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INSTITUTO NACIONAL DE PSIQUIATRÍA
RAMÓN DE LA FUENTE MUÑIZ

CONTENT

On the cover
Smokers, XVIIth Century
Oil on copper, 18 x 17 cm

David Teniers the Younger
(1610-1690)

Del Prado Museum, Madrid

Salud Mental

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Transdiagnostic Specifiers: Challenges in Children and Adolescents Psychiatry Classification

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The last twenty years have been one of debate and controversy around changes in the classification of mental disorders in general but particularly in children and adolescents (de la Peña & Feria, 2021). The original proposals for diagnostic validity mentioned by Robins & Guze (1970) and Feigher et al. (1972) are far away from new classification approaches. The clinical descriptions of the current classifications diagnoses are complex and involve symptoms in affects, cognition, behaviors and social interactions that are present among the different categories, this condition generates shared clinical manifestations. This situation impedes an adequate categorical delimitation. Current detailed brain imaging and function approaches, genetic or neuropsychological studies are still not of complete diagnostic utility for clinical work in children and adolescents psychiatry. Follow-up studies and long-term treatments have only partially helped to understand some aspects of the pathophysiology of disorders and their evolution over time.

Just recently the Diagnostic and Statistical Manual of Mental Disorders in its fifth edition (DSM-5) published by the American Psychiatric Association (APA) (APA, 2013) and the International Classification of Diseases in its eleven edition (ICD-11) of the World Health Organization (WHO) (WHO, 2024) achieved some harmonization. Both classifications incorporated main dimension areas in which different categories were included. Neurodevelopment disorders include diagnoses such as intellectual disability, autism spectrum disorders, and attention deficit hyperactivity disorder. Internalized disorders are integrated with depressive, anxious, obsessive compulsive, and stress-related disorders. Externalized disorders include oppositional and defiant disorder (ODD), conduct disorder (CD), and other impulse control disorders, such as intermittent explosive disorder (IED), and even alcohol and drug use disorders. It is worth mentioning that this dimensional approach was proposed several years ago (Achenbach, 1966; Achenbach et al., 2016) and has been rescued by the new Hierarchical Dimensional Models of Psychopathology (HiTOP) (Achenbach, 2021) in which the externalizing (Mullins-Sweatt et al., 2022) and internalizing (Watson et al., 2022) superspectrum are incorporated. Associations among the disorders are analyzed to yield broad-spectrum groupings such as those designated as internalizing and externalizing.

Even more, the set of all the clinical manifestations of the different disorders or dimensions constitute what is now known as the "P Factor." This factor is a global representation of psychopathology and is associated with greater deterioration in life, greater family burden of the disease, worse developmental trajectories, and greater compromise of brain function at an early age. This "P Factor" helps us to understand why it is difficult to find specific causes, consequences, biomarkers, and treatments for individual mental disorders (Caspi et al., 2014). The high rates of comorbidity among psychiatric disorders suggest that there is the possibility of a more parsimonious structure that explains psychopathology than that currently described by the DSM-5 and ICD-11 classifications with discrete categories (disorders), that is, with the use of dimensions and transdiagnostic constructs.

There are today three important transdiagnostic constructs that have generated much debate between DSM-5 and ICD-11; chronic irritability (CI; Lochman et al., 2015) limited prosocial emotions (LPE; Frick et al., 2003) and non-suicidal self injuries (NSSI; Hooley et al., 2020).

CI was proposed by the WHO ICD-11, as a specifier for ODD; however, it has also been described in other disruptive behavior disorders and internalizing disorders. There is a debate with the DSM-5 proposal in which chronic irritability was introduced as a new diagnosis with the disruptive mood dysregulation disorder.

LPE is a specifier introduced into CD in both the ICD-11 and in DSM-5, but also in ODD in the ICD-11. LPE has been found in several other diagnoses as IED and internalizing and neurodevelopmental disorders. There is an international debate in which may be the best way to evaluate it.

NSSI has been in the classification debate due to its controversial assumption as a specifier or as a categorical diagnosis. NSSI could be found as part of the suicide dimension or as an independent condition; they are associated not only with internalizing but also with externalizing and neurodevelopmental disorders.

In the context of the International Association for Child and Adolescent Psychiatry and Allied Professions (IACAPAP) 2024 World Congress celebration and under the motto "Child development, mental health challenges and the future of nations" is why the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz and the Asociación Mexicana de Psiquiatría Infantil A. C., have joined forces in order to debate the convenience of these three transdiagnostic specifiers, in one of the international symposiums that will be held in Rio de Janeiro, Brazil, next May 2024. Discussing the diagnostic and clasification characteristics on these specifiers will contribute to reduce stigma associated and improve the awarnes of psychopatological burden.

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Cultural adaptation and psychometric properties of the scale of attitudes towards conventional cigarettes among Mexican university students

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ABSTRACT

Introduction. Tobacco use among youth continues to be a public health problem. Since identifying attitudes can help understand why young people use conventional cigarettes, it is essential to have valid instruments to assess attitudes towards conventional cigarettes. **Objective.** To culturally adapt and analyze the psychometric properties of the scale of attitudes towards conventional cigarettes in young university students. **Method.** The study was conducted in two phases: it was culturally adapted to determine its linguistic validity and its psychometric properties were subsequently verified through factor analysis, Cronbach's Alpha, McDonald's Omega, and the ROC curve. **Results.** Participants included 635 university students with a mean age of 23.56 ± 5.89, 56.4% of whom were women. Exploratory analysis identified three components explaining 57.06% of the total variance of the thirteen items with high internal consistency (α = .875). Factor analysis confirmed that three factors had excellent fit indices (χ^2/gl = 1.78, IFI = .98, CFI = .98, TLI = .97, RMSEA = .04 (90% CI [.028, .057]), SRMR = .03). **Discussion and conclusion.** The scale of attitudes towards conventional cigarettes in the Mexican population has high construct validity and reliability.

Keywords: Attitude, cigarette smoking, validation study, students.

RESUMEN

Introducción. El consumo de tabaco entre los jóvenes sigue siendo un problema de salud pública. Identificar las actitudes puede ayudar a comprender por qué los jóvenes están consumiendo cigarro convencional, por lo que es necesario disponer de instrumentos válidos para evaluar las actitudes hacia el cigarro convencional. **Objetivo.** Adaptar culturalmente y evaluar de las propiedades psicométricas de la escala de actitudes hacia el cigarro convencional en estudiantes universitarios. **Método.** El estudio se realizó en dos fases: se adaptó culturalmente para determinar la validez lingüística y luego se verificaron sus propiedades psicométricas mediante análisis factorial, alfa de Cronbach, omega de McDonald's y curva COR. **Resultados.** Participaron 635 estudiantes universitarios, con una edad media de 23,56 ± 5,89. El 56.4% fueron mujeres. El análisis exploratorio definió tres componentes que explican el 57.06% de la varianza total de los 13 ítems con alta consistencia interna (α = .875). El análisis factorial confirmó tres factores con excelentes índices de ajuste (χ^2/gl = 1.78, IFI = .98, CFI = .98, TLI = .97, RMSEA = .04 (90% CI [.028, .057]), SRMR = .03). **Discusión y conclusión.** La escala de actitudes hacia el cigarro convencional en población mexicana reporta alta validez de constructo y confiabilidad.

Palabras clave: Actitud, fumar cigarros, estudio de validación, estudiantes.

INTRODUCTION

Tobacco use among young people continues to be a public health problem. In Mexico, the highest prevalence of tobacco use (27.1%) has been found in young people ages twenty to twenty-nine (Zavala-Arciniega et al., 2020). In keeping with the above, studies of young university students have found high prevalences of tobacco use ranging from 19.5% to 31.5% in Mexico (González Angulo et al., 2019; Sánchez-Hoil et al., 2017; Vallejo et al., 2019) and other countries (Bauer-Kemeny et al., 2020; Correa-López et al., 2020; Hassan et al., 2019; Loukas et al., 2019).

Given this situation, further study is required of the factors encouraging tobacco use to understand and intervene to reduce these behaviors, given that youth is a crucial period for the adoption of risky behaviors such as tobacco use (Gaete, 2015). According to the Theory of Planned Behavior, the attitude of an individual towards a certain behavior predicts their aim of engaging in the latter (Ajzen, 1985). Some studies have found that favorable attitudes towards tobacco use predict the onset of or current cigarette smoking among university students (Al Omari et al., 2021; Pardavila-Belio et al., 2019; Sidani et al., 2014). However, to date, no psychometric validation studies of questionnaires evaluating attitudes regarding tobacco or conventional cigarette use in the Mexican population have been found.

Given the above, identifying attitudes can help understand why young people use conventional cigarettes. A critical step in accurately assessing conventional cigarette smoking among youth is the development of a measure to examine attitudes toward it. The aims of this study were therefore twofold. The first was to culturally adapt the scale of attitudes towards conventional cigarettes, and the second was to evaluate the construct validity, internal consistency, and discriminant validity of the scale among Mexican university students.

METHOD

Study design

A cross-sectional design was used.

Subjects

A total sample of 665 undergraduate students (two independent samples: n_1 = 235, n_2 = 430) was obtained from the area of social and health sciences at a public university in the state of Nuevo León, Mexico, in April (n_1 = political science faculty) and September (n_2 = psychology, communication and visual arts faculty) of 2022, with a refusal rate of 1%. Convenience sampling was applied, and the sample size was considered adequate for factor analyses (Brown, 2015).

Measurements

A paper survey was used, and a registration form was created to obtain demographic information (age, sex, and semester) from the participants.

A four-item questionnaire on conventional cigarette use was administered with dichotomous response options (Yes/No): Have you ever smoked a conventional cigarette? Have you smoked a conventional cigarette in the past twelve months? Have you smoked a conventional cigarette in the past thirty days? and have you smoked a conventional cigarette in the past seven days? Participants whose answers were "Yes" in the past year, thirty days or seven days were considered smokers. Participants using other possible answer options were considered non-smokers.

The Attitudes towards Smoking Scale validated by García del Castillo et al. (2012b) in Spanish adolescents was used. This scale provides information on attitudes towards conventional cigarettes. It is a Likert scale with five response options (Strongly agree = 5, Agree = 4, Indifferent = 3, Disagree = 2 and Strongly disagree = 1), comprising thirteen items (items five to eight are scored inversely), designed for the adolescent and adult population.

The scale comprises three dimensions. The first evaluates attitudinal disposition towards cigarette smoking (items 9-13), the second evaluates the index of aversion to cigarette smoking (items 5-8), while the third evaluates the perception of satisfaction with cigarette smoking (items 1-4). The total score ranges between 5 and 65, with higher values indicating a more favorable attitude towards smoking. The scale has shown acceptable reliability indices in the Spanish population with a test-retest coefficient of .50 (García del Castillo et al., 2012b) and a Cronbach's alpha greater than .76 in each dimension in the Portuguese population (García del Castillo et al., 2012a).

Procedure

First, the scale was reviewed by three expert researchers in the area of drugs. The reviewers agreed to change the word "tobacco" to "cigarette smoking" because the latter is used in national drug use surveys in Mexico when specific reference is made to conventional cigarettes, also called combustion cigarettes, rather than other tobacco products such as e-cigarettes or heated tobacco (Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz et al., 2017). As a result of these changes in the wording of the questions, the scale was considered to be equivalent to the original version in regard to the construct being evaluated. No significant differences were therefore expected to occur regarding the construct it is designed to measure. The instrument was then piloted with university students with similar characteristics to the participants in this study. At the end of the test, students were interviewed individually to determine whether

Table 1
Exploratory Factor Analysis (n₁ = 235)

Items	Factors		
	1	2	3
1	-.079	.009	**.700**
2	-.052	.073	**.581**
3	.171	-.025	**.723**
4	.034	-.034	**.747**
5	.207	**.666**	-.115
6	.188	**.753**	-.018
7	-.149	**.709**	-.003
8	-.123	**.841**	.128
9	**.774**	.059	.046
10	**.853**	-.071	.013
11	**.810**	-.015	.024
12	**.795**	-.027	-.046
13	**.649**	.013	-.007

they had understood the questions or experienced any difficulty answering them. All of them reported that they had understood the questions and wording of the instrument.

The new version of the scale was subsequently administered to two independent samples. Students enrolled in the faculties, who were present during the data collection, were included. Participants were intentionally selected as a group in the faculty classrooms. Afterwards, they were verbally invited to participate, and those who agreed to participate granted their consent. Average survey completion time was ten minutes.

Statistical analysis

The Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity were used to evaluate the adequacy of the data for factor analysis. Exploratory factor analysis was performed with the principal axis factorization extraction method with pro max rotation (López-Aguado & Gutiérrez-Provecho, 2019) because the data were not normally distributed ($p < .001$). The model was then contrasted with confirmatory factor analysis; the criteria for evaluating the model are specified in Table 1 (Hu & Bentler, 1995). Internal consistency was estimated using Cronbach's alpha and McDonald's omega coefficient for Likert-type scales; values of .70 or higher were adopted as criteria to represent acceptable internal consistency (Hayes & Coutts, 2020; Terwee et al., 2007). Discriminant validity was evaluated through the ROC curve, and the Youden index was used to identify the sensitivity and specificity of the scale (Youden, 1950). Statistical analyses were performed with SPSS AMOS 23.

Ethical considerations

The procedures used in this study adhered to the principles of the Declaration of Helsinki (World Medical Association, 2017) and the General Health Act on Health Research (Diario Oficial de la Federación de México, 2021). Participants signed an informed consent form and the confidentiality, anonymity and security of their information was protected at all times. The research protocol was approved by the Research and Ethics Committee of the Nursing Faculty of the Autonomous University of Nuevo León with registration number FAEN-1858.

RESULTS

Six hundred and sixty-five students ages 16-40, with an average of 19.62 years ($SD = 2.17$) participated, with 56.4% of women and 43.6% of men. As for the semester in which they were enrolled, 15.3 were in the first, 12.8% in the sec-

Table 2
Correlation Matrix between Scale Items (n₁ = 235)

Items	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1												
2	.446**	1											
3	.496**	.428**	1										
4	.477**	.393**	.663**	1									
5	.063	.063	.192*	.109*	1								
6	.176*	.161*	.253**	.153*	.710**	1							
7	.013	.161*	.058	.005	.419**	.499**	1						
8	.118*	.155*	.226**	.205**	.581**	.648**	.549**	1					
9	.256**	.203**	.529**	.373**	.485**	.555**	.139	.398**	1				
10	.222**	.299**	.471**	.325**	.376**	.454**	.132	.313*	.709**	1			
11	.310**	.236**	.438**	.322**	.367**	.471**	.212	.340*	.694**	.754**	1		
12	.211**	.212**	.358**	.320**	.356**	.396**	.250	.272**	.590**	.542**	.593**	1	
13	.178*	.274**	.311**	.283**	.350**	.377**	.211	.240**	.468**	.486**	.458**	.707**	1

Note: * $p < 05$, ** $p < .001$.

Table 3
Confirmatory Factor Analysis (n_2 = 430)

	Interpretation		Models	
Indices	Excellent	Acceptable	1	2
χ^2/gl	≤ 2	≤ 3	2.329	1.787
IFI	≥ .95	≥ .90	.820	.982
CFI	≥ .95	≥ .90	.814	.982
TLI	≥ .95	≥ .90	.766	.976
RMSEA	≤ .050	≤ .075	.056	.043
[CI 90%]			[.044, .068]	[.028, .057]
SRMR	≤ .050	≤ .090	.0466	.0348

Note: χ^2/gl = Chi square; IFI = incremental fit index; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = Standardized root mean square residual.

ond, 9.0% in the third, 28.6% in the fourth, 7.1% in the fifth, 7.8% in the sixth, 9.2% in the seventh, and 10.2% in the eighth semester.

The Kaiser-Meyer-Olkin (KMO) analysis showed sampling adequacy of the variables (.85) and Bartlett's test of sphericity was significant (X^2 = 2774.75; df = 91, p < .001) for the data (n_1 = 235) in the new version of the scale. As can be seen in Table 2, the correlation patterns between the items were positive and statistically significant.
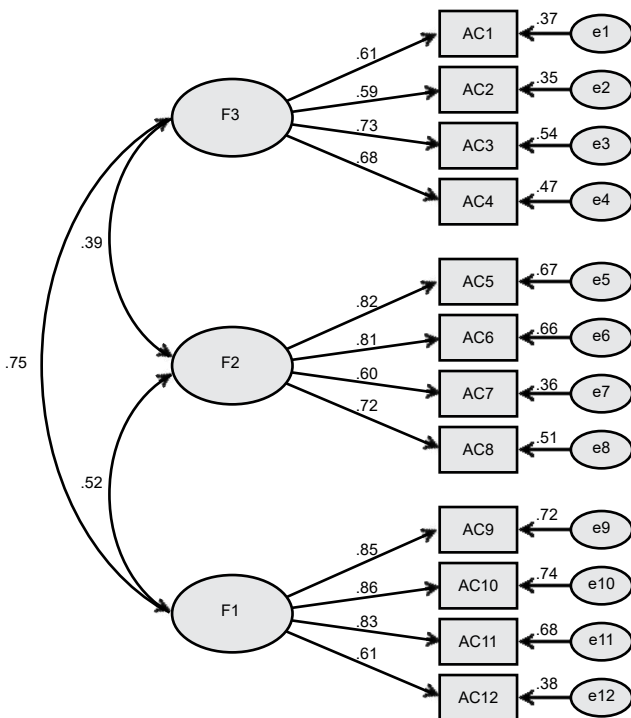
Figure 1. Standardized model estimated by generalized least squares of the ESACCO-12 scale ($n2$ = 430).

Note: F1 = attitudinal disposition, *F2* = aversion index, *F3* = perception of satisfaction. The squares represent the item number, the large circles the dimensions of the scale and the small circles the error values of each item.
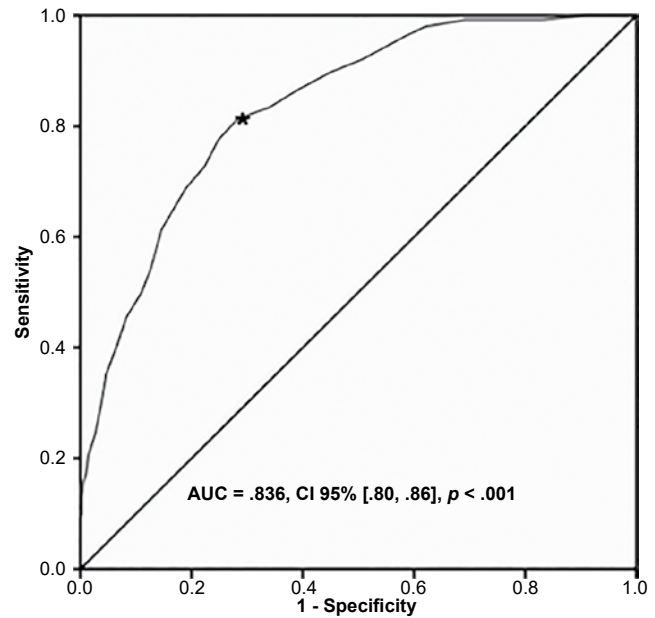
Figure 2. ROC curve with cut-off point (*) of 24 points on the ESAC-CO-12 scale between smokers and non-smokers (n = 665).

Exploratory factor analysis identified three components explaining 65.26% of the total variance of the thirteen items. Three factors were confirmed after rotating the component matrix: factor one, "Attitudinal disposition," comprising five items; factor two, "Aversion Index," comprising four items; and factor three, "Perception of satisfaction," with four items. All the items showed loadings greater than .50 (Table 1). The assignment of the names of the factors followed the dimensions proposed by García del Castillo et al. (2012b), while the grouping of the items coincided with that of the Spanish and Portuguese version.

The three-factor model produced was contrasted in the confirmatory factor analysis. The results in model one were considered inadequate. The IFI and CFI values were less than .90, suggesting poor model fit (Table 3). A re-specification of the factor model was therefore conducted. The modification indices indicated that the residuals of items 12 and 13 correlated (p = .39). After a statistical and theoretical analysis, item 13 "I would be willing to smoke cigarettes anywhere" was eliminated. Model two showed excellent measures of fit in all indices (χ^2/df = 1.78, IFI = .98, CFI = .98, TLI = .976, RMSEA = .043; 90% CI = [.028, .057], SRMR = .034; Table 3).

Figure 1 shows the standardized regression coefficients between the factors, ranging from .39 to .72, as well as the correlations of the factors and items, ranging from .59 to .86.

The Cronbach's alpha and McDonald's omega coefficient for the 12-item ESACCO-12 scale (appendix) were .875 respectively, indicating excellent reliability. The discriminant capacity of the scale between smokers and non-smokers was 83.6% (AUC = .836; 95% CI = [.80, .86], p < .001), while the cut-off point of the scale was 24

points, with a sensitivity of 81% and specificity of 71% (Figure 2).

DISCUSSION AND CONCLUSION

The cultural adaptation concluded with minimal modifications to the items in the original scale, which were validated through the results of the pilot test, showing that the university students had understood the wording of the questionnaire. This shows that the adapted scale is equivalent to the original version and guarantees the measurement of the same construct in university students.

Regarding the construct validity of the scale, this study confirmed a three-dimensional structure (García del Castillo et al., 2012a; García del Castillo et al., 2012b), given that the confirmatory factor analysis showed an excellent model fit with twelve of the thirteen original items. The "Perception of satisfaction with conventional cigarette use" showed almost the same structure as four out of the five original items. Item 13, which was originally in this dimension, was not included because it showed a residual correlation with Item 12. This was possibly due to a perceived redundancy of the content of the items (Byrne, 2009) or the proximity between the latter (Domínguez-Lara & Merino-Soto, 2017). It is therefore suggested that the items be distributed among the dimensions when the surveys are administered. This study is the first to use confirmatory factor analysis to evaluate the construct validity of the scale, which allowed problems between the items to be identified. The changes made it possible to obtain excellent factor indices, suggesting that this measurement scale is more robust than the other versions (García del Castillo et al., 2012a; García del Castillo et al., 2012b).

In keeping with the above, the internal consistency coefficients of the scale were higher than those of the Spanish (García del Castillo et al., 2012b) and the Portuguese versions (García del Castillo et al., 2012a), indicating a greater reliability of the scale in university students.

Likewise, this is the first study to evaluate the discriminant validity of the scale, which obtained optimal discriminant power to identify subjects who smoke conventional cigarettes based on the general scores (twenty-four points) of the scale of attitudes towards conventional cigarettes. This result supports the assumption of the Theory of Reasoned Action, which states that a behavior is influenced by the favorable or unfavorable attitudes a person has about that behavior (Ajzen, 1985). In this case, students who scored higher on the scale of attitudes towards conventional cigarettes smoked conventional cigarettes. The discriminant sensitivity of the scale can therefore be used to detect people at risk of conventional cigarette smoking by evaluating their attitudes towards conventional cigarettes in prevention programs at educational centers and in intervention studies on conventional cigarette use.

Strengths of the current study include its consistent results, adequate sample size for statistical analyses, and the analysis of the sensitivity of the scale. However, the study findings should be considered in light of certain limitations. Although the data were self-reported, and therefore limited by the ability and willingness of the study participants to provide accurate responses, these factors were offset by the anonymity of the survey and the lack of evidence that any of them had provided random responses. Given that the sample was limited to university students in the area of social and health sciences, and that this scale has not been used in clinical populations for tobacco use disorder, further research could explore the strengths and limitations of the scale in adolescents or adults, university students from other areas, workers, or participants in clinical rehabilitation settings.

Since it was not possible to evaluate biomarkers (such as nicotine) as a direct indicator for analyzing the sensitivity of the scale, it would be worth analyzing whether nicotine levels in participants are associated with the levels of the scale. At the same time, given that e-cigarettes have been considered a public health problem with similar characteristics to conventional cigarettes, this scale could be adapted to evaluate attitudes towards e-cigarettes, as in other studies that have adapted instruments for the study of e-cigarettes based on instruments evaluating conventional cigarette use (Foulds et al., 2015; Morean et al., 2019).

In conclusion, the Mexican version of the Scale of Attitudes toward Conventional Cigarettes (ESACCO-12) possesses high construct validity and reliability. It is considered to be a simple, valid tool for evaluating attitudes toward conventional cigarette use among Mexican university students.

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Appendix

Final version of Scale of Attitudes towards Conventional Cigarettes (ESACCO-12)

Dimension	Items
Perception of satisfaction with cigarette smoking	1. Cigarettes help you relate to other people
	2. Cigarettes are a sign of personal maturity
	3. Cigarettes produce great pleasure and well-being
	4. Cigarettes help you have a good time
Index of aversion towards cigarette smoking	5. I don't like the fact that cigarettes exist
	6. Cigarettes annoy me
	7. I'm pleased when someone quits smoking
	8. don't like it that people smoke
Attitudinal disposition towards cigarette smoking	9. I would be willing to buy cigarettes for my use
	10. I would be willing to smoke cigarettes regularly
	11. I would be willing to smoke the amount of cigarettes I want
	12. I would be willing to give anyone cigarettes
Item eliminated	13. I would be willing to smoke cigarettes anywhere

salud mental

Design, reliability, and validity of the acceptability of internet-based psychological interventions questionnaire in Mexican university students

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ABSTRACT

Introduction. Internet-based psychological interventions are an effective option for treating mental health problems. Identifying the acceptability of these services makes it possible to improve their design and user adherence. However, only a few psychometric instruments exist to evaluate this acceptability. **Objective.** To design and evaluate the psychometric properties of an internet-based psychological interventions questionnaire, based on the theory of technology acceptance. **Method.** The study was divided into three parts: 1) Design of instrument items, 2) analysis of psychometric properties and exploratory factor analysis, and 3) confirmatory factor analysis. **Results.** The instrument proved to have adequate psychometric properties, with the following goodness-of-fit measurements: χ^2/df = 168.92/74 = 2.28, CFI = .935, TLI = .920, RMSEA = .080, 95% CI [.64, .096]. The analysis of internal consistency found an α = .91 for the total scale, an α = .91 for the first factor, "Approval of use," an α = .79 for the second factor, "Perceived usefulness," and an α = .59 for the third factor, "Perceived risk." **Discussion and conclusion.** The evaluation of factors associated with greater acceptability is a potential tool for improving awareness of the use of online psychological interventions.

Keywords: Internet-based interventions, acceptability, internet, users of mental health services, eMental Health.

RESUMEN

Introducción. Las intervenciones psicológicas a través de Internet son una opción eficaz para tratar distintos problemas de salud mental. Identificar la aceptabilidad de estos servicios por parte de los usuarios permite mejorar su diseño y la adherencia de los usuarios. Sin embargo, existen pocos instrumentos psicométricos para evaluar esta aceptabilidad. **Objetivo.** Diseñar y evaluar las propiedades psicométricas de un instrumento de aceptabilidad para las intervenciones psicológicas en línea, basado en la teoría de la aceptación de la tecnología. **Método.** El estudio se dividió en tres partes: 1) Elaboración de los ítems del instrumento, 2) análisis de las propiedades psicométricas y análisis factorial exploratorio, y 3) análisis factorial confirmatorio. **Resultados.** Se muestra que el instrumento tiene propiedades psicométricas adecuadas, con las siguientes medidas de bondad de ajuste: χ^2/df = 168.92/74 = 2.28, CFI = .935, TLI = .920, RMSEA = .080, IC 95% [.64, .096]. El análisis de consistencia interna encontró un α = .91 para la escala total, α = .91 para el primer factor, "Aprobación de uso", α = .79 para el segundo factor, "Utilidad percibida", y α = .59 para el tercer factor, "Riesgo percibido". **Discusión y conclusión.** La evaluación de los factores asociados a una mayor aceptabilidad es una herramienta potencial para mejorar la concienciación sobre el uso de intervenciones psicológicas en línea.

Palabras clave: Psicoterapia en línea, aceptabilidad, internet, usuarios de servicios de salud mental, salud mental electrónica.

INTRODUCTION

The use of online resources to provide and administer health care services is known as electronic health, or eHealth (World Health Organization, 2016). This technology seeks to provide the patient, health care service user, or client with greater responsibility, power, and information, helping them to take an active role in making decisions about their health (Scheibner et al., 2021). eHealth also contributes to greater efficiency and effectiveness and enhances the interaction between the patient and the primary and secondary health care provider (Abolade & Durosinmi, 2018). In mental health, various eHealth strategies are utilized in the design, evaluation, and practical implementation of internet interventions. The use of eHealth in mental health is known as eMental Health (Blankers, 2011).

A range of internet-based psychological interventions (IPIs) exist. These include telephone calls, videoconferencing, text messaging for cognitive behavioral interventions, text messages or applications that send reminders, automated messages with general and personalized information, interventions through social media, virtual reality, and gaming. They provide services that include psychoeducation or more complex interventions (Mohr et al., 2014).

Although most published studies on the use of the electronic strategies offered in mental health have focused on evaluating their efficiency and effectiveness, an additional area of interest is the identification of factors that enhance their adoption by patients, such as acceptability (Musiat et al., 2014; Simon et al., 2019; Sobowale et al., 2016).

The concept of acceptability is heterogeneous and can be confused with terms such as treatment satisfaction, engagement, usability, and feasibility (Ellis & Anderson, 2023; Ng et al., 2019), which can hamper its evaluation (Ellis & Anderson, 2023). For this research, acceptability refers to attitudes or beliefs about the use of this type of intervention (Molloy & Anderson, 2021; Schröder et al., 2015).

Evaluating the acceptability of IPIs is essential since it can influence adherence and intervention results (Santana & Fontenelle, 2011).

There are two types of procedures for developing assessment instruments to study acceptability as a construct: 1) acceptability assessment of different types of ICTs without a theoretical basis, and 2) theory-based acceptability assessment.

In regard to the first group, in 2010, Banna et al. (2010) explored perceptions about eHealth among the general population in Australia, finding that accessibility was the most important advantage, since it enables people to make decisions about their health. Dinesen et al. (2013) investigated patients with chronic obstructive pulmonary disease (COPD) to evaluate their attitudes toward telerehabilitation in the Danish TELEKAT project, finding four types of attitudes: indifference, learning, feelings of security, and motivation to engage in physical training. Lee et al. (2014) evaluated the attitudes and preferences of older adults in the United States undergoing warfarin treatment about the use of mHealth technology and health games for acquiring self-control skills. Their findings indicated that study participants believed that mHealth could be useful for managing medication, and that they needed help from their families in using technological devices. Simon et al. (2009) evaluated the opinions and preferences of patients in the United States concerning the electronic provision of health information. They found that patients were enthusiastic about the process, recognizing its capacity for improving the safety and quality of health care, although they also expressed concern about privacy and improper use of their data.

Kok et al. (2014) found that users in the Netherlands rated this type of intervention as acceptable in terms of difficulty, time spent on each module, and usefulness. In a study of the general population in England, Musiat et al. (2014) assessed the acceptability of different types of mental health care: 1) in-person therapy, 2) self-help books, 3) eMental Health (internet-based interventions), and 4) mMental Health (smartphone apps). They evaluated a variety of criteria, including whether they helped solve the problem, provided motivation to improve, were credible, accessible without waiting periods, and available at convenient times, at no cost, and in convenient locations. They also explored whether they could be used anonymously, whether they included individual support, provided feedback, and were adaptable to individual learning styles. They found that participants did not believe that computerized treatment or mental health apps met these criteria, except for accessibility, and that they were unlikely to use computerized treatments for mental health in the future.

Regarding the use of videoconferencing to provide psychotherapy, Morland et al. (2015) evaluated the acceptability of this resource among women with PTSD using the Telemedicine Satisfaction and Acceptability Scale (TSAS, Frueh et al., 2005). The results indicated that participants were satisfied with the intervention and would recommend it to family and friends. Olden et al. (2017) also administered the TSAS to patients with post-traumatic stress disorder receiving the intervention. They found high satisfaction with and acceptability of the clinical interaction in the videoconferencing intervention. These studies provided valuable information for understanding the acceptability of the electronic strategies offered in mental health but did not use the theory and models for the variables associated with information and communication technologies (ICT) in health care. These include the theory of reasoned action (Fishbein & Ajzen, 1980), the technology acceptance model (Davis, 1989), the extended technology acceptance model (Venkatesh & Davis, 2000), the innovation diffusion model (Rogers, 1963), and the unified theory of acceptance and use of technology (UTAUT; Venkatesh et al., 2003), as described in Table 1.

Some studies have used this theory. Jung and Loria (2010) investigated the acceptance of eHealth services

among seniors in Sweden using the technology acceptance model (TAM), finding that 1) usefulness, perceived ease of use, compatibility of services with user needs, and trust in the service provider are the major determinants of intention to use the service, and 2) most of those interviewed expressed positive attitudes toward the use of eHealth services, finding them useful, convenient, and easy to use. In an evaluation of the acceptability of online therapy for depression in Indonesia, Arjadi et al. (2018) also used the TAM, find that people were open to using this type of intervention, and that personal acceptance of online services, understood as the degree of individual predisposition or an attitude reflecting the tendency to experiment with mobile health care technologies, regardless of the experience reported by others, is the strongest factor predicting use.

Zhang et al. (2015) used Rogers' innovation diffusion model in a study of factors influencing the acceptance and use of electronic resources for health care among primary care patients in Australia. Their main findings included an association between a low adoption rate and the inability to use the service to make an online appointment, the preference of most patients to use the telephone, the incompatibility of the new service with patients' preference for oral communication with a receptionist, and patient characteristics such as unfamiliarity with the internet and lack of experience with online health care services. Lamela et al. (2020) used the UTAUT to evaluate the acceptability of IPIs for depression among the Portuguese population, finding that the expectation of efficiency, social influence, and the stigmatization of depression were significantly associated with the acceptance of this type of intervention.

Many studies on the acceptability of IPIs have been conducted internationally. Among the Mexican population,

exploratory and descriptive analyses have been conducted. Although they constitute an initial approach to the topic (Lara et al., 2022), they are not based on a specific theoretical framework that would provide a more in-depth understanding of acceptability or its relationship with other variables predicting the adoption of IPIs in the general population.

The literature review identified studies focused on assessing the acceptability of psychological service provision through technological tools that included items without a theoretical foundation to support their psychometric properties. It was not possible to locate psychometric instruments developed in Mexico to assess IPI acceptability, the study of which could benefit the implementation of IPIs for people with limited access to in-person services.

The purpose of the present study was to evaluate the acceptability of IPIs, with a focus on the construction and assessment of the psychometric properties of theory-based instruments. It was conducted in three stages. The first involved the design of items for the instrument based on the concepts of the TAM. The second focused on evaluating psychometric properties and exploring the dimensions of the instrument based on an exploratory factor analysis. The third used a confirmatory factor analysis to determine the factor structure of the instrument.

METHOD

Phase 1. Construction of items for the instrument

Design of the study

An exploratory-descriptive study was conducted to identify the key words and phrases for an instrument to assess the acceptability of IPI use in Mexico.

Participants

A convenience sample was formed of undergraduate students aged 18 years and over requiring psychological care.

Measurements

Six open, self-report questions were designed and administered based on 1) beliefs, 2) attitudes, and 3) subjective norms concerning the use of psychological interventions through information technologies. These included the following: "List the advantages of having access to a psychological service based on information technologies," "List the negative adjectives associated with having access to a psychological service based on information technologies," and "Describe who would disapprove if you used a psychological service based on information technologies."

Procedure

Prospective participants were contacted at various faculties at a public university, informed of the objectives of the

Table 1
Variables Associated with ITC Use in Health Care

Perceived usefulness	Degree to which a person believes that use of a particular system would improve their health (Davis, 1989).
Perceived risk	Degree to which a person believes that use of a particular system can affect their performance, finances, time, and privacy in the health care they receive (Pavlou, 2003).
Compatibility	Degree to which a person likes to use internet services for various purposes (Pavlou, 2003).
Expectation of functioning	Degree to which a person believes that the use of a particular system will be advantageous for their health care (Venkatesh et al., 2003).
Expectation of effort	Ease of use associated with a particular system for mental health care (Venkatesh et al., 2003).
Social factors	Degree to which a person perceives that other people important to them believe they should use a system (Venkatesh et al., 2003).
Facilitating conditions	Degree to which a person believes that organizational structure and technical infrastructure can provide support for the use of a system.

study, and told that participation was voluntary. The process took an average of ten minutes, and data collection was face to face.

Data analysis

A content analysis was conducted of participants' responses (Neuendorf, 2019).

Phase 2. Analysis of Psychometric Properties and Exploratory Factor Analysis (EFA)

Study Design

A non-experimental, descriptive, exploratory analysis was conducted to evaluate the internal consistency and validity of an instrument to determine the acceptability of use of internet-based psychological interventions in Mexico.

Participants

A convenience sample was formed of university students contacted at various faculties in a public university.

Procedure

Prospective participants were contacted in person and told of the objectives of the project. Those who were interested filled in the informed consent form and subsequently completed the questionnaire. The process took an average of twenty minutes, and data collection was in-person and conducted on the university premises.

Measurements

- Sociodemographic data questionnaire: four items about sex, age, academic major, and year students were enrolled in at university.
- Questionnaire on the acceptance of internet-based psychological interventions: forty-two items with responses on a five-point Likert scale, where 1 is "completely disagree" and 5 is "completely agree." The following definition of psychological intervention on the Internet was given at the beginning of the questionnaire: Psychological treatment that is not provided in a traditional face-to-face setting and instead uses information and communication technologies, specifically the Internet, with tools such as chat, video calls (Zoom, Skype) and self-help programs (interactive activities integrated in a program) with and without the intervention of a health professional.

Statistical analysis

Frequency, asymmetry, discrimination and item directionality were analyzed using Cronbach's alpha, and exploratory factor analysis (EFA), Bartlett's test of sphericity and the Kaiser-Meyer Olkin (KMO) test of sampling adequacy. Factor analysis was performed with the extraction of prin-cipal components and varimax rotation; items with factor loads of less than 0.4 or more than 0.4 in two or more factors were eliminated.

Phase 3. Confirmatory Factor Analysis

Design of the study

A non-experimental, descriptive, exploratory study was conducted to confirm the factor structure of the instrument.

Participants

A convenience sample was drawn from mental health service users contacted through universities in Mexico City.

Measurements

- Sociodemographic questionnaire: twelve items on age, sex, educational attainment, profession, and residence.
- Internet use questionnaire: sixteen questions used in other studies, exploring internet use, place of connection, ease of access, and activities on the internet. These included "Do you know how to use the internet?", "Do you use the internet regularly?", "Where do you connect to the internet?", and "How often do you do the following activities on the internet?" (Tiburcio et al., 2018).
- Questionnaire on the acceptability of internet-based psychological interventions: fourteen items with responses on a five-point Likert scale where 1 is "completely disagree" and 5 is "completely agree." The following definition of psychological intervention on the Internet was given at the beginning of the questionnaire: Psychological treatment not conducted in a traditional face-to-face setting but through the use of information and communication technologies, specifically the Internet, using tools such as chats, video calls (Zoom, Skype) and self-help programs (interactive activities incorporated into a program) with and without the intervention of a health professional.

Procedure

Prospective participants were contacted in person and informed of the objectives of the project. Those who were interested answered the informed consent form and subsequently completed the questionnaire. The process took an average of twenty minutes. The data collection was face-to-face and conducted on university premises.

Statistical analysis

The confirmatory factor analysis (CFA) used the maximum likelihood estimation method. The goodness of fit indicators were: 1) χ^2 with degrees of freedom ≤ 5 for acceptable fit, ≤ 3 for perfect fit; root mean square error of approxima-

Table 2

Content analysis for the creation of the instrument to evaluate university students' attitudes to the use of online interventions

Categories			
Usefulness	*Obstacles to use*	*Perceived risk*	*Approval of use*
Saves money	Lack of electronic resources	Impersonal service	Self
Access	Technical problems	Lack of interaction	Friends
Convenience	Lack of ability to use new technologies	Misuse of information	Family
Speed		Lack of security	Physicians
Time-saving		Virtual	Psychologist
Adapts to a person's schedule		Anxiety	Partner
Easy		Not useful	Parents
Communication when necessary		Unreliable	Young people
Innovative		Doubts about professionalism	Traditionalists
Privacy		Dishonesty	
Inexpensive		Lack of commitment	
Interesting		Lack of available information	
Effective		Incomplete	
Practicality		Poor communication	
Frequent internet use		Lack of guarantees of confidentiality of information provided	

tion (RMSEA) ≤ .10 for weak fit, ≤ .08 for good fit, ≤ .05 for perfect fit; comparative fit index (CFI) ≥ .90 for acceptable fit, ≥ .95 for good fit, ≥ .97 for perfect fit; and Tucker Lewis index (TLI/NNFI) ≥ .90 for acceptable fit, ≥ .95 for good fit (Hu & Bentler, 1999). Internal consistency overall and for each factor were analyzed using Cronbach's alpha. Data analysis was performed with Stata.

Ethical considerations

The study protocol was approved by the Committee on Research Ethics of the Ramón de la Fuente Muñiz National Institute of Psychiatry (CEI/C/015/2015).

RESULTS

Phase one

The sample included fifty participants: twenty-five female and twenty-five male students majoring in range of subjects at a public university. Their answers were grouped into four categories: 1) usefulness, 2) obstacles to use, 3) risks, and 4) approval of use (Table 2). Based on this analysis, forty-two items were drafted with responses on a five-point Likert scale, in an initial version of a questionnaire on the acceptability of online psychological interventions.

Phase two

The sample comprised 223 participants, 50.9% of whom were women ages18-26. The largest proportion were 20 years old (21.9%), followed by those ages 21 (21%) and 19 (17.4%). Participants were pursuing undergraduate degrees in law (15.6%), chemistry (12.1%), engineering (11%), ed-

ucation (6.7%), medicine (5.8%), biopharmaceutical chemistry (5.8%), architecture (5.4%), and other fields (37.4%).

Table 3 shows that the different response options were used in the forty-two items in the instrument. The asymmetry analysis found that nine items showed a typical bias and that thirty-three had a normal distribution. Eight items (10, 13, 18, 24, 30, 36, 37, 38) were eliminated based on the discriminant analysis because no significant difference was found in the group means. The directionality analysis found a clear trend in thirty-four items. Three items (11, 21, and 35) were eliminated based on the initial analysis of internal consistency.

The test of sampling adequacy found thirty-one items with values within the parameters, KMO = .90 and test of sphericity 3365.15 (*df* = 465, *p* =.001). Exploratory factor analysis found that seven components explained 51.6% of the variance, with eleven items with factor loads of less than .40 or showing loads in more than one factor being eliminated (1, 3, 8, 12, 14, 17, 32, 39, 40, 41, 42). Six items (5, 15, 19, 20, 27, 31) were eliminated that were grouped in a way that did not constitute a factor (Table 2). The reliability test of the fourteen items on the final scale showed an alpha of .89. The alpha for each of the factors was .89 for factor 1, .62 for factor 2, and .53 for factor 3 (Table 4).

Phase three

The sample comprised 201 participants, of whom 51.2% were male, 73.1% lived in Mexico City, and 78.1% were single. The largest proportion were students (48.8%), 56.7% of whom were undergraduate and 21.1% high school students. The results of the CFA showed the following measures of goodness of fit: $\chi^2 / df = 168.92/74 = 2.28$, CFI = .935, TLI = .920, and RMSEA = .080 (95% CI [.064, .096]). The

Table 3
Evaluation of psychometric properties of items

Item	Use of response options	Bias	t/discriminant	Direction	Decision
1. I am interested in using online interventions.	✓	-.006	✓		Eliminated in EFA
2. I believe the functions of online psychological interventions are useful for my family.	✓	.131	✓	✓	Factor 1
3. I believe my friends would agree with my using an online psychological service.	✓	.054	✓	✓	Eliminated in EFA
4. I believe that accessing an online psychological service from anywhere is an advantage.	✓	-.288	✓	✓	Factor 2
5. I believe online interventions are private.	✓	.250	✓	✓	Eliminated in EFA (indicator)
6. If someone in my family had a personal problem, I would probably suggest they used online therapy.	✓	.281	✓	✓	Factor 1
7. I believe communication in online psychological interventions is poor.	✓	-.013	✓		Factor 3
8. I believe my partner would agree with my using an online psychological service.	✓	.128	✓		Eliminated in EFA
9. I think it is easy to use online psychological interventions.	✓	-.357	✓	✓	Factor 2
10. Technical problems could interrupt internet-based psychological services.	✓	.792	✗		Eliminated in t-test
11. I am concerned that online psychological interventions are unsafe for my family.	✓	.384	✓	✓	Eliminated in total correlation of corrected elements
12. My partner would use online psychological services.	✓	.341	✓		Eliminated in EFA
13. I use the internet frequently.	✓	-2.366	✗		Eliminated in t-test
14. I believe that using the internet provides useful information for improving mental health.	✓	-.217	✓	✓	Eliminated in t-test
15. My parents would use internet-based psychological services.	✓	.825	✓	✓	Eliminated in EFA (indicator)
16. I think the use of online interventions is innovative.	✓	-.612	✓	✓	Factor 2
17. I believe it would be advisable to use an online psychological intervention.	✓	-.187	✓	✓	Eliminated in factor analysis
18. I would feel anxious using an online psychological service.	✓	-.343	✗		Eliminated in t-test
19. My family members would use internet-based psychological services.	✓	.492	✓		Eliminated in EFA (indicator)
20. I believe the confidentiality of the information provided in online interventions is guaranteed.	✓	.184	✓	✓	Eliminated in EFA (indicator)
21. If my friends knew I used online psychological interventions, they would disapprove.	✓	-.505	✓	✓	Eliminated in item correlation – total less than 0.2
22. I believe online psychological interventions provide quality service.	✓	.139	✓	✓	Factor 1
23. I think internet-based psychological services are incomplete.	✓	.160	✓	✓	Factor 3
24. I believe there is limited commitment among people who use online interventions.	✓	.120	✗		Eliminated in t-test
25. My friends would use internet-based psychological services.	✓	.281	✓	✓	Factor 1
26. I believe the functions of online psychological interventions are useful for my friends.	✓	.082	✓	✓	Factor 1
27. I believe my parents would approve of my using an online psychological intervention.	✓	-.136	✓	✓	Eliminated in EFA (indicator)
28. I would feel unsafe using an online psychological service.	✓	-.064	✓	✓	Factor 3
29. If a friend had a personal problem, I would probably recommend online therapy.	✓	.050	✓	✓	Factor 1
30. My friends often use the internet.	✓	-2.367	✗		Eliminated in t-test
31. I believe my family would agree with my using an online psychological service.	✓	-.003	✓	✓	Eliminated in factor analysis
32. Using online psychological services is easy for anyone.	✓	-.011	✓	✓	Eliminated in EFA
33. I will certainly use internet services for my mental well-being.	✓	-.073	✓	✓	Factor 1
34. I would trust these types of online psychological support with my personal problems.	✓	.345	✓	✓	Factor 1
35. I have doubts about the professionalism of therapists who provide internet-based services.	✓	-.079	✓	✓	Eliminated in item correlation – total less than 0.2
36. Online psychological interventions are accessible to most of the population.	✓	.401	✗		Eliminated in t-test
37. I am concerned that online psychological interventions are unsafe for my friends.	✓	.105	✗		Eliminated in t-test
38. My family uses the internet frequently.	✓	-.671	✗		Eliminated in t-test
39. I think that in online psychological interventions there is a lack of honesty in the relationship between therapists and clients.	✓	-.006	✓		Eliminated in EFA
40. I believe the use of internet-based psychological interventions will allow me to adjust my schedule to access the service.	✓	-.671	✓		Eliminated in EFA
41. If my family knew I used online psychological interventions, they would disapprove.	✓	-.504	✓		Eliminated in EFA
42. I believe the functions of online psychological interventions are useful for me.	✓	-.037	✓	✓	Eliminated in EFA

Table 4
Exploratory factor analysis

	Factor 1 Approval of use	Factor 2 Perceived usefulness	Factor 3 Perceived risk
2. I believe the functions of online psychological interventions are useful for my family (p. 8)	.441		
6. If someone in my family had a personal problem, I would probably recommend they used online therapy (p. 4)	.448		
22. I believe online psychological interventions provide quality service (p. 12)	.562		
25. My friends would use internet-based psychological services (p. 14)	.453		
26. I believe the functions of online psychological interventions are useful for my friends (p. 15)	.596		
29. If a friend had a personal problem, I would probably recommend online therapy (p. 17)	.654		
33. I will certainly use internet services for my mental well-being (p. 19)	.581		
34. I would trust these types of psychological support with my personal problems (p. 2)	.745		
4. I believe accessing an online psychological service from anywhere is an advantage (p. 20)		.557	
9. I think it is easy to use online psychological interventions (p. 6)		.501	
16. I think the use of online interventions is innovative (p. 9)		.594	
7. I believe the communication in online psychological interventions is poor (p. 5)			.464
23. I think internet-based psychological services are incomplete (p. 13)			.624
28. I would feel unsafe using an online psychological service (p. 16)			.446
Alpha	.890	.620	.530
Total Alpha	.890		
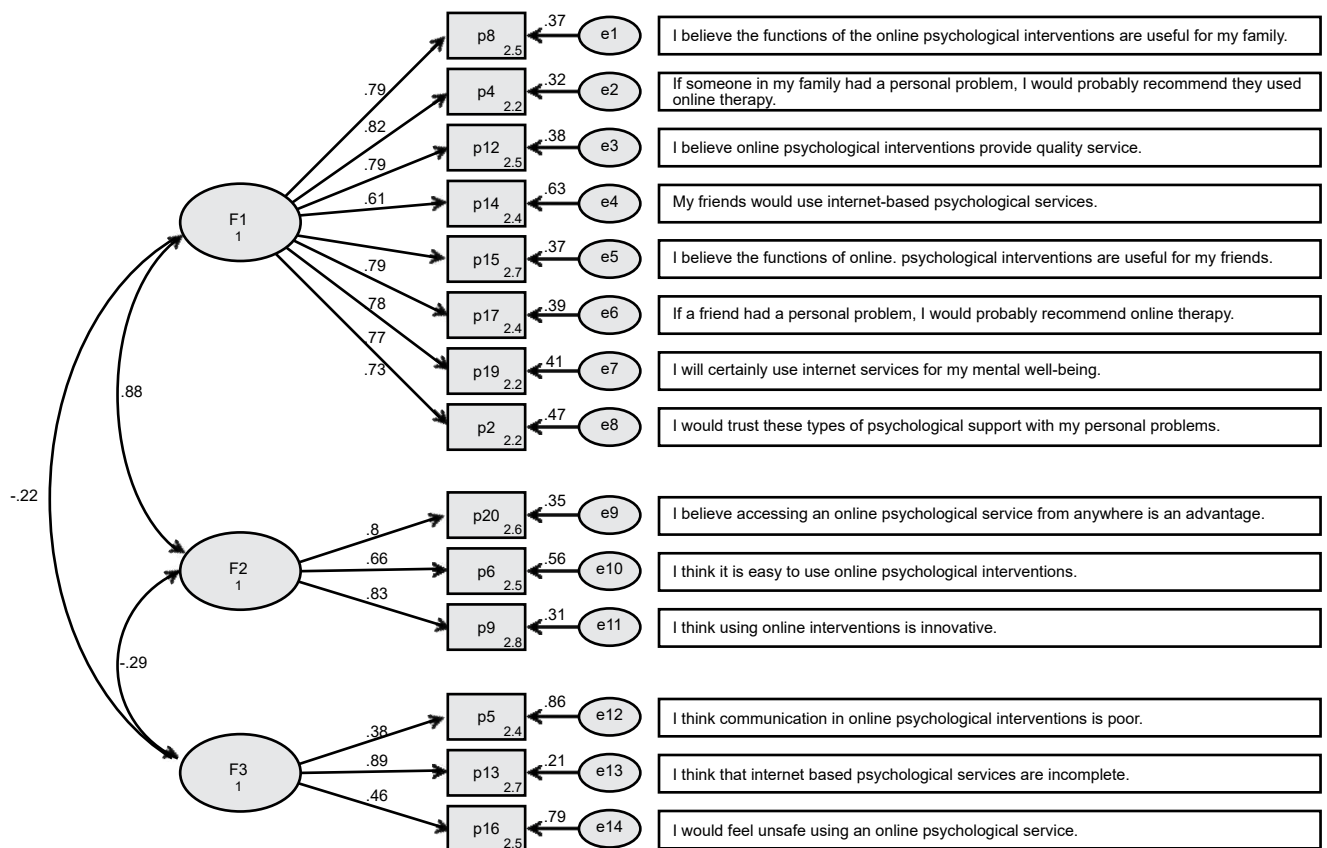
Figure 1. Confirmatory factor structure.

analysis of internal consistency showed an alpha of .91 over-all, .91 for factor 1, "approval of use"; .79 for factor 2, "perceived usefulness"; and .59 for factor 3, "perceived risk" (Figure 1).

DISCUSSION AND CONCLUSION

This study constructed and evaluated the psychometric properties of an instrument for exploring the acceptability of internet-based psychotherapy to users of mental health services. The results showed that the instrument has a good index of reliability (.86) and an internal structure of three factors: approval of use, perceived usefulness, and perceived risk. These are factors in the acceptance of technology model designed by Davis (1989), which has been extensively applied to predict the use of new technologies in different areas, including psychological care. In addition, it contributes to the importance mentioned in the introduction of having theory-based psychometric instruments to support their factor structure.

This study is one of the first in Mexico to provide a means of exploring the acceptability of IPIs. Acceptability assessment would make it possible to identify those who would adhere better to their treatment. It could also serve as an approach for providing psychoeducation to patients who perceive IPIs as risky so that they can benefit from them.

Developing an instrument with these characteristics is relevant as IPI use increased sharply as a result of the confinement measures due to the COVID-19 pandemic. This radical shift in psychological care provision from in-person to online was observed both in Mexico and internationally (de la Rosa-Gómez & Waldherr, 2023). This change has been maintained in several spheres of private consultation where tools such as Zoom, Skype, and WhatsApp are regularly used as a result of the multiple benefits offered by online psychotherapy. This includes increased privacy and decreased stigma towards psychological care, schedule flexibility, low costs, caution regarding therapist-patient proximity, better access for patients in remote areas to psychological care centers (Rojas-Jara et al., 2022).

Additionally, in Mexico, the implementation of online interventions is expected to expand in comparison with traditional interventions, since there are various online programs designed to treat mental health problems, such as the online self-help program for alcohol use (Schaub et al., 2021), the self-help program for drug use (Tiburcio et al., 2018), the self-help program for depression, the online self-help program to address the emotional health of adolescents in the pandemic (de la Rosa-Gómez et al., 2020), intervention for adults who lost a loved one to COVID-19 (Dominguez-Rodriguez et al., 2023); and psychological assistance via chats from a mental health platform in regard to COVID-19 (Arenas-Landgrave et al., 2022).

Moreover, Internet use is steadily increasing in Mexico. In 2016, the Mexican Internet Association reported that there were approximately 65 million internet users, increasing to 79 million by 2018, an annual growth rate of 17.5% *vs*. 12% respectively. Connection time also increased during this period, from seven hours and fourteen minutes a day to eight hours and twelve minutes. In both years, the principal online activities included social networks (79% *vs*. 89%), sending and receiving emails (70% *vs*. 84%), sending and receiving messages (68% *vs*. 83%), and searching the internet for information (64% *vs*. 82%; AMIPCI, 2016; 2018).

We recommend additional research to enable the identification of psychosocial and clinical variables that will predict greater acceptability, so that this instrument can serve as a screening tool. Further research should also complement the development of instruments for the evaluation of other ICTs, such as the use of WhatsApp as a means of communication between therapists and patients via messages or the use of mobile applications to monitor patients' moods.

It is important to note that this study has limitations. Firstly, participants were not randomly selected. Some of them were already familiar with traditional psychological care and given that this study was conducted prior to the pandemic, some were unfamiliar with internet-based psychotherapy. Strengths of the study include the fact that it was based on the conditions of the Mexican population, and that its various phases were sufficient to obtain information on its psychometric properties.

It is important to note that the sample used to design the instrument primarily comprised college students, which affects the generalization of the results. In this respect, it would be useful to test the factor structure with other populations that could benefit from IPIs, such as the elderly.

This study found evidence for the validity and reliability of th questionnaire on the acceptability of online psychotherapy, one of the first Spanish-language psychometric instruments for evaluating this construct. Use of this instrument could yield multiple benefits, such as improving adherence to this type of intervention and increasing awareness among potential mental health service users of the possibilities of online psychotherapy.

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salud mental

Emotional and behavioral problems of Mexican preschoolers before and during the pandemic of COVID-19

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ABSTRACT

Introduction. Identifying mental health problems in children is essential to preventing psychopathological problems in adolescence or adulthood and ensuring optimal development. It is important to take measures in this regard to support younger children, especially during the pandemic, which may result in emotional and behavioral problems. To this end, it is necessary to identify children's current disorders. **Objective.** To identify and compare the emotional and behavioral profiles of Mexican preschoolers assessed in 2006 with those assessed in 2021 (during the pandemic), under the hypothesis that those evaluated in 2021 will present with greater depression, anxiety, sleep problems and inattention than those evaluated in 2006. **Method.** Total sample of 608 preschoolers, including the 2006 subsample consisting of 327 children and the 2021 subsample of 281. A descriptive cross-sectional design was used, together with The Child Behavior Checklist (CBCL 1.5-5; Achenbach & Rescorla, 2000). **Results.** Significant differences were found between the two groups. Preschoolers evaluated in 2021 (during the pandemic) showed an increase in sleep, attention, and anxiety problems. Moreover, significant changes were observed at the item level, in which the presence of certain indicators increased during the pandemic. These included: overeating, showing little interest in their surroundings, refusing to sleep alone, being nervous or tense, having nightmares, being anxious or scared, being afraid to try new things, problems speaking or pronouncing words, an inability to concentrate or pay attention for a long time, or sit still, and shifting quickly from one activity to another. **Discussion and conclusion.** Increases in sleep, attention, and anxiety problems were confirmed preschoolers assess in 2021 compare to 2006 group, a group that has barely been studied in terms of mental health effects during the pandemic. It is important to conduct epidemiological studies to evaluate the change in symptomatology in preschoolers and to measure the historical biases of an event such as COVID-19.

Keywords: Pandemic, preschoolers, effects, emotional, behavioral.

RESUMEN

Introducción. Identificar los problemas de salud mental en la infancia es relevante para prevenir problemas psicopatológicos en la adolescencia o adultez y garantizar su desarrollo óptimo. Es importante tomar medidas al respecto para poder apoyar a los niños más pequeños, especialmente los niños que vivieron la pandemia SARS-CoV-2, de la que se pudieron derivar algunos problemas emocionales y conductuales. Para esto, es necesario conocer e identificar la afectación actual. **Objetivo.** Conocer y comparar los perfiles emocionales y de conducta en preescolares mexicanos evaluados en 2006 con los evaluados en 2021 (durante la pandemia SARS-CoV-2), teniendo como hipótesis que los evaluados en 2021 presentarán mayor depresión, ansiedad, problemas para dormir e inatención que los evaluados en 2006. **Método.** La muestra total fue de 608 preescolares, conformada por la muestra de 2006 consistió en 327 niños y la de 2021 en 281, se utilizó un diseño descriptivo transversal. Se utilizó el Inventario de Conductas Infantiles para preescolares CBCL 1.5-5 de Achenbach & Rescorla (2000). **Resultados.** Se encontraron diferencias significativas entre las dos muestras, en la muestra evaluada en 2021 (durante la pandemia SARS-CoV-2) hubo un incremento en los problemas de sueño, atención y ansiedad, además se observaron cambios significativos por reactivos, donde la presencia de algunos indicadores aumentó durante la pandemia SARS-CoV-2, principalmente: come demasiado, muestra poco interés por su entorno, no quiere dormir solo, nervioso o tenso, pesadillas, demasiado ansioso o temeroso, miedo a probar cosas nuevas, problemas para hablar o pronunciar palabras, no puede concentrarse o mostrar atención por mucho tiempo, no puede quedarse quieto, se mueve rápidamente de una actividad a otra. **Discusión y conclusión.** Se confirmó la presencia de aumentos en problemas para dormir, problemas de atención y ansiedad en una muestra de preescolares evaluados durante la pandemia (2021) comparada con una muestra evaluada en 2006 un grupo mucho menos estudiado en términos de los efectos de la salud mental durante la pandemia SARS-CoV-2. Es importante realizar estudios epidemiológicos que permitan evaluar el cambio de sintomatología en preescolares y evaluar los sesgos históricos de un evento como COVID-19.

Palabras clave: Pandemia, preescolares, afectaciones, emocionales, conductuales.

INTRODUCTION

On March 11, 2020, the World Health Organization declared COVID-19 a pandemic. It was a global public health emergency requiring immediate, radical measures to stop its spread. The main measures focused on social distancing, lockdown, the closure of schools and entertainment venues, as well as working from home.

In Mexico, lockdown began on March 23, 2020, with the suspension of non-essential activities and in-person classes. On June 1 that same year, some activities were resumed except for school activities, with classes continuing to be given online. However, this initiative encountered several obstacles such as the broadband internet infrastructure in Mexico, the lowest ranked in the OECD (Mecinas, 2016), the suboptimal quality and speed of the internet, parents' lack of knowledge of the use of internet platforms and the lack of curricular adaptation to remote learning.

School authorities therefore added the option of open television classes to help families without internet (Pamplona, 2020).

However, despite these efforts, a survey of Mexican parents ($N = 4000$) conducted during the pandemic reported that the majority (77.8%) considered that remote (online) education failed to ensure children's education, and that the level of learning was not comparable with in-person classes (83.5%). Nevertheless, 70.6% of parents opposed the return to face-to-face classes in August 2021. According to the Instituto Nacional de Estadística Geografía e Informática (INEGI, 2020), 2.2% of preschoolers did not complete the 2019/2020 school year, with most parents (94.75) citing the pandemic as the reason for this, despite the fact that 90% of parents reported maintaining contact with their children's schools.

Most preschoolers used a cell phone (72.2%) or television (26.3%), with only 4% using a computer, and 4.1% did not engage in distance learning. In addition, 26.6% of preschoolers did not re-enroll in the educational system, with 29% attributing this to the pandemic. A total of 98.7% of preschoolers required help to continue their school activities, which was mainly provided by the mother (84.4%), with 1.2% reporting that they had dropped out of school permanently.

Studies in high-, middle- and low-income countries have consistently shown the positive effects of school attendance on child development (Claessens & Garrett, 2014; Rao et al., 2017), labor force participation, and physical and psychological health in adulthood. These protective effects are greater in more socially disadvantaged children (Burger, 2010; Schmerse, 2020; Wong et al., 2014).

Brooks et al. (2020) reviewed the psychological impact in some countries due to quarantine for SARS, Influenza, Ebola, reporting that protracted stressors such as isolation had harmful, long-term effects on children and adolescents.

Da Silveira & Siepmann (2020) reported that isolation due to the pandemic had repercussions on the mental health of children and adolescents such as fear, anxiety, constant alertness, worry, stress, changes in sleep patterns, sedentary lifestyle, and changes in eating habits. Fear of infection, frustration, difficulties in education, boredom, inadequate information, lack of contact with peers, teachers, and lack of personal space at home trigger anxiety and depression, depending on a person's age and sex. Ulloa et al. (2022) report higher anxiety and depression in adolescents and adults, as well as in women in all age groups.

Isolation due to the pandemic had repercussions on the mental health of children and adolescents such as fear, anxiety, constant alertness, worry, stress, changes in sleep patterns, sedentary lifestyle, and changes in eating habits (Da Silveira & Siepmann, 2020).

The few studies of preschool children ages three to six show that confinement delayed emotional and social development compared to other age groups, expressed as clinginess and fear that family members could contract the infection (Jiao et al., 2020; Khera et al., 2023). Young children ages two to five showed high levels of stress, anxiety, behavioral difficulties, hyperactivity, and inattention, whereas adolescents displayed anxiety and depression symptoms. (Viner et al., 2021).

Through a meta-analysis of the impact of the pandemic on preschoolers, Khera et al. (2023) concluded that preschoolers have experienced a delay in language production and comprehension, as well as their motor skills and social interaction, and sleep problems.

In Mexico, there is a dearth of studies on the emotional and behavioral impact associated with lockdown due to the pandemic in children. León et al. (2023) worked with fifty-one parents of preschoolers, finding that preschool children ages three to six had a prevalence of 68% of disturbed sleeping. Moreover, the use of electronic devices in bed, emotional distress and behavioral difficulties were associated with the severity of disturbed sleeping. They observed that 15.6% of the children in their sample reported a deterioration in their mental health, concluding that lockdown had had an impact on preschool children's sleep and well-being. Another study conducted on Mexican and Chilean adolescents reported that during the pandemic, late adolescents were the group that scored lowest in well-being. They also found a high prevalence of poly-victimization in girls and late adolescents, confirming that girls are more likely to experience violence possibly associated with the patriarchal systems in place in several Latin American countries (Bravo-Sanzana et al., 2022).

A study in Mexico conducted on preschoolers found that the main concerns about COVID-19 were related to the health of their families and themselves, and being unable to go out and play, see their grandparents, be with their friends, or return to school (Monjarás & Romero, 2021).

It is important to note that the pandemic could be an opportunity for parents to learn adaptative coping strategies for stress that they can teach their children. Adaptative or active coping strategies are associated with actions designed to address a stressful situation (Tobin et al., 1989). During the preschool stage from three to five years of age, parental involvement is vital for children to learn and adopt coping practices at the beginning of their lives (Armstrong et al., 2005). The way parents help their children cope with stress today is related to how their children will cope in the future, which could enhance their well-being.

Given the importance of monitoring the mental health of Mexican preschoolers for prevention and care, as well as the limited research conducted in Mexico, the following study was undertaken to identify and compare the emotional and behavioral profiles of Mexican preschoolers assessed in 2006 with those assessed in 2021 (during the pandemic), hypothesizing that those evaluated in 2021 would suffer from more depression, anxiety, sleep problems and inattention than those evaluated in 2006, or other difficulties, using the Child Behavior Checklist 1.5-5 (Achenbach & Rescorla, 2000). This is an internationally recognized instrument, comprising twelve problems rated by international experts, consistent with the Statistical Manual of Mental Disorders (DSM-5) diagnostic category used in twenty-one countries. The translations were done by a translator fluent in English and the language of interest (Rescorla et al., 2011).

METHOD

Design of the study

The study design was cross-sectional and comparative.

Participants

Two databases were merged. The first one corresponds to the validation study of the Child Behavior Checklist (CBCL 1.5-5) for children ages one to five, from which community Albores selected participants in 2006. The second database belongs to a study conducted in 2021 by Monjarás with community participants.

All participants were typically developing children ($N = 608$) ages 18 months to six years, recruited from the general community and divided into two samples:

a. 2006: preschoolers ($n = 327$) recruited at five state-run daycare centers located in four Mexico City boroughs. Inclusion criteria were being normotypical, without a history of chronic diseases such as asthma, diabetes, or cancer, and not under pharmacological treatment. Cases with developmental delays, or a physical or intellectual disability were excluded. The total number of cases was 376, but those with unanswered items were eliminated, leaving a total of 327.

b. 2021: children with typical development ($n = 281$), including preschoolers from state schools in Iztacalco; Coyoacán and San Ángel ($n = 161$) and low-cost private schools ($n = 120$) located in Gustavo A. Madero, Iztacalco and Chalco. The majority of the sample were from Mexico City. Inclusion and exclusion criteria were the same as in the 2006 sample. Cases were excluded when parents reported any developmental delay, or physical or intellectual disability on item 100 of the CBCL.

Measurements

This study used the Child Behavior Checklist CBCL/1.5-5 (Achenbach & Rescorla, 2000): a 100-item questionnaire with a Likert scale with three response options (0 = Not true, 1 = Sometimes true, 2 = Very true or very often), answered by parents or caregivers. Results were grouped into Classic Profile Internalized Problems (Emotional Reactivity, Anxiety/Depression, Somatic Complaints, and Isolation), Externalized Problems (Attention Problems and Aggressive Behavior) and Sleep Problems. The questionnaire also included the Diagnostic and Statistical Manual of Mental Disorders (DSM) scales: Affective, Anxiety, Developmental, Attention Deficit/ Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder. This instrument is used worldwide, with high reliability and validity indexes (Achenbach & Rescorla, 2000). In Mexico, Albores et al. (2016) reported high internal consistency indices (Cronbach′s alpha) for the Internalized (.89), Externalized (.91) and Total Problems (.95) scales, and a high test-retest reliability Intraclass Correlation Coefficient (ICC > .95). The clinical validity of the instrument offers acceptable indices of sensitivity (.70) and specificity (.73), with an area under the Receiver Operating Characteristic (ROC) curve of .77, and a cut-off point ≥ 24 points for the total scale.

Procedure

Both studies were approved by the principals and parents of the children, who, after agreeing to participate in the studies, answered the CBCL/1.5-5. With the 2006 sample, the questionnaire was administered in person and with the 2021 sample, parents answered the questionnaire online. The questionnaire was administered from February to June 2021, coinciding with the closure of schools, including daycare centers and preschools. The second wave of infections in Mexico took place from September 2020 to April 2021, as reported by the Health Ministry (Secretaría de Salud, 2022). According to their report, the highest peak of infections in 2021 occurred mainly in the months of January and February.

Statistical analysis

For the comparison of groups, the Mann-Whitney U test was applied for the anxiety, attention and hyperactivity problem variable in the DSM Scales, as well as the somatic complaints, sleeping problems and attention problems variables, since the normality criterion was not met when the Kolmogorov-Smirnov test was performed.

An analysis of the differences between the frequencies of the items per factor in the DSM CBCL 1.5-5 was conducted, comparing the 2006 sample with the 2021 sample, using Chi2 tests with Cramer's V, as in the study by Schmidt et al. (2021).

Ethical considerations

The guidelines for Informed Consent of the Declaration of Helsinki, Ethical Principles for Research Involving Human Subjects, were followed in the administration of the instruments. Participation was voluntary; participants could drop out of the study whenever they chose to do so with no reprisals. The research project of which this study forms part, Project IA301521, was approved by the Assessment Committee of the Area of Social Sciences. The 2006 project was approved by the Ethics Committee of the Dr. Juan N. Navarro Children's Psychiatric Hospital, N° IT2/18/1211.

RESULTS

The Age, Sex, and Total Problems CBCL1.5-5 score of the groups are shown in Table 1. The scale was applied to 327 preschoolers in 2006 and to 281 in 2021.

Table 2 shows the median and range obtained in the various subscales.

Table 1
Age, sex, and total problems

	2006		2021	
	n = 327	(%)	n = 281	(%)
Age n (%)				
1	1	(0.3)	0	
2	17	5.2)	0	
3	50	(15.3)	17	(6.0)
4	86	(26.3)	81	(28.8)
5	104	(31.6)	130	(46.3)
6	59	(18.0)	53	(18.9)
Sex n (%)				
Male	175	(53.5)	138	(49.1)
Female	152	(46.5)	143	(50.9)
CBCL1.5-5				
Total M(SD)	34.58	(21.2)	34.40	(19.7)

Note: *n* = sample size; M = mean; (SD) = standard deviation.

Table 2
Group comparison of the classic profile and DSM Scales of CBCL 1.5-5

	2006 (n = 327)		2021 (n = 281)	
	Mdn	(Range)	Mdn	(Range)
Classic Profile				
Emotionally/reactive	1	(15)	1	(13)
Anxious/Depressed	3	(13)	3	(14)
Somatic complaints	2	(13)	1	(9)
Withdrawn	2	(11)	2	(10)
Sleep problems	2	(12)	2	(11)
Attention problems	2	(8)	3	(8)
Aggresive behaviour	9	(38)	9	(32)
Internalizing	8	(44)	8	(43)
Externalizing	12	(44)	12	(39)
Total problems	31	(127)	31	(127)
DSM Scales				
Depressive problems	2	(15)	2	(15)
Anxiety problems	3	(14)	4	(16)
Autism	3	(14)	3	(13)
Attention Deficit	4	(15)	5	(11)
Oppositional	3	(12)	3	(12)

Note: *n* = sample size; Mdn = median; DSM = Statistical Manual of Mental Disorders.

Table 3 shows the frequency of T-scores in the subscales for internalized, externalized, and total problems; according to Achenbach, the clinical range is above T 65.

To determine whether there are significant differences between the scales, the Mann-Whitney U test was ad-

Table 3
Percentage of T-scores > 65

	2006 (n = 327) (%)	2021 (n = 281) (%)
Classic Profile		
Emotionally reactive	8.8	6.4
Anxious/Depressed	8.7	9.6
Somatic complaints	15.0	7.5
Withdrawn	11.9	11.3
Sleep problems	2.7	2.5
Attention problems	7.0	9.7
Aggressive behaviors	8.3	8.6
Internalizing	12.0	8.2
Externalizing	8.3	8.2
Total	11.0	8.9
DSM Scales		
Depressive problems	14.1	14.2
Anxiety problems	10.7	13.5
Autism	14.7	11.4
Attention deficit	6.7	6.0
Oppositional defiant	10.1	7.8

Note: *n* = sample size; DSM = Statistical Manual of Mental Disorders.

Table 4
Comparison of CBCL1.5-5 scores between groups

	2006 (n = 327)	2021 (n = 281)			
	U Man Whitney				
	Average	Range	Z	R	p
Classic Profile					
Emotionally reactive	314.15	293.28	-1.501	-.06	.133
Anxious/Depressed	296.57	313.72	-1.212	-.05	.225
Somatic complaints	*327.98*	*277.17*	*-3.624*	*-.15*	*.001*
Withdrawn	304.12	304.94	-.058	.01	.954
Sleep problems	*285.89*	*326.15*	*-2.859*	*-.12*	*.004*
Attention problems	*273.34*	*340.76*	*-4.785*	*-.19*	*.001*
Aggressive behavior	307.35	301.18	-.433	-.02	.665
Internalizing	312.12	295.63	-1.156	-.05	.248
Externalizing	299.67	310.12	-.731	-.03	.465
Total	304.08	304.98	-.063	.01	.950
DSM Scales					
Depressive problems	301.30	308.23	-.491	-.02	.623
Anxiety problems	*281.08*	*331.75*	*-3.569*	*-.14*	*.001*
Autism	314.23	293.18	-1.486	-.06	.137
Attention deficit	293.47	317.34	-1.680	-.07	.093
Oppositional defiant	304.81	304.14	-.047	.01	.963

Note: *n* = sample size; DSM = Statistical Manual of Mental Disorders; R = effect size.

ministered. It was found that somatic complaints decreased during the pandemic, whereas sleep problems increased, as did attention and anxiety problems (Table 4).

For a more detailed analysis, the frequency of the items by year was compared. Based on the DSM scales (Table 5), in the attention scale items, there were significant differences of .001, with scores increasing during the pandemic, reflected in the items: *"cannot concentrate," "cannot sit still," "shifts quickly from one activity to another."*

With respect to the depression scale items, scores increased during the pandemic, as can be seen in the items: "overeats" and "shows little interest in things around them."

Percentages increased in the following items on the anxiety scale: "does not want to sleep alone," "nervous or tense," "nightmares" and " fearful or anxious."

Significant differences were also reported on the autism scale, increasing during the pandemic, particularly in the following items: "afraid to try new things" "repeatedly rocks head or body" "speech problems."

DISCUSSION AND CONCLUSION

The purpose of this study was to analyze differences in emotional and behavioral problems in preschool children measured with the CBCL/1.5-5 before and during the pandemic. Some authors have suggested that the impact of the pandemic was less in preschoolers than in schoolchildren

and adolescents (Ozamiz-Etxebarria et al., 2020). However, this finding is controversial, as Jiao et al. (2020) have suggested that young children expressed more anxiety and fear that their family members would be infected than adolescents. Gatell-Carbó et al. (2021) reported that the children most severely affected were those aged five to eight, who displayed irritability, sadness, and nervousness during lockdown. It is therefore essential to compare the data for preschoolers. Although there is a large gap between the years compared: 2006 and 2021, our results show the importance of conducting epidemiological studies to be able to evaluate the change in symptomatology and to assess the historical biases of an event such as the pandemic on a population group. These data are also useful for designing better psychiatric and psychological care services for children and adolescents.

Our hypothesis was confirmed. During the pandemic, scores for sleep, attention, and anxiety problems significantly increased in comparison with 2006. These results are consistent with some studies reporting an increase in attention difficulties and restlessness, sleep difficulties, nightmares, decreased appetite, agitation and inattention (Jiao et al., 2020; Viner et al., 2021).

Conversely, somatic complaints were significantly higher in 2006 than in 2021. This is inconsistent with certain results demonstrating greater somatic complaints during the pandemic than at the start of the pandemic (Conti et al., 2020). However, it is possible that differences in the composition of that study sample, consisting of a small number of preschool participants with neurodevelopmental problems (*N* = 61) who were mostly male (86.8%) biased results since in preschoolers with autism, somatic complaints are significantly higher than among the general population (Cho & Ha, 2019).

Somatic complaints are associated with social phobia and separation anxiety (Campo et al., 1999), which is why they are easier to assess in children with school attendance. Lower exposure to the school environment and social situations may have influenced the low frequency of somatic complaints in our study, with one study finding a decrease in somatic complaints in preschoolers (with and without neurodevelopmental problems) during the pandemic (Cantiani et al., 2021).

Conversely, most studies analyzing the effects of the pandemic COVID-19 on children's mental health are cross-sectional. One study of children and adolescents in the community (*N* = 5823 ages 1-17) reported that 7.8% of preschoolers exceeded the cut-off point > 70 for affective problems, 4.7% for anxiety and 9.9% oppositional behavior. Our study found that 10.7% of preschoolers exceeded the cutoff point > 65 on the anxiety scale in 2006 as opposed to 13.5% in 2021, but not for oppositional behavior. However, more research is required in this regard (Schmidt et al., 2021).

Table 5
Comparison by year using the CBCL 1.5-5 DSM Scales

DSM Scales	2006 n (%)	2021 n (%)	p
Deppresive			
13. Cries a lot	143 (43.7)	122 (43.4)	.938
24. Doesn´t eat well	133 (40.7)	120 (42.7)	.612
38. Has trouble getting to sleep	63 (19.3)	71 (25.3)	.075
43. Looks unhappy without good reason	60 (18.3)	42 (14.9)	.263
49. Overeating	*78 (23.9)*	*97 (34.5)*	*.004*
50. Overtired	72 (22.0)	64 (22.8)	.823
71. Shows little interest in things around him/her	*49 (15.0)*	*61 (21.7)*	*.032*
74. Sleeps less than most kids during day and/or night	50 (15.3)	44 (15.7)	.900
89. Underactive, slow moving or lacks energy	33 (10.1)	34 (12.1)	.431
90. Unhappy, sad, or depressed	19 (5.8)	16 (5.7)	.951
Anxiety problems			
10. Clings to adult or too dependent	*174 (53.2)*	*173 (61.6)*	*.038*
22. Doesn´t want to sleep alone	*142 (43.4)*	*185 (65.8)*	*.001*
28. Doesn´t want to go out of home	80 (24.5)	75 (26.7)	.530
32. Fears certain animals, situations, or places	199 (60.9)	185 (65.8)	.204
37. Gets too upset when separated from parents	90 (27.5)	96 (34.2)	.076
47. Nervous, highstrung, or tense	*81 (24.8)*	*96 (34.2)*	*.011*
48. Nightmares	*81 (24.8)*	*112 (39.9)*	*.001*
51. Shows panic for no good reason	21 (6.4)	24 (8.5)	.320
87. To fearful or anxious	*53 (16.2)*	*76 (27.0)*	*.001*
99. Worries	71 (21.7)	62 (22.1)	.917
Autism Spectrum Problems			
3. Afraid to try new things	*131 (40.1)*	*147 (52.3)*	*.002*
4. Avoids looking others in the eye	94 (28.7)	74 (26.3)	.507
7. Can´t stand having things out of place	114 (34.9)	95 (33.8)	.785
21. Disturbed by any change in routine	*116 (35.5)*	*69 (24.6)*	*.004*
23. Doesn´t answer when people talk to him/her	*209 (63.9)*	*151 (53.7)*	*.011*
25. Doesn´t get along with other children	87 (26.6)	63 (22.4)	.233
63. Repeatedly rocks head or body	*18 (5.5)*	*53 (18.9)*	*.001*
67. Seems unresponsive to affection	29 (8.9)	20 (7.1)	.429
70. Shows Little affection toward people	59 (18.0)	58 (20.6)	.418
76. Speech problem	*118 (36.1)*	*127 (45.2)*	*.022*
80. Strange behavior	9 (2.8)	15 (5.3)	.103
92. Upset by new people or situations	45 (13.8)	30 (10.7)	.249
98. Withdrawn, doesn´t get involved with others	42 (12.8)	23 (8.2)	.064
Attention Deficit/Hyperactivity Problems			
5. Can´t concentrate	*186 (56.9)*	*225 (80.1)*	*.001*
6. Can´t sit still, restless, or hyperactive	*195 (59.6)*	*229 (81.5)*	*.001*
8. Can´t stand waiting; wants everything now	244 (74.6)	204 (72.6)	.573
16. Demands must be met immediately	195 (59.6)	151 (53.7)	.208
36. Gets into everything	122 (37.3)	110 (39.1)	.642
59. Quickly shifts from one activity to another	*190 (58.1)*	*203 (72.2)*	*.001*
Oppositional defiant problems			
15. Defiant	162 (49.5)	135 (48.0)	.712
20. Disobedient	229 (70.0)	195 (69.4)	.865
44. Angry moods	235 (71.9)	208 (74.0)	.551
81. Stubborn, sullen, or irritable	115 (35.2)	115 (40.9)	.144
85. Temper tantrums or hot temper	155 (47.4)	143 (50.9)	.391
88. Uncooperative	103 (31.5)	103 (36.7)	.180

Note: *n* = sample size.

In a study of 5823 participants ages 1-19, between 2.2% and 9.9% presented with emotional and behavioral problems above the clinical cut-off point and between 15.3% and 43% reported an increase in these problems during the COVID-19 pandemic. Moreover, 20% of the preschool sample (*N* = 2726) displayed more oppositional symptoms, crying, sleep problems, sadness, reluctance to sleeping alone, and separation anxiety. This contrasted with

our study population, in which only attention problems and sleep problems from the classic profile and anxiety from the DSM scales were significant (Schmidt et al., 2021).

The pandemic had a significant impact on mental health in children from pre-kindergarten to the fourth year of elementary school in all the symptoms evaluated, whether internalized (anxiety, depression, fear), externalized (aggression, behavioral problems) or somatic (appetite changes, sleep problems). Larraguibel et al., (2021) found the most frequent symptoms to be "Irritability, bad temper" (71.9%), "Disobedience" (70.7%) and "Changes in appetite" (72.8%), The symptoms that increased most were "Being sad" (24.6%), "Lack of desire" (29.5%), "Changes in appetite" (26.4%) and "Trouble sleeping" (26.4%), which may account for the presence of depressive symptoms, unlike our study where the most frequent symptoms were "can't concentrate" (80. 1%), "can't sit still" (81.2%) and "shifts quickly from one activity to another" (72.2%). This may be related to prolonged screen time, exposing preschoolers to visual overstimulation that negatively influences attention problems (Castre Campero, 2020; Lizondo-Valencia et al., 2021) which is particularly noticeable when there is no such overstimulation, which could occur during lockdown.

The most frequent attention and hyperactivity items were followed by anxiety items such as "doesn't want to sleep alone" (65.8%), "clings to adult or over-dependent" (61.6%), which may be related to separation anxiety, as reported by Viner et al. (2021). An increase in "nervousness or tension" (34.2%), "nightmares" (39.9%) and "being excessively anxious or fearful" (27%) was also observed. According to Meza and Ramírez (2020), some variables related to this type of anxiety during the pandemic include the negative impact of lockdown, identification of negative emotions (frustration, anger), organization of parenting activities and housework, changes in social interaction, parenting styles and discipline. It could also be associated with the fear that they or their loved ones could become ill and die, as reported in the study by Monjarás and Romero (2021).

Although the most frequent items were attention/hyperactivity and anxiety, an increase in certain depression items was observed, as in the study by Larraguibel et al. (2021), such as "overeating" (34.5%) and "loss of interest" (21.7%) in their surroundings. It is important to note that staying at home increased the accessibility of food, which in the long term could be associated with a weight increase, pointing to the need to follow up on the possible increase in overweight and obesity in this age group where this problem has been detected (Salazar, 2022). Moreover, loss of interest in their surroundings could be explained by the moment when the children were evaluated, which coincided with the peak of the pandemic and may have been related to increased home confinement, lack of stimuli at home, as well as the lack of interaction with their peers (Ochoa et al., 2022; Xie et al., 2020).

During the pandemic, an increase was observed in autism in the item "fear of trying new things" (52.3%), "repeated rocking of the body" (18.9%) and "speech problems" (45.2%). The latter could be related to the reflection made by Solovieva et al. (2021) on the effects associated with receiving online classes during the pandemic, such as the absence of contact and the difficulty or inability of parents to help their children with their schoolwork. Although this may have contributed to the delay in speech, further research on this topic is required.

The results obtained also coincide with the longitudinal study conducted by Cantiani et al. (2021) on Italian preschoolers, evaluated before and during the pandemic. Their results confirmed the negative impact of isolation on the emotional and behavioral profiles of preschoolers. The CBCL 1.5-5 revealed an increase in anxiety and depression, as noted in the present study. Cantiani et al. (2021) also found an increase in externalizing problems, including aggressive behaviors and oppositional defiant problems, which was not the case in the current sample. It is therefore important to continue conducting studies on the Mexican population to rule out or confirm this.

As mentioned by Dougherty et al. (2015), early childhood is a period characterized by social influences, critical social influences, including the parent-child relationship and the beginning of peer relationships. The developmental pathways of psychopathology are likely to be complex, involving early environmental, genetic, neurobiological, and physiological influences, underscoring the need for further multifactorial research, especially since the pandemic, and for longitudinal studies including social, familial, and environmental variables.

It is essential to implement prevention and intervention programs with Mexican preschoolers to guarantee their mental health, by reducing anxiety symptoms, and attention and sleep problems, which appear to have increased due to the pandemic, in addition to other variables.

Limitations

We were unable to compare the emotional and behavioral problems of preschoolers with the psychopathology of their parents, which would have been useful since some studies show how parental psychopathology affects preschoolers (Schmidt et al., 2021). Since we only worked with a limited number of preschoolers from urban areas, it would be interesting to include studies of rural areas. As no corrections were made for multiple comparisons, some of the significant differences in this study should be confirmed by other studies. It is therefore essential to continue reporting the emotional and behavioral profile of Mexican preschoolers before, during and after the pandemic.

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Conflict of interest

The authors declare they have no conflicts of interest.

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Correlation between Personality Traits and Dimensions of Anxiety in Young Students in the State of Jalisco

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ABSTRACT

Introduction. Young people are highly susceptible to manifesting the various dimensions of anxiety, which have been associated with certain personality traits. **Objective.** To determine the association between personality traits (PT) and the dimensions of clinical anxiety (CA), trait anxiety (TA), and state anxiety (SA) in young students in the areas of health sciences in the state of Jalisco, Mexico. **Method**. Five hundred and twenty-one students (with an average age of 20.5 years) enrolled in psychology, nursing, and nutrition degree programs participated, 75.2% of whom were women. From Abril 2020 to May 2021, a cross-sectional design was used to virtually evaluate CA (Beck's inventory), TA and SA (the Spielberger inventory), and PT (Eysenck's inventory). Linear regression analysis was used to calculate correlations (R) and determination coefficients (R^2) to predict the dimensions of anxiety in relation to PT. **Results.** 25.7% and 24.8% of participants scored for severe and moderate CA respectively, while 54.3% obtained high scores for TA and SA. For CA, the neuroticism PT yielded an R of .607 and an R^2 of .367; for TA, an R of .803 and an R^2 of .644; and for SA, an R of .735 and an R^2 of .540. **Discussion and conclusion.** The high correlation between the neuroticism PT and anxiety in young people was probably exacerbated by the restrictive conditions of the COVID-19 pandemic. In young students, the neuroticism PT is a predictor for the development of various dimensions of anxiety.

Keywords: Clinical anxiety, trait anxiety, state anxiety, neuroticism, personality traits.

RESUMEN

Introducción. Los jóvenes tienen una alta susceptibilidad a presentar manifestaciones de ansiedad en sus diferentes dimensiones, las cuales se han asociado a algunos rasgos de personalidad. **Objetivo.** Determinar la relación entre los rasgos de personalidad (RP) y las dimensiones de: ansiedad clínica (AC), ansiedad rasgo (AR) y ansiedad estado (AE) en jóvenes estudiantes de áreas de las ciencias de la salud del estado de Jalisco, México. **Método.** Participaron 521 estudiantes de psicología, enfermería y nutrición (edad promedio 20.5 años), de los cuales el 75.2% fueron mujeres. De abril de 2020 a mayo 2021, mediante un diseño transversal, se evaluaron de manera virtual la AC (inventario Beck), la AR y AE (inventario Spielberger) y los RP (inventario Eysenck). Con análisis de regresión lineal se calculó la correlación (R) y el coeficiente de determinación (R^2) como predictor de las dimensiones de ansiedad con los RP. **Resultados.** El 25.7% de los participantes calificó con AC grave y 24.8% con AC moderada; para la AR y AE un 54.3% obtuvo puntuaciones altas. El RP neuroticismo presentó para AC una R de .607 y R^2 de .367; para AR una R de .803 y R^2 de .644; para AE una R de .735 y R^2 de .540. **Discusión y conclusión.** Es probable que la alta correlación entre el RP neuroticismo y la ansiedad en los jóvenes haya sido potenciada por las condiciones restrictivas de la pandemia. El RP neuroticismo en jóvenes estudiantes, es un predictor para el desarrollo de ansiedad en sus diferentes dimensiones.

Palabras clave: Ansiedad clínica, ansiedad rasgo, ansiedad estado, neuroticismo, rasgos de personalidad.

INTRODUCTION

The anxious state is characterized by feelings of fear and worry that affect mental health and cognitive functions such as attention, memory and decision making (Bishop, 2009; Paulus & Yu, 2012), crucial to maintaining a balance between health and daily, academic, and socio-emotional skills (Simpson et al., 2010). This anxious state, common in young students (Kawakami et al., 2012), was exacerbated during the COVID-19 lockdown. Fear of the unknown and the risk of dying from infection increased anxiety levels in vulnerable young people, becoming a serious public health problem (Pérez-Cano et al., 2020; Medina-Mora, 2020).

The age of onset of the first symptoms of anxiety occurs during neurodevelopment, peaking during adolescence, a period of major age-related physical and behavioral changes. Drastic adjustments in neuronal connectivity and pruning, together with changing levels of hormones and neurotransmitters, are the basis of the functional changes associated with anxiety in late adolescence (age 24), which stabilize at the beginning of adulthood (Paus et al., 2008; Solmi et al., 2022).

Gender differences in anxiety have been described, with women having higher prevalence rates as well as more severe clinical symptoms (Asher et al., 2017). However, despite these differences in the prevalence rates of anxiety disorders, the age of onset of anxiety disorders does not differ between genders (De Lijster et al., 2017).

Anxiety is an adaptive reaction to stimuli regarded as threatening, accompanied by autonomic, neurophysiological, and psychic changes (Cattell & Scheier, 1958; Lazarus & Averill, 1972; Spielberger, 1972). According to Spielberger, in crisis situations, the immediate emotional state can be altered and modified over time depending on the biological, environmental, and social personal characteristics that explain, modulate, and maintain behavior (Spielberger, 1972).

Anxiety has various dimensions, determined by the intensity, frequency and duration of the manifestations and existence of comorbidity. It can occur as a momentary state (state-anxiety, SA) or be an intrinsic characteristic of individuals (trait-anxiety, AR). In other words, it is no longer a transitory emotional state, but a relatively stable tendency to perceive multiple situations as threatening (Spielberger, 1972; Saviola et al., 2020) and both SA and TA are evaluated using the Spielberger State-Trait Anxiety Inventory (STAI).

When these manifestations of anxiety are intense, recurrent, and also compromise social and emotional functionality and everyday activities, they are classified by the DSMV (American Psychiatric Association, 2013) as generalized anxiety disorder (GAD) or Clinical Anxiety (CA), in which the situation triggering anxiety is not congruent with the manifestations of the latter (Lee et al., 2009b).

This is evaluated using the Beck Anxiety Inventory (BAI; Beck et al., 2011).

A trait is a unit of personality, a dynamic behavioral tendency resulting from the integration of several specific habits of adjustment, expressing a characteristic mode of reaction of the individual in a given context (Allport, 1927). According to the DSM, personality traits are persistent patterns of ways of thinking, relating, and acting towards the environment and oneself that occur in a range of social settings. Various classifications of personality traits have been described (Cattell, 1943; 1945). According to Eysenck (1947), personality traits (PT) comprise four behavioral characteristics of individuals, related to ascendance (dominance and leadership), responsibility, emotional instability-anxiety, and sociability. These behavioral characteristics are grouped into two broad opposite traits: neuroticism (N), which correlates negatively with ascendance and self-esteem, and positively with emotional instability-anxiety, and extraversion (E), which correlates positively with ascendance and sociability (Eysenck, 1947; Eysenck et al., 1985). Because these behavioral tendencies have a high biological predisposition, it is difficult to tease apart the dimensions of anxiety and personality traits (Cattell & Scheier, 1958; Eysenck, 1963; Hettema et al., 2004).

Particularly in the case of young students in the areas of health sciences, the academic workload, as well as social, economic, and familial pressure during the protracted COVID-19 lockdown, constituted powerful stressors (Wathelet et al., 2020; Medina-Mora et al., 2022). Thus, the prevalence of stressful conditions, in conjunction with PTs, modulated by biological systems, result in states of anxiety in its different dimensions (Lee et al., 2009b; Caspi et al., 2010; Hansell et al., 2012). Indeed, it is known that daily exposure to various situations of emotional stress affects cognitive aspects of attention, interpretation and memory that facilitate the onset and maintenance of anxiety (Clarke et al., 2008), resulting in the poor academic performance of individuals, especially those of school age (Vilaplana-Pérez et al., 2021). However, it is unclear to what extent personality type determines the likelihood of presenting with anxiety. Establishing associations between PT and the various dimensions of anxiety in young students will therefore make it possible to enhance our knowledge of the interaction between personality and anxiety presented by youth and how this interaction could influence or impact emotional problems, as well as the cognitive and behavioral alterations prevailing in this sector of the population (Lee et al., 2009a).

Given the difficulty of teasing apart personality traits from anxiety dimensions, the hypothesis of this paper was that the neuroticism personality trait would present different degrees of correlation and prediction with anxiety dimensions depending on sex, age, and academic performance in young students from the state of Jalisco during the pandemic.

It was also hypothesized that the detection of personality traits predicting anxiety dimensions and dysfunctional behavioral patterns in young students would allow the use of early intervention strategies.

METHOD

Study design

This was a cross-sectional study with non-probabilistic sampling, conducted in the state of Jalisco, Mexico in May 2021.

Participants

The first step was to invite all the students enrolled in the psychology, nursing, and nutrition degree programs (young women and men ages 18-30) at two university centers: the University of Guadalajara, Ciénega de Ocotlán campus (CUCI UDG) and the University of Specialties Health Sciences campus (UNE). Students were informed that this was a research study, which complied with ethical guidelines, and had been previously authorized by the Ethics in Research Commission of the Institute of Neurosciences, based on NIH guidelines. All study participants voluntarily answered the survey.

Procedure

Information was provided through a link sent via email and social networks. Students were invited to participate on the understanding they could drop out of the survey if they so wished. In addition, they were informed that the data collected in this study would be held anonymously and be for the exclusive use of the laboratory.

Participants were told that this was an individual self-assessment survey, and that there were no right or wrong answers. They were asked not to spend a lot of time answering each question and to attempt to provide the answer that best indicated how they described themselves.

Google Forms was used for the virtual administration of the three anxiety scales, as well as the personality traits scale. Once participants had opened the link, they were able to access the information section, as well as the questionnaires and inventories required to ensure that they met the inclusion criteria, which began with a sociodemographic questionnaire with questions on their age, sex, and grades. Immediately afterwards, instructions for answering each inventory appeared on the screen. The instructions were as follows: "Read every sentence and fill in the numbered circle indicating how you feel usually or right now" according to the question. First, the 21-item Beck Clinical Anxiety Inventory (BAI) appeared. This was followed by the State-

Trait Anxiety Inventory (STAI), comprising twenty items for TA and 20 for SA, and finally, a screen with the 24-item personality questionnaire. Once students had completed the survey, a thank you message appeared on the screen, indicating the end of the survey. The link closed and the results were automatically saved.

Scales and questionnaires

The Beck Anxiety Inventory (BAI) is a scale measuring the severity of clinical anxiety in adults and adolescents. The twenty-one items in the BAI contain the DSMV symptomatic criteria for the diagnosis of clinical anxiety, (including anxiety or panic attacks), for the last week including the day of the survey (Beck et al., 2011). In this paper, scores of 0-7 were described as "minimal CA." Scores of 8–15 were termed "mild CA." Scores of 16-25 were classified as "Moderate CA" and lastly, scores of 26-63 were described as "Severe CA" (Beck et al., 2011).

The State-Trait Anxiety Inventory (STAI) adapted to the Mexican population (Spielberger & Díaz-Guerrero, 2002) was used to measure the two dimensions of anxiety. The STAI Inventory has a section to assess trait anxiety (TA) consisting of twenty affirmative statements describing how the participant usually feels, whereas in the section to assess state anxiety (SA), the twenty expressions indicate how the participant feels at that moment (right now). Participants who obtained a score over 44 were considered to be in the TA or high SA group, while those who obtained a score below 30 were considered to be in the TA or low SA group (Spielberger & Díaz-Guerrero, 2002).

The present study was conducted in two phases.

In the first phase of the study, personality traits were assessed using the revised Eysenck personality questionnaire, abbreviated form (EPQR-A; Francis et al., 1992). The latter consists of twenty-four items divided into four dimensions of six items per subscale: extraversion (E), including aspects of positive emotionality, sociability, spontaneity, vitality and externalization; neuroticism (N), including traits such as negative emotionality, anxiety, sensitivity, worry, and self-consciousness; psychoticism (P), encompassing aspects of cruelty, impulsivity, low socialization, nonconformity, irresponsibility and schizoidism, and finally, dissimulation or lying (L), referring to the propensity to conceal or lie (Eysenck et al., 1985). A Likert-type scale response format was used (Muñiz et al., 2005), while the dispersion for each subscale varied from a minimum of four to a maximum of twenty-four points with a median of twelve. In this paper, direct scores were obtained from each subscale, without T transformation.

In the second phase of the study, only one personality trait, neuroticism (N), was evaluated using the revised Eysenck personality questionnaire, with twenty-four items corresponding to the complete EPQR-N neuroticism sub-

scale, with dichotomous responses (Yes/No); and a maximum score of twenty-four (Eysenck et al., 1985).

To determine which personality trait contributed or explained the most in each of the dimensions of anxiety in the study participants, a sample of 185 students classified into different groups by age, sex and school grade were included in the first phase. CA, TA, SA, and Personality Trait scores were determined with the abbreviated scale (EPQR-A) for N, P, E and L using the scales and questionnaires mentioned earlier.

Due to their low contribution and to prevent oversaturation of the predictive model, to obtain a simplified model with the contribution of valid and replicable predictions, the elimination of PTs that contributed little to predicting anxiety dimensions was proposed. For each predictor introduced into the model, adjusted R^2, there was a penalty since it depended on the degrees of freedom.

Data analysis

The reliability of the scales was established with Cronbach's alpha (Cronbach, 1951). The raw total scores of Beck's Anxiety Inventory, Spielberger's State-Trait Anxiety Inventory (STAI) and the Eysenck Personality Profile Inventory were described and compared between groups (two age groups 18-24 and 25-30 years), two groups by sex (men and women) and three groups by grades (70-80, 81-90 and 91-100) as categorical independent variables. The difference between the theoretical and observed cumulative distribution of the variables described was calculated with the Kolmogorov-Smirnov (KS) test, to determine which statistic to use to compare the differences in means or medians and standard deviation (SD) or ranges. When there were two independent groups and normal distribution according to KS, the parametric T-test was used. If the distribution was not normal according to KS, non-parametric, Mann Whitney U test was used. For three groups,

according to their distribution, one-way ANOVA was used, followed by Tukey's test. Values of $p < .05$ were considered significant.

Using multiple linear regression analysis and statistics to determine whether there was collinearity with the Durbin-Watson test, the correlation (R) and the coefficient of determination (R^2) were calculated as a predictor of anxiety dimensions with all PTs, in addition to sociodemographic variables. IBM SPSS Statistics 25 was used.

The sample size was calculated using the latest version of G*Power (v 3.1.9.7; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany). With a power (1-β) of .80, and a significance level (α) of .05, for a bivariate Pearson linear correlation analysis (with an a priori calculation from the worst-case scenario of a low correlation of 0.2), a sample size of 193 subjects would be required. However, based on previous studies in which a correlation of neuroticism with trait anxiety of .848 and of .70 with state anxiety was obtained (Eid et al., 2022), the necessary sample size was eight to thirteen subjects.

Ethical considerations

None of the procedures in this non-invasive research posed a risk to the physical, emotional, or moral integrity of the participants. The research therefore qualifies as minimal risk in accordance with Article 17 of the Regulations of the General Health Law on Health Research. In addition, the guidelines specified in the 1975 Declaration of Helsinki and its amendments were followed, as well as current international codes and standards for good practices in research with humans, and the Official Mexican Standard NOM-012SSA3-2012, which establishes the criteria for undertaking research projects for health in human beings.

This project was approved by the Ethics Committee of the Institute of Neurosciences of the University of Guadalajara, with registration number ET022021-314.

Table 1
Raw Scores of Anxiety Dimensions and Personality Traits in the Various Groups of Young Students

	n = 185	CA	TA	SA	N	E	P	L
Age								
18-24	168 (90.81%)	17.5 ± 11[a]	46.5 ± 10[a]	46 ± 10	13.8 ± 4.2[a]	14.1 ± 2.6[a]	13.4 ± 2.3	10.9 ± 2.1
25-30	17 (9.19%)	11.1 ± 8	39.9 ± 9	41.2 ± 9	10.5 ± 3.6	12.1 ± 3.2	13 ± 2.3	10.5 ± 1.7
Sex								
Female	138 (74.6%)	17 ± 8[b]	47 ± 8[b]	47 ± 9[b]	14 ± 3[b]	13 ± 3	13 ± 1	11 ± 1
Male	47 (25.4%)	13 ± 7	41 ± 10	41.6 ± 8	12 ± 3	14 ± 2	14 ± 2	11 ± 1
Grades								
70-80	7 (4%)	19.1 ± 11	51.4 ± 8.3	47.2 ± 9.8	14 ± 4.8	14.2 ± 2.8	13.8 ± 3.4	10.2 ± 1.3
81-90	81 (46.6%)	17.5 ± 12	45.5 ± 9.9	46.4 ± 10.9	13.4 ± 4.3	13 ± 2.6	13.4 ± 2.4	10.7 ± 2
91-100	86 (49.4%)	16.7 ± 12	46.2 ± 10	44.8 ± 10.8	13.6 ± 4.3	13.2 ± 3	14.2 ± 2.1	11.2 ± 2

Note: [a] = Mean ± DS, [b] = Median ± CI range of the raw scores of Clinical anxiety (CA), Trait anxiety (TA), State anxiety (SA) and EPQR-A personality trait: Neuroticism (N), Extraversion (E), Psychoticism (P) and Lying (L), displayed by young people in groups by age, sex and grade.
n = 185; the significant differences, $p < .05$, are in regard to the same group. Based on tests from [a] T-test, [b] Mann Whitney, [c] ANOVA.

Table 2
Predictive Model of Personality Traits for Anxiety Dimensions (n = 185)

	CA			TA			SA		
	R	Adjusted R²	Sig. Change in F	R	Adjusted R²	Sig. Change in F	R	Adjusted R²	Sig. Change in F
N	.686	.468	< .001	.782	.609	< .001	.759	.574	< .001
E	.020	-.005	.782	.017	-.005	.814	.091	.003	.217
P	.146	.016	.048	.139	.014	.059	.198	.034	.007
L	.055	-.002	.459	.024	-.005	.743	.063	-.002	.398
Age	.222	.044	.002	.211	.039	.004	.167	.023	.023
Sex	.196	.033	.007	.191	.031	.009	.183	.028	.013
Grade	.024	-.005	.757	.039	-.004	.610	.039	-.004	.611

Note: Linear regression analysis. Predictors: personality traits, Neuroticism (N), Extraversion (E), Psychoticism (P), Lying (M), age, sex, and grade. Dependent variable: Clinical anxiety (CA), Trait anxiety (TA), State anxiety (SA). *n* = 185, R = Pearson correlation, R² = Coefficient of determination, Sig = statistical significance.

RESULTS

Phase 1

Subjects who did not fall within the age range of 18 to 30 or failed to complete the survey were eliminated. Of the 185 participants who completed the entire survey at various university centers in the state of Jalisco, Mexico, with an average age of 21 (± 2.6) years, 74% were women; It was found that those under 24 and women had a higher total score for CA, as well as TA and SA. Students with lower grades had higher total CA and SA scores. Participants under 24 and women also displayed higher PTs for neuroticism (Table 1).

The reliability found in the Phase 1 sample of 185 participants or Cronbach's alpha coefficient was .923. for the BAI CA scale, .888 for the STAI TA, .913 for the STAI SA and .823 for the EPQR-A personality traits.

Subsequently, to determine and predict how much each of the personality traits contributed to the anxiety dimensions, a multiple linear regression analysis was conducted, with statistics to determine whether there was collinearity. The correlation and determination coefficient were determined, using the four personality traits, age, sex, and grades, as predictor variables for each of the dimensions of CA, TA, and SA as dependent variables. Values of $p < .05$ were considered significant. All of the above was analyzed using SPSS Statistics 25.

The predictor values for CA, TA, and SA are described in Table 2. As can be seen, the neuroticism personality trait achieved the highest statistically significant predictor value, indicating that this personality trait contributes most to the presence of CA, TA, and SA. Psychoticism, age, and sex only contributed minimally while the other traits provided little or no predictive value.

Phase 2

According to the results of Phase 1, the neuroticism personality trait is the one most strongly associated with the various dimensions of anxiety. Thus, based on the results

Table 3
Raw Scores of Anxiety Dimensions and Personality Traits in the Various Groups of Young Students

	n = 521	CA	TA	SA	N
Age					
18-24	488 (93%)	18.3 ± 12[a]	46.6 ± 10[a]	46.2 ± 12	13.7 ± 5.8[a]
25-30	33 (7%)	13.6 ± 11	42.7 ± 11	44.3 ± 13	11.2 ± 6.5
Sex					
Female	392 (75.2%)	17 ± 9[b]	47 ± 8[b]	47 ± 8[b]	15 ± 5[b]
Male	129 (24.8%)	14 ± 9	43 ± 9	42 ± 10	12 ± 6
Grade					
70-80	21 (4%)	21.4 ± 14	52.8 ± 10[c]	52.8 ± 13[c]	14.1 ± 5
81-90	115 (24%)	18.3 ± 11	46.6 ± 10[c]	48 ± 12	13.3 ± 6
91-100	346 (72%)	17.6 ± 11	45.9 ± 10.8[c]	45.1 ± 11[c]	13.5 ± 5.8

Note: [a] = Mean ± SD, [b] = Median ± Range CI of the raw scores of Clinical anxiety (CA), Trait anxiety (TA), State anxiety (SA) and the Neuroticism personality trait (N), presented by the young people in groups by age, sex and grade, *n* = 521. The significant differences, *p* < .05, are in regard to the same group. Based on tests from [a] T-test, [b] Mann Whitney, [c] ANOVA post hoc Tukey.

Table 4
Predictive Factors: neuroticism personality traits, age, sex and grade for dimensions of anxiety

	CA			TA			SA		
	R	Adjusted R²	Sig. Change in F	R	Adjusted R²	Sig. Change in F	R	Adjusted R²	Sig. Change in F
N	.592	.349	< .001	.803	.644	< .001	.735	.540	< .001
Age	.097	.007	.027	.086	.005	.050	.039	.002	.375
Sex	.102	.008	.020	.195	.036	< .001	.143	.018	.001
Grade	.057	.001	.215	.105	.009	.021	.153	.022	.001

Note: Linear regression analysis. Predictors: personality traits, Neuroticism (N), age, sex, and school grade. Dependent variables Clinical anxiety (CA), Trait anxiety (TA), State anxiety (SA) *n* = 521, R = Pearson correlation, R²: Coefficient of determination, Sig: statistical significance.

of Phase 1, a second phase of sampling and analysis was conducted, with a sample of 521 students also classified into different groups by age, sex, and grades. In this sample, the CA, TA, SA, and Personality Trait scores were also determined, but only with the complete neuroticism subscale (EPQR-N; Eysenck et al., 1985) to be able to associate and predict how much neuroticism contributes to each of the dimensions of anxiety. To this end, a Pearson linear regression analysis and coefficient of determination (adjusted R²) were applied, to show how much neuroticism predicts the dimensions of anxiety.

As in phase 1, a demographic description of the participants was made, shown in Table 3. Subjects who did not fall within the age range of 18 to 30 or failed to complete the survey were eliminated. In the end, a total of 521 students from various university centers in the state of Jalisco, Mexico participated. Enrolled in the areas of Health Sciences, students had an average age of 20.5 (± 2.3) years, and 75.2% were women and 24.8% men. It was found that those under 24 and women had a higher total score for CA, as well as for TA, while only women had SA. Students with lower grades had higher total CA and SA scores. Participants under 24 and women also displayed higher PTs for neuroticism (Table 3).

As with the data from Phase 1, a regression analysis was conducted to determine the correlation and determination coefficient, using only the data from the complete neuroticism scale (EPQR-N), age, sex, and grades, as predictor variables for each of the dimensions of CA, TA, and SA as dependent variables. As can be seen in Table 4, demographic variables (age, sex, and school grade) contributed little to predicting the dimensions of anxiety.

In addition, a regression analysis was conducted to determine the final predictive model using only data from the complete neuroticism scale (EPQR-N) as a predictor variable and the anxiety dimensions as dependent variables: CA, TA, and SA.

It was found that the neuroticism personality trait contributed to the various dimensions of anxiety, in varying proportions: .367 for CA, .644 for TA and .540 for SA. Likewise, it was found that neuroticism predicts all dimensions of anxiety with a coefficient of determination (adjusted R²) of .655 (Table 5).

DISCUSSION AND CONCLUSION

An individual's personality trait is derived from the interaction of a series of genetic and environmental factors, characterizing the differences found in each individual (Vukasović & Bratko, 2015; Gross & Hen, 2004). This paper found that the biological personality trait characterized by negative emotionality, neuroticism, contributed most to the presence of anxiety in its various dimensions with a proportion of over 60% in TA, surpassing other factors such as sex, age, grades, or other PT showing predictive independence.

Table 5
Predictive model of neuroticism personality trait, for anxiety dimensions (n = 521)

	R	R²	Adjusted R²	Change in F	Sig. Change in F	Durbin-Watson
CA	.607	.368	.367	302.215	< .001	1.835
TA	.803	.645	.644	942.398	< .001	1.78
SA	.735	.55	.54	61.412	< .001	1.918
All anxiety dimensions	.81	.657	.655	329.366	< .001	1.875

Note: Linear regression analysis. Predictor = Neuroticism personality trait (N), Independent variable = Clinical anxiety (CA), Trait anxiety (TA), State anxiety (SA) and all dimensions of anxiety together.
n = 521; R = Pearson correlation; R² = Coefficient of determination; Sig = statistical significance.

From the 1940s onwards, Eysenck made significant contributions to the description of human PTs (Eysenck, 1944; 1947; 1963; Eysenck et al., 1985), a classification that has continued to be used until the preset (Eysenck, 2016). His contribution laid the foundations for determining that individual differences in personality traits are associated with cognitive processes and neural networks (Eysenck, 1997; Saviola et al., 2020). These individual differences in personality traits determine the way situations are perceived as threatening and the anxiety response. Knowing the personality trait of everyone would therefore make it possible to predict their anxiety reaction to a threat.

The results of this work show that the neuroticism PT is most strongly associated with the presence of the three dimensions of anxiety in the students in health areas in our sample. These results coincide with what has been reported by Bienvenu & Stein (2003) and other authors (Bienvenu & Stein, 2003; Brandes & Bienvenu, 2006; Kotov et al., 2007), who found that certain PTs are associated with the presence of anxiety, neuroticism being the one most associated with anxiety disorder; However, they did not distinguish between the three dimensions of anxiety, which is the original contribution of the present study.

Other research has reported that the biological personality trait neuroticism is genetically associated with anxiety (Hettema et al., 2004; Barlow et al., 2014; Zugliani et al., 2017). Our results show that the greatest correlation and predictive value of neuroticism is with the presence of TA (Clarke et al., 2008; Uliaszek et al., 2009; Zugliani et al., 2017). The high correlation obtained in our sample was probably due to the fact that neuroticism and TA share common features, as has been suggested by other authors (Uliaszek et al., 2009).

Likewise, the results of other reports concur with ours. These reports observe an even smaller contribution than the one we found in this paper of neuroticism to the prediction of the manifestations of clinical anxiety or panic, which can alter physical homeostasis. If left uncontrolled, its intense, recurrent manifestations can result in severe generalized anxiety disorder (Jorm et al., 2000; Brown & Naragon-Gainey, 2013; Zugliani et al., 2017; Pérez-Mengual et al., 2021).

In general terms, women were found to have a greater prevalence and severity of manifestations of dimensions of anxiety, coinciding with other studies in which sex differences in personality and anxiety traits are reported in all its dimensions (Hettema et al., 2005; Gottschalk & Domschke, 2017).

Our data differ from those found by Eid et al. (2022) who reported differences between TA and SA with values similar to those obtained in our group of young people. Neuroticism was found to contribute to a lesser extent to the momentary reaction of SA in participants' self-reports.

One of the most striking results of the present study is that overall, a higher prevalence of anxiety was found than that reported by other authors (Wathelet et al., 2020; Vahra-tian et al., 2021; Santomauro et al., 2021; Medina-Mora et al., 2022). This difference is probably due to the restrictive conditions of the pandemic experienced between 2020 and 2021. The lack of information on the conditions and aspects of how each participant experienced lockdown, and only having answers obtained virtually, making it impossible to control the way the surveys were administered (ideally individually and in a setting with no distractions), meant that the data compilation was out of our hands.

For over twenty years, mental health has been a priority in the surveillance and treatment system for the WHO, due to the fact that a considerable increase in emotive-emotional diseases has been reported (Twenge, 2000). And in Mexico, the National Survey of Psychiatric Epidemiology (ENEP) has reported an over two-digit increase in the prevalence of anxiety disorders (Medina-Mora et al., 2003; Benjet et al., 2016; Medina-Mora et al., 2022), underlining the importance of establishing more controlled monitoring mechanisms nationwide.

Although the results obtained in the present study only constitute a sample of the high correlation between the neuroticism PT and the presence of anxiety in the youth population of the state of Jalisco, these data provide evidence of the severity of this health problem that probably occurs at the national level, particularly among young students in the area of health sciences. There is therefore an urgent need for the health system and the family nucleus to design more strategies to support and prevent anxiety especially in subjects with high biological vulnerability due to their neuroticism personality trait, which, together with external factors such as the pandemic and its consequences, increased the prevalence of the dimensions of anxiety among young people in the state of Jalisco.

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Conflict of interests

The authors declare that they have no conflicts of interest.

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salud mental

Comparing the Global Assessment of Functioning (GAF) and the World Health Organization Disability Assessment Schedule (WHODAS) 2.0 in children and adolescents

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ABSTRACT

Introduction. The DSM-5 replaced the Global Assessment of Functioning (GAF) with the World Health Organization Disability Assessment Questionnaire (WHODAS) 2.0 as a measure of functioning because of the shortcomings of the former. However, further evidence of how GAF and WHODAS 2.0 scores are correlated and how both instruments are associated with sociodemographic and clinical variables. particularly in children and adolescents, is required to support this change. **Objective.** To correlate GAF and WHODAS 2.0 scores in a sample of children and adolescents, and to determine which sociodemographic and clinical variables are associated with the scores of each instrument. **Method.** Using reports obtained from a secondary database analysis of a cross-sectional, multicentric study, we calculated the correlation between WHODAS 2.0 and GAF scores in a clinical sample of children and performed a general linear model analysis to evaluate the association between the sociodemographic and clinical variables with functioning scores. **Results.** Sixty-six participants completed the evaluation. The correlation between WHODAS 2.0 and GAF (r = -.69, 95% CI = [-.82, -.49], p < .001) was moderate to large and significant. Only poor peer relationships and a higher number of diagnoses were significantly associated with low functioning in both instruments. The results suggest that WHODAS 2.0 and GAF scores reflect different aspects of functioning and disability. **Discussion and conclusion.** Both instruments can provide an accurate assessment of disability/functionality. We propose that, for pediatric cases, WHODAS could provide more information on the self-care domain.

Keywords: Functioning, severity, psychopathology, WHODAS 2.0 interview version, GAF, children and adolescents.

RESUMEN

Introducción. El DSM-5 reemplazó la Evaluación Global del Funcionamiento (GAF) con el Cuestionario de Evaluación de la Discapacidad de la Organización Mundial de la Salud (WHODAS) 2.0 como medida de funcionamiento debido a las deficiencias del primero; sin embargo, mayor evidencia de cómo se correlacionan las puntuaciones GAF y WHODAS 2.0 y cómo ambos instrumentos se asocian con variables sociodemográficas y clínicas, especialmente en niños y adolescentes se necesita para apoyar este cambio. **Objetivo.** Correlacionar las puntuaciones GAF y WHODAS 2.0 en una muestra de niños y adolescentes, y evaluar qué variables sociodemográficas y clínicas están asociadas a las puntuaciones de cada uno de los instrumentos. **Método.** Utilizando informes obtenidos de un análisis de base de datos secundaria de un estudio transversal multicéntrico, calculamos la correlación entre los puntajes WHODAS 2.0 y GAF en una muestra clínica de menores y realizamos un análisis de modelo lineal general para evaluar la asociación entre las variables sociodemográficas y clínicas con puntajes de funcionamiento. **Resultados.** Sesenta y seis participantes completaron la evaluación. La correlación entre WHODAS 2.0 y GAF (r = -.69, 95% CI = [-.82, -.49], p < .001) fue entre moderada y grande y significativa. Solo las malas relaciones con los compañeros y un mayor número de diagnósticos se asociaron significativamente con un bajo funcionamiento en ambos instrumentos. Estos resultados sugieren que las puntuaciones de WHODAS 2.0 y GAF parecen reflejar diferentes aspectos del funcionamiento y la discapacidad. **Discusión y conclusión.** Ambos instrumentos ofrecen una evaluación certera de la discapacidad/funcionalidad. Para casaos pediátricos, el WHODAS 2.0 puede ser más informativo en relación con el auto cuidado.

Palabras clave: Funcionamiento, severidad, psicopatología, WHODAS 2.0 versión de entrevista, GAF, niños y adolescentes.

INTRODUCTION

Some of the changes introduced by the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) involve the way functioning and disability are assessed. In the DSM-5, the World Health Organization Disability Assessment Schedule (WHODAS) 2.0 replaced the Global Assessment of Functioning (GAF). The DSM-5 Task Force deemed it necessary to replace GAF because of its lack of conceptual clarity and questionable psychometrics in routine practice (American Psychiatric Association, 2013).

WHODAS was created in 1988 as a self-reporting tool to record an individual's perspective on their daily functioning. It provides a standardized score measuring difficulties in functioning in the previous thirty days, regardless of any other diagnosis (Rotter, 2018). Answering WHODAS 2.0 implies a degree of insight that could be challenging for some children. The updated version, WHODAS 2.0, is based on the International Classification of Function (ICF) conceptual framework and captures the level of functioning in six domains of life: cognition, mobility, self-care, relationships, life activities and participation. WHODAS 2.0 places health and disability on a continuum, defining disability as "a decrease in each domain of functioning" (Üstün et al., 2010). In contrast to GAF, the WHODAS 2.0 score does not explicitly consider the severity of mental illness (Gspandl et al., 2018). As WHODAS does not consider the severity of mental disorders as part of the disability/functionality dimension, it allows for the assessment of the latter when there is no correlation with symptom severity (Smith et al., 2011; Von Korff et al., 2011; Söderberg et al., 2005).

In the 3rd edition of the DSM (American Psychiatric Association, 1980), axis V was introduced as a measure of "adaptive functioning" and scored on a 7-point scale ranging from superior to grossly impaired. In the revised 3rd edition of the DSM (American Psychiatric Association, 1987), the GAF scale replaced axis V for the assessment of psychological, social, and occupational functioning. In the 4th edition of the DSM, the GAF scale was extended to a 100-point scale (Pedersen & Karterud, 2012). The GAF scale assesses patient symptoms and overall functional ability on a single hypothetical continuum of mental health-related illness (Gspandl et al., 2018). GAF can be reliable, valid, and sensitive to change over time. However, certain limitations have been widely acknowledged. GAF specifically excludes impairment in functioning due to physical or environmental limitations and scores frequently correlate more with the severity of disorders than with levels of disability (Gold, 2014).

The elimination of GAF and the incorporation of WHODAS 2.0 has posed entailed several challenges due to the differences between these instruments. While the justification for using WHODAS 2.0 to expand the evaluation of global functioning and disability (Reed, 2010) is reason-able, some questions appear unsuitable for children and adolescents ("Staying by yourself for a few days?" "Sexual activities," "Assuming your household responsibilities" or "Getting your housework done as quickly as needed"). Further research is required to document what exactly is gained and what is lost by this replacement. If they provide different information, the two instruments could be used together in a complementary way.

To date, three studies have been published that evaluate the WHODAS 2.0 and GAF correlation in adult patients. The first evaluated 200 outpatients in Puerto Rico with any diagnosis and reported a positive, significant correlation of .37 between the scores of the two instruments (Martínez-Taboas et al., 2017). The second is a study conducted in the United States evaluating forty-two inpatients and outpatients with schizophrenia, which reported a significant, negative correlation of -.60 using an inverted GAF score. (Gspandl et al., 2018). The third is a Swedish study evaluating 522 patients with any diagnosis, which reported a significant, negative correlation of -.41 (Ramklint et al., 2022). To date, there have been no reports of these correlations in pediatric samples.

Evidence exists that some sociodemographic and clinical variables have been associated with low general functioning and global disability. These two aspects have been linked to lower levels of peer support (Chang et al., 2012), a greater number of comorbid internalizing and externalizing disorders (Dol et al., 2022), perinatal problems, such as preterm birth (Moster et al., 2008), and a history of emotional and sexual abuse (Mullen et al., 1996; Myroniuk et al., 2022). In this respect, it is necessary to evaluate the association between instruments such as the WHODAS 2.0 and GAF and the presence of such variables, particularly in pediatric samples.

We hypothesize that the correlation between WHODAS 2.0 and GAF scores would be low to moderate due to the high variability in severity and functioning evaluation in pediatric samples. Moreover, we consider that high comorbidity, and any kind of abuse would be significantly associated with low functioning in both instruments. The aim of this study was therefore to evaluate the correlation between the WHODAS 2.0 interview version (each domain as well as the total score) and GAF scores and to study the association between clinical and sociodemographic variables and functioning as assessed by the WHODAS 2.0 interview version and GAF in a psychiatric outpatient sample of children and adolescents in Latin America.

METHOD

Participants

The original sample was a convenience sample comprising outpatient children and adolescents (*n* = 74) referred for

medical-psychiatric evaluation in any of the seven clinical sites (see below), from February to August 2016. The study included the subsample of patients who completed WHO-DAS 2.0 and GAF (*n* = 66).

Raters

Raters were the principal researchers of each clinical site with fifteen years' experience and resident psychiatrists with at least four years' experience in the assessment of pediatric patients. Each clinical site provided three to six different raters. All the raters were trained during a three-day theoretical-practical course when agreements were made in regard to the interview procedures for the K-SADS-PL, GAF and WHODAS 2.0; in the latter, any questions about sexual activity were omitted.

Study design and setting

All participant sites were clinical settings receiving either outpatients, inpatients, or both. The sites included two psychiatric hospitals, a university psychiatric outpatient service in Mexico City, a general hospital with psychiatric service in Aguascalientes, Mexico, a general hospital with psychiatric service in Medellin, Colombia, and two psychiatric hospitals in Santiago de Chile, Chile, and Montevideo, Uruguay.

Measurements

World Health Organization Disability Assessment Schedule (WHODAS) 2.0.

We used the full 36-item self-administered version of WHODAS 2.0, as included in the DSM-5. Studies have reported that the WHODAS 2.0 has high internal consistency (with a Cronbach's alpha of .86), validity and reliability in epidemiological (Kimber et al., 2015) and clinical samples of young adolescents (Hu et al., 2012), and good concurrent validity with other instruments measuring a similar concept of disability (Hernández-Orduña et al., 2017). WHODAS 2.0 questions relate to the difficulties in functioning experienced by the interviewee during the previous thirty days. WHODAS 2.0 scores range from 36 to 180. Due to the low insight reported in psychotic patients (Hernández-Orduña et al., 2017), and the reading difficulties experienced by some children, as instructed by the DSM-5 clinician administration guide, the rater administered WHODAS 2.0 as an interview, simultaneously questioning the child/adolescent and parent/guardian and establishing a consensus answer.

Global Assessment of Functioning (GAF)

The GAF score (1 to 100) provides a classification of the subject's psychological, social, and occupational functioning, ranging from positive mental health to severe psychopathology. The GAF has high internal consistency (with a Cronbach's alpha of .74) (Söderberg et al., 2005). GAF values can be a single total score or range-type scores (Aas, 2011).

These instruments have opposite directions in their scores. Whereas a higher GAF score suggests higher functioning, a higher WHODAS 2.0 score indicates lower functioning. In this respect, a negative correlation would indicate that both scores correlate in their measure of functioning.

Clinical and psychosocial variables

We used the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS-PL-5), a semi-structured diagnostic interview designed to collect detailed sociodemographic and clinical information provided by the parent/guardian and child/adolescent to establish a diagnosis. Through the introductory interview of this instrument, we obtained the full psychosocial information provided by the K-SADS-PL-5, in other words, the participant's status regarding parental divorce, complications at birth, abnormal development, maternal and parental history of mental illness, any kind of abuse and poor peer relationships. All these variables were coded dichotomously, as either present or absent. In the case of abuse, this was scored as present when any type (emotional, sexual, physical, or neglect) was present. Trained clinicians conducted the interview and used all responses to establish a more accurate clinical estimate for the symptoms in each disorder. The number of diagnoses was established after completing all the necessary appendices for each participant. Inter-rater reliability for all diagnoses included in the K-SADS-PL-5 ranged from moderate to good (kappa > .7; de la Peña et al., 2018a; de la Peña et al., 2018b).

Procedure

After receiving a thorough explanation of the research and after signing participation and assent/consent forms, the parent/guardian and the child/adolescent were interviewed for one to four sessions, lasting thirty to 120 minutes each. All participants were evaluated using the Spanish version of the K-SADS-PL-5. The WHODAS 2.0 and GAF were completed at the end of the interview.

Statistical analysis

Descriptive statistics are expressed as measures of means and standard deviation (SD) or frequency and percentages. A Spearman correlation between WHODAS 2.0 and GAF domains and total scores was calculated given the interval nature of the data. A general linear model analysis was performed to evaluate the association between selected sociodemographic and clinical variables with WHODAS 2.0 and GAF functioning scores. Analysis was performed using R (R Core Team, 2021). The level of significance was set at $p < .05$.

Table 1
Psychosocial characteristics and diagnostic profile of the current pediatric sample (n = 66). Psychosocial characteristics were scored dichotomously, and values reflect frequency and percentage of positive answers

Variable	Value	n	(%)
Psychosocial characteristic	Monoparental family	32	(48.4)
	Divorced parents	23	(34.8)
	Developmental delays	7	(10.6)
	Birth delivery complications	30	(45.4)
	Abuse	12	(18.1)
	Bad peer relationships	17	(25.7)
	Mother psychiatric history	15	(22.7)
	Father psychiatric history	16	(24.2)
	Attending School	61	(92.4)
Diagnostic profile	Attention deficit/hyperactivity disorder	25	(37.9)
	Oppositional defiant disorder	18	(27.3)
	Simple phobias	17	(25.6)
	Social anxiety	17	(25.6)
	Intermittent explosive disorder	15	(22.7)
	Major depressive disorder	15	(22.7)
	Substance abuse	2	(3.03)

Ethical considerations

Informed assent and consent were obtained from all child/adolescent and parent/guardian participants in written form. Forms were signed after assenting/consenting to participate, with two witnesses also signing the same form. The authors declare that all procedures contributing to this study comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects/patients were approved by the Institutional Review Board of the INPRFM with authorization No. CEI/029/2020.

RESULTS

Sociodemographic and clinical characteristics are shown in Table 1. Most of the total sample (n = 66, 62.1% males, 11.4 years, SD = 3.2) were children actively attending school (92.4%). The mean number of diagnoses was 3.38 (SD = 2.78). More sample details can be reviewed in previous publications (de la Peña et al., 2018a; de la Peña et al., 2018b).

The mean WHODAS 2.0 and GAF scores were 60.48 (SD = 18.33) and 59.86 (SD = 17.10) respectively. WHODAS mean subdomains yielded the following scores: cognition = 11.38 (SD = 4.73), mobility = 6.41 (SD = 2.08), self-care = 5.12(SD = 1.72), relationships = 7.5 (SD = 3.01), life activities = 16.86 (SD = 7.68) and participation = 13.23 (SD = 5.36). The correlations between WHODAS 2.0 domains and total scores with GAF were all negative and significant (Table 2).

Regression analysis showed that although several variables contributed significantly to the variance of WHODAS 2.0 (R^2 = .41) and GAF (R^2 = .53), only the total number of diagnoses and poor peer relationship significantly contributed to the variance of both instruments (Table 3).

DISCUSSION AND CONCLUSION

We found negative and significant correlations between WHODAS 2.0 domains and total scores and GAF. Moreover, we found that only poor peer relationships and a higher number of diagnoses were associated with lower functioning scores on both instruments.

WHODAS 2.0 vs GAF

Some advantages and disadvantages have been described for both instruments. On the one hand, WHODAS 2.0

Table 2
Correlations of World Health Organization Disability Assessment Schedule 2.0 (WHODAS) 2.0 domains and total scores with Global Assessment of Functioning (GAF) scores

Comparisons	r	p	95% CI
WHODAS total score *vs*. GAF	-.69	< .001	-.81, -.50
WHODAS: cognition *vs*. GAF	-.50	< .001	-.67, -.29
WHODAS: mobility *vs*. GAF	-.43	.005	-.61, -.21
WHODAS: self-care *vs*. GAF	-.27	.034	-.48, -.04
WHODAS: relationships *vs*. GAF	-.48	.002	-.67, -.27
WHODAS: life activities *vs*. GAF	-.60	< .001	-.75, -.42
WHODAS: participation *vs*. GAF	-.55	< .001	-.71, -.35

Table 3

Associations between sociodemographic and clinical variables with World Health Organization Disability Assessment Schedule 2.0 (WHODAS) 2.0 and Global Assessment of Functioning (GAF) scores

	WHODAS 2.0		GAF	
Variables	*Est. (S.E.)*	*p*	*Est. (S.E)*	*p*
Age	.98 (.56)	*.09*	-1.08 (.5)	*.03*
Gender: Female	-6.45 (3.92)	.11	4.92 (3.46)	.16
Parental divorce+	7.55 (4)	*.06*	4.22 (3.54)	.24
Birth delivery complications+	.71 (3.68)	.85	-6.55 (3.25)	*.05*
Abnormal development+	10.56 (5.96)	*.08*	-6.13 (5.26)	.25
Maternal history of mental illness+	-7.87 (4.96)	.12	6.21 (4.38)	.16
Paternal history of mental illness+	-1.42 (4.29)	.74	-1.02 (3.79)	.79
Abuse+	14.76 (5.13)	*.01*	-7.73 (4.54)	*.09*
Bad peer relationships+	13.75 (5.1)	*.01*	-9.73 (4.5)	*.03*
Number of diagnoses	1.81 (.69)	*.01*	-3.12 (.61)	*< .001*

Note: + Indicates presence vs absence of this characteristic. Significant values are in italics.
S.E.= Standard error.

is completed during a semi-structured interview for any disease assessment of patient functioning in which impairment and disability are evaluated over six domains described during the past thirty days. It is reliable, responsive to change, and promoted by the WHO (Üstün et al., 2010; World Health Organization, 2010). Disadvantages include its limited familiarity due to its recent incorporation in the DSM-5, long application times (at least in the 36-item version) and the fact that it mainly uses activities that are meaningful for adults. On the other hand, GAF is completed by clinicians, used in a variety of settings, and has acceptable reliability when raters are experienced and trained (Gspandl et al., 2018). The disadvantages of GAF include the fact that it uses a single measure as an operationalization of more than one clinical phenomenon (psychological symptoms and social and occupational functioning). In addition, its validity diminishes when there is a discrepancy between symptom severity and functioning (Aas, 2011; Pedersen & Karterud, 2012). Finally, WHODAS subscales provide a detailed view of functionality, whereas GAF does not identify the specific domain that most affects the patient.

Previous studies of adult psychiatric samples have reported moderate to large significant correlations (Gspandl et al., 2018; Martínez-Taboas et al., 2017; Ramklint et al., 2022) between WHODAS 2.0 and GAF scores. In the current study, the moderate correlations could be explained by the fact that WHODAS 2.0 contains non-specific items, which most children or adolescents with psychopathology can perform without difficulty, such as those in the mobility and self-care domains. In our pediatric sample, these items were rated as "without problems," leading to a better functioning score, whereas in the GAF evaluation, the clinician integrates functioning with psychiatric disorders,

even though this is a controversial strategy (Smith et al., 2011). In view of this, we would recommend WHODAS 2.0 to evaluate psychiatric patients with a general medical condition that may include mobility, relationships, self-care, or participation disturbances that may not be present in all psychiatric patients. Interestingly, five out of the six domains in WHODAS 2.0 showed a moderate, significant correlation with GAF scores.

Although a WHODAS 2.0 version is available for children and adolescents, it is remarkably similar to the adult version (Scorza et al., 2013) but has not yet been incorporated into the DSM-5 or the DSM-5 revised version. The pediatric version requires further research before it can be widely used.

Functioning vs. sociodemographic and clinical variables

The results of the regression analyses confirmed previous reports regarding the association between sociodemographic and clinical variables and general functioning. In particular, poor peer relationships and a higher number of comorbid disorders were associated with low functioning in the scores of both instruments. In poor peer relationships, both instruments contain items that exclusively assess issues in this domain, which could explain the over-representation. Despite this, social relations in children and adolescents are one of the main pillars of the evaluation of functioning as was seen in the current sample. Children and adolescents spend a great deal of time with their peers who influence their behavior and values. Peer relationships serve as a bridge when adolescents move away from their parents towards independent adult functioning (Rohrbeck, 2003).

As for the number of diagnoses, a growing body of evidence about the commonality of triggers or factors as-

sociated with global psychopathology has led to a more dimensional approach to understanding mental illness. All psychopathological disorders are correlated not only at the disorder level, but also at the spectra level (Wright et al., 2013). Most common psychiatric disorders are therefore unified by a single psychopathology dimension, the p-factor (Caspi et al., 2014). Higher p-factor scores are associated with greater impairment in life and family dysfunction (Caspi & Moffitt, 2018). Previous studies have established that a higher number of diagnoses correlates with poor functioning (Caspi et al., 2014). If a higher number of diagnoses is associated with lower functioning, the dimensional diagnosis approach may need to be more frequently implemented. Variables such as complications at birth and having a history of abuse should be considered in future research to expand and achieve a better understanding of their impact on functioning outcomes.

Limitations

None of the participants in the sample were inpatients with severe disorders, which limits comparisons with other reports. The fact that this was a cross-sectional study meant that no association over time could be reported. The small sample size may have created a statistical bias. The way WHODAS 2.0 was applied limits its comparison with other self-report studies. Since global clinical severity was not evaluated, we were unable to use it as a covariate in the regression analysis.

Conclusion

The results of the current study provide evidence that WHODAS 2.0 and GAF scores appear to reflect similar aspects of functioning, as evidenced by the moderate correlation values. Poor peer relationships and a higher number of diagnoses are associated with lower functioning evaluations with WHODAS 2.0 and GAF. We therefore propose that in the case of younger patients, GAF could be used to complement WHODAS to obtain a full profile of the patient's functioning, particularly in the self-care domain.

Conflict of interest

The authors declare they have no conflicts of interest.

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In memoriam
Guillermina Natera Rey (1946-2024)

La Doctora Guillermina Natera Rey fue una reconocida psicóloga y antropóloga y es un referente en el estudio de las adicciones y la salud mental

Guille, como cariñosamente todos le decíamos en el Instituto, nació en Navojoa, Sonora. En 1970 se tituló como psicóloga en la Universidad Nacional Autónoma de México, a la que siempre consideró su Alma Mater. Posteriormente realizó la maestría en Psicología por la Universidad Iberoamericana, con Mención Honorífica. Su interés por la psicología como una ciencia social la llevó a ampliar sus estudios con la maestría en Ciencias, con especialidad en Educación (con énfasis en la Sociología), estudios concluidos en el CINVESTAV. Posteriormente realizó el doctorado en Antropología en la Escuela Nacional de Antropología e Historia (ENA). Fue Investigadora Emérita del Sistema Nacional de Investigadores y una de las primeras psicólogas en pertenecer a la Academia Nacional de Ciencias.

Recién egresada de la licenciatura obtuvo su primer trabajo como Orientadora Vocacional en la Universidad La Salle, y en 1973 ingresó al recién formado Centro Mexicano en Estudios en Farmacodependencia (CEMEF), que posteriormente se convertiría en el Instituto Nacional de Psiquiatría. Además de ser una de las fundadoras de esta Institución, dirigió por diez años (2008-2018) la Dirección de Investigaciones Epidemiológicas y Psicosociales.

El campo de las adicciones fue al que le dedicó varios años de su vida. Es durante los años setenta que se interesó en el estudio de las relaciones de pareja y el consumo de alcohol. Fue así como la Organización Mundial de la Salud la contacta para trabajar conjuntamente con el Doctor Jim Orford, otro distinguido investigador en el tema de las adicciones, y es a partir de este interés académico y del compromiso mutuo con las familias con problemas de adicciones que nace una entrañable amistad y colaboración que mantuvieron juntos a lo largo de toda su vida.

Guillermina siempre defendió el abordaje en la investigación en salud mental y adicciones desde una mirada psicosocial, frente a la visión más reducida y ahistórica que prevalecía en esa época en la investigación psicológica. Fue una de las pioneras en la institución en la investigación cualitativa para explorar los problemas asociados al consumo nocivo de alcohol en poblaciones rurales, urbanas e indígenas de México. Fundó una línea de investigación enfocada en mejorar la salud mental de los familiares de usuarios de alcohol y drogas, lo que le valió amplio reconocimiento nacional e internacional, al ser nombrada como coordinadora del Centro Colaborador de la OPS/OMS del INPRFM durante más de quince años.

Asimismo se interesó profundamente en la salud mental de las mujeres y aportó una visión crítica de los aspectos socioculturales relacionados con el consumo de sustancias y

la violencia ejercida. También estaba firmemente convencida del enorme alcance que tiene la investigación aplicada para la implementación de intervenciones breves para reducir el consumo de alcohol en el primer nivel de atención.

Por su amplia experiencia en la investigación colaboró como docente en universidades públicas y privadas, además de desempeñarse como tutora de los programas de Maestría y Doctorado en las facultades de Psicología y Medicina de la UNAM, lo que le permitió formar a toda una generación de investigadoras que continuarán su legado y la extrañarán profundamente. En todas sus actividades como investigadora, académica y docente se reconoce su mirada interdisciplinaria y su interés por el trabajo colaborativo. Su ejemplar trayectoria fue reconocida al participar en diversas comisiones nacionales e internacionales por lo que recibió múltiples distinciones, entre las más recientes destaca el Premio Dr. Gerardo Varela 2024, por su desempeño profesional en el área de la salud mental.

Quienes tuvimos la oportunidad de convivir con Guille, siempre la recordaremos como una mujer de gran fortaleza, entusiasta, tenaz, comprometida, aguerrida y trabajadora, que disfrutaba al máximo la vida; lo mismo de un día de trabajo de campo, como en un viaje o en una reunión con amigos. Hasta siempre a nuestra querida Guille.

Doctora Shoshana Berenzon Gorn
Directora de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz

GUÍA PARA LOS AUTORES

La revista Salud Mental publica artículos originales sobre psiquiatría, psicología, neurociencias y disciplinas afines de acuerdo con los siguientes formatos:

1. Editoriales

Se escriben por invitación del Director-Editor de la revista. Deben expresar opiniones autorizadas sobre temas específicos de interés para la comunidad científica y para el área de la salud mental. Su objetivo es estimular el debate y promover nuevas líneas de investigación. *Extensión máxima: 1000 palabras*.

2. Artículos originales (sección revisada por pares)

Presentan resultados de investigaciones no publicados en otras revistas. Pueden desarrollarse a partir de las siguientes metodologías:

- **Metodología cuantitativa:** Incluye resultados primarios y secundarios de estudios transversales, ensayos clínicos, casos y controles, cohortes y estudios cuasi experimentales. *Extensión máxima: 3500 palabras*.

  De acuerdo con el tipo de estudio, los manuscritos deben cumplir con las guías:
  • Los ensayos clínicos aleatorizados deben adecuarse a las guías *CONSORT* (http://www.consort-statement.org).
  • Los estudios con diseños no experimentales, a las guías *TREND* (http://www.trend-statement.org).
  • Los estudios transversales, de cohorte, y de casos y controles, a la guía *STROBE* (http://www.strobe-statement.org).

- **Metodología cualitativa:** Incluye reportes de grupos focales, entrevistas a profundidad, redes semánticas y análisis de contenido. *Extensión máxima: 5000 palabras*.

  Deben cumplir con la guía *COREQ* (https://academic.oup.com/intqhc/article/19/6/349/1791966/Consolidated-criteria-for-reporting-qualitative).

3. Artículos de revisión (sección revisada por pares)

- **Revisiones sistemáticas:** Preferentemente deben incluir un metaanálisis. *Extensión máxima: 4000 palabras*.

4. Casos clínicos (sección revisada por pares)

Incluye reportes de efectos de un método diagnóstico o terapéutico que sea útil o relevante en el ámbito médico, académico o científico. *Extensión máxima: 2000 palabras*.

Deben cumplir con la guía *CASE REPORT* (https://www.care-statement.org/checklist)

Nota: El conteo de palabras para cada una de estas secciones excluye el título, los resúmenes y las palabras clave, así como los apartados de financiamiento, conflictos de interés y agradecimientos; tampoco se consideran las palabras incluidas en tablas, figuras y referencias.

IDIOMAS

Salud Mental recibe y publica únicamente manuscritos en inglés.

ASPECTOS ÉTICOS EN LA PUBLICACIÓN

Vea los Lineamientos éticos en el sitio web de Salud Mental (www.revistasaludmental.mx).

AUTORÍA

El número de autores dependerá del tipo de manuscrito enviado. Para artículos originales y artículos de revisión el número máximo de autores será de ocho. Solo cuando se trate de estudios multicéntricos el número máximo de autores será de doce, siempre y cuando se justifique de acuerdo con el alcance del estudio.

En caso de autoría colectiva, se incluirá el nombre de los redactores o responsables del trabajo seguido de «*y el grupo...*» cuando todos los miembros del grupo se consideren coautores del trabajo. Si se desea incluir el nombre del grupo, aunque no todos sus miembros sean considerados coautores, se mencionarán a los autores responsables seguido de «*en nombre del grupo...*» o «*por el grupo...*». En cualquier caso, los nombres e instituciones de los miembros del grupo se incluirán en un anexo al final del manuscrito.

LINEAMIENTOS EDITORIALES

Es muy importante que los autores consideren los siguientes puntos antes de enviar sus manuscritos:

1. Los manuscritos deben redactarse de forma clara y concisa, sin errores de ortografía ni de sintaxis.

2. El texto debe estar escrito en formato Word, en fuente Times New Roman de 12 puntos, a doble espacio, con márgenes de 2.5 cm. y en tamaño carta.

3. Las páginas se numeran consecutivamente, empezando por la página del título y con el número escrito en la esquina superior derecha.

4. La primera página (donde se encuentra el título) debe contener los siguientes apartados en el orden que aquí se menciona:

- **Título del trabajo en español y en inglés.** El título debe ser descriptivo e indicar los resultados principales del estudio. *Extensión máxima: 25 palabras*

- **Título corto en español y en inglés.** *Extensión máxima: 6 palabras*.

- **Nombre completo del autor y de los coautores.** Los autores deberán colocarse en listado; luego, en superíndice, deberá colocarse un número arábigo que indique la institución de adscripción.

- **Número ORCID de los autores.** Es requisito que cada uno de los autores cuente con su número de identificación ORCID, el cual se puede conseguir en https://orcid.org/register

- **Adscripción de los autores.** Se debe indicar con números arábigos y en superíndice. Las adscripciones se colocan inmediatamente después de los nombres de los autores (no como notas en pie de página). Es necesario que la adscripción especifique: departamento, área, institución, ciudad y país de cada autor. No es necesario indicar la dirección postal. Las instituciones deben escribirse en su idioma original, sin traducción. Si los autores añaden siglas, éstas deben pertenecer al nombre oficial. No se deben escribir cargos ni grados de los autores (doctor, residente, investigador, etc.).

Ejemplo:

Juan José García-Urbina,[1]

Héctor Valentín Esquivias Zavala[2]

[1] Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.
[2] Departamento de Publicaciones, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.

- Al final de la primera página, en el apartado **"Correspondencia"**, se proporcionarán los datos de contacto del autor corresponsal (dirección postal completa, teléfono, correo electrónico). Es con quien Salud Mental se comunicará durante todo el proceso editorial.

  Ejemplo:

  Correspondencia:
  Juan José García-Urbina
  Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz.
  Calz. México-Xochimilco 101, San Lorenzo Huipulco, Tlalpan, 14370, Ciudad de-México, México.
  Tel: 55 4152-3624
  E-mail: jurb@imp.edu.mx

5. La segunda página debe contener los resúmenes del trabajo presentado en inglés y español. *Extensión máxima: 250 palabras.*

   - **Artículos originales y Revisiones sistemáticas.** Los resúmenes deben estar conformados por: Introducción, Objetivo, Método, Resultados y Discusión y conclusión.

   - **Casos Clínicos.** Los resúmenes deben estar conformados por: Introducción, Objetivo, Principales hallazgos, Intervenciones y resultados y Discusión y conclusión.

   - **Palabras clave.** Al final de cada resumen se incluirá un mínimo de cuatro y un máximo de seis palabras clave, separadas por comas y en minúsculas. Las palabras clave deben ser las mismas en inglés y en español. Éstas suelen emplearse para la indexación de los artículos, por lo cual tres de ellas deben encontrarse en el MeSH (*Medical Subject Headings*) que se puede consultar en: *http://www.nlm.nih.gov/mesh/MBrowser.html*.

6. A partir de la tercera página comienza el cuerpo del manuscrito, el cual deberá conservar la estructura señalada en el resumen.

   - **Introducción (o Antecedentes en el caso de las Revisiones narrativas).** El último párrafo de este apartado debe incluir de forma clara los objetivos del trabajo y, si se cree necesario, las hipótesis.

   - **Método.** Es preciso que cuente con las siguientes secciones:

     • Diseño del estudio
     • Participantes/descripción de la muestra
     • Sedes
     • Mediciones
     • Procedimientos
     • Análisis estadísticos
     • Lineamientos éticos.

Nota: En caso de los artículos de revisión y casos clínicos, estas secciones pueden ser modificadas de acuerdo con la guía PRISMA (revisiones sistemáticas o la guía CASE REPORT (casos clínicos).

   - **Resultados.** Se presentarán en una secuencia lógica dentro del texto. Pueden apoyarse con tablas, gráficas y figuras.

   - **Discusión y conclusión.** En esta sección se destacarán los aspectos nuevos e importantes del estudio y las conclusiones que derivan del mismo, así como las posibles implicaciones de sus hallazgos y sus limitaciones.

7. Después del apartado de Discusión y conclusión, es preciso agregar las declaraciones de los autores en el siguiente orden:

   - **Financiamiento.** En este apartado se debe declarar si el estudio o la preparación del manuscrito recibió algún tipo de financiamiento, indicando el nombre de la entidad que proporcionó los fondos.

     Ejemplo:

     Este estudio fue financiado en parte por el CONSEJO NACIONAL DE CIENCIA Y TECNOLOGÍA. (No. XXXXXXX).

     Si no se recibió ningún apoyo financiero, los autores deben declararlo también.

     Ejemplo:

     Ninguno.

   - **Conflicto de intereses.** En esta sección, los autores deberán declarar si tienen conflictos de intereses relacionados con su actividad científica. Tener un conflicto de interés no supone necesariamente un impedimento para la publicación del manuscrito. Si no existe conflicto de interés se debe insertar la siguiente frase: *"Los autores declaran no tener algún conflicto de intereses".*

   - **Agradecimientos.** Cuando se considere necesario, se mencionarán después de las declaraciones anteriores los agradecimientos a personas, centros o entidades que hayan colaborado o apoyado en la investigación.

8. **Referencias.** Las referencias se colocan después de las declaraciones del autor (Financiamiento, Conflicto de intereses y Agradecimientos), y *deben seguir exclusivamente las normas de publicación de la American Psychological Association (APA), en su última edición* (https://normas-apa.org).

9. **Tablas y figuras.** Salud Mental establece un máximo de cinco elementos gráficos en total. *El estándar solicitado para la elaboración de tablas y figuras es el de la American Psychological Association (APA), última edición* (https://normas-apa.org)*.* Éstas se colocarán al finaldel manuscrito después de las referencias:

   - Las tablas deben contener título y, en la parte inferior, una nota con el desglose de las siglas.

   - Las figuras deben enviarse en un formato de alta resolución (mínimo 300 dpi).

   - Los títulos de las tablas y los pies de las figuras deben ser claros, breves y llevar siempre el número correspondiente que los identifique. Dentro del texto, el autor debe indicar entre paréntesis y con mayúsculas en qué parte del texto sugiere insertar los elementos gráficos.

     Ejemplo:

     Se cambiaron las definiciones de algunos patrones conductuales (Tabla 3) de manera que fueran más comprensibles en el idioma español y se redefinieron las categorías que agrupan dichos patrones con base en la literatura especializada. (INSERTAR AQUÍ TABLA 3)

ARCHIVOS COMPLEMENTARIOS

1. *Carta de autorización de uso de la obra.* Debe estar firmada por todos los autores y enviarse en formato PDF que se puede descargar en http://revistasalud-mental.mx/public/Carta-autorizacion-para-publicacion.pdf.

2. *Carta de presentación.* El autor debe exponer las fortalezas de su aportación científica, resaltando el alcan-

ce, la originalidad y la importancia de su contribución al campo de la salud mental. *Es de carácter obligatorio mencionar a tres revisores nacionales o internacionales en el campo de conocimiento del manuscrito sometido, favor de indicar el nombre completo y correo electrónico de cada uno de los revisores.* Debe cargarse en formato PDF.

ÉNFASIS Y PUNTUACIÓN

1. Es importante que los manuscritos eviten en general las notas a pie de página, aunque se pueden considerar si son claramente necesarias.

2. Las cursivas deben utilizarse para:
   - Destacar palabras extranjeras.
   - Enfatizar expresiones populares.
   - Mencionar títulos de libros, documentos ya publicados y publicaciones periódicas.

3. Las cursivas pueden emplearse para:
   - Resaltar términos significativos o importantes cuando se mencionan por primera vez.
   - Destacar una palabra u oración dentro de una cita.

4. Las comillas dobles deben usarse solamente para:
   - Citar párrafos de otros autores dentro del texto.
   - Citar textualmente fragmentos del discurso de los sujetos de estudio.

5. Evite el uso de paréntesis doble, es decir, un paréntesis dentro de otro. En su lugar utilice corchetes.

6. Puede emplearse guiones largos para indicar oraciones parentéticas.

7. Deben utilizarse de forma correcta todos los signos de puntuación. Por ejemplo, si emplea signos de interrogación en un texto en español, deben colocarse los de apertura y cierre correspondientes; se procede de igual manera con las comillas.

FÓRMULAS MATEMÁTICAS Y ESTADÍSTICAS

Para presentar los resultados se deben considerar las siguientes indicaciones:

1. Escribir con letra las cifras de cero a nueve y con números las cifras de 10 en adelante.

2. Utilizar números cuando se trate de fechas, muestras, etcétera.

3. Incluir en los datos estadísticos los intervalos de confianza.

4. Los símbolos estadísticos se escriben en cursivas (por ejemplo, *M, SD, n, p*).

5. Expresar la probabilidad exacta con dos o tres decimales (por ejemplo, $p = .04$; $p = .002$) sin el cero adelante del punto decimal. En caso de ser menor a .001 indicarlo con un < .001.

6. Dejar un espacio antes y después de cada signo (a + b = c en lugar de a+b=c).

7. Emplear puntos en lugar de comas para indicar decimales.

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Antes de enviar su manuscrito, cerciórese de adjuntar la documentación solicitada. A los autores, se les devolverá aquellos envíos que no cumplan con los lineamientos editoriales.

1. Manuscrito en formato en WORD.

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Salud Mental publishes original articles on psychiatry, psychology, neurosciences and other related fields in the following formats:

1. **Editorials**
   Written at invitation of the Director Editor, editorials express authoritative opinions on specific topics of interest to the scientific community and the area of mental health. They are designed to foster debate and promote new lines of research. *Maximum extension: 1000 words.*

2. **Original articles (peer-reviewed section)**
   These articles present research results unpublished in other journals, and can be written using the following methodologies:

   - *Quantitative methodology.* This methodology includes primary and secondary results from cross-sectional studies, clinical trials, cases and controls, cohorts, and quasi-experimental studies. *Maximum extension: 3500 words.*

     Depending on the type of study, manuscripts should adhere to the following guidelines:

     - Randomized clinical trials should adhere to the _CONSORT guidelines_ (http://www.consort-statement.org).
     - Studies with non-experimental designs should adhere to the _TREND guidelines_ (http://www.trend-statement.org).
     - Cross-sectional, cohort, and case-control studies should adhere to the _STROBE guidelines_ (http://www.strobe-statement.org).

   - *Qualitative methodology.* This methodology includes focus group reports, in-depth interviews, semantic networks, and content analysis. *Maximum extension: 5000 words.*

     Articles using this type of methodology should comply with the _COREQ guidelines_ (https://academic.oup.com/intqhc/article/19/6/349/1791966/Consolidated-criteria-for-reporting-qualitative).

3. **Review articles (peer-reviewed section)**
   - **Systematic reviews.** These reviews should preferably include a meta-analysis. *Maximum extension: 4000 words.*

4. **Case reports**
   They include reports on the effects of a diagnostic or therapeutic method that is useful or relevant in the medical, academic, or scientific field. *Maximum length: 2000 words.*
   These should comply with the _CASE REPORT guidelines_ (https://www.care-statement.org/checklist).

> **Note.** The word count for each of these sections excludes the title, abstracts, and keywords, as well as the funding, conflicts of interest and acknowledgments sections. Words included in tables, figures and references are not considered either.

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The number of authors will depend on the type of manuscript submitted. The maximum number of authors for original or review articles is eight. Only in the case of multicenter studies will the maximum number of authors be increased to twelve, provided this is justified by the scope of the study.

In the event of collective authorship, the name of the editors or those responsible for the article will be included followed by "and the group..." when all members of the group consider themselves co-authors of the work. If the name of the group is to be included, even if not all its members are considered co-authors, the authors responsible will be mentioned followed by "on behalf of the ...group or "by the...group." In any case, the names and institutions to which members of the group are affiliated should be included in an appendix at the end of the manuscript.

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It is of the utmost importance for authors to consider the following before sending their manuscript:

1. Manuscripts should be written clearly and concisely, with no spelling or grammatical errors.

2. The text should be written in Word format, Times New Roman font, size 12, with double-spacing and 2.5 cm margins on letter size sheets.

3. Pages should be numbered consecutively, beginning with the title page, with the number written in the upper right corner.

4. The first page (showing the title) should contain the following sections in the order mentioned here:

   - *Title of article in Spanish and English*. The title should be descriptive and indicate the main results of the study. *Maximum extension: 25 words.*
   - *Short title in Spanish and English*. *Maximum extension: 6 words.*
   - *Full name of author and co-authors*. The authors must be listed and then an Arabic number must be placed in superscript, indicating the institution to which they are affiliated.
   - *Author ORCID number.* It is a requirement that all authors have their ORCID identification number, which can be obtained at https://orcid.org/register
   - *Author affiliation*. This should be indicated with Arabic numerals and in superscript. Affiliations should be placed immediately after authors' names (not as footnotes). Affiliations should specify the department, area, institution, city, and country of each author. It is not necessary to indicate the postal address. Institutions must be written in their original language, without translation. If the authors add acronyms, these must be included in the official name. No positions or degrees of the authors (such as doctor, resident, or researcher) should be written.

   · For example:

   Juan José García-Urbina,[1] Héctor Valentín Esquivias Zavala[2]

   [1] Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.
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  For example:

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  Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz.
  Calz. México-Xochimilco 101, San Lorenzo Huipulco, Tlalpan, 14370, Ciudad de México, México.
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5. The second page should contain abstracts of the article in English and Spanish. Each abstract should contain a maximum of 250 words.

   - **Abstracts of original articles and systematic reviews** should comprise the following: Introduction, Objective, Method, Results, and Discussion and Conclusion.

   - **Abstracts of Clinical Cases** should comprise Introduction, Objective, Main findings, Interventions, Results, and Discussion and Conclusion.

   - **Keywords.** At the end of each abstract, a minimum of four and a maximum of six keywords should be included, separated by commas and in lower case. Keywords must be the same in English and Spanish. These are used for indexing articles, which is why three of them must be found in the *MeSH (Medical Subject Headings)* (http://www.nlm.nih.gov/mesh/MBrowser.html).

6. The body of the manuscript begins on the third page, which should follow the structure indicated in the abstract:

   - **Introduction (or Background for Narrative Reviews)**. The last paragraph of this section should clearly include the objectives of the review and, if necessary, the hypotheses.

   - **Method.** This should contain the following sections:
     - Study design
     - Subjects/sample description
     - Sites
     - Measurements
     - Procedure
     - Statistical analysis
     - Ethical considerations (See ethical guidelines for publication. Add link)

       In the case of review articles and clinical cases, these sections may be modified in keeping with the PRISMA guideline (systematic reviews) or the CASE REPORT guideline (clinical cases).

   - **Results.** These should be presented in a logical sequence within the text. They can be supported with tables, graphs, and figures.

   - **Discussion and Conclusion.** This section will highlight new and relevant aspects of the study and the conclusions derived from it, as well as the possible implications of its findings and its limitations.

7. After the Discussion and Conclusion section, author statements should be added in the following order:

   - **Funding**. In this section, authors should declare whether the study or the preparation of the manuscript received any type of funding, indicating the name of the entity that provided the funds.

     For example:

     This study was partially funded by CONSEJO NACIONAL DE CIENCIA Y TECNOLOGÍA (No. XXXXXXX).

     If no financial support was received, authors must state it was well.

     For example:

     None.

   - **Conflict of interest.** In this section, authors must declare whether they have conflicts of interest related to their scientific activity. Having a conflict of interest will not necessarily prevent publication of the manuscript. If there is no conflict of interest, the following phrase must be inserted: "The authors declare that they have no conflicts of interest."

   - **Acknowledgments**. If deemed necessary, acknowledgment of the people, centers or entities that have collaborated or supported the research will be mentioned after the previous statements.

8. **References.** Are placed after the authors' declarations (Funding, Conflicts of interest, and Acknowledgements), and must adhere to the *Publication Guidelines of the American Psychological Association (APA), last edition* (https://normas-apa.org).

9. **Tables and figures.** *Salud Mental* establishes a maximum total of five graphic elements. The standard requested for tables and figures adheres to the *Guidelines of the American Psychological Association (APA), last edition* (https://normas-apa.org). These will be placed in the same document as the manuscript after the references.

   - Tables must contain a title and a note with an explanation of the acronyms used at the bottom.
   - Figures must be submitted in a high resolution format (minimum image size 300 dpi).
   - Titles of the tables and figure captions must be clear, brief, and always have an identifying number. Within the text, the author must indicate in parentheses and capital letters where the graphic elements should be inserted.

     For example:

     The definition of some behavioral patterns was changed (Table 3) so that they were more comprehensible in Spanish and the categories that group such patterns were redefined based on specialized literature. (INSERT TABLE 3 HERE)

COMPLEMENTARY FILES

1. **Authorization letter for Publication**. This should be signed by all the authors and submitted in PDF format. Download the form at http://revistasaludmental.mx/public/Authorization-letter-for-publication.pdf.

2. **Cover letter**. The author should describe the strengths of their scientific contribution, highlighting the scope, originality, and importance of their contribution to the field of mental health. *It is mandatory to mention three national or international reviewers in the field of knowledge of the submitted manuscript, please indicate the full name and email address of each of the reviewers.* This must be uploaded in PDF.

EMPHASIS AND PUNCTUATION

1. Manuscripts should generally avoid footnotes, although they may be considered if essential.

2. Italics should be used to:
   - Highlight foreign words
   - Emphasize popular expressions
   - Mention titles of books, published documents and periodicals

3. Italics can be used to:
   - Highlight significant or important terms when they are first mentioned
   - Highlight a word or sentence within a quote

4. Double quotes should only be used for:
   - Citing paragraphs from other authors within the text
   - Quoting verbatim fragments of the study subjects' words

5. Avoid using double parentheses, in other words, one parenthesis inside another, and use square brackets instead.

6. Long dashes can be used to indicate parenthetical sentences.

7. All punctuation marks must be used correctly. For example, if question marks are used in a Spanish text, the corresponding opening and closing signs must be included together with quotation marks.

MATHEMATICAL AND STATISTICAL FORMULAE

The following points must be considered when results are presented:

1. Write figures from zero to nine in letters and use numbers for figures from 10 onwards.

2. Use numbers with dates and samples, etc.

3. Include confidence intervals in statistical data.

4. Statistical symbols are written in italics (M, SD).

5. Express exact probability to two or three decimal places (for example, $p = 0.04$; $p = 0.002$), *with no zero in front of the decimal point.* If it is less than .001, it should be written as follows < 0.001.

6. Leave a space before and after each sign ($a + b = c$ instead of $a+b=c$).

7. Use periods instead of commas to indicate decimals.

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Before submitting your manuscript, be sure to attach the requested documentation. Submissions failing to comply with the editorial guidelines will be returned to authors.

1. Manuscript in WORD format

2. Cover letter in PDF format

3. Letter authorizing the use of the article