, 0.6% Other) with a mean age of 34.97 years ($SD = 10.47$) (see Table 1).

Table 1

Descriptive statistics of the sample

		$N = 171$
Age, years	M (SD)	34.97 (10.47)
	Min-Max	20-77
Gender	He/Him (%)	32 (18.7)
	She/Her (%)	138 (80.7)
	Rather not answer (%)	0 (0)
	Other (%)	1 (0.6)
Nationality	Portuguese (%)	171 (100)
Profession	Nurse	17 (9.9)
	Doctor	43 (25.1)
	Psychologist	45 (26.3)
	Health professionals with higher education	60 (35.1)
	Health professionals with basic education	6 (3.5)
Work experience, years	*M*	11.09
	SD	10.10
Mental health work experience, years	*M*	5.22
	SD	8.70
Psychiatric/psychological treatment (past or present)	Yes (%)	123 (71.9)
	No (%)	48 (28.1)

Procedure

The ethical committee of the Faculty of Psychology and Educational Sciences – University of Coimbra reviewed and endorsed the current study. All participants were required to give their consent after receiving the information regarding the study. The study protocol included online versions of the sociodemographic questionnaire (created by the research team), and the European Portuguese versions of the Attitudes Towards Mental Health Problems Scale (ATMHP), and the Mental Illness Clinicians' Attitudes Scale V4 (MICA V4). The questionnaires were presented in the same order across participants.

Measures

Sociodemographic Questionnaire

We used a self-report questionnaire, created specifically for this study, to access sociodemographic data such as age, gender, nationality, profession, years of professional experience (in general and within mental health services), and previous or current psychiatric/psychological treatment by the participant or a family member.

Attitudes Towards Mental Health Problems Scale

The European Portuguese version of the Attitudes Towards Mental Health Problems Scale (ATMHP; Cabral et al., 2016; Gilbert et al., 2007) accesses the attitudes and feelings of shame related to the mental health. The ATMHP is a self-report instrument, composed of 35 items (e.g., "My community sees mental health problems as something to keep secret."; "My family would want to keep their distance from someone with mental health problems.") scored on a four-point Likert scale from 0 ("Do not agree at all") to 3 ("Completely agree"). Higher scores indicate more negative attitudes toward mental health. The European Portuguese version of the scale is composed by six sections: 1- Community's Attitudes Towards Mental Health Problems (items: 1–4; 9–13); 2- Family Attitudes Towards Mental Health Problems (items: 5–8; 14–18); 3- Internal Shame (Items: 19–23); 4- Reflected Shame on Family (Items: 24–27); 5- Worries about Reflected Shame on Family (Items: 28–29), and 6- Reflected Shame on the Self (Items: 31–35). The European Portuguese version of ATMHP showed a very good internal consistency with the Cronbach's alpha value of .91 (Cabral et al., 2016).

Mental Illness Clinicians' Attitudes Scale – V4

Mental Illness Clinicians' Attitudes Scale – V4 (MICA V4) is a self-report questionnaire that accesses attitudes toward mental illness by health professionals. The MICA V4 is composed by 16 items (e.g., "Working in the mental health field is just as respectable as other fields of health and social care"; "Health/social care staff know more about the lives of people treated for a mental illness than do family members or friends"), rated in a six-point Likert scale with a range from 1 ("Strongly agree") to 6 ("Strongly disagree''). Items 1, 2, 4, 5, 6, 7, 8, 13, 14, 15 are reversed. Total scores vary from 16-96 and are calculated by summing the scores of each item. Higher scores indicate more negative stigmatizing attitudes. The original scale shows a good internal consistency (α = .79; Gabbidon et al., 2013). To develop and adapt the European version of MICA V4, we have followed the International Test Commission (2005) guidelines. The translation of the original version to European Portuguese was conducted independently by two Portuguese native speakers proficient in English and then cross checked by two experienced native Portuguese clinicians also proficient in English. A back-translation was conducted by another researcher for semantic equivalence. To access the scale face validity, five health professionals completed the scale. No changes were suggested after this pilot study on the structure, content, and number of items of the MICAv4 – PT.

Analytic Strategy

Factorial Structure

To analyse the factor structure of the MICAv4 – PT, we performed a confirmatory factor analysis using JASP (Jeffreys's Amazing Statistics Program, version 0.17.1), through a stepwise process. First, we tested its five-factor structure as suggested by the original authors (Gabbidon et al., 2013). If this structure would not show a good fit, we would test the three-factor structure as suggested by Vistorte et al., (2021). To estimate models' goodness of fit, we used the diagonally weighted least squares (DWLS) method, based on the assumption that this estimator has shown a better fit when dealing with categorial data (Li et al., 2001).

To estimate the model fit, we used the chi-square statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SMR; Browne & Cudeck, 1993). We adopted Hair et al., (2010) fit index thresholds (chi-square not significant, CFI and TLI $\geq$ .92, the

RMSEA ≤. 06 and the SRMR ≤. .08). As for the quality of the items of the scale, we considered acceptable factor loadings if ≥. 50 (Hair et al., 2010).

We used the Statistical Package for Social Sciences (IBM SPSS Statistics, version 27, Armonk, NY: IBM Corp) to conduct preliminary analysis, namely, to observe the distribution of the missing values, eliminating the participants with a non-response higher than 15% (Tervee et al., 2007). We additionally assess the floor and ceiling effects to confirm any assessment constraints in the MICAv4 – PT as both lead to low variance and poor discriminatory capability (Stucki, 1999).

Reliability

To estimate the internal consistency, we estimated Cronbach's alpha to assess items' correlations (Cronbach, 1951), according to the following thresholds: $\alpha \geq .70$ correspond to adequate, $\alpha \geq .80$ good and $\alpha \geq .90$ excellent (George & Mallery, 2003). We also estimated the composite reliability (CR) which is based on the factor loadings calculated in the CFA (Bacon et al., 1995). According to Hair et al., (2013), the CR should be .70 or higher. The average variance extracted (AVE) was calculated to determine the amount of variance captured by the construct, in this case the attitudes (as opposed to the amount of variance that can be attributed to measurement error; Fornell & Larcker, 1981). Following the guidelines by Hair et al., (2013), AVE should be .50 or higher.

To access the instrument's stability over time we estimated the correlation between two different time points (with a time window of 1-3 months between them) on a subsample of 20 participants.

Validity

To estimate concurrent validity, we conducted a correlation analysis between the MICAv4 – PT and ASPSM scale (Cabral et al., 2016), using the Pearson's *r*. A correlation of .10 was considered small, between .30 and .50 was considered medium, and .50 or above was considered large (Westen & Rosenthal, 2003).

For discriminant validity, whenever the five or three factor structure is confirmed, we will estimate the correlations between MICAv4 – PT factors using Pearson's *r* using the same thresholds (0.10 small, .30-.50 medium, .50 or higher large).

Finally, we estimated the validity of known groups. This analysis is commonly used when we aim to determine whether a measure tool can accurately distinguish between different

groups that are known to possibly differ on the construct being measured (McConnell et al., 2001). According to the literature, we compared two sets of groups based in the following hypotheses:

1. We expect that those professionals who have more proximity to psychiatric/psychological treatments have fewer stigmatizing attitudes towards mental illness than those who have less proximity. To test this hypothesis, we used the question of the sociodemographic questionnaire "Are you/were you in a psychological/psychiatric treatment? Or have/had any familiar in this situation?". Two groups were created: participants answering "yes" were assigned to the group "more proximity", and those answering "no" were assigned to the group "less proximity".

2. We expected that those who have more professional experience in the field of mental health have fewer stigmatizing attitudes towards mental illness than those who have less professional experience in the field. To verify this hypothesis, we used the question "Professional experience in mental health" of the sociodemographic questionnaire. We have created four groups: "no experience" (included those participants that answered 0 [zero] years), "few experience" (included to those who answered between 1-10 years), "some experience" (included those who answered between 11-20 years), and "more experience" (included those who answered > 20 years).

To test our hypothesis, we used the U Mann-Whitney test for the first hypothesis, and the Kruskal-Wallis test for the second, both non-parametric tests, since MICAv4 – PT did not follow a normal distribution.

Confirmatory Factor Analysis

Given that with MICAv4 – PT we are collecting categorical data, according to the literature, the DWLS estimator should be the used (Li, 2021).

We performed CFA for the five-factor model (Model 1), as indicated in the original validation study of MICA V4 (Gabbidon et al., 2013). The five-factor model did not reveal an adequate fit to the data, according to the fit index thresholds (Hair et al., 2010) (see Model 1 in Table 2.)

We then performed the CFA for the three-factor model (Model 2), following de conceptualization of Vistorte et al., (2021). Similarly, this model did not reveal an adequate fit to the data (see Model 2 in Table 2).

Finally, we tested the unifactorial model (Model 3 in Table 2), considering that all items loaded to one general factor representing stigma. After observing the content and wording similarities between item 4 ("If I had a mental illness, I would never admit this to my friends because I would fear being treated differently") and item 7 ("If I had a mental illness, I would never admit this to my colleagues for fear of being treated differently") we proceeded to allow the covariation of the measurement errors between these items. Additionally, the close content (although inversed) of item 11 ("It is important that any health/social care professional supporting a person with a mental illness also ensures that their physical health is assessed.") and item 14 ("General practitioners should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.") also suggested its covariation, thus we allowed the covariation of the measurement errors between these items (the Portuguese translation of all items can be found in Table 3). Model 3 showed an adequate fit to the data (see Model 3 in Table 2). The factor loadings, ranged from .02 (item 3) to .80 (item 1), meaning that 11 items did not comply with the threshold of >.50 recommended by Hair et al., (2013), (see Figure 1).
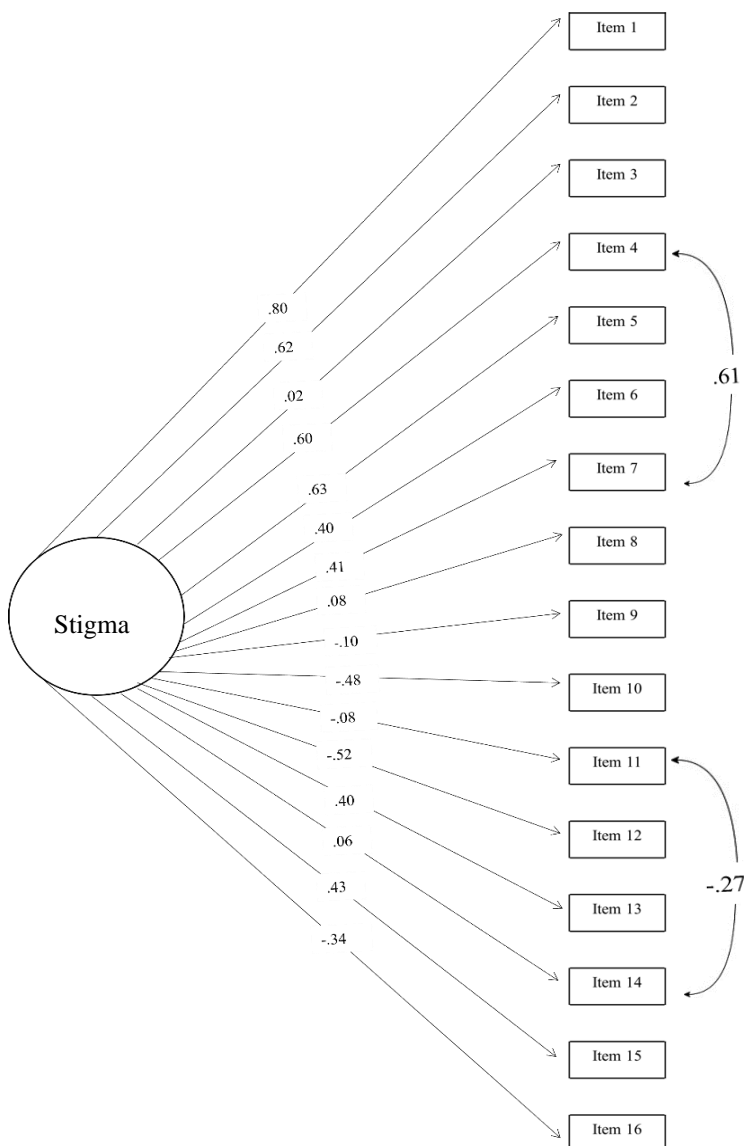
Table 2

Goodness-of-Fit Statistics for the tested models

	$\chi2$	*df*	*p*	CFI	TLI	RMSEA	SRMR
Model 1 – 5 factors	226.444	104	<.001	.60	.54	.08	.12
Model 2 – 3 factors	235.365	104	<.001	.57	.50	.09	.11
Model 3 – 1 factor	101.737	102	.261	.97	.97	.02	.07

Note. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Figure 1

Confirmatory factor analysis for the one-factor model of the European Portuguese version of the Mental Illness Clinicians' Attitudes MICAv4 – PT*).*

Reliability

Internal consistency was satisfactory, (α = .65), and as showed in Table 3 this value does not become significatively higher if we delete any particular items. The results provided by the CR (.40) and the AVE (.13) were below the recommended value of .50. The ICC for the global score was .93 indicating a high test-retest reliability.

Table 3

Value of Alpha Cronbach if item deleted.

	Alpha Cronbach if item deleted
1. Eu procuro saber mais sobre saúde mental só quando preciso, e não me esforço por ler material adicional sobre o tema.	.61
2. Pessoas com doença mental severa nunca recuperarão o suficiente a ponto de ter uma boa qualidade de vida.	.61
3. Trabalhar na área da saúde mental é tão respeitável quanto trabalhar noutras áreas da saúde e de assistência social.	.66
4. Se eu tivesse uma doença mental, nunca o admitiria aos meus amigos porque teria medo de ser tratado de forma diferente.	.61
5. Pessoas com uma doença mental severa são frequentemente perigosas.	.60
6. Os profissionais das áreas da saúde e assistência social sabem mais sobre a vida das pessoas em tratamento por doença mental do que os seus familiares ou amigos.	.64
7. Se eu tivesse uma doença mental, nunca o admitiria aos meus colegas de trabalho porque teria medo de ser tratado de forma diferente.	.63
8. Ser um profissional de saúde mental não é como ser um verdadeiro profissional das áreas da saúde e assistência social.	.64
9. Se um colega com mais experiência profissional me instruísse a tratar pessoas com uma doença mental de uma forma desrespeitosa, eu não seguiria as suas instruções.	.65
10. Eu sinto-me tão confortável a falar com uma pessoa com uma doença mental como com uma pessoa com uma doença física.	.63

11. É importante que qualquer profissional de saúde e assistência social que acompanhe uma pessoa com uma doença mental, também assegure que a sua saúde física é avaliada.	.64
12. A sociedade não precisa de ser protegida de pessoas com uma doença mental severa.	.62
13. Se uma pessoa com uma doença mental se queixasse de sintomas físicos (como dores no peito) eu atribui-los-ia à sua doença mental.	.62
14. Não se deve esperar que na consulta de medicina geral e familiar se faça uma avaliação completa de pessoas com sintomas psiquiátricos, porque estas podem ser referenciadas para consulta de psiquiatria.	.67
15. Eu usaria os termos 'louco/a', 'maluco/a', 'doido/a' etc. para descrever aos meus colegas de trabalho pessoas com uma doença mental que acompanho profissionalmente.	.62
16. Se um/uma colega me dissesse que tinha uma perturbação mental, eu continuaria a querer trabalhar com essa pessoa.	.63

Validity

We did not detect floor or ceiling effects. As expected, we were able to verify the concurrent validity between MICAv4-PT and ATMHP (r (169) = .39, $p < .001$).

The validity of known groups was established through the *U* Mann-Whitney test for the first hypothesis. Contrary to what we anticipated, the results showed that professionals with more proximity to psychiatric/psychological treatments do not have fewer stigmatizing attitudes towards mental illness ($U = 18.608$, $p > 0.05$). Moreover, to test our second hypothesis we used the Kruskal-Wallis test, and as we expected the results showed that professionals with more experience in the field of mental health have fewer stigmatizing attitudes towards mental illness than those who have less professional experience in the field ($H = 18.608$, $p < 0.05$).

Discussion

This study presents the translation process and assesses the validity of the European Portuguese version of MICA V4 (the MICAv4-PT) by studying its psychometric properties and its factorial structure.

According to the original study that validated the MICA V4, we expected a five-factor structure (Gabbidon et al., 2013). However, such model did not fit our data. Therefore, we tested the three-factor structure suggested by Vistore et al., (2021) in the MICA V4 adapted to Brazilian population. However, this model did not fit our data as well. These results might be associated with limitations related not only to limitations of our own study but also limitations of the original studies. For example, the original studies estimated MICA V4's factor structure based on Exploratory Factor Analysis, deriving decisions mostly based in statistical criteria over an adequate theoretical framework (Hair et al., 2010). Also, considering the complexity of such models, the sample size of the original studies might have been too small (five-factor structure N = 183, Gabbidon et al., 2013; three-factor structure N = 150, Vistore et al., 2021) possibly compromising the generalizability of the models to other populations. Finally, it is worth noticing that the participants of the Gabbidon's study (2013) completed the study protocol including MICA V4 after receiving 75-minute training sessions about anti-stigmatization attitudes which might have biased the results. Thus, further studies should be conducted to assess a final factorial structure of MICA V4.

As the factor loadings found in Models 1 and 2 were very low, it could be suggested that the existence of latent subfactors would be unlikely. Therefore, we decided to test the unifactorial structure, with all factors loading to the same construct – stigma by health professionals toward patients diagnosed with a mental health disorder - allowing for a clear and interpretable understanding of the contribution of each item to this higher-order factor.

We found that the unifactorial structure showed the best fit to our data, particularly after allowing the covariation of the measurement errors between item 4 and item 7, and item 11 and item 14. Allowing for covariances between measurement errors should be considered whenever there is a theoretical justification and/or empirical evidence. In our case, item similarity was obvious between item 4 and item 7 to the extent that both are related to the disclosure of having a mental health disorder to others. Similarly, item context/content between items 11 and 14 was also clear to the extent that both are about the need of health professionals to care for and assess physical symptoms of people diagnosed with a mental disease. Therefore, we decided to allow the covariance between measurement errors of these two pairs of items, leading to an

improved model fit accounting for relationships in the data that were beyond its structure, and guaranteeing the precision and reliability of the measure (Marsh et al., 2014).

Even though the unifactorial model was statistically significant, some of the items did not show adequate loadings (e.g., items 3, 8, 9, 11 and 14). This might be associated with its translation and adaptation to the European Portuguese language, which was indeed a challenge. First, it is important to notice that in the Portuguese health system health professionals are not always understood as including social services' professionals. However, these professionals are part of the health care teams and we therefore kept the reference which might have compromised the full understanding of those items about social services. Also, some of the most troubling items, (9, 11 and 14) were long and its wording was complex which could have led to a cognitive overload (Schwarz, 1999). It is important to highlight that this was the first study translating MICA V4 to European Portuguese, meaning that, changes in items structure and wording should be considered in future studies.

Unexpectedly, item 3 showed a very low but positive correlation with the high-order factor (.02) when it was expected to correlate negatively. This result suggests that, in its current version, item 3 seems to be barely related with stigma. Therefore, future studies aiming to improve the reliability of MICAv4-PT should reconsider the need of improving or deleting item 3 to the comprehension of the latent construct.

The reliability of the European Portuguese version of the MICAv4 – PT demonstrates a satisfactory internal consistency with a Cronbach's alpha value of .65, a fair enough score to guarantee the use of the scale (Hajjar, 2018). As we can see in the Table 3, the Cronbach's alpha value does not become significatively higher if we delete any of the items. More than a statistical criterion, we did a judgmental analysis and concluded that in this phase all items were important to the understanding of the latent construct of the scale (Wieland et al., 2017). Moreover, considering that this study is part of a broader cross-cultural study, where it is expected for each study site to use the same measure, we decided to keep all 16 items.

Acknowledging the small sample size included for the re-test analysis (n = 20), the results showed an excellent temporal stability (.93). Future research should consider larger samples to calculate the temporal stability to improve confidence in these results.

AVE score was below the recommended value of .50 (Hair et al., 2013), meaning that less than half of the shared variance of the items can be explained by the latent construct, and more than half is attributed to measurement error. Additionally, the CR value below the recommended threshold of .70, suggests that the items might not be measuring the latent construct as they should. Given that the authors of the previous studies did not present these

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data, we are unable to comprehensively understand whether these results are a problem limited to the European Portuguese version or whether these issues were already present in the other versions.

We also aimed to conduct a test of validity of known groups to verify if the results differ according to groups that we previously expected to differ. According to the literature, a closer contact with mental health treatments could lead to fewer stigmatizing attitudes (Corrigan et al., 2002). Nonetheless, in our results, we could not validate this assumption and our hypothesis that health professionals with more proximity with psychiatric/psychological treatments showed fewer stigmatizing attitudes towards mental illness than those with less proximity (by proximity we mean a closer/personal contact with mental health treatments). These results could be explained by the fact that the sample size between known groups is significatively unbalanced in terms of proximity to mental illness (71.9% of the participants had previous contact with psychiatric/psychological treatments and only 28.10% did not). Accordingly, our sample is composed of a higher number of participants more concerned and alert about mental health issues than the general population, and participants more distant to this experience were less represented.

As expected, we were able to validate our second hypothesis, anticipating that those who have more professional experience in the field of mental health would show fewer stigmatizing attitudes towards mental illness than those who have less professional experience in the field. A study conducted by Galka et al., (2005), comparing medical students' attitudes about mental illness before and after a six-week psychiatry rotation, showed that after the rotation, students became more aware of the treatments and developed more favourable attitudes towards the prognosis of people with a mental health disease. Our results are aligned with this study, showing that longer work experience in the mental health field helps reducing stigma.

Although our study provides valuable contributions to the field, it is crucial to consider its limitations and potential constraints that might affect both the interpretation of the findings and the up taking of the MICAv4-PT. Whereas our sample size should be enough to test the unifactorial structure of a 16-item measure, we acknowledge that to test more complex models (such as the ones with three and five latent factors), a sample size of up to 800 participants would have been needed. Future confirmatory studies should consider larger sample sizes to increase our confidence in the current results, accounting for such complex models (Hair et al., 2019).

Second, to access the validity of a scale it is important to conduct a discriminant validity test, to confirm if the measure evaluates the construct (external discriminant validity) and if its latent factors are in fact distinctive among them (internal discriminant validity). We have planned to assess MICAv4-PT internal discriminant validity by estimating the correlation between its latent factors according to a multifactorial model. However, given that we achieved the unifactorial structure this would not be adequate anymore. However, we did not plan to conduct external discriminant validity by comparing this instrument with another assessing a different construct. In future studies we recommend external discriminant validity to be tested using a measure expected to assess a distinctive construct such as The Professional Quality of Life Scale, version 5 (ProQOL-5; Stamm, 2009; Portuguese version by Carvalho, 2011).

Third, it is important to highlight that this study was conducted exclusively online which could have led to an unintentional exclusion of potential participants. For example, individuals with limited internet access, healthcare professionals who may be less inclined to participate in a study on mental health stigma, and those who harbour more stigmatizing attitudes could have been underrepresented. In future studies we recommend exploring distinctive recruitment procedures to improve the representativeness of the sample.

In sum, this study brings important contributions to the field. First, it paves the way for cross cultural studies such as the Project "Comparing parents' and health providers' knowledge, causal attributions and attitudes towards perinatal depression". Additionally, in the European Portuguese context, there is no other measure that allows to specifically access the stigma of health professionals towards mental health. Therefore, the translation and validation of MICAv4-PT fills a critical gap in the Portuguese realm. The persistence of stigma against mental health remains a stark reality in our healthcare settings. Thus, the availability of this instrument in European Portuguese is an invaluable asset, facilitating a deeper understanding of this phenomenon and promoting positive change within our health contexts.

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