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RESEARCH ARTICLE (ORIGINAL)

Translation, cultural adaptation, and validation of the Support for Public Policies to Reduce Alcohol-Related Problems Scale among Mexican university students

Traducción, adaptación cultural y validación de la Escala de Apoyo a Políticas Asociadas al Alcohol en universitarios mexicanos

Tradução, adaptação cultural e validação da Escala de Apoio a Políticas Associadas ao Álcool em universitários mexicanos

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Abstract
Background: Health protection through prevention and reduction of alcohol consumption is a public health priority. Some scales have been identified to assess public alcohol policies but in English language.
Objective: To evaluate the psychometric properties of the translation and cultural adaptation of a scale to assess support for alcohol policies in young Mexican university students.
Methodology: Methodological study, with the participation of 367 university students from southern Mexico. Construct validity was estimated by means of an exploratory factor analysis and the internal consistency of the questionnaire was checked to verify its reliability.
Results: Internal consistency was 0.96. Construct validity was performed through exploratory factor analysis, identifying a three factors structure: harm reduction, marketing and information, and price and availability.
Conclusion: The scale showed adequate reliability and validity, and can be applied in Spanish as an empirical indicator in studies concerning alcohol public policies in young university students.

Keywords: alcohol drinking; university students; public policies; scale validation; reliability

Resumen
Marco contextual: La protección de la salud por medio de la prevención y la reducción del consumo de alcohol es una prioridad para la salud pública. Se han identificado algunas escalas para evaluar políticas públicas de alcohol, pero en idioma inglés.
Objetivo: Evaluar las propiedades psicométricas de la traducción y adaptación cultural de una escala para evaluar el apoyo a políticas de alcohol en jóvenes universitarios mexicanos.
Metodología: Estudio metodológico, con la participación de 367 estudiantes universitarios del sur de México. La validez del constructo se estimó mediante un análisis factorial exploratorio y se verificó la consistencia interna del cuestionario para comprobar su fiabilidad.
Resultados: La consistencia interna fue de 0.96. La validez de constructo se realizó mediante el análisis factorial exploratorio y se identificó una estructura de tres factores: la reducción del daño, el mercadeo e información, y el precio y la disponibilidad.
Conclusión: La escala mostró fiabilidad y validez adecuada, y puede ser aplicada en español como indicador empírico en estudios referentes a las políticas públicas de alcohol en jóvenes universitarios.

Palabras clave: consumo de alcohol; estudiantes universitarios; políticas públicas; validación de escala; fiabilidad

Resumo
Enquadramento: A proteção da saúde através da prevenção e redução do consumo de álcool é uma prioridade de saúde pública. Foram identificadas algumas escalas para avaliar as políticas públicas em matéria de álcool, mas em língua inglesa.
Objetivo: Avaliar as propriedades psicométricas da tradução e adaptação cultural de uma escala para avaliar o apoio às políticas sobre o álcool em jovens estudantes universitários mexicanos.
Metodologia: Estudo metodológico, com a participação de 367 estudantes universitários do sul do México. A validade do constructo foi estimada através de uma análise exploratória dos fatores e a consistência interna do questionário foi verificada para verificar a sua fiabilidade.
Resultados: A consistência interna foi de 0,96. A validade de constructo foi realizada por médio de análise fatorial exploratória, identificando uma estrutura de três fatores: redução de danos, marketing e informação, e preço e disponibilidade.
Conclusão: A escala mostrou fiabilidade e validade adequadas, e pode ser aplicada em espanhol como um indicador empírico em estudos relativos a políticas públicas sobre o álcool em jovens estudantes universitários.

Palavras-chave: consumo de álcool; estudantes universitários; políticas públicas; validação de escala; fiabilidade

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Introduction

Alcohol consumption in recent decades has increased considerably in Latin America and the Caribbean. This is the region that drinks the most worldwide, particularly binge drinking (five or more drinks for men and four or more drinks for women within two hours on a single occasion in the last month, considering one drink as one standard drinking unit [12-15 g of alcohol]). Such consumption has caused more than 300 000 deaths per year and is responsible for the incidence of at least 200 diseases or injuries (Organización Panamericana de la Salud, 2015).

In 2016, 28.7% of alcohol-related deaths worldwide were associated with injuries, with the highest frequency in the 20-39 age group, accounting for 13.5% of deaths (World Health Organization [WHO], 2018). In the Mexican university population, different types of alcohol consumption are observed, ranging from low-risk to binge drinking, the latter being the most prevalent (Valdez et al., 2018).

WHO (2018) recommends the elaboration of public policies aimed at preventing and reducing alcohol-related harm and points out that these policies should be equitable and take into account national, social, religious, and cultural contexts. It should be noted that several African and American countries do not have public alcohol policies, hence the importance of developing tools to support the study, design, and evaluation of public policies.

Likewise, a public policy on alcohol consumption is understood as all strategies and decisions of governmental public authorities aimed at reducing or preventing the negative impact of alcohol consumption (OPS, 2018). Some studies report that alcohol control policies protect against alcohol consumption and alcohol-related harm (Foster et al., 2019; Weerasinghe et al., 2020). Scientific evidence suggests that restricting the availability and marketing and regulating the price of alcohol are cost-effective and, in turn, easy-to-implement measures for reducing alcohol consumption and alcohol-related harm in a given population (Burton et al., 2017; Weerasinghe et al., 2020). According to OPS's (2018) rating of alcohol policies, the lowest-rated policies in Mexico were those related to drunk driving, pricing, reducing the public health impact, and alcohol availability. In this context, more emphasis needs to be placed on these areas both in research and policy-making. Thus, the aim of this study is to evaluate the psychometric properties of the translation and cultural adaptation of a scale for assessing the support for alcohol policies among young Mexican university students.

Background

According to the literature review, there is limited evidence of the relationship between public policy and alcohol consumption, particularly in low- and middle-income countries. Consequently, this topic represents an important opportunity for research as alcohol consumption continues to increase (Casswell et al., 2018).

Therefore, it is essential to have a scale that can assess people's level of support for public policies on reducing alcohol-related problems. Some scales evaluate some aspects of public policies, but they are mostly in English, which means that they may not be valid in a Mexican context. A study conducted in Ireland (Davoren et al., 2018) examined the level of support for alcohol marketing and consumption control policies. Still, the instrument is not available and does not report validation data.

A study was conducted in the United States of America (USA; Fairlie et al., 2015) to assess the support for an educational institution's local alcohol control policies. However, it is limited to institutional policies. Still in the USA, another study (Cherpitel et al., 2018) was conducted to estimate the association between alcohol-related injuries, individual drinking patterns, and alcohol policy measures. Reliability data are reported in this study but are focused on the outcome, which is injuries. Again, in the USA, another scale was designed (Silver et al., 2019) to assess the essential characteristics of state policies regulating alcohol consumption (Alcohol Policy Score). However, it does not assess the support for such policies and does not present validation data.

A Canadian study (Kongats et al., 2020) used the Chronic Disease Prevention Survey. It targets influential people or people who know more about public policy-making and does not report validation or reliability data. A survey conducted in South Africa (Parry et al, 2018) and other countries to determine the extent of public support for 12 public policies, adapted to each country's legal framework, is partially available and does not report validation or reliability data.

In Australia, a study (Lam et al., 2015) was conducted to explore the impacts of existing policies on young people's access to alcohol and their support for proposed measures to reduce alcohol-related problems. Still, it is only partially available and does not report validation or reliability data. In Thailand, as part of an ecological study, the Alcohol Policy Influence Questionnaire was used (Tonkuriman et al., 2019). Although it presents reliable data, the instrument is not yet available or, at least, was not located in the databases consulted.

In the United Kingdom (UK), an instrument to assess the support for public policies to reduce alcohol-related problems was used (Bates et al., 2018), which is available in the same article, presents validation data through factor analysis, so it was selected for this study. This instrument was partially used in Canada (Weerasinghe et al., 2020) and provides a reliability analysis. It has also been used in the adult population in several countries. However, both are in English. Until now, no validated version that assesses this problem has been found in Spanish, especially in the Mexican context. For this reason, the Support for Public Policies to Reduce Alcohol-Related Problems Scale was chosen. It was the only one that showed a reliability and construct validity analysis.

When translating an instrument, it is important to establish the reliability and construct validity in order to determine the congruence with which it measures the intended attribute, as well as to assess the appropriate-

ness of the instrument, which is the extent to which the instrument measures what it is supposed to measure (Chávez & Canino, 2005).

Research question

Is the Support for Public Policies to Reduce Alcohol-Related Problems Scale (Buykx et al., 2016) a valid and reliable tool to assess support for alcohol-related policies among young Mexican university students?

Methodology

A methodological study was conducted to translate, culturally adapt, and validate a scale to assess the support for public policies to reduce alcohol-related problems to be applied in Mexico. The sample consisted of 367 Mexican university students, of whom 63.2% were female, 91.8% were single, 61.0% were only studying, and 76.6% lived with both parents. The sample's age ranged from 18 to 35 years, with a mean of 21.64 years (*DE* = 2.82). Regarding their education level, years of study varied from 13 to 16 years (*M* = 14.98; DE = 1.09), and the participants were enrolled in four different degree programs (undergraduate). Participants were selected by stratified random probability sampling, and divided into two groups according to their academic location. From the firstthe to fourth semester and from the fifth semester onwards, thus forming 8 strata, a number proportional to the stratum was randomly selected. Due to the COVID-19 pandemic, data were collected online using Microsoft Teams and Google Forms between June and July 2021. Inclusion criteria were being of legal age and enrolled in a degree program (undergraduate) at the public university where the study was carried out. After reading the electronic informed consent form and agreeing to participate in the study, the participants answered a personal data questionnaire and then the Support for Public Policies to Reduce Alcohol-Related Problems Scale (APPRPAA in Spanish). Ethical procedures were respected, in which informed consent was obtained from the participants, and they were explained the conditions for participating in this study. This study was approved by the Ethics Committee of the Autonomous University of Nuevo León, Mexico (FAEN-D.1704).

APPRPAA is a scale adapted for UK research (Buyks et al., 2016) to determine the perceived usefulness of policies in reducing alcohol consumption and alcohol-related problems. It consists of 21 items grouped into four dimensions or factors: i) price and availability (items 1, 2, 3, 4, 5 and 6); ii) marketing and information (items 7, 8, 15, 17, 18, 19, 20 and 21); iii) harm reduction (items 11, 12, 13, 14, 16); and iv), and drink driving (items 9 and 10). Rating is on a 5-point Likert-type scale (1 = strongly disagree and 5 = strongly agree), with a minimum score of 16 and a maximum score of 80; a higher score indicates greater support for public policies.

The psychometric properties were evaluated by Bates et al. (2018), in adults over 18 years old in the UK, by means of principal components exploratory factor analysis, which explains 65.5% of the variance. The instrument was partially used by Weerasinghe et al. (2020) in adults over 19 years old in Canada, using only 7 items of the 21 items mentioned above and corresponding to three factors: i) availability (α = 0.85); ii) price (α = 0.77); and iii) marketing (α = 0.81).

This instrument was subjected, in this study, to a process of translation and adaptation into Spanish using the back-translation method proposed by Chávez and Canino (2005). The first translation from English to Spanish was carried out by two professional translators, each of whom produced an individual translation. Subsequently, a panel of five experts reviewed both Spanish translations, analyzed the conceptual content and linguistic meaning of each of the items. According to their observations, a single version was produced.

This scale, once translated, was reviewed by five university students, who were asked to analyze the wording of each item and make observations on any unclear words or sentences. Once their observations had been collected, a second version was produced, which was used for a pilot test with 40 university students, who were also asked to comment on the clarity of the terms. After this, a third version of the instrument was elaborated, taking into account the suggestions made.

Subsequently, this version was sent to five experts, who gave their approval to continue with the next step of back-translation: translating it back into its original language, i.e. English. This was done by a professional translator, a native English-speaking American living in Mexico. Afterward, both versions of the original scale were compared, the first version in English and the translation from Spanish to English, resulting in the final version being approved by the expert panel.

Once obtained the final version of the instrument, data were collected electronically using Microsoft Teams and Google Forms. A personal data questionnaire and the APPRPAA scale were applied. Subsequently, the information was collected in Excel format, which was adapted and then transferred to the IBM SPSS Statistics 22.0 for Windows for analysis. First, the descriptive statistics were obtained, the normality test was carried out, and the inter-item correlations were measured.

For the scale's psychometric analysis, an exploratory factor analysis was carried out to measure construct validity, including Bartlett's test of sphericity, and principal component analysis with varimax rotation was used as the extraction method since the items did not present correlations greater than 0.70 (López-Aguado & Gutiérrez-Provecho, 2019). In addition, reliability analysis was carried out to verify internal consistency using Cronbach's α coefficient.

Results

Inter-item correlation analysis found all items to be positively and significantly correlated. ($p < 0.001$).

For measuring the construct validity, the Kaiser-Mey-

er-Olkin test for sampling adequacy (KMO = 0.956) and Bartlett's test of sphericity (χ^2 = 7703.553; *gl* = 210; p < 0.001) were used, indicating that the correlations between the policy elements were sufficient for the factor analysis. The exploratory factor analysis obtained three factors. The first factor included seven items, corresponding to the *harm reduction* dimension (9, 7, 10, 8, 12, 16, 11). The second factor grouped eight items (20, 18, 19, 14, 15, 21, 13, 17), corresponding to the *marketing and information* dimension. In the third dimension, six items (1, 2, 3, 4, 5, 6) were grouped together, corresponding to the *price and availability* dimension (Table 1). No item was eliminated because they all had factor loadings above 0.4.

Communalities were measured to evaluate the item variance explained by the factors. The communalities analysis reviewed the contribution of each item to the explanation of the phenomenon. In the extraction of the items, adequate scores were observed, which ranged from 0.522 for item 21 to 0.890 for item 7. The first factor explains 60.5% of the total variance, the second factor explains 8.38%, and the third factor explains 4.8%. In total, the three components explain 73.79% of the variance.

Table 1

Exploratory factor analysis of the APPRPAA scale

Variables	Factors			Communality	
	1	2	3	Initial	Extraction
APRPAA_9	**0.867**	0.245	0.208	1.000	0.855
APRPAA_7	**0.853**	0.234	0.327	1.000	0.890
APRPAA_10	**0.802**	0.332	0.245	1.000	0.814
APRPAA_8	**0.797**	0.347	0.337	1.000	0.870
APRPAA_12	**0.695**	0.478	0.194	1.000	0.750
APRPAA_16	**0.631**	0.557	0.209	1.000	0.752
APRPAA_11	**0.566**	0.391	0.281	1.000	0.553
APRPAA_20	0.299	**0.744**	0.340	1.000	0.759
APRPAA_18	0.261	**0.739**	0.367	1.000	0.750
APRPAA_19	0.404	**0.735**	0.296	1.000	0.792
APRPAA_14	0.370	**0.664**	0.270	1.000	0.651
APRPAA_15	0.502	**0.633**	0.246	1.000	0.714
APRPAA_21	0.185	**0.630**	0.301	1.000	0.522
APRPAA_13	0.449	**0.605**	0.242	1.000	0.626
APRPAA_17	0.579	**0.590**	0.257	1.000	0.750
APRPAA_1	0.191	0.170	**0.801**	1.000	0.707
APRPAA_2	0.093	0.316	**0.790**	1.000	0.732
APRPAA_3	0.263	0.205	**0.786**	1.000	0.729
APRPAA_4	0.332	0.307	**0.760**	1.000	0.782
APRPAA_5	0.330	0.342	**0.749**	1.000	0.787
APRPAA_6	0.353	0.419	**0.642**	1.000	0.713
Eigenvalues	12.71	1.76	1.02		
% of the variance	60.53	8.38	4.86		
% accumulated	60.53	68.92	73.79		

Note. Total sample = 367, Varimax rotation.

After the exploratory factor analysis, the internal consistency analysis was carried out using Cronbach's α coefficient (see Table 2). A score of α = 0.96 was obtained for the total scale. The analysis was also carried out for each of the factors or dimensions identified. The first factor (*harm reduction* dimension) obtained an α = 0.94, the second (*marketing and information* dimension) an α = 0.93, and the third (*price and availability* dimension) an α = 0.92. The final version of the instrument is shown below.

Table 2

Internal consistency of the APPRPAA scale

Item	Dimension	α
9. Reducing the drink driving limit.	Harm reduction	0.94
7. Banning alcohol consumption on trains.		
10. Introducing random breath alcohol testing for drivers.		
8. Banning having alcohol available to drink at school events where children are present.		
12. Doctors or health professionals ask patients about their drinking habits and offer advice.		
16. Making it compulsory that the number of alcohol units in a bottle/can be show non the label.		
11. Increasing funding for alcohol treatment services.		
20. Banning outdoor advertising of alcohol (e.g. bill boards)..	Marketing and information	0.93
18. Banning alcohol sponsorship of sporting events.		
19. Limiting advertising for alcohol on TV after 9:00 p. m.		
14. Offering and promoting smaller drink sizes in pubs and restaurants.		
15. Requiring information on drinking guidelines on alcohol containers.		
21. Restricting the display of alcohol in shops and supermarkets.		
13. Introducing and promoting lower-strength wine and lower strength or no alcohol beer.		
17. Specific health warnings on alcohol containers.		
1. Increasing the price of alcohol.	Price and availability	0.92
2. Taxing alcoholic drinks based on the percentage of alcohol they contain.		
3. Setting a minimum unit price.		
4. Reducing the number of outlets that sell alcohol.		
5. Reducing trading hours for all pubs and clubs.		
6. Reducing hours alcohol can be sold within off-licenses and supermarkets.		

Note. n = 367.

Discussion

This article aimed to evaluate the psychometric characteristics of the translation and cultural adaptation of the APPRPAA scale among Mexican university students. The extraction of factors resulted in a three-factor solution, one less than that reported by Bates et al. (2018), who obtained four factors. In this regard, the factor not grouped was the drink driving factor, which consisted of two items. However, in this study, these items were grouped into the *harm reduction* factor, which may be theoretically acceptable.

In the factor analysis conducted by Bates et al. (2018), using the principal component extraction method and a Promax rotation, communalities above 0.6 and an explained variance of 65.5% were obtained. Regarding the communalities, the results were similar in his study. However, the variance explained was higher in this three-factor version, explaining a higher percentage, which indicates that it may be a reliable structure to explain university students' support for public policies related to alcohol consumption. No other study presenting a factor analysis of this scale was identified in the literature.

As for the internal consistency of the factors identified in this factor analysis, they were higher than those reported by Weerasinghe et al (2020), with α = 0.81 for the marketing factor, α = 0.77 for the price factor, and α = 0.85 for the availability factor. So far, this is the only study that has reported reliability indices. However, this study only used this scale partially.

The content of this instrument broadly covers the indicators proposed by WHO in the global strategy to reduce the harmful use of alcohol. This instrument addresses eight of the ten areas for assessing policy and interventions proposed by PAHO (2018) in Latin America, which are: (i) health services response; (ii) community and workplace action; (iii) drink-driving policies and countermeasures; (iv) availability of alcohol; (v) marketing of alcoholic beverages; (vi) pricing policies; (vii) reduction of the negative consequences of drinking and alcohol intoxication; and (viii) reduction of the public health impact of illicit alcohol and informally produced alcohol.

The two areas that are not addressed are leadership, awareness, and commitment, and monitoring and surveillance. These spheres are focused on evaluating government agencies on the implementation of public policies (PAHO,

2018). Therefore, this scale is a standard assessment tool to know people's opinions on public policies regarding alcohol-related problems and is the first one adapted to the Spanish language and the Mexican context.

Conclusion

The APPRPAA scale has adequate internal consistency and construct validity and is, therefore, considered reliable and valid for use as an empirical indicator in public policy studies. However, the results should be taken with caution, as data were collected online and could have some bias. For this reason, it is suggested that this study be replicated in a face-to-face setting in order to verify the structure of the instrument used.

The results show that the proposed version of this scale is suitable for use with young university students. It would be desirable for future research to test it on young adults with different education levels and socio-demographic contexts, as the language used in the scale is simple. Likewise, this scale can favor future alcohol prevention programs, as well as be a tool for the elaboration and evaluation of public policies on the prevention of alcohol consumption and alcohol-related problems.

Author contributions

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