ORIGINAL ARTICLE

Cultural Adaptation and Validation of the Attitudes Towards Alcohol Scale for Health Professionals in Portugal

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Abstract

We aimed to conduct an adaptation and validation of the Attitudes towards Alcohol, Alcoholism and Individuals with Alcohol Use Disorders Scale (EAFAA) which set to address the main groups of attitudes. It is composed in its original version by 50 items, divided into 4 factors: (1) work and interpersonal relationships with patients with alcohol consumption disorders; (2) the person with alcohol consumption disorders; (3) alcoholism (aetiology) and (4) alcoholic beverages and their use. The cultural adaptation from Brazilian to European Portuguese changes 22 items and the designation of one factor. The content validity index scale was 0.96. The psychometric properties were analysed through a cross-sectional study, with a convenience sample of 500 health professionals and students. The confirmatory factor analysis model with the same four (4) original factors, led to the elimination of 9 items. The scale revealed Cronbach's alpha of 0.801. Empirical adjustment indices were satisfactory with Minimum Discrepancy Function by Degrees of Freedom divided (CMIN) $(X^2/gl) = 3.91$; $p < 0001$, RMSEA $= 0.076$ and the goodness of fit index (GFI) with 0.8. Relative indices values were normal fit index (NFI) $= 0.6$, comparative fit index (CFI) $= 0.7$ and Tucker-Lewis index (TLI) $= 0.7$, with best parsimony indices PCFI $= 0.595$, PNFI $= 0.530$ and PGFI $= 0.702$.

Keywords Alcohol-related disorders · Health knowledge, attitudes, practice · Psychometrics · Healthcare providers · Students, health occupations · Nurse-patient relations

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In Europe, about 1.2 million people are currently in treatment for the use of illicit substances. The World Health Organization identifies this continent as the region of the world where most alcoholic beverages are consumed (World Health Organization [WHO], 2018). In Portugal, the most recent data reports that 69% of the population consumed alcohol in the last 12 months, 21% daily and 3.5% show an abusive or dependent consumption (Serviço de Intervenção nos Comportamentos Aditivos e nas Dependências [SICAD], 2021). In 2020, 12,757 patients were in treatment in the public assistance network for Additive Behaviours and Dependencies (ABD) for problems strictly related to alcohol, and this consumption also coexists significantly in consumers of other substances (SICAD, 2021). In 2020, there were 35,390 hospital admissions whose main or secondary diagnosis was attributable to alcohol use, representing 3% of all admissions (SICAD, 2021). In addition, there are also psychiatric and physical comorbidities, which are common in people who have excessive alcohol use (Seabra et al., 2022b; Yoo et al., 2021).

As a common problem in Portuguese society, it can influence the way people—including health professionals—feel, react and appreciate the substance, the behaviours associated with it and its consequences. There are significant correlations between the ability of health professionals to address alcohol-related problems and variables such as age, years of professional experience, specialty, personal drinking habits, ability to obtain history about alcohol consumption, belief that people can be helped, understanding alcoholism as a character flaw and training after a base course, influencing professional performance (Crothers & Dorrian, 2011). Poor therapeutic commitment and low expectations for this population are frequently found among health professionals (Tan et al., 2022) and there are significant correlations between health professional's ability to address alcohol-related problems and their age, years of professional experience, specialty, ability to obtain history of alcohol use and the training undertaken after graduation (Fucito et al., 2003). All these factors significantly influence patients' satisfaction with care, which is usually higher in specialized ABD services, than in general health system services (Seabra et al., 2017).

The identification of health professionals' attitudes towards alcohol, drinkers and alcohol-related disorders is an important aspect to consider when addressing alcohol-related problems, as negative attitudes are an obstacle to treatment (Vargas, 2014). Knowledge, feelings, attitudes and expectations of health professionals are essential prerequisites for effective treatment and education of people with alcohol consumption disorders (Tan et al., 2022; Vargas, 2014). Attitudes can be defined as "an acquired and enduring predisposition to always act in the same way before a certain class of objects or a persistent mental and/or neural state of readiness to react before a certain class of objects, not as they are, but rather, how they are conceived" (Descriptors in Health Sciences [DeCS], 2017). This definition reinforces how health professionals' personal conceptions can affect their attitude and the way they intervene.

Since no evidence of the attitudes of Portuguese health professionals towards alcohol was found, the need emerged to search for instruments to fill this gap. No instrument was found to assess these attitudes and related aspects. We reviewed the available literature and only identified instruments to assess personal expectations and beliefs about alcohol (Pinto-Gouveia et al., 1993), adolescents' expectations about alcohol (Barroso et al., 2012) and mental health literacy about alcohol abuse in adolescents (Rosa et al., 2019). From an international perspective, the Alcohol and Alcohol Problems Perceptions Questionnaire (AAPPQ) was also identified and has demonstrated good validity and reliability for measuring attitudes of professionals when working with alcohol consumers. It assesses 6 domains (role legitimacy, role support, role appropriateness, work-related self-esteem, job satisfaction and motivation) that can be divided into performance security

and commitment. It is an instrument directed to assess the performance of professionals (Anderson & Clement, 1987) and, in a more recent version, more related to people and their period of abstinence (Kumar et al., 2022). The Attitudes towards Alcohol, Alcoholism and Individuals with Alcohol Use Disorders Scale (EAFAA) was also identified and theoretically set to address the main groups of attitudes (moral dimension, facing the disease, aetiology, professional position and human factor), and it is therefore constituted by several factors (Vargas, 2014). The EAFAA has already been validated for the Colombian population (Ramírez et al., 2017; Ramírez & De Vargas, 2017) and for American English (Vargas & Naegle, 2021). It has been showed that this attitudes' perception can be related and impact the quality of health care by this professional.

As a Brazilian original instrument, it was expected that the structure of the instrument would remain stable in the Portuguese population (health professionals), due to the cultural proximity in terms of similarity in the prevalence of alcohol problems in both countries, attitudes towards the phenomenon and health care practices. Despite being the same language spoken in 2 different countries (Portuguese), there are well-known lexical and grammatical differences and there is a consensus that cultural differences require a rigorous adaptation from Brazilian Portuguese to European Portuguese (or vice versa). It is common practice in different studies (Marôco et al., 2014) and the need for this process to be carried out with the same method and rigour required for two different languages has been theoretically supported (Beaton et al., 2000).

Given the importance of assessing this phenomenon, and data were found on the process of validation and adaptation of this scale for the Portuguese population, this study aimed to adapt the Attitudes towards Alcohol Scale for Portuguese health care professionals and students linguistically and culturally and to assess its psychometric properties. This study can contribute to deepen knowledge about the adaptation of measurement instruments in culturally similar populations.

Materials and Methods

Methodological, transversal study, with a quantitative approach, for the adaptation and validation of measurement instruments (Beaton et al., 2000), carried out in two phases. The 1st phase—cultural and linguistic adaptation—took place from January to February 2021, with the approval of the author of the original instrument. The scenario C of Beaton et al. (2000), applicable when the language is the same but applied in another country or with a different culture, was followed. The 2nd phase—data collection and analysis of psychometric properties—took place from May 2021 to March 2022 (Fig. 1).

Measures: Original Instrument

The EAFAA is composed in its original version by 50 items, divided into 4 factors: (1) work and interpersonal relationships with patients with alcohol consumption disorders (16 items); (2) the person with alcohol consumption disorders (13 items); (3) alcoholism (aetiology) (11 items) and (4) alcoholic beverages and their use (10 items). It is positively oriented, so there are 32 items which are inversely rated—more than half of the items measure negative attitudes, so the greater the disagreement of the professional towards the statements, the more positive his/her attitudes will be (Vargas, 2014). Each item is assessed through a 5-point Likert scale (1-totally disagree to 5-totally agree). The cutoff point, on

Fig. 1 Cross-cultural adaptation process and psychometric assessment ▶

the Brazilian original psychometric study, was set at 3.15, for the total scale, whereby a score above this point suggests positive attitudes and higher scores correspond to more positive attitudes. The possibility that in the processes of adaptation, translation or re-evaluation of the scale, the items could be reoriented in the positive direction, was considered feasible. With Cronbach's α of 0.89, the internal consistency of the scale in its original version was considered adequate (Vargas, 2014).

Phase 1: Linguistic and Cultural Adaptation of the EAFAA from Brazilian Portuguese (BR) into European Portuguese (PT)

Adaptation

The linguistic adaptation was independently performed by two people, both native Portuguese speakers and fluent in Brazilian Portuguese, one with knowledge about the topic under study (Specialisation in Mental Health and Psychiatric Nursing) and the other with a degree in Languages and no knowledge about the specific area under study (Beaton et al., 2000). Thus, two versions of the EAFAA were obtained, which we called adaptation 1 (A1) and adaptation 2 (A2), simultaneously ensuring an adaptation with technical meaning and a free adaptation.

Synthesis

Adaptations A1 and A2 were analysed by three researchers of the team—all with postgraduate training and two of them experts in addictive behaviours—to identify and analyse divergences and to agree on a synthesis version, which we called S1.
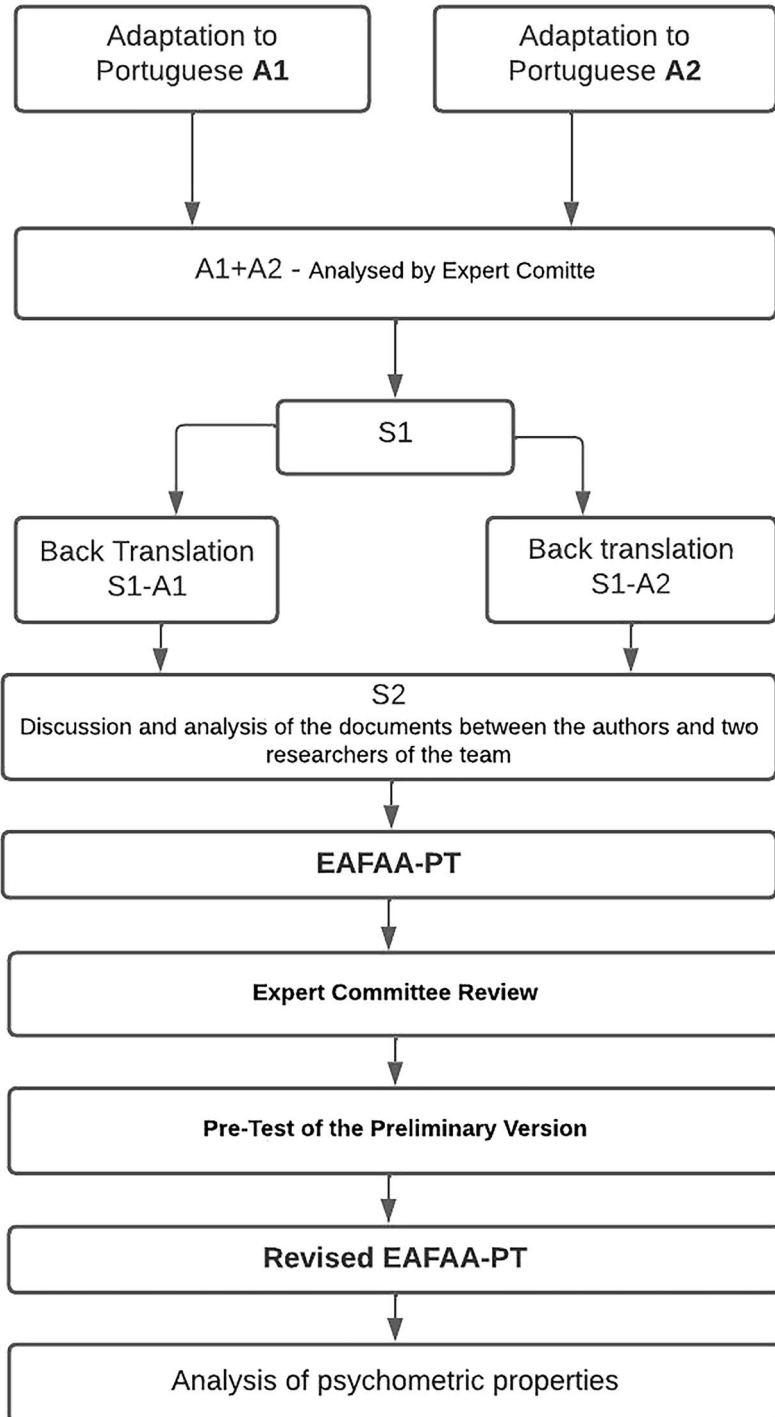
Back-translation

Back-translation of S1 into the original linguistic style (BR) was independently performed by two Brazilian natives (R1 and R2), with mastery and experience in scientific writing in both languages (PT and BR) but with previous knowledge of the instrument. Both versions were submitted to a consensus process, through discussion and analysis of the documents between the authors and two researchers of the team. The synthesis version of the instrument (S2) was obtained and presented to the original author to determine its coherence with the objectives and meanings of the original instrument. Semantic and content equivalence was confirmed by the author of the original instrument, and this Portuguese version was approved (EAFAA-PT).

Expert Committee Review

A group of experts assessed the version obtained: (1) a general care nurse; (2) a psychologist with clinical experience with people with alcohol consumption disorders; (3) a psychiatrist with clinical experience with people with alcohol consumption disorders and (4) a nurse specialist in Mental Health and Psychiatric Nursing, with a PhD academic degree and experience in the construction and cross-cultural adaptation of instruments. The

Phase 1 : Adaptation process

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│   Adaptation to     │        │   Adaptation to     │
│   Portuguese A1     │        │   Portuguese A2     │
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            │                              │
            ▼                              ▼
┌──────────────────────────────────────────────────────┐
│         A1+A2 - Analysed by Expert Comitte            │
└──────────────────────────────────────────────────────┘
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                  ┌─────────────┐
            ┌─────│     S1      │─────┐
            │     └─────────────┘     │
            ▼                         ▼
┌─────────────────────┐     ┌─────────────────────┐
│  Back Translation   │     │  Back translation   │
│      S1-A1          │     │      S1-A2          │
└─────────────────────┘     └─────────────────────┘
            │                         │
            ▼                         ▼
┌──────────────────────────────────────────────────────┐
│                        S2                             │
│ Discussion and analysis of the documents between the  │
│      authors and two researchers of the team          │
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│                    EAFAA-PT                           │
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│               Expert Committee Review                 │
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│          Pre-Test of the Preliminary Version          │
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│                 Revised EAFAA-PT                      │
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│          Analysis of psychometric properties          │
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selection of experts for the cultural adaptation process followed Beaton's recommendations for expertise (health professional, method mastery and linguist), opting for professional diversity, with no specific number defined (Beaton et al., 2000). The experts were given a questionnaire via email to assess each item of the EAFAA-PT version (with prior knowledge of the original version, adaptations and back-translation). They were asked to indicate to what extent each question contributed to assessing the attitudes of professionals towards alcoholic beverages, alcohol consumption and people with alcohol consumption disorders. This assessment was made using a 4-point Likert-type scale ranging from "1- The item is not relevant for measuring the domain" to "4- The item is very relevant for measuring the domain". They were asked to consider aspects such as relevance (the item's ability to adequately represent and answer the scale's global objective), clarity (construction and ease of understanding of the language), semantic equivalence (grammatical consistency of the terms used throughout the scale), conceptual equivalence (adequacy of the concepts used to the Portuguese cultural context) and experiential equivalence (whether different actions are equivalent in another culture). They were allowed to make suggestions for each of the items and for the title of the instrument. These contributions were shared with the research team and a written report with the proposals was prepared (Beaton et al., 2000). The experts' assessments on each of the items were used to calculate the Content Validity Index (CVI), considering values above 0.80 to be acceptable (Yusoff, 2019).

Pre-test of the Preliminary Version

This step allowed to assess comprehensibility of the content, ease of completion of each item of the scale as well as adequate functioning of the online questionnaire. We used a convenience sample of 34 final-year senior students in Nursing or nurses attending a master's degree at a university in Lisbon. The recommendation to use 30 to 40 participants was considered (Beaton et al., 2000). From the pre-test, no need emerged to change the questions, as they showed clarity and comprehensibility.

Phase 2: Participants and Sampling

A request was sent by email to several health institutions and professional associations to publicize the study and it was from these institutions that participants received the information—purpose of the study, mode of participation and informed consent. After consent was obtained, a link was presented with all the study questions (prepared on the Google Forms platform). A convenience sampling was planned, with the following inclusion criteria: health professionals (nurses, physicians, psychologists, social workers) and final-year medical and nursing students (for having already started clinical practice). The size of the sample for the analysis of the EAFAA-PT properties was 500 professionals and students. Nurses (47.8%), physicians (27.2%), social workers (10.4%), psychologists (3%), senior nursing students (6.8%) and senior medical students (4.8%). 24.5% had no academic education. Ages ranged from 20 to 77 years old, mean 42.28 years old (standard deviation (SD) = 12.6). 81.4% of the sample was female. 60.2% were married or living together. They have a mean of 20.45 years of professional practice (SD = 11.2), 70.8% had professional experience with people with alcohol consumption, 50.7% never had any professional training on alcohol problems and only 21.1% had no contact with these users on their professional activity. Participants were asked about the

possibility of re-answering the questionnaire 4 weeks later to assess the temporal stability of the scale, by providing their email address.

Procedures for Data Analysis

Data were collected in an Excel file, coded and exported to the Statistical Package for the Social Sciences (SPSS) (v.27) ® and Analysis of Moment Structures (AMOS) ® software (SPSS an International Business Machines Corporation (IBM) Company) for data analysis and factor validity of the scale. The sampling method aimed to get 10 responses for each of the 50 items from the scale (Boateng et al., 2018). We analysed measures of central tendency and dispersion, as well as measures of shape, to analyse variability in responses and sensitivity of the items. To determine the psychometric properties, we used the internal consistency value, and, for construct analysis, we tested several models based on the original factor structure (Vargas, 2014). The assumptions of the confirmatory factor model, in particular item sensitivity, were assessed using the skewness and flatness coefficients and the respective critical ratios, considering that coefficients higher than |3| and |7| for skewness and kurtosis, respectively, are compatible with problems of deviation from normality. Construct reliability was assessed with composite reliability (CR) and construct validity was assessed with factor validity and convergent validity (estimated by the mean variance extracted (MVE). Reference values for CR $\geq$ 0.7 and MVE $\geq$ 0.5 (Marôco, 2018). The factor validity of the model under study was assessed using the confirmatory factor analysis (CFA), considering the items with weights equal to or greater than 0.50 and using the structural equation analysis (SEA), which is a technique commonly used in social sciences and humanities to test the validity of theoretical models, without requiring the use of exploratory factor analysis (Marôco, 2010) and it was the analyses used in the English and Spanish validation studies (Ramírez & De Vargas, 2017; Vargas & Naegle, 2021). The chi-square χ^2 test Statistics2 (degree of freedom-df), the parsimony indices [Parsimony Comparative Fit Index (PCFI), Parsimony Normed Fit Index (PNFI), Parsimony Goodness of Fit Index (PGFI) and the Root Means Square Error of Approximation (RMSEA)] were considered as empirical indices of the quality of model adjustment, with a reference value of $p = 0.05$.

Ethical Aspects

A positive opinion was obtained from the Health Ethics Committee (HEC) of the Regional Health Administration of Lisbon and Tagus Valley, Portugal (1903/CES/2021). All participants (experts, participants in the pre-test, in the study and respondents in the retest phase) were asked for their informed consent, without which they would not have been allowed to participate. Data were collected and accessed only by three researchers, using the Google Forms virtual platform (using the Cloud of the educational institution and protected with a password) and personal computers, also protected with a password. The email addresses of the participants who agreed to participate in the retest were deleted as soon as the request was sent.

Results

Phase 1

Throughout the adaptation process, some changes were needed in relation to the original instrument (A1 and A2), as well as in the back-translation process (R1 and R2) (Seabra et al., 2022a). The expression "alcoholism" was replaced by "alcohol-related problems" in all items, including the title, for a more comprehensive perspective of not only considering the substance itself, but also its physical, mental and social consequences for the person, family and society. Adaptations were made and the expression "alcohol use disorders" was changed to "alcohol consumption disorder" as this is the terminology used in Portugal. The personal pronoun was omitted at the beginning of each item for fluidity in reading. By consensus, the preferential use of the term "person(s)" was defined, replacing the original expressions "individual", "patient(s)" and "user". In cases where it was essential to characterize the person in the context of health organizations, we opted for the term "patients" (items 1, 37, 41). Also, the expression "alcohol use" was altered to "alcohol consumption". The expression "family maladjustment" was changed to "family problem" (item 3) and "when not intoxicated" to "when not under the influence of alcohol" (item 21). In item 25, the expression "I feel anger" was replaced by "I get very angry" and in item 29, the expression "drinking problems" was replaced by "problems with alcohol". Also in item 30 the expression "is guilty of his/her health problems" was replaced by "is responsible for his/her health problems". In the back-translation, the equivalence of this item was not confirmed, but both researchers and the native collaborators of the original language considered the expression more adequate, an option which was also later validated by the author of the instrument. The expression "people psychologically shaken" (item 35) was challenging to reach consensus on, but the decision was to adapt it to "people who suffer psychologically". In the back-translation, the equivalence of this expression to the original was confirmed, but it now assumes a positive orientation towards attitude. The same occurred in item 42, where we replaced the original expression "difficult to relate to" by "difficult to deal with". With regard to item 45, and after validating it with the original author, we agreed that it already had a positive orientation which was not recognized. The version resulting from the synthesis of the back-translations (S2) was sent to the author of the original instrument, who only suggested keeping the term "patient" instead of "person" in some items of Factor 1, since it specifically refers to interactions in a professional care context. Throughout the process, there were no suggestions for moving items to different factors, nor for deleting items (Seabra et al., 2022a).

Through consultation with the committee of experts, the CVI ascertained for each subsession, and after ascertaining the value item by item, was F1 = 0.95/F2 = 0.96/F3 = 0.95/F4 = 1.0 with a total value of the scale = 0.96 S-CVI (scale content validity index), demonstrating a strong consensus of experts in the linguistic and cultural adaptation carried out, with a view to its application in a larger sample.

Phase 2

The factor validity of the 50 items of the original EAFAA was assessed with an CFA, using the structural equation model (SEM)—a confirmatory method of information on the factor structure that should be confirmed—which allows assessing the quality of adjustment

of the indices of a theoretical measurement model to the correlational structure observed between manifest variables (items) (Marôco, 2018). The psychometric qualities of the scale were assessed by estimating the sensitivity, validity and reliability of the items of the four factors (considering the asymmetry and kurtosis measures within the reference values). The CFA of the four-factor structure indicated that the model proposed in the original version (Vargas, 2014) showed an insufficient adjustment to factor validity with the sample under study in Portugal (n = 500). The analysis of the standardized estimates of the original scale with 50 items showed that some items had factor weights below the reference value ($\beta \leq 0.50$).

The items with factor weights below the reference value were removed from the factor model. From "Factor 1 - Work and interpersonal relationships with people with alcohol consumption disorders" 2 items were removed (F1 = 17, 41); from "Factor 2 - People with alcohol consumption disorders" 2 items were removed (F2 = 30, 45); from "Factor 3 - Alcohol consumption disorders (aetiology)" 4 items were removed (F3 = 19, 23, 35, 39) and from "Factor 4 - Alcoholic beverages and their consumption" one item was removed (F4 = 32). Therefore, the Portuguese version (EAFAA-PT) is composed of the same 4 factors, but only 41 items (Seabra et al., 2022c).

Table 1 presents the results of the reliability of the 41 items of the scale and the four factors, estimated from Cronbach's α (total α = 0.801), and the standardized estimates of the 41 items obtained through CFA, which present factor loadings equal to or greater than the reference value ($\beta \geq 0.50$).

The correlations between the four factors of the EAFAA-PT are of high magnitude, as shown in Table 2.

A readjustment of the new factor model (with 9 fewer items) was performed, which resulted in an increase in the quality of the empirical adjustment indexes (Fig. 2). The value of minimum discrepancy function by degrees of freedom divided (CMIN) (X^2/

Table 1 Standardized factor weights of the 41 items of the scale, obtained through the confirmatory factor analysis and Cronbach's alpha, in the 4 factors (n = 500)

Factor 1 (14 items) $\alpha^1 = 0.843$	Factor 2 (11 items) $\alpha = 0.834$	Factor 3 (7 items) $\alpha = 0.417$	Factor 4 (9 items) $\alpha = 0.474$
1 ($\beta^2 = 0.746$)	2 ($\beta = 0.779$)	3 ($\beta = 0.648$)	4 ($\beta = 0.817$)
5 ($\beta = 0.660$)	6 ($\beta = 0.854$)	7 ($\beta = -0.547$)	8 ($\beta = 0.652$)
9 ($\beta = 0.776$)	10 ($\beta = 0.843$)	11 ($\beta = -0.514$)	12 ($\beta = 0.767$)
13 ($\beta = 0.785$)	14 ($\beta = 0.813$)	15 ($\beta = -0.761$)	16 ($\beta = -0.559$)
21 ($\beta = 0.820$)	18 ($\beta = 0.826$)	27 ($\beta = -0.788$)	20 ($\beta = 0.766$)
25 ($\beta = 0.818$)	22 ($\beta = 0.834$)	31 ($\beta = -0.721$)	24 ($\beta = 0.650$)
29 ($\beta = 0.791$)	26 ($\beta = 0.805$)	43 ($\beta = 0.785$)	28 ($\beta = 0.821$)
37 ($\beta = 0.712$)	33 ($\beta = 0.800$)	-	36 ($\beta = 0.571$)
42 ($\beta = 0.833$)	34 ($\beta = 0.683$)	-	40 ($\beta = -0.649$)
44 ($\beta = 0.833$)	38 ($\beta = 0.834$)	-	-
46 ($\beta = 0.796$)	47 ($\beta = 0.807$)	-	-
48 ($\beta = 0.641$)	-	-	-
49 ($\beta = 0.691$)	-	-	-
50 ($\beta = 0.683$)	-	-	-

n = number of participants; $^1\alpha$ = Cronbach's alpha; $^2\beta$ = standardized factor loadings

Table 2 Pearson's correlations between the four factors of the EAFAA-PT (41 items) ($n = 500$)

Correlations	Factor 1	Factor 2	Factor 3
Factor 2	0.989[1]	-	-
Factor 3	0.922[1]	0.957[1]	-
Factor 4	0.753[1]	0.78[1]	0.729[1]

n = number of participants; [1]$p < 0.01$
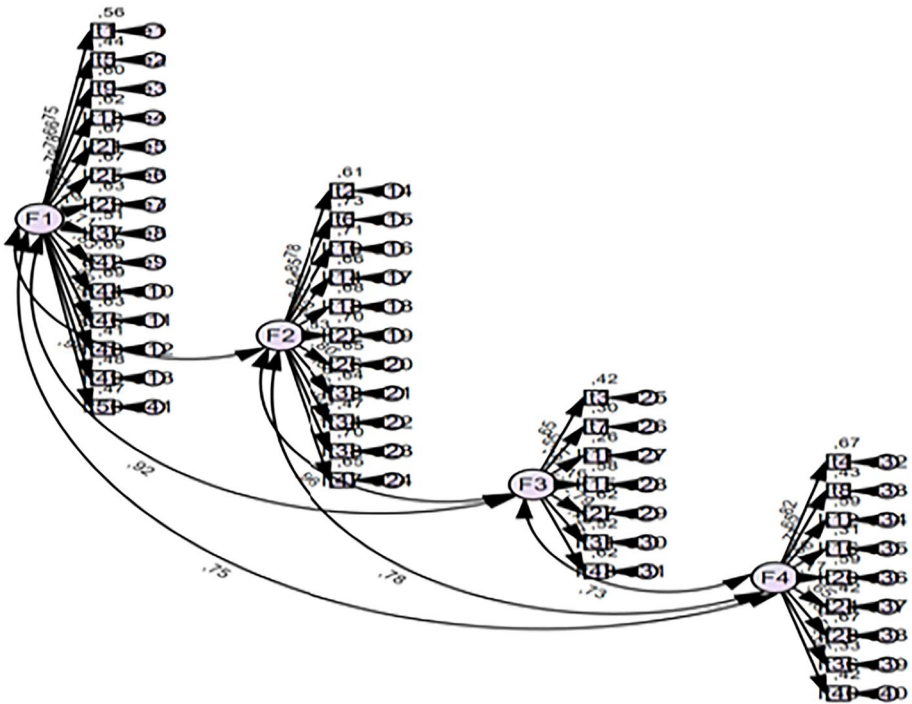
Fig. 2 Confirmatory factorial model of the PT scale with 4 factors and 41 items, adjusted to the sample under study ($n = 500$)

gl) = 3.91; p < 0.001, revealing an acceptable adjustment. The RMSEA = 0.076 and the goodness of fit index (GFI) with 0.8, also revealed an acceptable fit. Relative index values were normal fit index (NFI) = 0.6, comparative fit index (CFI) = 0.7 and Tucker-Lewis index(TLI) = 0.7. These values benefit from the application of the parsimony indeces PCFI = 0.595, PNFI = 0.530 and PGFI = 0.702, revealing a good adjustment, although below the reference value (Marôco, 2010).

The CR is an indicator of the construct's internal consistency in the four factors of the scale and the values obtained show good reliability (F1 = 0.970; F2 = 0.973; F3 = 0.916; F4 = 0.929). Convergent validity, estimated by the factor MVE, is an indicator that the items strongly saturate on that factor and the values obtained (VMF1 = 0.702; VMF2 = 0.771; VMF3 = 0.596; VMF4 = 0.592) reveal that the MVE is adequate in all the study factors.

For external reliability, we tried to assess the temporal stability of the scale by comparing the data through the participation code (test-retest). When performing Pearson's correlation, no statistically significant correlation was found between the two evaluation moments ($r = 0.039$; $p = 0.622$) on the total scale, although there is a significant relationship in only one subscale (F3). The t-test for paired samples showed a significant difference between the two moments ($t = 14.779$; $p < 0.001$) with the participation of 159 professionals who replied again to the scale (Table 3).

Discussion

This study aimed to adapt the EAFAA into European Portuguese (EAFAA-PT) and to assess its psychometric properties. This instrument has already had similar procedures for Spanish (Ramírez et al., 2017; Ramírez & De Vargas, 2017) and English, in the USA (Vargas & Naegle, 2018, 2021). In the cross-cultural adaptation, the process of adaptation, back-translation and consensus led mostly to the reformulation of technical designations trending in the Portuguese context—from "disturbance" to "disorder"—taking into account the classification of mental disorders (American Psychiatric Association [APA], 2022) and the need to transform most of the designations of patient into "person", opting for keeping the link to the role of patient of health services, or target of care, when this designation was essential, using "patient", as it is the most common expression in Portugal. The final Portuguese version EAFAA-PT was composed of 41 items (Table S1).

In the content adaptation for the Spanish version, the disagreement about one of the items (item 20) led to its exclusion (Ramírez et al., 2017), which did not happen in this cross-cultural adaptation. In this study, a pre-test was conducted with nurses to assess the representativeness, clarity and theoretical dimension of the items. With a set of four experts, we added semantic equivalence (grammatical consistency of the terms used throughout the scale) and conceptual equivalence (appropriateness of the concepts used to the Portuguese cultural context) and experience (the use of the terminology and meaning in daily life) to the previously mentioned issues. In the pre-test for general appraisal of the instrument, with a sample of nurses as well, no need emerged to change the items, as they reported clarity and comprehensibility. In the process of adaptation into American English, with a sample of experts slightly larger than ours ($n = 11$), the removal of five items (2,7,2,31,36) and the addition of a factor (Vargas & Naegle, 2018) were suggested, as they did not obtain the minimum content validity index. In that study, the degrees of clarity

Table 3 Data regarding the relationship between participants' answers ($n = 159$) at two different moments

Factors	R Pearson[1]	p	Mean test/SD[2]	Mean retest/SD
EAFAA-PT	0.039	$p = 0.622$[*]	3.31/0.29	2.72/0.28
Factor 1	0.031	$p = 0.694$[*]	3.52/0.50	2.54/0.42
Factor 2	− 0.089	$p = 0.266$[*]	3.50/0.51	2.47/0.38
Factor 3	0.156	$p = 0.049$[*]	3.06/0.40	3.06/0.45
Factor 4	0.014	$p < 0.865$[*]	3.04/0.42	2.95/0.41

n = number of participants; [1]R Pearson - Pearson correlation coefficient; [2]SD, standard deviation

*$p < 0.05$; **$p < 0.001$

were marked in the four factors with the mean of 3.7 in a range of 1–5. In this study, in which each item was asked to be assessed, the consensus value was high and there were no suggestions for moving items to different factors or deleting items as observed in previous validation studies of the same instrument (Vargas, 2014; Vargas & Naegle, 2018) which may be justified by the cultural and linguistic proximity between Portugal and Brazil.

As regards construct validity, using the CFA of the known structure of the original model (Marôco et al., 2014), the identification of items with factor weights lower than desired (< 0.5) for reliability and specificity led to the testing of several models until the elimination of nine items from the scale (17,19,23,30,32,35,39,41,45). In other words, the need to reduce items, relocate them or redefine factors is frequent in adaptations with different populations (Marôco, 2018). In the validity and reliability study carried out in Colombia, item 45 was eliminated for having a low factorial weight, leaving the final scale with 48 items in 4 factors (Ramírez & De Vargas, 2017). In the USA, five items (8,19,23,39,40) were first eliminated because they had low factor weights, and subsequently, five more items (6,14,27,45,49) were eliminated because they weighed on more than one factor, leaving the scale with 35 items (Vargas & Naegle, 2021). In the EAFAA-PT, we found that item 45 was excluded as in the English (Vargas & Naegle, 2021) and Spanish versions (Ramírez et al., 2017). We also observed that, consistent with what was observed in the version validated for American English, four items were excluded (19,23,39,45). The EAFAA-PT is left with 41 items and four factors. We opted for a more psychometric and less theoretical weighting, as the research team considered that, qualitatively, the factors could be characterized by the remaining items (Ribeiro et al., 2015), which may point to the maintenance of the interpretation of the cutoff point at the same value as the original scale (3.15). This idea is reinforced by the strong correlation between factors and between these and the total scale.

As regards the reliability values assessed by the internal consistency with Cronbach's alpha, the value obtained in the Castilian version was 0.80 and in the American version was 0.85. In this study, the calculated value was 0.80 (robust value), being in line with the adapted versions, all of them with a value slightly below the values of the original version (Vargas, 2014). Comparing the values of internal consistency of the different subscales in the PT version with the American version, there are similarities in the values of F1 and F2 (F1 = 0.84/0.80; F2 = 0.83/0.80) and lower values in F3 and F4 (F3 = 0.42/0.63; F4 = 0.47/0.73). This seems to be a characteristic of the proposed instrument, as since its creation (Vargas & Luis, 2008) factors 3 and 4 present a smaller number of items and acceptable reliability values, but lower than the other factors (Ramírez & De Vargas, 2017; Vargas & Luis, 2008; Vargas & Naegle, 2021).

As for the correlation indices between factors, in the Spanish version, values between 0.31 (the lowest value in the relationship between F1 and F3) and 0.67 (the highest value in the relationship between F1 and F2) were found (Ramírez & De Vargas, 2017). The English version obtained values between 0.120 (F3 and F4) and 0.850 (between F1 and F2). Comparing with this study, in the EAFAA-PT, the correlation values are significantly higher, between 0.730 (between F3 and F4) and 0.990 (between F1 and F2). In all three studies, the correlation between F1 and F2 is always stronger and the correlation with F3 is always lower. The fact that this was the factor in which the psychometric study led to the elimination of more items may justify this stronger correlation than in the reference studies. The high correlation between scales reinforce that the total score could be used as a main scale to access the construct.

On the adjustment data obtained by CFA, it may be stated that the data revealed a reasonable adjustment and in line with those obtained in the American version (the only one available

for us to relate). In our study, we were more demanding, using a minimum acceptable factor weight of 0.50, while the American version used a value of 0.40 (Vargas & Naegle, 2021). The data obtained from X2, from CMIN and the RMSEA data allow us to state with certainty that the model has an acceptable adjustment, given that these two indices are more recommended for CFA studies using the ESM, provided that the sample size assumptions are met (Alavi et al., 2020). In addition, by using the CR and convergent validity tests, the validity of the scale can be confirmed, although we have no way of comparing these tests.

The results on temporal stability showed that it may be conditioned by factors such as the initial social desirability, the reflection after the contact with the items, or recent events related to the topic (Daniel et al., 2015). There was a clear change in the assessment between the four weeks in the first two factors "F1 - Work and interpersonal relationships with people with alcohol consumption disorders" and "F2 - People with alcohol consumption disorders", with a less positive assessment of attitudes towards working with people with alcohol consumption disorders. In the other two factors, "F3 - Alcohol consumption disorders (aetiology)" and "F4 - Alcoholic beverages and their consumption", there was almost temporal stability in the answers. It is possible to speculate that the sub-sample of participants who were willing to answer the instrument again showed more negative attitudes, when compared to the participants in general. It is also possible that this result reveals a phenomenon already described in the literature that there is a tendency among health professionals to present positive attitudes towards constructs more related to the cognitive component of attitudes. In this case, the aetiology and consumption of alcoholic beverages appear more related to the knowledge widely disseminated in the training of professionals and in the media, which reflect the idea of treating disorders related to alcohol consumption as a disease, as well as a perception of the consequences of excessive consumption of substances (Heredia et al., 2021; Kranzler & Soyka, 2018; Vargas & Naegle, 2021). The more negative or ambivalent attitudes regarding the constructs more linked to the emotional component of attitudes, whether the attitudes that the professional presents when working with this population or with a person with substance use disorders, seem to be influenced by the moral model of explanation for substance use disorders and consequently the use of alcohol (Heredia et al., 2021; Vargas & Naegle, 2021). It could be considered in this analysis that participants' professions proportionally assumed the same distribution of the number of health professionals in Portugal (mostly nurses, doctors, social workers and psychologists, in descending order), as well as the predominance of female participants (Ministério da Saúde, 2018).

The number of expert participants in the initial phase, who assessed the relevance and overview of the semantic, conceptual and experiential equivalence, greater number of assessments which could provide robustness in this phase, may be pointed out as a limitation of this study. On the compliance with the recommendations for instrument adaptation, we did not feel the need to formally ask about the idiomatic equivalence as the language is the same. It may also be a limitation that we did not balance the gender variable in the different groups of professionals, as well as the significant number of health professionals compared to students. Also, is a limitation of the study some comparative fit criteria results, needing a more extend sample to full demonstration of the scale's robustness.

Conclusions

This study performed the linguistic and cultural adaptation of the EAFAA's Brazilian version to the population of health professionals in Portugal. We validated the psychometric properties of the EAFAA-PT scale and obtained results that allowed us to consider it a valid and reliable instrument to be used in this population. The completion of the cultural and linguistic adaptation process and the analysis of psychometric properties revealed a robust scale, in line with other reference studies, and allowed considering that the scale measures an approximate and common construct in different societies, even with cultural differences. In an international context, this study reinforces the idea that this instrument can be used for multicultural and multicenter studies to measure the attitudes of health professionals and medical and nursing students (with clinical practice) towards alcohol consumption, alcohol-related problems and health care for people with problematic alcohol consumption. The instrument is also suitable for use in clinical practice, and strategies to improve health professionals' attitudes and behaviours towards alcohol consumption can be designed, assessing the effectiveness of these strategies through the application of the scale. Thus, even if indirectly, the validation of the scale will improve the quality of care provided to people with alcohol consumption disorders.

In a national context, a detailed study on the attitudes of Portuguese health professionals towards alcohol-related problems in different working contexts, including medical and nursing students, is recommended, and expected. With this study, we will be able to better understand the phenomenon and explain its real impact on the quality of care provided and the outcomes achieved by people. With students, the study may help identify and mitigate existing prejudices and stigma, enabling the adequacy of training programs with better pedagogical and citizenship strategies. Multicenter studies are also recommended to allow for a better regional, national and international understanding.

As implications for future studies, we recommend further exploring the psychometric properties of the instrument, by assessing the temporal stability of the scale over a shorter time interval than that used in this study, and possibly resort to the use of clusters for comparison. The knowledge generated in future research can implicate changes in professionals planning teams, and the most prepared directly providers, and even, implications in health professionals' education, by exposing these difficulties.

Supplementary Information

Escala das atitudes frente ao álcool e com pessoas com perturbação por uso de álcool - Portuguese Version.

Declarations

Institutional Review Board Statement This study was conducted in accordance with the Declaration of Helsinki, and approved by the Health Ethics Committee of Regional Health Administration of Lisbon and Tagus Valley, Portugal (1903/CES/2021, approved on 5th of March 2021).

Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Conflict of Interest The authors declare no competing interests. CIDNUR, had no role in the design of the study, in the collection, analyses, or interpretation of data, in the writing of the manuscript or in the decision to publish the results.

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