ANALYSIS OF PSYCHOMETRIC PROPERTIES OF THE BRAZILIAN PORTUGUESE VERSION OF THE COMMUNITY ATTITUDES TOWARDS THE MENTALLY ILL (CAMI-BR)

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Abstract:
Objectives: To perform an analysis of the psychometric properties of the Brazilian Portuguese version of the COMMUNITY ATTITUDES TOWARDS THE MENTALLY ILL (CAMI-BR), a 40-item scale divided into four sub-scales. Methods: The study was conducted in a non-probability sample of 230 households located close to therapeutic residences in the west area of Rio de Janeiro. Reliability was assessed by test-retest and the Principal Component Analysis (PCA) was used to test the internal structure of the questionnaire. Results: Most participants were women, married, with children aged 18 years or over. The overall score was 27.72 (SD = 3.31), showing attitudes ranging from neutral to positive stereotypes. The scale showed a high internal consistency (α = 0.842), consistent with other international studies. In the factor analysis, the sample was adequate (KMO = 0.800). The strength of the correlations among subscales and the factors of factor analysis were highly satisfactory. The version in Brazilian Portuguese suggests a better distinction among sub-scales through the lower correlation among them (between 0.336 and 0.441) as compared to higher values (between 0.630 and 0.770) found in the original scale. The community mental health ideology sub-scale showed a strong relation to factor 1 (ρ = 0.910). Benevolence had a strong relationship with factor 2 (ρ = 0.847); Authoritarianism and Social Restrictiveness had the highest correlation with factor 3 (ρ = 0.631 and 0.577 respectively). Conclusions: The scale psychometric properties were maintained after adjustment. Having registered a lower correlation between the scales the factor analysis further suggests that the Brazilian Portuguese version conveys more clearly the differences between the sub-scales.
Keywords: Social stigma; community attitudes; validation studies; mental disorders

Resumen:
Objetivos: Realizar un análisis de las propiedades psicométricas de la versión en portugués de las actitudes de la comunidad hacia los enfermos mentales (CAMI-BR), una escala de 40 ítems dividido en cuatro sub-escalas. Métodos: El estudio se realizó en una muestra no probabilística de 230 hogares ubicados cerca de las residencias terapéuticas en la zona oeste de Río de Janeiro. La fiabilidad se evaluó mediante test-retest y el Análisis de Componentes Principales (PCA) se utilizó para probar la estructura interna del cuestionario. Resultados: La mayoría de los participantes eran mujeres, casado, con hijos de 18 años o más. La puntuación global fue de 27,72 (SD = 3,31), mostrando actitudes que van desde neutral a los estereotipos positivos. La escala mostró una alta consistencia interna (α = 0,842), en consonancia con otros estudios internacionales. En el análisis factorial, la muestra era adecuado (KMO = 0,800). La fuerza de las correlaciones entre las subescalas y los factores del análisis factorial fueron

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altamente satisfactorios. La versión en portugués de Brasil sugiere una mejor distinción entre las subescalas a través de la menor correlación entre ellas (entre 0.336 y 0,441) en comparación con los valores más altos (entre 0.630 y 0.770) que se encuentra en la escala original. La sub-escala de ideología de la salud mental de la comunidad mostró una fuerte relación al factor 1 (ρ = 0,910). La benevolencia tenía una fuerte relación con el factor 2 (ρ = 0,847); El autoritarismo y restricción del Social tuvieron la mayor correlación con el factor 3 (ρ = 0,631 y 0,577, respectivamente). Conclusiones: Las propiedades psicométricas escala se mantuvieron después del ajuste. Después de haber registrado una menor correlación entre las escalas del análisis factorial sugiere además que la versión en portugués brasileño transmite más claramente las diferencias entre las sub-escalas.
Palabras clave: El estigma social; actitudes de la comunidad; estudios de validación;

Introduction

The evaluation of community attitudes towards mentally ill persons has gained importance due to the increasing transfer of care from psychiatric hospitals to community- based facilities. This assessment is crucial because local opposition can derail the implementation of community–based mental health care. Some studies suggest that the reintegration of people with mental illness depends on community acceptance and receptivity towards people with mental disorders[1,2].

Studies that assess community attitudes provide an objective measure of acceptance and knowledge of neighborhood attitudes take off towards people with psychiatric disorders and mental health services. They also elucidate how to promote the establishment of closer relationships and increase the ability to live with persons with mental illness[3,4,5,6].

The Community Attitudes towards the Mentally Ill scale (CAMI) has been used widely to asses attitudes towards people with mental illness. The particular strength of this scale is that it assesses attitudes associated with deinstitutionalization of people with mental illness, such as knowledge about psychiatric hospital care, knowledge about changing care from hospital to the community, and attitudes towards community care. Most studies have been carried out in developed countries, for instance England and Germany. These studies indicate that participants with lower education levels, from lower social classes, and from ethnic minority groups show a more negative attitude toward people with mental illness, while direct contact with people with mental disorders was an important factor in determining positive attitudes. Indeed, recent studies have showed that contact with mentally ill persons leads to a positive effect on the attitudes towards this people, since these contact includes not only cognitive but affective and behavioral aspects of interpersonal relationships with these persons. Stigma and prejudice are still strongly rooted in the social relations of different cultures[7,8,9,10].

Standardizing and validating an instrument addressing these issues, such as the CAMI, is an important tool to help guide community mental health policies in Brazil. CAMI measures the community's knowledge about mental health services, mental illness and the deinstitutionalization process. Assessment of these attitudes is crucial to support educational programs that are essential to minimize barriers to the expansion of mental health community-based services, which are expanding in the country.

In this report we seek to analyze the psychometric properties and reliability of the Community Attitudes towards the Mentally Ill-BR drawing on a sample of 230 households near therapeutic residential services for people with mental disorder in Rio de Janeiro, Brazil. The initial phase of cross-cultural adaptations were performed by this research group, and were described in a previous paper[11]. During this phase, the following steps were completed: conceptual equivalence, item equivalence, semantic equivalence, and operational equivalence[12]. Here we report on the second phase of this study specifically on the cross-cultural reliability and validity of this scale and its use in a sample from an area where community mental health services are being implemented as part of the current reform of mental health services.

Methods

This study was part of the "Cross-cultural validation of the scales: SNS (Social Network Schedule)

and CAMI in long-stay psychiatric patients" project, supported by CNPq (National Counsel of Technological and Scientific Development), grant number 485609/2006-1).

The first phase of the research included translation of the instrument into Brazilian Portuguese as well as the cultural adaptation of the scale questions to the Brazilian context, as well as a pilot study to adjust the wording of the questions addressed to the target population[11]. This report describes the second phase, which includes the psychometric analysis of the scale's properties, and reliability and initial validity testing of the Brazilian version of the scale.

Setting

Rio de Janeiro metropolitan has a population of 6,320,446 inhabitants[13]. The study was conducted in households close to the therapeutic residential services for people with mental health problems of the Juliano Moreira Municipal Institute of Health Care (IMASJM). This institute is located in Rio de Janeiro's Western Zone. Its catchment area includes the Taquara and Tanque districts with a population of 139,982 inhabitants[14].

The IMASJM Therapeutic Residential Services program began in 2000, consisting of various residences of different sizes (houses and flats for couples and groups of 3, 4 and 8 residents). The service program team includes university graduate clinicians, professionals, and para-professionals, who are responsible for the daily monitoring of program residents. During the implementation of this evaluation, the overall program consisted of 19 Therapeutic Residences sheltering 68 long-stay patients.

Participants

The study population was inhabitants of Jacarepaguá, a district of Rio de Janeiro, where IMASJM therapeutic residences were operating.

Exclusion criteria were:

1. Individuals under 18 years of age
2. Individuals assessed to have medical/cognitive impairments to answer the study questionnaires.
3. Individual who does not consent to participate

The sampling was conducted using a three steps approach:

1. Randomly five Therapeutic Residences were chosen
2. From the chosen Therapeutic Residences, a radius of five blocks was established where the interviews were schedule to be conducted with a non-probability sample of 250 residents.
3. Each research rater carried out 50 interviews, 10 one each block, starting on the even side of the street. If researchers found a problem - such as a vacant lot, a commercial establishment, a gated community condominium or a refusal to talk - they would go to the next house.

Five interviewers received a 40-hour training course conducted by researchers from the IMASJM Research Center covering interview administration and consent procedures.

The average interview lasted 20 minutes. The first 50 respondents were re-interviewed by the same interviewers two weeks later to analyze the test-retest reliability.

Description of the original instrument:

The CAMI is a multidimensional scale, originally written in English, prepared by Taylor et al[15]. This instrument consists of four sub-scales, each one with 10 variables, totaling 40 items. It includes questions about:

- Knowledge about mental illness
- Reactions to the mentally ill
- Knowledge about psychiatric hospital care
- Knowledge about changing care from hospital to the community
- Attitudes towards community care

The four sub-scales are Authoritarianism, Benevolence, Social Restrictiveness and Community Mental Health Ideology (which assesses attitudes specific to community treatment of individuals with mental illness). The answers to each question were distributed on a Likert-type scale of 5 points (strongly agree, agree, neutral, disagree, and strongly disagree). The scale adopts a strategy of varying the order of positive and negative connotation of each item in the sub-scales. As a result, in order to calculate the final score it was necessary to recode items, so that a higher score (sum of items) corresponded to a more positive attitude towards people with mental illness. The scores range from 0 to 40 on each sub-scale. The total score is the average of these 4 sub-scales.

The test-retest reliability was assessed by the instrument at two distinct time periods, at baseline and then at re-test, with a fifteen-day interval in between.

Analysis

In the reliability study, for ordinal variables (comprised of the items for each of the sub-scales), the weighted Kappa (Kw) was evaluated between the

50 test-retest respondents. Kappa paradoxical values may occur due to bias (systematic unilateral variation between two interviewers) or biased distribution (inequality between the prevalence in the two samples). Therefore, PABAK (prevalence-adjusted bias-adjusted Kappa) was calculated[16,17,18].

The concordance for the 4 sub-scales and the final score of the scales were measured with the Intraclass Correlation Coefficient[19], version two (two-way ANOVA with random effects) 95% confidence intervals were estimated for all statistics. The criteria used for interpreting the concordance were: a) almost perfect: 0.80 to 1.00%; b) substantial: 0.60 to 0.80%; c) moderate: 0.40 to 0.60%; d) regular: 0.20 to 0.40%; e) discreet: 0 to 0.20; f) poor: -1.00 to 0 (Fleiss et al., 1973).

The internal structure of the scale was tested through its empirical reproduction using Factor Analysis (FA). The solution was to use the number of factors defined through the scree plot method, using Principal Component Analysis (PCA) and orthogonal rotation (Varimax). Comparison of these results was performed using Exploratory Factor Analysis (EFA) with the maximum likelihood method, as well as with orthogonal rotation.

Both techniques produce linear combinations of variables that represent the maximum variance of the observed variables. In PCA, all variance is used. In EFA, only the shared variance is used (Fleiss et al., 1973). To Garson[20], PCA is preferred for purposes of data reduction whereas EFA is used to understand the structure of the data. According to Hair et al[21], in most cases both PCA and EFA achieve the same results if the number of variables exceeds 30 or if the commonalities exceed 0.60 for most variables.

Despite arguments against using PCA in studies of the factor structure in the social sphere[22], we implemented this analytic strategy because of its use in the majority of Factor Analysis studies using the CAMI[4,23] and also because it enabled comparison with the original CAMI validation study[15].

The Cronbach alpha coefficients for each of the sub-scales and the total score were analyzed. Data entry was done through an input mask created in Epi Info 3.5.1. For analysis of socio-demographic variables frequency, reliability, and factorial analysis, the database was converted to SPSS version 16.0 and WinPepi[24].

Ethical approval

This study complied with all provisions in CNS Resolution 196/96, and was submitted to and subsequently approved by IMASJM's Research Ethics Committee, Protocol No 06-2006. All participants agreed to participate and signed an informed consent.

Results

The response rate was 92% (230/250 residents). The average age of respondents was 44.90 years (SD: 16.20). Most of them were female (68.30%) and married (50.40%). The average number of children per family was 1.52 (SD = 1.32), with 38.70% of families with children over 18 years of age. Most of the respondents and heads of households had attended high school, 62.6% and 57% respectively. The predominant religion was Catholicism, followed by Spiritualism (Table 1).

Table 1. Distribution of socio-demographic characteristics of the sample analyzed (n=230).

Variable	N	%
Gender		
Male	73	31.7
Female	157	68.3
Marital status		
Single	76	33.0
Married	116	50.4
Widower	16	7.0
Separated / divorced	22.	9.6
Age of children		
No children	17	7.4
<6 years	31.	13.5
6 through 18 years	44.	19.1
>18	89	38.7
N/A	49.	21.3
Level Education (respondent) *		
Illiterate	2	1.6
Primary	40	32.5
Secondary	57	46.3
University	20	16.3
N/A	4	3.3
Level Education (head)		
Illiterate	2	0.9
Primary	87	37.8
Secondary education	66	28.7
University	65	28.3
N/A	10	4.3
Religion		
No religion	13	5.6
Catholic	132	57.4
Spiritualism	18	7.8
Other	67	29.2

* Asked only if the respondent was not the head of household (n = 123)

CAMI scale total score for the sample was 27.72 (SD = 3.31), and the sub-scale scores were: Authoritarianism 22.75 (SD = 4.01); Benevolence 26.56 (SD = 5.11); Social Restrictiveness 31.62 (SD = 4.23) and Community Mental Health Ideology of 29.96 (SD = 3.31). The scale total score reveals an attitude that lies between neutral to positive, with the Social Restriction and Community Mental Health Ideology sub-scales showing the least stigmatizing results.

The overall schedule scale showed high internal consistency (α = 0.842). Three of the four subscales also showed high internal consistency: Community Mental Health Ideology (α = 0.813), Social Restrictiveness (α = 0.763) and Benevolence (α = 0.696). The coefficient for the Authoritarianism subscale (α = 0.354), although much lower, is still considered regular.

The results of the test-retest reliability analysis, determined by the Intraclass Correlation Coefficient (ICC), ranged from regular to substantial in the total score and sub-scales. Among the sub-scales, Social Restrictiveness (ICC = 0.64 (95% CI = 0.45-0.78)) showed greater temporal stability in the results, followed by Benevolence (ICC = 0.62 (95% CI = 0.41 to 0.76)), Community Mental Health Ideology (ICC = 0.54 (95% CI = 0.31 to 0.71) and Authoritarianism (ICC = 0.37 (95% CI = 0.11 to 0.59)). The overall temporal stability of the scale result was substantial (ICC = 0.69 (95% CI = 0.52 to 0.81)) (Table 2).

Discussion

The total scale score, 2.79 (SD = 0.33), reflects neutral to positive public attitudes towards individuals with mental illness. This is consistent with other studies that showed that respondents over 50 years old, with children under 18 years of age present more negative attitudes towards people with mental illness[3,15].

Our results regarding reliability are similar to those reported from other studies. Taylor & Dear[15] conducted a study of validity and reliability of the CAMI scale with a sample of 1090 residents in Toronto (Canada), divided into two groups: the first group (n = 706) consisted of residents in areas without mental health services and the second (n = 384) of residents in areas with mental health services. Three of the sub-scales showed high consistency: Community Mental Health Ideology (α = 0.88), Social Restrictiveness (α = 0.80) and Benevolence (α = 0.86). The coefficient for Authoritarianism (α = 0.68) was lower but satisfactory.

The scale analysis showed a level similar to the Taylor and Dear[15] study with a high internal consistency (α = 0.842). The same was observed for the sub-scales (α> 0.5). The exception was the Authoritarianism sub-scale, which showed a much lower consistency though still considered regular (α = 0, 354).

On the temporal stability analysis of responses, the total scale score showed a significant correlation (r = 0.69), as did the Social Restriction and Benevolence sub-scales. The Community Mental Health Ideology sub-scale showed moderate reliability, and the Authoritarianism sub-scale showed a regular level of reliability. This result is consistent with the analysis of the scale and sub-scales internal consistency.

Several hypotheses may explain the lower but regular reliability found in the authoritarianism subscale. This dimension measures more explicitly coercive attitudes. It is important to note that this sub-scale came from the California F-scale developed at the time of fascism in Italy to identify to react with the following trends: authoritarian submission, authoritarian aggression, conventionality, appreciation of power and toughness, superstition and stereotyping, destructiveness and cynicism[25]. Therefore, it is possible that during retesting, the respondent, being more familiar with the instrument, would tend to reflect on and soften his answers.

Regarding the weighted Kappa values for each one of the scale's 40 items, 2.5% showed substantial reliability, 30% moderate, 57.5% fair, and 10% reliability. When the values of Kappa were adjusted for prevalence, it was observed that 45% showed a substantial level of reliability, 47.5% moderate and 7.5% regular. The use of Kappa adjusted for prevalence increased - and in some cases doubled - the values of concordance, demonstrating the importance of its use in order to limit misleading results. Thus, the study showed good temporal stability of responses.

Item 8 of the Authoritarianism scale showed the weakest result in the reliability analysis. The concordance was only 40.4% and the weighted Kappa was 0.02 (95% CI = -0.25 - 0.22). Even after being adjusted for prevalence, it still showed a PABAK = 0.26. One possible explanation for this result is that the statement ("less emphasis should be placed on protecting the public from the mentally ill") is ambiguous. This ambiguity can also be observed in the original English version of the scale. Therefore, we decided to maintain CAMI-BR as similar as possible to the original scale (Table 2).

Besides this item, six other items showed a non-significant correlation in the statistical Kw: items 2 and

Table 2. Reliability analysis of CAMI-BR sub-scales items

	Weighted Kappa	PABAK	Concordance
Authoritarianism			
1. One of the main causes of mental illness is a lack of self-discipline and will power	0.55 95%IC (0.37-0.73)	0.53	62.00%
2. The best way to handle-up the mentally ill is to keep them behind locked doors	0.36 95%IC (0.11-0.61)	0.63	70.00%
3. There is something about the mentally ill that makes it easy to tell them from normal people	0.27 95%IC (0.02-0.55)	0.70	76.00%
4. As soon as person show signs of mental disturbance. he should be hospitalized	0.28 95%IC (0.08-0.49)	0.38	50.00%
5. Mental patients need the same kind of control and discipline as a young child	0.30 95%IC (0.07-0.52)	0.44	55.10%
6. Mental illness is an illness like any other	0.26 95%IC (0.04-0.49)	0.45	56.00%
7.The mentally ill should not be treated as outcasts of society	0.33 95%IC (0.10-0.56)	0.52	62.00%
8. Less emphasis should be placed on protecting the public from the mentally ill	0.02 95%IC (-0.25-0.22)	0.26	40.40%
9. Mental hospitals are an outdated means of treating the mentally ill	0.37 95%IC (0.13-0.60	0.49	59.20%
10. Virtually anyone can become mentally ill	0.56 95%IC (-0.34 -0.78)	0.68	74.00%
Social Restrictiveness			
1. The mentally ill should not be given any responsibility	0.39 95%IC (0.22-0.57)	0.39	51.00%
2. The mentally ill should be isolated from the rest of the community.	0.19 95%IC (-0.05-0.43)	0.50	60.00%
3. A woman would be foolish to marry a man who has suffered from mental illness. even though he seems fully recovered	0.44 95%IC (0.22-0.67)	0.50	60.00%
4. I would not want to live next door to someone who has been mentally ill	0.23 95%IC (0.03-0.42)	0.52	62.00%
5. Anyone with a history of mental problems should be excluded from taking public office	0.59 95%IC (0.39-0.78)	0.65	72.00%
6. The mentally ill should not be denied their individual rights	0.46 95%IC (0.22-0.70)	0.59	67.30%
7.Mental patients should be encouraged to assume the responsibilities of normal life	0.31 95%IC (0.09-0.52)	0.44	55.10%
8. No one has the right to exclude the mentally ill from their neighborhood	0.47 95%IC (0.22-0.72)	0.69	75.50%
9. The mentally ill are far less of a danger than most people suppose	0.23 95%IC (-0.03-0.68)	0.49	59.60%
10. Most women who were once patients in a mental hospital can be trusted as babysitters	0.45 95%IC (0.26-0.65)	0.47	58.00%
Benevolência			
1. The mentally ill have for too long been the subject of ridicule	0.46 95%IC (0.22-0.70)	0.63	70.00%
2. More tax money should be spent on the care and treatment of the mentally ill	0.39 95%IC (0.16-0.62)	0.65	72.00%
3. We need to adopt a far more tolerant attitude toward the mentally ill in our society	0.36 C95% (0.14-0.59)	0.60	68.00%
4. Our mental hospitals seem more like prisons than places where the mentally ill can be cared for	0.55 95%IC (0.25-0.70)	0.55	70.00%
5. Society has a responsibility to provide the best possible care for the mentally ill	0.28 95%IC (0.05-0.52)	0.55	64.00%
6. The mentally ill don't deserve our sympathy.	0.48 95%IC (0.24-0.73)	0.70	73.00%
7.The mentally ill are a burden on society	0.05 95%IC (-0.21-0.30)	0.47	58.00%
8. Increased spending on mental health services is a waste of tax money	0.38 95%IC (0.14-0.63)	0.63	70.00%
9. There are sufficient existing services for the mentally ill	0.29 95%IC (0.06-0.52)	0.58	66.00%
10. It is best to avoid anyone who had mental problems.	0.35 95%IC (0.11-0.59)	0.47	58.00%
Community Ideology			
1. Residents should accept the location of mental health facilities in their neighborhood to serve the needs of the local community	0.65 95%IC (0.48-0.81)	0.65	72.00%
2. The best therapy for many mental patients is to be part of a normal community	0.49 95%IC (0.21-0.77)	0.74	78.80%
3. As far as possible. mental health services should be provided through community based facilities	0.29 95%IC (0.03-0.55)	0.70	76.00%
4. Locating mental health services in residential neighborhoods does not endanger local residents.	0.23 95%IC (-0.01-0.48)	0.55	70.00%
5. Residents have nothing to fear from people coming into their neighborhood to obtain mental health services	0.05 95%IC (-0.14-0.24)	0.700	76.00%
6. Mental health facilities should be kept out of residential neighborhoods	0.24 95%IC (-0.03-0.51)	0.60	68.00%
7.Local residents have good reason to resist the location of mental health services in their neighborhood	0.30 95%IC (0.04-0.56)	0.63	70.00%
8. Having mental patients living within residential neighborhoods might be good therapy. but the risk to residents are too great	0.34 95%IC (0.05-0.62)	0.63	70.00%
9. It is frightening to think of people with mental problems living in residential neighborhoods	0.38 95%IC (0.11-0.65)	0.60	68.00%
10. Locating mental health facilities in a residential area downgrades the neighborhood	0.33 95%IC (0.09-0.57)	0.55	64.00%

Table 3: Factor Structure for the Brazilian version of the CAMI

	Factor 1	Factor 2	Factor 3	Factor 4
				Authoritarianism
A1	0.122	0.077	0.529	-0.115
A2	0.288	0.238	0.405	-0.010
A3	0.175	0.012	-0.416	-0.083
A4	0.108	-0.054	0.604	0.026
A5	0.102	0.082	0.411	-0.446
A6	0.038	0.007	-0.014	0.397
A7	0.070	0.231	0.381	0.251
A8	0.037	-0.086	0.212	0.320
A9	0.044	0.128	-0.078	0.196
A10	-0.082	0.351	-0.034	0.087
		Social Restrictiveness		
B1	0.105	-0,111	0.655	0.073
B2	0.267	0.519	0.244	-0.121
B3	0.498	0.031	0.299	-0,011
B4	0.573	0.057	0.140	0.030
B5	0.410	0.013	0.376	0.280
B6	0.070	0.101	0.444	0.112
B7	-0.009	0.078	0.474	0.540
B8	0.106	0.453	0.185	0.374
B9	0.041	0.280	0.221	0.442
B10	0.239	-0.137	0.065	0.448
		Benevolence		
C1	-0.138	0.498	0.270	0.173
C2	0.049	0.690	-0.043	0.065
C3	0.125	0.707	-0.058	0.138
C4	0.084	0.528	-0.053	0.085
C5	0.195	0.509	-0.171	-0.142
C6	0.260	0.603	0.308	-0.107
C7	0.302	0.426	0.287	-0.155
C8	0.135	0.677	0.238	-0.116
C9	0.303	0.269	0.371	-0.020
C10	0.564	0.091	0.296	-0,011
		Community Mental Health Ideology		
D1	0.468	0.107	0.027	0.347
D2	0.512	0.181	0.082	0.382
D3	0.341	0.300	0.074	0.213
D4	0.630	0.145	0.066	0.249
D5	0.489	0.175	-0.064	0.392
D6	0.712	0.149	0.061	0.033
D7	0.605	0.108	0.051	0.015
D8	0.555	-0.064	-0.102	-0.114
D9	0.736	0.064	0.155	0.044
D10	0.503	0.040	-0.061	0.095
% of variance explained by each factor	12.38	9.87	8.07	5.52

Table 4: Pearson correlation coefficient

	Authoritarianism	Social Restrictiveness	Benevolence	Community Mental Health Ideology	Factor 1	Factor 2	Factor 3	Factor 4
Authoritarianism	-	.441	.336	.340	.211	.218	.577	.183
Social Restrictiveness		-	.451	.483	.414	.208	.631	.436
Benevolence			-	.422	.321	.847	.258	- 002 **
Community Mental Health Ideology				-	.910	.177	.046***	.250
Factor 1					-	.000	.000	.000
Factor 2						-	.000	.000
Factor 3							-	.000
Factor 4								-

* Significant correlations with p-values> = 0.01 (two-tailed).
**p-value = 0.972
*** p-value = 0.492

9 (Social Restrictiveness), item 7 (Benevolence) and items 4, 5 and 6 (Community Mental Health Ideology). However, when adjusted for prevalence, they showed a change in result from moderate to substantial.

It is important to note that all of these items clearly encompass the notion of danger and exclusion toward people with mental illness. The fear of the unknown and the idea of danger and isolation present in these dimensions are concepts very ingrained in individuals, regardless of culture. Therefore, it is possible that questions that address such issues in a more direct way could lead to a respondent's deeper reflection of the question, which would result in greater variability of responses.

Regarding construct validity, unlike the original version, the Brazilian version shows a lower correlation between sub-scales. While the former showed high values (between 0.63 and 0.77), the Brazilian version indicated average values (between 0.336 and 0.441) as shown in Table 3.

The distribution of the item loads demonstrated a lower occurrence of cross load, characterized by a score ≥0.3 in at least two factors, which occurred in only nine (22.5%) of the items. Considering a less rigid criteria, i.e. score ≥ 0.4 in at least two factors, we would only have one occurrence (2.5%). The Brazilian version conveyed clearly the different constructs between the sub-scales.

The absence of correlations between the factors was expected with use of the Varimax rotation, which, being orthogonal, assumes the absence of a correlation between the factors. The strength of the correlations between the sub-scales and the factors of Principal Component Analysis were satisfactory.

The Community Mental Health Ideology sub-scale showed a strong relationship with factor 1 (ρ = 0.910). Benevolence showed a strong relationship with factor 2 (ρ = 0.847); Authoritarianism and Social Restrictiveness showed the highest correlation with factor 3 (ρ = 1 and 0.577 respectively). The original CAMI validation study also showed a similar pattern whereby the Community Mental Health Ideology and Benevolence scales loaded onto one factor each, while the Authoritarianism and Social Restrictiveness scales loaded onto one factor, thus showing that these latter two subscales perhaps represent a single dimension. These results therefore suggest that the analyzed constructs remained valid in the translated version.

Based on our current report of our second phase study, we conclude that the Brazilian version of the CAMI (CAMI-BR) is a scale that is easy to apply, and shows acceptable reliability and validity for its use in Brazil

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