Proceeding Paper

Psychometric Analysis of the Attitudes towards Alcohol Scale in Portuguese Health Professionals [†]

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Abstract: The aim of this work is to evaluate the psychometric characteristics of the Attitudes Scale on Alcohol, Alcoholism and Persons with Alcohol Use Disorders (EAFAA) after their cultural and linguistic validation to the Portuguese population. An analysis of the psychometric characteristics is performed for a convenience sample with 500 health professionals and students in the health and social fields, recruited between May 2021 and March 2022, using confirmatory factor analysis and determination of reliability and validity. The psychometric qualities evaluation of EAFAA-PT allows us to consider this work as a valid and reliable instrument for use in the Portuguese population.

Keywords: alcohol-related disorders; health knowledge; attitudes; practice; psychometrics; healthcare providers; students; health occupations; nurse–patient relations

1. Introduction

In Europe, the alcohol consumption per capita is estimated at 9.5 lt, and this is the region of the world where the most alcoholic beverages are consumed [1]. Portugal is an important alcohol consumer in Europe, with an estimated per capita consumption of 12.1 lt. During the year 2020, there were 35,390 hospital admissions, whose main or secondary diagnoses was attributable to alcohol consumption, representing 3% of all hospitalizations [2]. In the same year, 12,757 users were in treatment for problems strictly related to alcohol in the public assistance network for Addictive Behaviors and Dependencies (ABD), and this consumption still coexists in an important way with users of other substances [2].

Being a common problem in Portuguese society, it may influence how people feel, react, appreciate the substance, the behaviors associated with it, as well as its consequences. The attribution of these meanings also happens with health professionals. There are significant correlations between health professionals' ability to address alcohol-related problems and personal variables (age, personal drinking habits, belief that people can be helped and understanding alcoholism as a character defect) and professional variables (years of professional experience and specialty) that influence their professional performance [3]. The identification of health professionals' attitudes towards alcohol, consumers and alcohol-related disorders are aspects to be considered when addressing alcohol-related problems [4]. In view of these facts, an instrument was developed to assess the attitudes of healthcare professionals towards alcohol, its consumers and the problems associated with its use: the Attitudes Scale on Alcohol, Alcoholism and Persons with Alcohol Use Disorders (EAFAA) [4], validated for the Colombian population [5,6] and adapted to American English [7]. Considering the importance of assessing these variables for both research and care settings, this study aimed to assess the psychometric characteristics of this instrument for healthcare professionals and students in the Portuguese population.

2. Materials and Methods

A cross-sectional study with a quantitative approach was conducted using a convenience sample. Participants, between May 2021 and March 2022, accessed the study through information sent by email: an explanation of the purpose of the study, how to participate, informed consent and a link with all the study questions (in the Google Forms platform). Materials: Demographic questionnaire was created by the research team and the original version of EAFAA. The EAFAA [4] has 50 item responses on a Likert scale with options from 1 = strongly disagree to 5 = strongly agree (score 50–250). The questionnaire consisted of four factors (F): F1—attitudes about work with and interpersonal relations with persons with alcohol use disorders; F2—attitudes toward persons with alcohol use disorders; F3—attitudes toward the causes of alcoholism (etiology); and F4—attitudes toward alcoholic beverage use.

Data were collected in an Excel file, coded and exported to Statistical Package for the Social Sciences® (IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY, USA) and to Analysis of Moment Structures (AMOS)® (SPSS. AMOS 26, Chigago, IL, USA) software. Construct reliability was assessed with composite reliability (CR), and construct validity assessed with factor validity and convergent validity (estimated by the mean variance extracted (MVE) with reference values for CR $\geq$ 0.7 and MVE $\geq$ 0.5) [8]. The factor validity of the model under study was assessed using confirmatory factor analysis (CFA), using the structural equation model (SEM), considering the items with weights equal to or greater than 0.50. All quality of model adjustment measures, such as qui-square test X2 (degree of freedom (df)), parsimony indexes (parsimony comparative fit index (PCFI), parsimony normed fit index (PNFI), parsimony goodness-of-fit index (PGFI)) and root-mean-square error of approximation (RMSEA), were considered with a reference value of 0.05.

3. Ethical Aspects of the Research

A positive declaration was obtained from the Health Ethics Committee (HEC) of the Administração Regional de Saúde de Lisboa e Vale do Tejo, Portugal (1903/CES/2021).

4. Results

For the analysis of psychometric qualities, 500 professionals and students participated. The sample consisted of nurses (47.8%), physicians (27.2%), social workers (10.4%), psychologists (3%), senior nursing students (6.8%) and senior medical students (4.8%). They were aged between 20–77, with a mean of 42.28 years (standard deviation (SD) = 12.6). A total of 81.4% of the sample was female, with an average of 20.45 years of professional practice (SD = 11.2). Overall, 70.8% responded positively about having professional experience with people with alcohol consumption.

The CFA of the original model [4] showed insufficient adjustment to factor validity. Table 1 presents the 41 items and the 4 factors after removing 9 items (17, 19, 23, 30, 32, 35, 39, 41 and 45), with standardized estimates of factor loadings equal to or greater than the reference value ($\beta \geq 0.50$). Reliability was calculated with Cronbach's α (total α = 0.801).

The correlations between the four factors of the EAFAA-PT are of a high magnitude, between 0.73 and 0.99, with a *p*-value of 0.01 for all correlations.

A readjustment of the new factor model was performed, which resulted in an increased quality in the empirical adjustment indexes (Figure 1). The value of the minimum discrepancy function by degrees of freedom divided (CMIN) (X^2/gL) = 3.91; $p < 0.001$, revealing an acceptable adjustment. The root-mean-square error of approximation (RMSEA = 0.076) also revealed an acceptable fit. The parsimony indices, although below the reference value, were found to have approximate values of PCFI = 0.595, PNFI = 0.530 and PGFI = 0.702, showing a good adjustment.

The CR is an indicator of the construct's internal consistency in the four factors, and the values obtained (F1 = 0.970; F2 = 0.973; F3 = 0.916; and F4 = 0.929) show good reliability. Convergent validity, estimated by the factor VME, is an indicator that the items strongly

saturate in that factor, and the values obtained (VMF1 = 0.702; VMF2 = 0.771; VMF3 = 0.596; and VMF4 = 0.592) reveal the adequacy in all factors.

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

n*—number of participants; $\alpha^{\dagger}$—Cronbach's alpha; and $\beta^{\ddagger}$—standardized factor loadings.
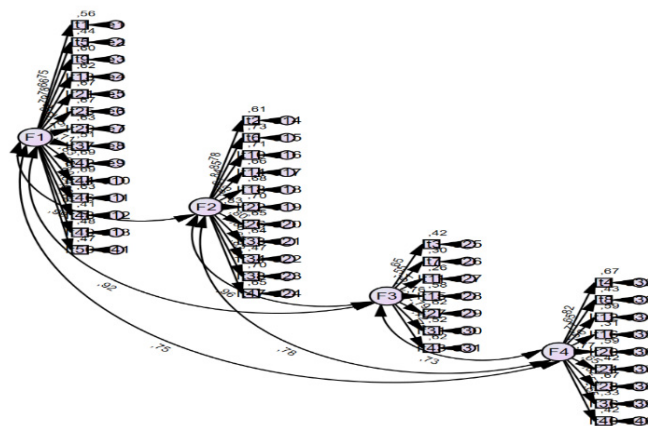

Figure 1. Confirmatory factorial model of the EAFAA-PT with 4 factors and 41 items, adjusted to the sample under study (n* = 500).

5. Discussion

As regards construct validity, using the AFC led to the testing of several models that cause item loss, which is common in adaptations to different populations [8]. As for the reliability assessed by the internal consistency with Cronbach's alpha, the value obtained was 0.80 (a robust value), being in line with the adapted versions, all with a value slightly below the values of the original version [6]. As for the correlation indexes between factors, the correlation values vary between 0.730 (between F3 and F4) and 0.990 (between F1 and F2). In all three studies, the correlation between F1 and F2 was always stronger, and the correlation with F3 was always lower. Regarding the adjustment data obtained by the AFC, the data showed a reasonable adjustment and were in line with those obtained in the American version (the only one available for us to relate) [7]. The X^2, CMIN and RMSEA data obtained allow us to safely state that the model has an acceptable adjustment. In addition, by using the CR and convergent validity tests, the validity of the scale can be confirmed.

6. Conclusions

The model fit and the internal consistency values allow us to state that the psychometric properties of the EAFAA-PT scale are robust. It can be considered a valid and reliable instrument to assess the attitudes of health professionals and students in the health and social fields. This study contributes to the applicability of the EAFAA in different cultures.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Health Ethics Committee of the Administração Regional de Saúde de Lisboa e Vale do Tejo, Portugal (1903/CES/2021) approved in 5/3/2022.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data are available from the authors upon reasonable request and with permission of the Health Ethics Committee.

Conflicts of Interest: The authors declare no conflict of interest.

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