



RELIEVE. Revista Electrónica de Investigación y
Evaluación Educativa

ISSN: 1134-4032

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España

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RELIEVE. Revista Electrónica de Investigación y Evaluación
Educativa, vol. 31, no. 1, 2025, January-June, pp. 1-18
Universidad de Granada
Valencia, España

DOI: <https://doi.org/10.30827/relieve.v31i1.32636>

Available in: <https://www.redalyc.org/articulo.oa?id=91681713013>

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Design and validation of the questionnaire for the determination of risk and protective factors associated with the consumption of alcohol and other drugs in Secondary School adolescents

Diseño y validación del cuestionario de determinación de factores de riesgo y protección asociados al consumo de alcohol y otras drogas en adolescentes de ESO

Conceção e validação do questionário para determinar fatores de risco e proteção associados ao consumo de álcool e outras drogas em adolescentes do ensino secundário

初中学生酒精与其他毒品消费风险与保护因素问卷的设计与验证

تصميم واستيفاء الصدق لمقياس تحديد عوامل الخطورة والحماية المرتبطة بتعاطي الكحول وغيرها من المخدرات لدى المراهقين في مرحلة التعليم الثانوي الإلزامي (ESO)

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Abstract

Adolescence involves significant biological, social, cognitive and emotional changes that shape new behaviours, including risky conduct related to alcohol and drug use. While national surveys such as ESTUDES (National Plan on Drugs, Spain) track consumption trends, there is a clear need for educational tools that assess the underlying risk and protective factors influencing such behaviour. This study presents the design and validation process of the Questionnaire for Identifying Risk and Protective Factors Associated with Alcohol and Drug Use in Secondary School Adolescents (CUFARIPRO_AlcDro). A sample of 406 students participated. Content validity was established through expert judgement, and an exploratory factor analysis (EFA) was conducted, along with internal consistency reliability assessed via Cronbach's alpha. The factorial analysis led to a refined version of the questionnaire, resulting in a structure of eight factors: self-control, depressive and anxious symptoms, social relations, frustration tolerance, self-concept, leisure time management, perceived educational style, sensation-seeking, and social tolerance towards substance use. The validated instrument offers a valuable tool for educational diagnosis and school-based prevention of substance use, in line with existing research on adolescent psychosocial risk factors.

Keywords: Educational prevention, adolescence, questionnaire validation, substance use, risk and protective factors.

Resumen

Durante la adolescencia se producen importantes transformaciones biológicas, sociales, cognitivas y emocionales, que conllevan el desarrollo de nuevos comportamientos, entre ellos conductas de riesgo relacionadas con el consumo de alcohol y otras drogas. Aunque encuestas oficiales como ESTUDES (Plan Nacional sobre Drogas) permiten conocer las tendencias de consumo, existe una necesidad de instrumentos educativos que aborden los factores asociados que pueden influir en dicho consumo. El presente estudio describe el proceso de diseño y validación del Cuestionario de determinación de factores de riesgo y protección asociados al consumo de alcohol y otras drogas en adolescentes de Educación Secundaria Obligatoria (CUFARIPRO_AlcDro). Participaron 406 estudiantes de ESO. Se aplicó un juicio de expertos para la validación de contenido y se llevó a cabo un análisis factorial exploratorio (AFE) para explorar su estructura interna, así como el cálculo de la fiabilidad mediante el coeficiente alfa de Cronbach. El análisis factorial condujo al reajuste del instrumento y reveló una nueva estructura compuesta por ocho factores relacionados con: autocontrol, síntomas depresivos y ansiosos, relaciones sociales, tolerancia a la frustración, autoconcepto, gestión del tiempo libre, estilo educativo percibido, búsqueda de sensaciones y tolerancia social hacia el consumo. El cuestionario validado constituye una herramienta útil para el diagnóstico educativo y la prevención del consumo de sustancias en el contexto escolar, alineada con investigaciones previas sobre factores psicosociales implicados.

Palabras clave: Prevención educativa, adolescencia, validación de cuestionario, consumo de sustancias, factores de riesgo y protección.

Received/Recibido	Ene 21, 2025	Approved /Aprobado	Jun 11, 2025	Published/Publicado	Jun 30, 2025
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Resumo

Na adolescência, ocorrem várias transformações biológicas, sociais, cognitivas e emocionais, nas quais os adolescentes desenvolvem novos comportamentos pessoais; entre eles, comportamentos de risco face à exposição ao consumo de álcool e de outras drogas. Desde 1994, o Ministério da Saúde, dos Serviços Sociais e da Igualdade, no âmbito do Plano Nacional de Luta contra as Drogas, a cada dois anos, cria o Inquérito sobre o Consumo de Drogas no Ensino Secundário em Espanha (ESTUDES), inquirindo estudantes entre os 14 e os 18 anos de idade para determinar a situação e as tendências do consumo. Uma vez que o inquérito se centra no consumo, o presente estudo incide sobre os fatores que podem influenciar o mesmo. Assim, descreve-se o processo de conceção e validação do questionário para determinar fatores de risco e proteção associados ao consumo de álcool e outras drogas em adolescentes do ensino secundário obrigatório (CUFARIPRO_AlcDro). Mediante a participação de uma amostra de 406 estudantes, é calculada a fiabilidade da consistência interna do instrumento e uma análise factorial exploratória (AFE). Esta análise resultou no reajustamento do questionário inicialmente concebido e numa nova estrutura composta por oito fatores relacionados com: fatores psicológicos associados ao autocontrolo, à depressão e à ansiedade; fatores sociais; nível de tolerância à frustração; autoconceito; dificuldade em gerir o tempo livre; estilo educativo; procura de sensações; e tolerância social ao consumo, em consonância com os resultados de investigações anteriores.

Palavras-chave: Prevenção educativa, adolescência, validação de questionário, consumo de substância, fatores de risco e proteções.

摘要

青春期是生物、社会、认知和情感等多方面发生显著变化的时期，青少年在此阶段会形成新的个人行为模式，其中包括在接触酒精和其他毒品时出现的风险行为。自 1994 年以来，西班牙卫生、社会服务与平等部根据国家药物计划，每两年开展一次中学阶段药物使用调查（ESTUDES），对象为 14 至 18 岁的学生，旨在了解其消费现状及发展趋势。鉴于该调查主要聚焦于消费行为，本文特别强调了影响这些行为的相关因素。为此，本文详细介绍了《中学生酒精及其他毒品消费风险与保护因素问卷（CUFARIPRO_AlcDro）》的设计与验证过程。通过对 406 名学生的样本调查，评估了问卷工具的内部一致性信度，并进行了探索性因子分析。结果对最初设计的问卷进行了调整，最终确定了包括八个因素的新结构，这些因素分别与自控力、抑郁与焦虑等心理因素、社会因素、挫折容忍度、自我概念、闲暇时间管理困难、教育风格、刺激寻求以及对消费的社会容忍度等方面相关，研究结论与既有文献相符。

关键词: 教育预防，青少年期，问卷验证，物质使用，风险因素与保护因素。

ملخص

تمّ مرحلة المراقبة بتحوّلات متعدّدة على المستويات البيولوجية والاجتماعية والمعرفية والانفعالية، حيث يطرّ المراهقون سلوكيات شخصية جديدة، من بينها سلوكيات محفوفة بالمخاطر نتيجة التعرّض لتعاطي الكحول وغيرها من المواد المخدّرة. ومنذ عام 1994، يُجري وزارة الصحة والخدمات الاجتماعية والمساواة، في إطار الخطة الوطنية للمخدرات، استطلاعاً كلّ سنتين تحت مسمى "استطلاع استخدام المخدرات في التعليم الثانوي في إسبانيا"، ويوجّه هذا الاستطلاع إلى طلبة تتراوح أعمارهم بين 14 و18 سنة بهدف رصد وضع واتجاهات الاستهلاك. ونظراً لأن (ESTUDES) "إسبانيا" هذا الاستطلاع يركّز أساساً على معدّلات الاستهلاك، فإن هذه الدراسة تسعى إلى تسليط الضوء على العوامل التي قد تؤثر في هذا السلوك. وعليه، يتم في هذا البحث عرض وصف تفصيلي لعملية تصميم واستيفاء الصدق لمقياس تحديد عوامل الخطورة والحماية المرتبطة بتعاطي الكحول وغيرها من وبالاعتماد على عينة مكونة من 406 تلميذاً وتلميذة، تم (CUFARIPRO_AlcDro) المخدرات لدى المراهقين في مرحلة التعليم الثانوي الإلزامي احتساب درجة ثبات الاتساق الداخلي للأداة، إلى جانب إجراء تحليل عاملي استكشافي. وقد أسفر هذا التحليل عن إعادة ضبط الصيغة الأولية للاستبيان، واقترح بنية جديدة تتكوّن من ثمانية عوامل مرتبطة بما يلي: العوامل النفسية المتعلقة بضبط الذات والاكتئاب والقلق؛ العوامل الاجتماعية؛ مستوى تحمّل الإحباط؛ مفهوم الذات؛ صعوبة استثمار وقت الفراغ؛ الأسلوب التربوي؛ البحث عن الإثارة؛ والتسامح الاجتماعي تجاه الاستهلاك، وذلك بما يتماشى مع نتائج دراسات سابقة في هذا المجال.

الكلمات المفتاحية: الوقاية التعليمية، المراقبة، التحقق من صحة الاستبيان، تعاطي المواد، عوامل الخطر والحماية

Introduction

Adolescence is a stage that requires special attention in order to help adolescents avoid risk factors related to alcohol and other drugs (Tenelanda-Tigrero, 2023). According to Torres-Balleño (2022), this population is one of the most affected due to the vulnerability of this stage; furthermore, authors such as Rodrigues da Silva et al. (2022) point out that the initiation of alcohol and other drug use occurs mostly during adolescence.

This situation is reflected in international studies such as those by Rodrigues da Silva et al. (2022), which emphasize the increase in tobacco use among adolescents aged 13 to 18 (by 53%) and experimentation with alcohol at ages under 14 (21%) or between 16 and 17 years old (73%); another study by Troncoso-Cedeño (2021) shows that alcohol is consumed by 79% of adolescents; Cortázar-Castaño et al. (2022) estimate that 9% of young people die from alcohol-related causes, and in Spain, the average age of consumption is estimated at 14

years, with a prevalence among adolescents of 73.9% (García-Montoliu et al., 2022).

Such consumption can lead to dependence and addiction, causing disruptions in their lives, well-being, and productivity in school, academic, and professional environments, or even result in violent behavior (Rojas-Piedra et al., 2020; Torres-Balleño, 2022); it can also affect individual and social development in adulthood (Troncoso-Cedeño, 2022), promoting dependence later in life (García-Montoliu et al., 2022).

Determining the factors that predispose adolescents to substance use becomes essential given the potential harm that may result. Identifying these factors will make it possible to develop interventions that reduce or help prevent such use (Montes-Solís, 2023; Samudio-Domínguez et al., 2021); however, the scientific literature shows a variety of factors identified in different studies as a result of the design, implementation, and standardization of measurement instruments (Table 1).

Table 1. Measuring instruments

Instruments	Author	Country	Factors
Test Drug Use Screening Inventory (DUSI)	Osorio-Rebolledo et al. (2004)	Venezuela	Risk factors: 1. Behaviour, 2. Mental health, 3. Social skills, 4. Family, 5. School, 6. Peers, 7. Recreation
Factores de Riesgo hacia el consumo de drogas en adolescentes	Castillo-Florián (2016)	Perú	Risk factors: 1. Alienation factors, 2. Approval attitude, 3. Drug use.
Cuestionario de Percepción de Riesgo Hacia el Consumo de Drogas (CPRCD)	Delgadillo-Legaspi et al. (2020)	México	Risk factors: 1. Negative consequences of alcohol consumption, 2. Negative attitude towards the use of legal drugs, 3. Use of legal drugs to make friends and experience new sensations, 4. Licit drug use as coping and belonging, 5. Negative consequences of tobacco use.
-	Molina-Quñones y Salazar-Taquiri (2022)	Perú	Risk factors: 1. Personal, 2. Family, 3. Social, 4. Use.
-	Espada et al. (2003)	España	Risk factors: 1. Contextual, 2. Personal, 3. Social.
Cuestionario de Evaluación de Factores de Riesgo Interpersonales	Carballo-Crespo et al. (2004)	España	Risk factors: 1. Family members' reaction to drug use, 2. Group of friends, 3. Access to drugs, 4. Family risk situations, 5. Family drug education, 6. Parenting style, 7. Protective activities.
-	Martínez-González (2006)	España	Risk/protective factors: 1. Age of onset of use, 2. Availability of drugs, 3. School environment, 4. Availability of money, 5. Gender, 6. Type of drugs, 7. Parents' employment status, 8. Social representations.
-	Fernández-Bustos (2010)	España	Risk factors: 1. Personal, 2. Interpersonal, 3. Social.

International proposals highlight the research that has been conducted on risk factors related to drug use itself, on the one hand; and, on the other hand, the different types of factors that have been considered, which can be grouped as follows: personal (behavior, health, self-concept, self-esteem, attitudes, sensation seeking), social (social skills, peers, use of free time, tolerance), family, school, and possible consequences (Castillo-Florián, 2016; Delgadillo-Legaspi et al., 2020; Molina-Quñones & Salazar-Taquiri, 2022; Osorio-Rebolledo et al., 2004).

In Spain, the importance given to this topic has also been highlighted: Espada et al. (2003) present a model structured into three factors: contextual, social, and personal; Carballo-Crespo et al. (2004) validated a questionnaire composed of seven factors (three of them focus on issues related to the family, one on the peer group, another on access to drugs, another on parenting style, and finally on protective activities); Martínez-González (2006) proposes an instrument to measure various risk factors: age of onset of use, availability of drugs or money to use, and risk factors in the educational setting and several protective factors: gender, type of drugs, parents' employment status, and social representations; Fernández-Bustos (2010) presents a questionnaire structured into three factors: personal, interpersonal, and social.

Thus, the different types of factors considered in the research can be grouped into: personal, social (availability of money, access to drugs), contextual, family (reactions, risk situations, family education, employment status), school (parenting style), and interpersonal (peer groups). Among these, the following stand out: genetic-biological factors (family history, concern for health, and aspects related to the danger of substances), psychological factors (self-esteem and self-concept; sensation seeking; depression and anxiety; personality factors; and attitudes, values, and beliefs), and social factors (social representations; social environment; family; peer group; school; and

environmental/contextual) (Rial-Gómez, 2023).

Method

Aim

The aim of this study is to validate the Questionnaire for Determining Risk and Protective Factors Associated with Alcohol and Other Drug Use in Compulsory Secondary Education Adolescents (CSE, known in Spain as ESO) (CUFARIPRO_AlcDro).

Sample

The target population consists of students enrolled in the stage of Compulsory Secondary Education (ESO) in four educational centers (each representing the existing school zones in A Coruña), totaling 1,080 students. For the entire student population, the minimum required sample size for a 95% confidence level and a 5% margin of error is 285 students.

The data-producing sample, which was non-probabilistic and intentional, consisted of 406 students. The gender distribution shows an equal representation of males (50.25%) and females. Regarding age, most students are 14 years old (47.29%); accordingly, they mostly belong to the third year of ESO.

Instrument

Design and content validation

The CUFARIPRO_AlcDro Questionnaire was developed based on the literature review and the analysis of the instruments previously presented. It includes nine identification questions and 59 items, structured into three dimensions.

The first dimension refers to genetic-biological factors through three items that assess aspects related to generational transmission (family history, concern for health, and aspects related to the danger of substances).

The second dimension includes aspects related to psychological factors, subdivided into five subdimensions (self-esteem and self-concept; sensation seeking; depression and

anxiety; personality factors; and attitudes, values, and beliefs) grouped into 22 items to determine the presence of behavioral or psychopathological problems and the influence of various personal attitudes towards use.

Finally, the dimension referring to social factors includes six subdimensions (social representations; social environment; family; peer group; school; and environmental/contextual), measured by 34 items. These are social risk elements that must be analyzed individually to understand which ones may exert greater pressure, bearing in mind that each individual is unique and will

not react in the same way as others to certain stimuli.

The questionnaire underwent content validation, requesting the collaboration of several experts in the field or in research methodology to obtain a second evaluation. As Galicia-Alarcón et al. (2017, p. 44) point out, requesting such support encourages the emergence of “recommendations or suggestions to improve the wording or content of the items that make up the instrument, which should be considered to achieve a better definition of the aspect to be measured.” Thus, the questionnaire was sent to five people who met the characteristics established in Table 2.

Table 2. Validating agents

Subjects	Sex	Academic level	Area
1	Female	Contracted PhD Lecturer	MIDE
2	Woman	Associate Professor	MIDE
3	Male	Professor	Psychobiology
4	Man	Contracted PhD Lecturer	MIDE
5	Female	Associate Professor	Developmental and Educational Psychology

Note: MIDE (Methods of Research and Diagnosis in Education).

Procedure and data analysis

A first contact was established with the ESO educational centers in the city of A Coruña through a letter specifying the aim of the study and requesting their participation. The administration of the questionnaire was carried out in paper or electronic format, depending on the option chosen by the participating schools. Since the research focused on underage adolescents, their participation in the study also depended on prior family authorization through the signing of informed consent.

Data processing was performed using the statistical package SPSS Statistics (version 24.0). The statistics used for the validation of the instrument were Cronbach's Alpha coefficient to calculate internal consistency reliability and an Exploratory Factor Analysis (EFA) of the instrument's items using principal component extraction and Varimax

rotation, in order to determine the number and composition of the common factors needed to explain the shared variance of the set of items analyzed. The principal component method with Varimax rotation was used for its ability to maximize the variance explained by each factor and to facilitate the interpretation of the results. This procedure is common in initial validations and makes it possible to simplify the factorial structure by facilitating the reorganization of items by dimension.

The CUFARIPRO_AlcDro questionnaire is a newly developed tool, so an initial exploratory validation of its structure is required. The Exploratory Factor Analysis (EFA) makes it possible to identify the latent structure of the items without imposing a prior model, being the most appropriate procedure in the early stages of instrument development (Lloret-Segura et al., 2014).

Results

Reliability

The initial reliability value obtained is high, as the Cronbach's Alpha Coefficient is .967 (Cronbach, 1951), which allows us to conclude that the questionnaire items are related to each other and measure the same construct; thus, it shows high internal reliability.

Next, the discriminatory capacity of the items was analyzed by calculating the

homogeneity index and the corrected homogeneity index, bearing in mind that values above .4 are generally considered a very good level of homogeneity (Ebel, 1965; Kline, 2015; Nunnally & Bernstein, 1995).

According to the data in Table 3, it can be observed that most of the items show values above .5; however, eliminating those at or below this value results in a significant increase in reliability.

Table 3. Values of the homogeneity indices for each item and Cronbach's Alpha if the item is removed

Factors that increase the likelihood of consuming alcohol and/or other drugs	Corrected Item-total correlation	Cronbach's Alpha if item deleted
Genetic-biological		
FGB10. If there is someone in my family who abuses alcohol and/or other drugs	.461	.968
FGB11. Depending on my gender	.326	.968
FGB12. If I start using at an early age	.406	.968
Psychological: self-esteem and self-concept		
FP_AA13. If I do not have a positive attitude towards myself	.639	.967
FP_AA14. If I do not try to be better every day	.570	.967
FP_AA15. If I do not have positive expectations of myself or my future	.655	.967
FP_AA16. If I do not have good self-control	.624	.967
FP_AA17. If I am not able to cope with misfortunes	.763	.967
FP_AA18. If I do not find it easy to say no, to something I am asked to do	.345	.969
Psychological: sensation seeking		
FP_BS19. If I think drugs are something that must be tried at least once	.545	.967
FP_BS20. If I like new and exciting sensations, even if they are a little scary	.533	.967
FP_BS21. If I constantly need to do fun activities so I don't get bored	.529	.967
Psychological: depression and anxiety		
FP_DA22. If I believe I am useless	.700	.967
FP_DA23. If I am always sad	.696	.967
FP_DA24. If sad events happen (death of a family member, loss of job, etc.)	.684	.967
FP_DA25. If I have anxiety	.660	.967
Psychological: personality		
FP_FP26 If I am not afraid of drugs	.482	.968
FP_FP27 If I maintain a passive attitude	.522	.967
FP_FP28 If I am an impulsive person	.479	.968
Psychological: attitudes, values, beliefs		
FP_AVC29. If I assume that most people at this school consume alcohol and/or drugs with some frequency	.577	.967
FP_AVC30. If I assume that most people in the place where I live consume alcohol and/or drugs with some frequency	.587	.967
FP_AVC31. If I assume that drinking alcohol and/or using other drugs is normal	.675	.967
FP_AVC32. If some drugs are legalised	.273	.970
FP_AVC33. If I assume that we have to learn to live with drugs	.667	.967
FP_AVC34. If I assume that the possible benefits of alcohol and/or other drugs outweigh their possible risks	.671	.967

Table 3. Values of the homogeneity indices for each item and Cronbach's Alpha if the item is removed
(continued)

Factors that increase the likelihood of consuming alcohol and/or other drugs	Corrected Item-total correlation	Cronbach's Alpha if item deleted
Social: social representations		
FS_RS35. The lack of personal and social perspectives	.662	.967
FS_RS36. If I have problems in my studies	.707	.967
FS_RS37. If I believe I will have problems finding a job in the future	.616	.967
Social: social environment		
FS_AS38. If I do not take on commitments	.626	.967
FS_AS39. If I am not a committed person	.576	.967
FS_AS40. If I do not fulfill my commitments	.538	.967
Social: family		
FS_F41. If I do not feel loved, accepted or understood	.699	.967
FS_F42. If in my family there are no clear rules of coexistence	.556	.967
FS_F43. If decisions are made for me in my family	.570	.967
FS_F44. If celebrations (birthdays, holidays, anniversaries) are not held with family	.421	.968
FS_F45. If my family does not value my achievements	.659	.967
FS_F46. If there is no stability and cohesion in my family	.753	.967
FS_F47. If my family does not maintain regular contact with my teachers	.508	.968
FS_F48. If I do not have conversations with my family, about how bad drugs are	.566	.967
Social: peer group		
FS_GI49. If I do not do fun activities with my friends	.484	.968
FS_GI50. If my family does not have a positive view of my group of friends	.689	.967
FS_GI51. If I am willing to be friends with someone who uses any type of drugs	.631	.967
FS_GI52. If my group of friends talks about drugs at some point	.525	.967
FS_GI53. If my friends pressure me to consume alcohol and/or other drugs	.705	.967
FS_GI54. If I feel dissatisfied in my relationships with others	.789	.967
FS_GI55. If my partner or the person I like uses alcohol and/or other drugs	.701	.967
Social: school		
FS_E56. If I do not have good grades	.672	.967
FS_E57. If there are no clear rules for coexistence at my school	.707	.967
FS_E58. If I perceive that what I study at school is not useful to me	.660	.967
FS_E59. If I do not learn to work with other people	.670	.967
Social: environmental/contextual		
FS_AC60. If I do not participate in parish or activities related to any religious organization	.418	.968
FS_AC61. If I do not comply as a citizen with the rules of the community (town, neighborhood, city)	.576	.967
FS_AC62. If I do not have any connection with non-profit organizations (NGOs, cultural associations)	.362	.968
FS_AC63. If I am not aware of the legal regulations on alcohol/drugs and their use	.539	.967
FS_AC64. If it is easy to get drugs in my environment	.677	.967
FS_AC65. If there is an excessive workload from studies or other activities	.652	.967
FS_AC66. If my leisure and free time consists of partying with friends and going to places such as nightclubs	.545	.967
FS_AC67. If my leisure and free time consists of frequently going out to bars or nightlife areas until late at night	.672	.967
FS_AC68. If I receive advertising about drugs through different media	.590	.967

After eliminating these items, the questionnaire was reduced to a total of 48 items and eleven dimensions, compared to the initial twelve. This reduction in the number of items is coherent because:

- the items included in the dimension related to genetic factors were already covered as identification variables in the questionnaire.
- there were several items whose wording could lead to misunderstanding.
- others appeared to be unrelated to the construct under study or no longer relevant in the present context.

With this new configuration, Cronbach's Alpha coefficient increased to .973.

Exploratory factor analysis

To analyze construct validity, an exploratory factor analysis with principal component extraction was conducted. Through this method, a series of initial factors could be extracted to explain most of the common variance (Winter & Dodou, 2012). Varimax rotation was then applied to transform the initially extracted factors into new ones that could be easily interpreted.

Prior to this, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were applied, which, as shown in Table 4, confirm the appropriateness of conducting the factor analysis (Muñoz-Cantero et al., 2019).

Table 4. KMO and Bartlett's test

Sampling adequacy		
Kaiser-Meyer-Olkin measure of sample adequacy		.943
Bartlett's test of sphericity	Approximate Chi-square	9616.657
	gl	1128
	Sig.	.000

Once the rotation has been carried out, table 5 shows that there are no changes, being

68.601% in both cases; however, there are changes in each of the factors.

Table 5. Total variance explained. Extraction method: principal component analysis

Components	Initial eigenvalues			Sum of squared saturations of extraction		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative % of variance
1	21,354	44,488	44,488	7,180	14,958	14,958
2	2,785	5,801	50,289	6,641	13,835	28,793
3	2,489	5,185	55,474	6,261	13,044	41,837
4	1,438	2,996	58,470	2,922	6,087	47,924
5	1,342	2,797	61,267	2,774	5,779	53,703
6	1,256	2,618	63,885	2,534	5,278	58,981
7	1,164	2,426	66,310	2,330	4,855	63,836
8	1,100	2,291	68,601	2,288	4,766	68,601

The communality analysis of the items, as it can be seen in table 6, shows that all of them

are above .50, which leads us to consider very good levels of homogeneity.

Table 6. Analysis of communalities

Factors leading to a higher likelihood of using alcohol and/or other drugs	Initial	Extraction	Factors leading to a higher likelihood of using alcohol and/or other drugs	Initial	Extraction
FP_AA13	1.000	.736	FS_F41	1.000	.764
FP_AA14	1.000	.727	FS_F42	1.000	.533
FP_AA15	1.000	.786	FS_F43	1.000	.657
FP_AA16	1.000	.662	FS_F45	1.000	.712
FP_AA17	1.000	.728	FS_F46	1.000	.694
FP_BS19	1.000	.603	FS_F47	1.000	.636
FP_BS20	1.000	.691	FS_F48	1.000	.598
FP_BS21	1.000	.650	FS_GI50	1.000	.657
FP_DA22	1.000	.751	FS_GI51	1.000	.673
FP_DA23	1.000	.766	FS_GI52	1.000	.668
FP_DA24	1.000	.709	FS_GI53	1.000	.707
FP_DA25	1.000	.703	FS_GI54	1.000	.685
FP_FP27	1.000	.691	FS_GI55	1.000	.658
FP_AVC29	1.000	.796	FS_E56	1.000	.707
FP_AVC30	1.000	.630	FS_E57	1.000	.669
FP_AVC31	1.000	.733	FS_E58	1.000	.686
FP_AVC33	1.000	.614	FS_E59	1.000	.735
FP_AVC34	1.000	.657	FS_AC61	1.000	.659
FS_RS35	1.000	.638	FS_AC63	1.000	.628
FS_RS36	1.000	.698	FS_AC64	1.000	.707
FS_RS37	1.000	.541	FS_AC65	1.000	.692
FS_AS38	1.000	.643	FS_AC66	1.000	.721
FS_AS39	1.000	.756	FS_AC67	1.000	.737
FS_AS40	1.000	.738	FS_AC68	1.000	.700

Analysing the rotated components matrix, as it can be seen in table 7, the items are now distributed into eight factors:

Table 7. Matrix of rotated components

	Components							
	1	2	3	4	5	6	7	8
FP_AA13	.078	.391	.277	.638	.176	.058	.241	.034
FP_AA14	.298	.361	.155	.671	-.104	.109	-.023	.103
FP_AA15	.166	.482	.273	.637	.139	-.034	.040	.151
FP_AA16	-.007	.534	.298	.240	.002	.051	.444	.173
FP_AA17	.105	.562	.377	.310	.136	.272	.208	.166
FP_BS19	.086	.214	.352	.135	.207	.143	.586	.008
FP_BS 20	.197	.254	.126	.091	.042	.105	.714	.202
FP_BS 21	.540	.034	-.052	.422	.223	.089	.294	.181
FP_DA22	.232	.731	.177	.317	.110	.111	.003	.082
FP_DA23	.239	.774	.077	.178	.140	.043	.196	.107
FP_DA24	.162	.704	.202	.090	.233	.079	.259	.102
FP_DA25	.276	.702	.105	.060	.171	.062	.154	.250
FP_FP27	.339	.074	.022	.491	.218	.382	.356	-.094
FP_AVC29	.203	.239	.324	.061	.037	.084	.129	.751
FP_AVC30	.100	.162	.398	.181	.169	.164	.146	.572
FP_AVC31	.066	.325	.516	.030	.039	.289	.324	.407
FP_AVC33	.135	.089	.492	.327	.118	.336	.219	.254
FP_AVC34	.040	.212	.432	.247	.209	.501	.136	.223
FS_RS35	.323	.362	.219	.297	.151	.476	.086	.099
FS_RS36	.442	.468	.088	.240	.320	.320	.101	.058
FS_RS37	.395	.377	.234	.245	.285	.193	.061	-.076
FS_AS38	.585	.351	.270	.165	.073	.230	.049	-.128
FS_AS39	.733	.254	.263	.091	-.026	.214	.008	-.174
FS_AS40	.754	.232	.244	.082	-.099	.067	.120	-.142
FS_F41	.146	.672	.391	.161	.085	.309	.081	-.035
FS_F42	.366	.399	.449	.018	.073	.145	-.076	-.076
FS_F43	.361	.354	.084	-.032	.081	.575	.185	.151
FS_F45	.339	.508	.160	.064	.174	.511	.030	.131
FS_F46	.284	.420	.516	.122	.236	.293	.102	.062
FS_F47	.702	.000	.082	.288	.166	.031	-.013	.157
FS_F48	.380	.060	.635	.105	.045	.117	-.039	.135
FS_GI50	.564	.172	.225	.123	.292	.246	.086	.301
FS_GI51	.348	.061	.569	.123	.201	.047	.408	.024
FS_GI52	.574	.121	.322	-.136	.104	-.128	.364	.204
FS_GI53	.212	.299	.690	.189	.107	.138	.122	.126
FS_GI54	.402	.445	.326	.286	.241	.214	.085	.163
FS_GI55	.295	.180	.607	.169	.094	.155	.194	.267
FS_E56	.557	.446	.064	.015	.339	.176	.094	.196
FS_E57	.547	.162	.452	.131	.163	.142	.068	.266
FS_E58	.650	.307	.139	.018	.243	.153	.170	.195
FS_E59	.720	.179	.117	.222	.136	.098	.114	.283
FS_AC61	.659	.139	.434	-.013	.043	-.053	.049	.100
FS_AC63	.218	.182	.605	.007	.370	-.135	.149	.067
FS_AC64	.089	.253	.638	.069	.336	.255	.174	.122
FS_AC65	.233	.413	.162	.074	.580	.192	.001	.251
FS_AC66	.142	.209	.349	.061	.708	.086	.150	.007
FS_AC67	.192	.245	.394	.169	.649	.119	.125	.075
FS_AC68	.262	.162	.593	.139	.219	-.275	.101	.316

Nota: Extraction method: Principal component analysis. Rotation method: Varimax normalisation with Kaiser. a. The rotation has converged in 19 iterations.

Table 8 shows the structure of the eight resulting factors and the items comprising each of them:

Table 8. Structure of the resulting factors

Factors	Items
1: Personal frustration tolerance level (FTF)	FTF_01 If I constantly need to do fun activities in order not to get bored FTF_02 If I believe I will have trouble finding a job in the future FTF_03 If I do not take on commitments FTF_04 If I am not a committed person FTF_05 If I do not fulfill my commitments FTF_06 If my family does not maintain regular contact with my teachers FTF_07 If my family does not have a positive view of my group of friends FTF_08 If my group of friends talks about drugs at some point FTF_09 If I do not have good grades FTF_10 If there are no clear rules for coexistence at my school FTF_11 If I perceive that what I study at school is not useful to me. FTF_12 If I do not learn to work with other people FTF_13 If I do not comply as a citizen with the rules of the community (town, neighbourhood, city)
2: Psychological factors associated with self-control, depression and anxiety (PF)	FP_14 If I do not have good self-control FP_15 If I am not able to cope with misfortunes FP_16 If I believe I am useless FP_17 If I am always sad FP_18 If sad events happen (death of a family member, loss of a job, etc.) FP_19 If I have anxiety FP_20 If I have problems in my studies FP_21 If I feel unloved, unaccepted, misunderstood FP_22 If I feel dissatisfied in relationships with others
3: Social factors (FS)	FS_23 If I assume that drinking alcohol and/or using other drugs is normal FS_24 If I assume that we have to learn to live with drugs FS_25 If in my family there are no clear rules of coexistence FS_26 If there is no stability and cohesion in my family FS_27 If I do not have conversations with my family, about how bad drugs are FS_28 If I am willing to be friends with someone who uses any kind of drugs FS_29 If my friends pressure me to consume alcohol and/or other drugs FS_30 If my partner or the person I like uses alcohol and/or other drugs FS_31 If I do not know the legal rules about alcohol/drugs and their use FS_32 If it is easy to get drugs in my environment FS_33 If I receive advertising about drugs through the media
4: Factors related to self-concept (FA)	FA_34 If I do not have a positive attitude towards myself FA_35 If I do not try to be better every day FA_36 If I do not have positive expectations about myself or about my future FA_37 If I maintain a passive attitude
5: Factors related to difficulty in managing free time (FTL)	FTL_38 If I have an excessive workload in my studies or other activities FTL_39 If my leisure and free time consists of partying with my friends and going to places such as nightclubs FTL_40 If my leisure and free time consists of frequently going out to bars or nightlife areas until late at night.
6: Educational style factors (FEE)	FEE_41 If I assume that the possible benefits of alcohol and/or other drugs outweigh the possible risks of using them FEE_42 Lack of personal and social perspectives FEE_43 Whether decisions are made for me in my family FEE_44 If my family does not value my successes
7: Factors related to sensation seeking (FBS)	FBS_45 If drugs seem to me to be something that I need to try at least once FBS_46 If I like new and exciting sensations, even if they are a bit scary.
8: Factors related to social tolerance of use (FTC)	FTC_47 If I assume that most people at this school use alcohol and/or drugs with some frequency FTC_48 If I assume that most people in the place where I live use alcohol and/or drugs somewhat frequently

The first factor, named Personal Frustration Tolerance Factors (PFTF), explains 14.958% of the variance and includes a total of thirteen items. This factor groups one item that originally referred to Psychological Factors (Sensation Seeking) together with twelve items related to Social Factors: one from Social Representations (fear of not finding a job in the future); three from Social Environment (related to taking on or fulfilling commitments); one Family item (related to family-school contact); two Peer Group items (related to the family's perception of the peer group and talking about drugs with the group); four School items (related to grades, school coexistence rules, the usefulness of studies, or learning to work with others); and one Environmental/Contextual item (related to fulfilling duties as a citizen).

The second factor, named Psychological Factors Associated with Self-control, Depression, and Anxiety (PF), explains 13.835% of the variance and comprises nine items from the original questionnaire: six referring to Psychological Factors (two on Self-esteem and Self-concept and four on Depression and Anxiety), and three Social Factors: one Social Representation item related to problems with studies, one Family item related to lack of understanding within the family, and one Peer Group item related to dissatisfaction in relationships with others.

The third factor, named Social Factors (SF), explains 13.044% of the variance and groups eleven items corresponding to the following blocks from the initial questionnaire: Psychological Factors (two items on Attitudes, Values, and Beliefs assuming that using drugs is normal or that one must learn to live with them); and Social Factors: three Family items (related to lack of family cohesion or stability, absence of family coexistence rules, or the absence of family conversations about how bad drugs are); three Peer Group items (related to peer pressure, having friends who use, or having a partner or love interest who uses); and three Environmental/Contextual items (related to knowledge of the legal regulations on drugs, the ease of obtaining drugs in the environment, or receiving advertising about them).

The fourth factor, named Factors Related to Self-Concept (SCF), explains 6.087% of the variance and is composed of four items from the original questionnaire: three related to Psychological Factors (Self-esteem and Self-concept) and one Personality Factor item referring to maintaining a passive attitude.

The fifth factor, named Factors Related to Difficulty Managing Leisure Time (DLTF), explains 5.779% of the variance and groups three items related to Environmental/Contextual Social Factors from the original questionnaire, referring to having an excessive workload or studies, or spending free time going to places such as nightclubs or frequently going out to bars or nightlife areas until late at night.

The sixth factor, named Factors Related to Parenting Style (PSF), explains 5.278% of the variance and consists of four items from the original questionnaire: one related to Psychological Factors (Attitudes, Values, and Beliefs, understanding that the possible benefits of use outweigh the risks) and three Social Factors (one Social Representation item referring to lack of personal and social prospects, and two Family items referring to the family making decisions for the adolescent or not valuing their achievements).

The seventh factor, named Factors Related to Sensation Seeking (SSF), explains 4.855% of the variance and consists of two items from the original questionnaire referring to Psychological Factors (Sensation Seeking) related to the need to try using at least once or to the enjoyment of new and exciting sensations, even if they cause a bit of fear.

The eighth factor, named Factors Related to Social Tolerance of Use (STF), explains 4.766% of the variance and consists of two items from the original questionnaire referring to Psychological Factors (Attitudes, Values, Beliefs) related to assuming that most people in the place where one lives or in the school one attends use with some frequency.

The final structure of the questionnaire is made up of eight factors with 48 items, which have confirmed the instrument's usefulness,

reliability, and validity for detecting risk and protective factors related to alcohol and other drug use during adolescence in the city of A Coruña.

Discussion and conclusions

The factors associated with the prevention of substance use have been the focus of numerous studies, and their impact is evident in their variety and in their main health implications. Multiple instruments have also been designed to identify the factors that may affect the adolescent population in relation to alcohol and other drug use, although there is no consensus.

Based on these considerations, an initial questionnaire was designed which, after being reviewed by experts, was structured into 59 items grouped into twelve dimensions related to personal, interpersonal, social, contextual, behavioral, family, school, and attitudinal aspects. This questionnaire underwent a process of reliability and validity analysis to determine its suitability. The result led to the modification of the initial questionnaire, which now presents a new structure resulting from the exploratory factor analysis conducted. Thus, the questionnaire now consists of a total of 48 items organized into eight factors, which are discussed below.

The Personal Frustration Tolerance Factors (PFTF) are those that most strongly influence whether the adolescent population may use alcohol and other drugs. The main sources of frustration include not being able to take on and fulfill commitments, not having good grades, not finding their studies useful, or not learning to work with others, among others. Some research shows that frustration tolerance can be associated with a lower likelihood of developing substance use problems, better recovery outcomes, and fewer relapses (Vasquez et al., 2021).

The Psychological Factors Associated with Self-control, Depression, and Anxiety (PF) include aspects related to lacking good self-control, not being able to cope with misfortunes, believing one is worthless, always feeling sad, experiencing anxiety, having

problems with studies, and feeling dissatisfied in relationships with others, among other factors (Guayasamín, 2021).

The Social Factors (SF), some of the most widely addressed in the scientific literature (Del Rocío-Figueroa-Varela, 2019; Hoyos-Núñez, 2023; Troncoso-Cedeño, 2022), are related to assuming that drug use is normal or that one must learn to live with it. Regarding the family, factors such as lack of family cohesion or stability, absence of family coexistence rules, or the lack of family conversations about how bad drugs are (Lema-Moreira, 2014; Moreno-León, 2021; Rojas-Piedra et al., 2020) are among the most discussed. This aligns with the conclusion by Tenelanda-Trigero (2023) who states that “the absence of fluid communication between parents and adolescents causes a series of problems within the family, social, and educational groups.” Furthermore, peer group pressure has also been highlighted (Cobos-Palomeque, 2024; Noroña et al., 2021; Rojas-Piedra et al., 2020; Tenelanda-Trigero, 2023), as well as having friends who use drugs or having a partner or someone they like who uses (Moreno-León, 2021), lack of knowledge about legal regulations on drugs (Cobos-Palomeque, 2024), the ease of obtaining drugs in the environment, or being exposed to advertising about them (Guayasamín, 2021).

The Self-Concept Factors (SCF) are related to not having a positive attitude towards oneself or others, or maintaining a passive attitude (Cobos-Palomeque, 2024; Tenelanda-Trigero, 2023). In this regard, a study by Montes-Solís (2023) showed that “self-efficacy turned out to be a protective factor, and as it increases, the probability of alcohol use decreases, being more evident in younger adolescents” (p. 369).

The Factors Related to Difficulty Managing Leisure Time (DLTF) refer to having an excessive workload or study load, or spending free time going to places such as nightclubs or frequently going out to bars or nightlife areas until late at night (Cobos-Palomeque, 2024; Noroña et al., 2021).

The Factors Related to Parenting Style (PSF) involve believing that the possible benefits of use outweigh the risks, lack of personal and social prospects, or aspects related to the family making decisions for the adolescent or not valuing their achievements (Rojas-Piedra et al., 2020).

The Factors Related to Sensation Seeking (SSF) refer to the need to try using at least once or to the enjoyment of new and exciting sensations, even if they cause a bit of fear. This factor is related to what Guayasamín (2021) or Rojas-Piedra et al. (2020) call “curiosity.”

The Factors Related to Social Tolerance of Use (STF) are connected to assuming that most people in the place where one lives or the school one attends use with some frequency (Moreno-León, 2021; Torres-Balleño, 2022). In this regard, recent studies have identified consumption problems associated with having a family member who is an alcoholic or drug addict, which affects the personal, family, and social spheres of adolescents (Karriker-Jaffe et al., 2024; Vincés-Mera & Restrepo-Echavarría, 2022).

It can be concluded that the current questionnaire, focused on determining the perceptions reported by ESO students, can become a useful and reliable instrument for detecting risk factors during adolescence, but also for adopting preventive measures by identifying, from the adolescents’ own perspective, which factors they consider most dangerous when deciding whether to consume alcohol and other drugs.

This study, however, presents several limitations that should be noted. First, the use of a non-probabilistic convenience sampling limits the generalizability of the results, as the sample cannot be considered representative of the general population of school-aged adolescents.

Furthermore, the psychometric analysis focused exclusively on an Exploratory Factor Analysis (EFA), without subsequently applying a confirmatory analysis. This decision is justified by the exploratory nature of the research and the absence of a previously

tested factorial structure, but it implies that the stability of the model still needs to be confirmed in future studies.

Another relevant limitation is the lack of analysis of convergent and discriminant validity, which prevents establishing empirical relationships between the dimensions of the questionnaire and other related constructs, limiting the full validation of the instrument.

Finally, the study was carried out in a limited number of educational centers within a single autonomous community, without collecting detailed information about the students’ socioeconomic context, which restricts the extrapolation of the results to other educational settings. Looking ahead, it would be advisable to apply the designed instrument in other autonomous communities, as similarities and differences with the results presented here could be identified.

Despite these limitations, the results obtained provide a solid foundation for future research aimed at confirmatory validation and the application of the questionnaire to larger and more diverse samples.

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Conflict of interest statement (EMEB): The author expresses that there are no conflicts of interest in writing the article.

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Conflict of interest statement (BRG): The author expresses that there are no conflicts of interest in writing the article.

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Conflict of interest statement (JMMC): The author expresses that there are no conflicts of interest in writing the article.



Revista ELectrónica de Investigación y EValuación Educativa
E-Journal of Educational Research, Assessment and Evaluation

[ISSN: 1134-4032]



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