Original

Validation of an instrument to measure adverse child experiences in Colombian university students

Validación de un instrumento para medir experiencias infantiles adversas en estudiantes universitarios colombianos

Validação de um instrumento para medir as experiências adversas de crianças em universitários colombianos.

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Abstract

Objective: The objective of the present study was to culturally adapt and develop the colombian version of the Adverse Childhood Experiences test and explore its psychometric properties. **Methodology**: five expert judges participated to validate the content of the adapted version and 100 university students to perform the reliability and validity of the construct. **Results:** The Adverse Childhood Experiences instrument, colombia version, is self-applied with 16 items and measures four factors or Subscales: sociopolitical violence and natural disasters, abuse, domestic challenges, and physical and emotional neglect. This version showed a very good content validity (k = 0.83-1.00), a strong and perfect internal consistency (0.95) and a construct validity that shows an important discriminant content of the four subscales or factors with 57% of the variance. **Conclusions:** The Adverse Childhood Experiences Colombian version is reliable to measure traumatic experiences in childhood and traumatic events due to socio-political violence and natural disasters in Colombian university population.

Keywords: Adverse experiences; Socio-political violence; Psychometry; Poverty.

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Resumen

Objetivo: El objetivo del presente estudio fue adaptar culturalmente y desarrollar la versión colombiana del test Adverse Childhood Experiences y explorar sus propiedades psicométricas. **Metodología**: participaron cinco jueces expertos para validar el contenido de la versión adaptada y 100 estudiantes universitarios para realizar la confiabilidad y validez del constructo. **Resultados**: El instrumento Adverse Childhood Experiences versión Colombia es autoaplicable de 16 ítems y mide cuatro factores o Subsescalas: violencia sociopolítica y desastres naturales, abusos, desafíos domésticos, y negligencia física y emocional. Esta versión mostro una muy buena validez de contenido (k=0,83-1,00), una consistencia interna fuerte y perfecta (0,95) y una validez de constructo que muestra un contenido discriminante importante de las cuatro Subsescalas o factores con el 57% de la varianza. **Conclusiones**: el Adverse Childhood Experiences versión colombiana es confiable para medir experiencias traumáticas en la infancia y eventos traumáticos por violencia sociopolítica y desastres naturales en población universitaria colombiana.

Palabras claves: Experiencias adversas; Violencia sociopolítica; Psicometría; Pobreza.

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Resumo

Objetivo: O objetivo deste estudo foi adaptar culturalmente e desenvolver a versão colombiana do teste Adverse Childhood Experiences e explorar suas propriedades psicométricas. **Metodologia**: participaram cinco juízes especialistas para validar o conteúdo da versão adaptada e 100 universitários para realizar a confiabilidade e validade do construto. **Resultados**: A versão colombiana do instrumento Adverse Childhood Experiences é autoaplicável com 16 itens e mede quatro fatores ou subescalas: violência sociopolítica e desastres naturais, abuso, desafios domésticos e negligência física e emocional. Esta versão apresentou uma validade de conteúdo muito boa (k=0,83-1,00), uma consistência interna forte e perfeita (0,95) e uma validade de construto que mostra um conteúdo discriminante importante das quatro subescalas ou fatores com 57% da variância. **Conclusões**: a versão colombiana das Experiências Adversas da Infância é confiável para medir experiências traumáticas na infância e eventos traumáticos devido à violência sociopolítica e desastres naturais na população universitária colombiana.

Palavras-chave: Experiências adversas; Violência sociopolítica; Psicometria; Pobreza.

Introduction

The traumatic experiences lived as a child and violence are established as one of the major risk factors in the deterioration of the quality of life in the victims' psychological and physical levels (1, 2). The adverse experiences include violent modes of relationship with boys and girls such as physical and psychological abuse, sexual abuse, witnessing intrafamily violence, use of psychoactive substances by a family member, a family member mental illness or imprisonment, or parental divorce. These experiences in childhood, if greater than four, are associated with the possibility of morbidity or mortality in the adult stage (3, 4).

The socio-political violence experienced for the last 60 years in our country has brought about adverse consequences in the population such as kidnappings, forced displacement, massacres, and illicit recruitment of minors (5, 6). All this influences the general and emotional health of boys, girls, and teenagers in our country. An important amount of research has shown the negative imprint left by violence in people's psychological health, highlighting the post-traumatic stress, adaptation capability, anxiety, and depression (7, 8).

The same happens with traumatic experiences in childhood related to the abuse and negligence with children and teenagers, physical and emotional abuse, sexual abuse occurring in a relationship of power and trust that affects the social, emotional, and physical development, and destroys the dignity of the child or teenager. Besides, it alters the person's vital cycle because it increases in adulthood the risk indicators related to tobacco use, obesity, HIV risky behavior, deficient physical and mental health, activity limitations, current asthma, chronic obstructive pulmonary disease, cardiovascular disease, arthritis, kidney disease, depression, and incapacity, among other possible diseases (9, 10).

Felliti and Anda (4) studied a sample of more than 17,000 individuals in California, USA, comparing adverse experiences in childhood to risky behaviors in adulthood, health, and illness conditions, showing as the result that adverse experiences in childhood are strongly related to multiple risk factors in the adult stage, and therefore they were indicated as the basic causes of morbidity and mortality. These authors establish that people that lived four or more adverse experiences in their childhood showed from four to twelve times more health risks of alcoholism, drug abuse, depression, and suicide attempt; the smoking habit increased from two to four times, self-assessed poor health, promiscuity, sexually transmitted diseases, increase of physical inactivity, and severe obesity. The higher number of adverse experiences in the person's life, the higher the forecast of diseases in the adult stage: ischemic heart disease, cancer, chronic lung disease, fractures, and liver disease, among others (11).

Different instruments have been proposed for assessing traumatic experiences in childhood (12), much of them focused on physical, sexual, and psychological abuse. Few of them show studies of psychometric properties adapted and validated for the Colombian context, that allow the generalized administration, being then of little use in the social, clinic, and research practices.

There is no measuring instrument in Colombia adapted to the violence experienced in our context that allows characterizing the traumatic events in childhood (violence or child physical, emotional, sexual abuse, negligence or abandonment, violence between parents, violence towards the mother, living with adults in prison or PAS users), and inquiring into events of socio-political violence such as displacement, massacres, or kidnapping, natural disasters or extreme poverty, variables incorporated to the version of the Adverse Childhood Experiences test, once adapted to the Colombian environment.

The motives to choose the Adverse Childhood Experiences test are that it assesses a wide range of adverse experiences lived before being 18 years old, it has worldwide research as one of the most used tests to measure adverse childhood experiences, and its easy application and evaluation.

Objectives

Adapt and validate the English version of the Adverse Childhood Experiences test for the Colombian university population, for which six questions referring to traumatic events experienced in the sociopolitical context and natural disasters were incorporated.

Specific objectives

- Culturally adapt the instrument, perform content validity.
- Establish reliability using the test-retes method
- Develop construct validation using the factor analysis technique.

Methodology

The English version of the Adverse Childhood Experiences test available in the USA's Center for Disease Control and Prevention was used for cultural adapta-

tion. The test was initially translated from English into Spanish (direct translation) by two bilingual people. Later, the differences of each adaptation were identified and assessed, until arriving at a consensus about the single version of the instrument in the required language.

Then the stage of reverse translation proceeded. The final instrument was translated back to its original language by two different translators –other than those of the first process–, whose mother tongue was English –the language of the original questionnaire–, following the international parameters for translating instruments (13). Experiences of child abuse in the Colombian context such as negligence and abandonment, and violence between parents, were added to the original test.

Once this stage was completed, a new part of the test was built to answer to the Colombian context including these variables: socio-political violence (forced displacement, massacres, kidnapping), natural disasters lived as a child, and extreme poverty. To operationalize these variables, the concepts of socio-political violence and natural disasters lived as a child, were defined. Each concept was itemized in the logical dimensions or relevant aspects that integrate it: socio-political violence in forced displacement, massacres, and kidnapping, natural disasters lived as a child and extreme poverty. Later, the definition of the variables in each logical dimension was prepared, namely, the variable attributes where the characteristic dimensions of the Colombian context express themselves. Finally, the indicator was made –the observable element that allows transforming information into numeric values. This part of the test was built keeping the original assessment way: questions that get a positive answer will be scored with a Yes, to add one point which will be added to the total of the adverse experiences lived as a child.

Later, the content validity of this instrument version was performed. For that purpose, a panel of five expert judges (physician specialized in child abuse, health care professional, clinical psychologist, research methodologist, legal psychologist) assessed the test according to criteria of sufficiency, clarity, coherence, and relevance for each item (14).

To perform the above, the database of the obtained data from the inter-judges assessment was made, and the statistical software SPSS version 22 for Windows was

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used. The statistic used to find the inter-judges concordance index was Fleiss' Kappa, based on the formula proposed by Cohen, but generalized for more than two codes. The Fleiss' Kappa coefficient (15) adds the calculation of the code bias (precision-error) and the concordance calculation (calibration). To interpret the judges' concordance, the categories proposed by Altman (16), were used, where < 0.20 is poor, 0.21 – 0.40 is weak, 0.41 – 0.60 is moderate 0.61 – 0.80 is good, and 0.81 – 1.00 is very good.

The reliability or consistency was then established –instrument precision or stability–, through the test-retest strategy. It required two test applications to the same sample of people, leaving a time interval of two months between the first and second applications to avoid phenomena of variation, repeatability, and learning effects. To determine if the data of the test-retest sample come from a normal distribution, the Kolmogorov-Smirnov test was used. The decision rule was a reliability level of 95%. With: Sig. < 0.05 adopts a non-normal distribution, Sig. ≥ 0.05 adopts a normal distribution, Sig.: P-critical contrast value or level. Once the data distribution is identified, Spearman coefficient is used to establish the correlation between the variables in the test and retest applications. For the interpretation, the ranges established by Spearman were used, where 0-0.25 indicates little or no relation, 0.26-0.50 is weak, 0.51-0.75 is moderate and strong, and 0.76-1.00 is strong and perfect.

For construct validity - the degree to which an instrument measures its signifiers - the exploratory factor analysis technique was used. This technique attempts to explain a set of observable variables (elements of the instrument), through a small number of unobservable variables called factors (17). The sample universe was 202 students from the first semester of the Medicine and Nursing degree. For its calculation, a reliability of 95% and a standard sampling error of 3.87 was taken for a total of 100 subjects. The type of sampling was simple random, through lists of participation in the activities of the Usco Saludable institutional project in its clinical-health dimension. The inclusion criterion was to be a student duly enrolled in the first semester of Medicine and Nursing. Presenting any mental illness was used as an Exclusion Criteria.

Exploratory factor analysis was performed using the Principal Components and Varimax Rotation method to transform the original set of variables into a new set of variables (without loss of information), a linear combination of the original ones called principal components (factors). To determine if the sample size was adequate to apply the technique, the Kaiser-Meyer-Olkin (KMO) test and the Bartlett sphericity test were analyzed, with results greater than 0.7 expected from the KMO test., and significance less than 0.05 of the sphericity test. Items with factor weights greater than 0.3 were chosen to constitute the factors. For this, the criterion established by Raykov and Marcoulides (18), was taken into account, which establishes that the item must have a score equal to or greater than 0.3, the items must be included in the factor with the highest score, the factor and the items must be congruent and a factor must have three or more elements. Likewise, these same authors argue that for the area of social and educational sciences, principal components analysis is used, which serves to reduce the amount of data to a few components, which are equivalent to the most important variables.

Regarding the measurement, each affirmative answer to the questions asked receives a score of 1, and 0 if the answer is negative. At the end, a global summation is made with all the answers obtained to obtain the ACE score of sixteen. The higher the score obtained, the greater the probability that a person will experience health risk behaviors during adult life. It is worth noting that if ACE is equal to zero, it does not imply that the person does not have other risk factors for these behaviors and diseases (19).

It should be noted that informed consent was requested for this research, taking into account the principles of confidentiality, anonymity and others endorsed in: the Declaration of Helsinki; the Nuremberg code and Resolution 8430 of 1993 of the Ministry of Health of Colombia and the Standards of Good Clinical Practices; and, the International Ethical Guidelines for Biomedical Experimentation on Human Subjects. In addition, it had the endorsement of the Ethics Committee and directives of the Surcolombiana University, agreement 056 of 2019 PDI.

Results

In the studied population, 52% are female, 77% study medicine, 23% study nursing, 9% are in the contributory health regime, 91% are in the subsidized regime, 95% belong to strata 1 and 2, 82% claim to be single,

and 18% affirm being in a free union relationship. Regarding the percentage of traumatic experiences lived as a child, 61% confirmed having experienced socio-political violence and natural disasters as a child, 56% claimed having been victims of sexual, physical, or psychological abuse before being 18 years old, 80% asserted having had family difficulties as a child, and 69% experienced physical and emotional negligence (Table 1).

Table 1. Socio-demographic characteristics and traumatic events in childhood.

Variable	Category	Frequency	Percentage
Sex	Female	52	52
	Male	48	48
Academic Program	Nursing	23	23
	Medicine	77	77
Social Security	Contributory	9	9
	Subsidized	91	91
Stratum	1	56	56
	2	39	39
	3	4	4
	4	1	1
Marital Status	Single	82	82
	Free Union	18	18
Factor 1	Socio-political violence and natural disasters	61	61
Factor 2	Sexual, physical, or psychological abuse	56	56
Factor 3	Family difficulties	80	80
Factor 4	Physical and emotional negligence	69	69

Source: self made

Regarding the cultural adaptation of the instrument, the work team verified the two versions of the Spanish translation (direct translation). They found that most of the items were written similarly, which means that the translated instrument is semantically equivalent to the original version. However, there were differences in words that could lead to confusion in understanding the items –the interpretation may be different due to idiosyncrasy and cultural aspects of the population under study, even using the same terms in Spanish (20).

For this reason, an exhaustive review of each item's versions and their semantic equivalence was carried out, and a third version was created. From this process, items are as follows: Items 1, 3, 4, 5, 7, 9, 10 showed no differences in the versions provided by the bilingual experts, so they remained unchanged. Items 2, 6, and 8 underwent the following changes: In the first translation, the question was if your father, mother, or another adult in the household frequently … while in the second translation the question was if a parent or other adult in the household often … To avoid confusion the decision was to change each item arguing it as follows: Any of your parents or another adult in the family frequently. There were no discrepancies regarding the translation of the instrument directions and answer options.

Later, another version in English of the generic instrument in Colombian Spanish was made and compared to the English version of the original instrument by the work team. Although some words that formed some items were changed, this did not change their main meaning or what they measure. Finally, the direct and reverse translations showed an acceptable semantic equivalence.

The content validity of the results obtained from the assessment performed by the five judges on the items constituting the instrument evinced sufficiency (K=1.00), clarity (K=1.00), coherence (K=1.00), and relevance (K=1.00) for the category childhood adverse experiences. It locates the index within the range (0.81-1.00), which, according to the ranges established by Altman, corresponds to a "very good" concordance level. The judges express that the items used pertain to the dimension intended to assess, are easy to understand, are coherent to the dimension intended to measure, and are important, so they must be included. The statistical significance was p=0,000 (table 2).

Table 2. Results of the Fleiss' Kappa statistic measurement for the childhood adverse experiences.

Dimension	Fleiss' Kappa	P	Categorías
Suficiency	K=0.82	0.000	0.81 – 1.00 Very good
Clarity	K=0.85	0.001	0.81 – 1.00 Very good
Coherence	K=0.89	0.001	0.81 – 1.00 Very good
Relevance	K= 1.00	0.000	0.81 – 1.00 Very good

Source: self made

The instrument's reliability was confirmed by the test-retest method using Spearman's coefficient. To prove that test and retest data had non-normal distributions, the Kolmogorov-Smirnov test was carried out, and the results obtained in this test are shown below (Table 3). Once identified the sample distribution, the Spearman coefficient value is found at 0.95, deemed strong and perfect, so evincing the reliability of the scale in the selected sample.

Table 3. Kolmogorov-Smirnov test results

	Kolmogorov-Smirnova		
	Statistic	Gl	Sig.
Test 1 Total adverse effects in childhood	0.247	100	0.000
Restest 2 Total adverse effects in childhood	0.278	100	0.000

Source: self made

Regarding the construct validity, the data obtained revealed that the sample size is sufficient and convenient to perform the exploratory factor analysis (KMO=0.75). The significance of Bartlett's sphericity test <0.000, means that 100 subjects answering the test are enough to perform a factor analysis (Table 5).

In construct validity, it was found that the data obtained reveal that the sample size is sufficient and convenient to develop the exploratory factorial analysis (KMO=.75); Significance Bartlett's sphericity test <.000), that is, the 100 subjects who answered the test are enough to carry out a factor analysis. The extraction index showed scores greater than .3 in almost all the items, evidencing its conservation, however item 8 presented a factorial weight lower than the accepted limit. Similarly, four factors were identified that explain 57% of the accumulated variance (table 4).

Table 4. Result of total variance explained.

Total Explained Variance								
compo-nents	Initial eigenvalues			Sums of extraction of charges squared			Rotation Sums of Squared Charges	
	Total	% of variance	% accumulated	Total	% of variance	% accumulated	Total	% of variance
1	4,636	28,972	28,972	4,636	28,972	28,972	2,804	17,524
2	1,836	11,472	40,444	1,836	11,472	40,444	2,217	13,859
3	1,471	9,193	49,637	1,471	9,193	49,637	2,148	13,423
4	1,182	7,389	57,026	1,182	7,389	57,026	1,955	12,221
5	,958	5,988	63,014					
6	,896	5,600	68,615					
7	,852	5,327	73,941					
8	,724	4,523	78,465					
9	,613	3,834	82,298					
10	,586	3,664	85,962					
11	,538	3,360	89,322					
12	,471	2,947	92,269					
13	,426	2,665	94,934					
14	,366	2,287	97,222					
15	,264	1,650	98,871					
16	,181	1,129	100,000					
Extraction method: principal component analysis.								

Source: self made

When filtering the factor loading in the items of the four extracted factors, and relating to the theory and the definitions established by authors, it was found that all the items are explained by the theory, even those created to measure childhood trauma due to socio-political violence and natural disasters.

Factor number 1 was identified with the aspect called sociopolitical violence (forced displacement, massacres and kidnappings), natural disasters and extreme poverty. All items that investigate traumatic events experienced in childhood related to sociopolitical violence in our country exceed the minimum value to include of 0.3. Factor 2 refers to child abuse experienced in childhood, whether physical, psychological, or sexual. The items seem to be explained by this factor between 55% and 77%. In this sense, the admission criterion of the factor determined by this study according to the parameters of Raykov and Marcoulides is met, since the required minimum value of. 030 and converts it into three elements that form the aforementioned area or aspect. This is called the moderate condition, since the factor is composed of communalities with scores between .40 and .70, and the number of the factor is 3 to 4 items, generally reported in populations of 100 to 200 cases, as shown in this particular study. To improve performance in this factor, the authors propose for future research to apply the instrument to a larger number of people and adjust the number of items.

Factor 3 was identified in its entirety with the theory and aspects defended by authors describing family difficulties that may be experienced in childhood, which can become traumatic. This factor highlights events such as the use of psychoactive substances by parents, violence between parents, violence towards the mother, and living with adults in prison or PAS users. Factor 4 is identified with the aspect of physical and emotional negligence, and abandonment. When analyzing the factor loading it is observed that the items are explained to 50% by this factor (table 5).

Table 5. Items distribution per factor

Item	Socio-political Violence	Child abuse	Family Difficulties	Negligence
1				.587
2				.754
3			.789	
4			.791	
5				.482
6		.691		
7			.478	
8			.420	
9	.827			
10		.765		
11				.572
12	.473			
13	.732			
14		.549		
15	.592			
16	.804			

Source: self made

Discussion

The objective of this research was to determine the validity and reliability of the test on adverse childhood experiences in the Colombian context. In this version, the number of initial items grows from 10 to 16 to include violent and traumatic events in childhood due to socio-political violence and natural disasters. The analyses show a structure of four reliable and validated factors, useful to measure traumatic experiences in childhood in the Colombian university context.

The Colombian version of the instrument on adverse childhood experiences, as well as the original version, emphasizes physical and psychological abuse, child sexual abuse, negligence and abandonment, use of PAS by parents, violence between parents, violence towards the mother, living with adults in prison or PAS users, adding traumas experienced due to the socio-political violence from the country's 60 years-long war, natural disasters, and extreme poverty. It is self-applicable and has 16 items.

Regarding the trauma frequency reported by the population under study, it was evinced that more than 50% of the individuals claimed having lived a traumatic event in the four assessed factors. This result matches those reported in other countries where the prevalence of adverse childhood experiences is around 67% (21, 22, 23, 24). It should be noted the high percentage in the socio-political violence and natural disasters factor that suggests a greater State intervention to define strategies to help the Colombian population mental health. Similarly, the high prevalence reported in the factor of family difficulties, which is associated with growing up in a home where there was substance use, mental illness, violence from a parent, stepfather or stepmother, parental separation, divorce or having some relative in prison in this study the family dysfunction that exists in the university population is evidenced, which coincides with the results of other investigations (25, 26).

Regarding the research, the identified factors in the version adapted to Colombia: physical, psychological, or sexual abuse, physical and emotional negligence and abandonment, traumatic family difficulties, socio-political violence, natural disasters, and extreme poverty, showed suitable internal consistency and validity of content and construct, which concurs with previous studies using instruments to assess traumatic experiences in childhood (12).

The results obtained in this research concur with the study carried out by Posada (12) that adapted the version of the inventory of traumatic childhood experiences (TCE) for Colombia, using there the construct validity with factor methods. The instrument has 81 items that assess sexual abuse, physical and emotional abuse, general traumatic events, and poverty, and adding one more dimension called political violence. The version showed suitable internal consistency (α=0.795), and trauma severity score (α=0.832). The difference concerning the instrument adapted in this study is related to the number of items and the violence and natural disasters dimension because, in the inventory adapted by Posada, traumas caused by natural disasters and extreme poverty are not taken into account.

Regarding the psychometric properties obtained by the Colombian version of the instrument on adverse childhood experiences, they agree with highly used instruments that assess this phenomenon; one of those is The Childhood Trauma Questionnaire (CTQ), deemed as a self-report of frequent international use (27). This test has five types of childhood traumas: emotional abuse, physical abuse, sexual abuse, physical, and emotional abandonment. It has 70 items, its internal consistency varies between (0.85-0.98), and the retest reliability for the whole range is 0.88 (28).

On the other hand, there is The Early Trauma Inventory (12) instrument developed for the detection of different types of abuse such as sexual, physical, and emotional. This test assesses other traumas such as witnessing violent events in childhood. It has 56 items in a Yes/No answer format where the number, frequency, age, perpetrators, and impact of abuse and traumatic situations are measured. The internal consistency is between 0.86 and 0.92, and the test-retest reliability is between 0.51 and 0.99.

The information of the background of adversities experienced in childhood is a very important source of research in Colombia, for in our country child abuse and violation of children's rights is the first cause of complaint received at ICBF. The National Institute of Legal Medicine and Forensic Sciences also reports this phenomenon: in the period between January and July 2018, it recognized 1064 cases of violence on boys and

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girls whose ages were between zero and four years old. In the range from five to nine years old, a total of 1589 boys and girls were documented, while in the age range of 10 to 14 years old 2109 cases were reported, and in the range of 15 to 17 years old 1521 cases were found. In addition to this, socio-political violence and natural disasters are strong predictors for developing mental disorders in adulthood (29, 30).

Summarizing, the Colombian version of the instrument on adverse childhood experiences can be deemed a pioneer in its field. It is worth noting that this instrument is very used at the international level and that this version of the instrument can be used for the Colombian university population due to its reliability and validity optimal levels. The development of this tool is an important step for the research on child trauma and its relation to illnesses that most afflict the university population such as depression, stress, anxiety, and unhealthy behaviors.

Conclusions

- The Adverse Childhood Experiences test was adapted to the Colombian context with the university population, and the variables socio-political violence, natural disasters, and extreme poverty were established and added.

- Regarding content validity, the inter-judge assessment evinced the sufficiency dimension (K=0.82), clarity (K= 0.85), coherence (K= 0.89), and relevance (K= 1.00), with an index placing it in the 0.81-1.00 range that is a very good concordance level.

- A test-retest Spearman correlation coefficient of 0.95 was obtained for the reliability, a strong and perfect correlation that shows the consistency of the test measurement.

- The exploratory factor analysis was carried out for the construct validity using the Principal Component and Varimax method so that the instrument was formed with four factors: physical, psychological, and sexual child abuse, the second factor is physical and emotional negligence and abandonment, the third one is traumatic family difficulties such as PAS by parents, violence between parents, violence towards the mother, living with adults in prison or PAS users. And the last factor was socio-political violence (forced displacement in childhood, massacres, and kidnapping), natural disasters, and extreme poverty.

- These results evince that the instrument on adverse childhood experiences, the Colombian version, validated with university students, constitutes a tool that can assess adverse experiences lived as a child related to sexual, physical, and psychological abuse, family difficulties, and physical and emotional negligence, and traumatic events lived as a child due to socio-political violence, natural disasters, and extreme poverty with psychometric properties suitable for the Colombian university population.

conflict of interests

The authors declare that they have no conflict of interest.

References

1. Chang X, Jiang X, Mkandarwire T, Shen M. Associations between adverse childhood experiences and health outcomes in adults aged 18-59 years. PLoS One. 2019;14(2):e0211850. https://doi.org/10.1371/journal.pone.0211850

2. Nevárez-Mendoza B, Ochoa-Meza G. Relationship between adverse childhood experiences and the physical and mental health in Mexican adults. Salud Mental. 2022; 45(2):61-69. https://doi.org/10.17711/SM.0185-3325.2022.009

3. Ramírez-Labbé S, Santelices MP, Hamilton J, Velasco C. Adverse Childhood Experiences: Mental Health Consequences and Risk Behaviors in Women and Men in Chile. Children (Basel). 2022; 28;9(12):1841. ht-

tps://doi.org/10.3390/children9121841

4. Mendoza BN, Meza GO. Adaptación del cuestionario de Experiencias Adversas en la infancia en muestras mexicanas. Psicología y Salud. 2022; 32(2):203-14.

5. Daza-Franco C. Radiografía del acompañamiento psicosocial a víctimas del conflicto armado en Colombia. [Tesis de Maestría]. [Bogotá]: Universidad Jorge Tadeo Lozano; 2021. [consultado 15 de abril 2021]. Disponible en: https://expeditiorepositorio.utadeo.edu.co/bitstream/handle/20.500.12010/24574/Radiograf%-C3%ADa%20del%20acompa%C3%B1amiento%20psicosocial%20a%20v%C3%ADctimas%20del%20co

6. Urbano CL, Bastidas EZ, Otero HAJ, Castillo AdCG. Violencia sociopolítica del conflicto armado en Colombia: las resistencias de las mujeres como apuestas de paz. Eirene Estudios de Paz y Conflictos. 2023;6(10):101-30.

7. Piñeros-Ortiz S, Moreno-Chaparro J, Garzón-Orjuela N, Urrego-Mendoza Z, Samacá-Samacá D, Eslava-Schmalbach J. Consecuencias de los conflictos armados en la salud mental de niños y adolescentes: revisión de revisiones de la literatura. Revista Biomédica. 2021; 41(3):424-448. https://doi.org/10.7705/biomedica.5447

8. Moreno-Murcia LM, Gómez MA, Bustos Marín T. Salud mental y conflicto armado en Colombia: una revisión documental. IyD [Internet]. 2021; [Consultado 5 de mayo de 2023];8(2):26-41. Disponible en: https://revistas.uniminuto.edu/index.php/IYD/article/view/2739

9. Priego-Parra BA, Remes-Troche JM, Vivanco-Cid H. Experiencias adversas de la infancia. Estancias. 2022;2(4):151-68.

10. Alba EA, Barrio LIÁ. Análisis de las Experiencias Adversas en la Infancia en la consulta de Pediatría Social del Hospital Fundación Alcorcón. Conocimiento Enfermero. 2020;3(10):12-29.

11. Estrada D, Ramírez GNA, Valenzuela CCC. Eventos adversos en la infancia: secuelas en la adolescencia. Revista Nthe. 2021:63-9.

12. Posada S, Londoño NH, Gaviria AM. Propiedades psicométricas de la adaptación para Colombia del inventario de experiencias traumáticas en la infancia (ETI-SRCol). Medicina UPB. 2019;38(1):33-45.

13. Lira MT, Caballero E. Adaptación transcultural de instrumentos de evaluación en salud: Historia y reflexiones del por qué, cómo y cuándo. Revista Médica Clínica Las Condes. 2020;31(1):85-94.

14. Escobar-Pérez J, Cuervo-Martínez Á. Validez de contenido y juicio de expertos: una aproximación a su utilización. Avances en medición. 2008;6(1):27-36.

15. Cerda J, Villarroel L. Evaluación de la concordancia inter-observador en investigación pediátrica: Coeficiente de Kappa. Rev Chil Pediatr [Internet]. 2008 [Consultado 24 de mayo de 2021]; 79(1). Disponible en: https://www.revistachilenadepediatria.cl/index.php/rchped/issue/view/70

16. Altman D. Practical Statistics for medical research. New York. 1991. Chapman and Hall. 355.

17. Nunally J, Bernstein I. Teoría Psicométrica. 3ra. Ed. México: Mc-Graw Hill; 1995. pp. 296-297.

18. Raykov T, Marcoulides G. An Introduction to Applied Multivariate Analysis. United States of America: Routledge Taylor & Francis Group; 2008.

19. Centers for Disease Control and prevention. Adverse Childhood Experiences. [Internet]. 2018 [Consultado 22 junio 2021]. Disponible en: https://www.cdc.gov/violenceprevention/aces/index.html

20. Cha Rojas MR. Los retos de la traducción y adaptación cultural de instrumentos. Duazary: Revista internacional de Ciencias de la Salud. 2023;20(3):161-2.

21. Bartolomé-Valenzuela M, Pereda N, Guilera G. Prevalencia de experiencias adversas y victimización en personas adultas con trastorno mental grave en Barcelona. Gaceta Sanitaria. 2023;37:102314.

22. Veja-Arce M, Núñez-Ulloa G. Experiencias adversas en la infancia: mapeo bibliométrico de la literatura cien-

tífica en la Web of Science. Rev Cubana Inform Ciencias Salud. 2018;29(1):73-88.

23. Moreno-Guzmán Y, Chacón-Valladares P, Lajud-Ávila N. Experiencias infantiles adversas y síntomas depresivos en una unidad de medicina familiar en Michoacán. Atención Familiar. 2023;30(2):143-52.

24. Guzmán-Mesa A, Durango I, Galán-Buelvas L, Díaz-cárdenas S. Experiencias adversas en la infancia en estudiantes de odontología y factores asociados. [Tesis Pregrado]. [Cartagena]. Universidad de Cartagena. 2023. [Consultado 12 de abril del 2023]. Disponible en: https://repositorio.unicartagena.edu.co/bitstream/handle/11227/16130/EXPERIENCIAS%20ADVERSAS%20EN%20LA%20INFANCIA%20EN%20ESTUDIANTES%20DE%20

25. Guiliana Solano C, Chauca de Quispe CL, Gonzales Aedo NO, Hernández Huaripaucar EM, Huamán Espinoza GR, Quispe Nombreras VC, et al. Factores asociados a la violencia familiar en estudiantes universitarios de Ciencias de la Salud. Revista Cubana de salud pública. 2019;45:e1239.

26. Vallejos-Saldarriaga J, Vega-Gonzales E. Funcionalidad familiar, satisfacción con la vida y trastornos alimentarios en estudiantes universitarios. Revista española de nutrición comunitaria, 2020; 26(3):144-148. https://doi.org/10.14642/RENC.2020.26.3.5327

27. Behn A, Vöhringer PA, Martínez P, Domínguez AP, González A, Carrasco MI, et al. Validación de la versión en español del Childhood Trauma Questionnaire-Short Form en Chile, en una muestra de pacientes con depresión clínica. Revista médica de Chile. 2020;148(3): 336-343.

28. Martins DS, Hasse-Sousa M, Petry-Perin C, Arrial-Cordeiro RT, Rabelo-da-Ponte FD, Lima FM, et al. Perceived childhood adversities: Impact of childhood trauma to estimated intellectual functioning of individuals with bipolar disorder. Psychiatry research. 2019;274:345-51.

29. Instituto Nacional de Medicina legal y ciencias Forenses. Informe de gestión 2018 [Internet]. 2018 [Consultado 19 mayo del 2021]. Disponiobe en: https://www.medicinalegal.gov.co/documents/20143/39839/Informe_Gestion_2018_Actualizado.pdf/ad7d2742-3b77-6b77-cd84-a8f5431fd1df

30. Mora SMS, Mejía MQ. Huellas de un trauma psicosocial y retos pedagógicos para la construcción de paz en Colombia. Revista Academia y Virtualidad. 2020;13(2):19-34.