_____

Psychometrics properties of the Dating Violence Questionnaire in Peruvian undergraduate students

Propiedades psicométricas del Cuestionario de Violencia entre Novios en universitarios peruanos

Propriedades psicométricas do Questionário de Violência no Noviazgo em estudantes universitários peruanos

Romina Raiser Velarde [1]*, ORCID 0000-0003-3349-9568*
Eduardo Manzanares-Medina [2]*, ORCID 0000-0002-3377-311X*

[1][2] *Universidad Peruana de Ciencias Aplicadas, Perú*

***Abstract*:** The objective of the present study was to determine the psychometric properties of the Dating Violence Questionnaire (CUVINO) in peruvian university students, in the province of Tacna, Peru. The sample consisted of 500 students from a private university, aged between 18 and 35 years old. The CUVINO and the Scale of Violence Against Women in relationships were applied (VcM). To evaluate the validity evidence based on the internal structure of the instrument, a confirmatory factor analysis was performed, from which, as a result adequate fit indices were obtained for the model of eight related factors ($\chi^2/gl = 4.574$, CFI = .961, TLI = .956, SRMR = .054, RMSEA = .085). The internal consistency was calculated and Alpha and Omega were obtained that oscillate between .84 and .91. The Spearman's nonparametric test was used for the convergent validity analysis. The result of the analysis of correlations between the factors of the proposed model and the VcM Scale was that all were positive and statistically significant (p <.05) with a high (rs > .50) and moderate (rs > .30) magnitude. It is concluded that CUVINO possess adequate psychometric properties for its use in the study sample.

***Keywords*:** violence; CUVINO; validity; reliability; undergraduate students.

Resumen: El objetivo del presente estudio fue determinar las propiedades psicométricas del Cuestionario de Violencia entre Novios (CUVINO) en universitarios de la provincia de Tacna, Perú. La muestra estuvo compuesta por 500 estudiantes de una universidad privada, con edades entre 18 a 35 años. Se aplicó el CUVINO y la Escala de Violencia Contra las Mujeres en relaciones de pareja (VcM). Para evaluar la evidencia de validez basada en la estructura interna del instrumento, se realizó un análisis factorial confirmatorio, del cual se obtuvo como resultado adecuados índices de ajuste para el modelo de ocho factores relacionados (χ^2/gl = 4.574, CFI = .961, TLI = .956 SRMR = .054, RMSEA = .085). Se calculó la consistencia interna y se obtuvieron valores alfa y omega que oscilan entre .84 y .91. Se utilizó la prueba no paramétrica de Spearman para el análisis de validez convergente. El resultado del análisis de correlaciones entre factores del modelo planteado y la Escala de VcM fueron que todas son positivas y estadísticamente significativas (p < .05), con magnitud alta (rs > .50) y moderada (rs > .30). Se concluye que el CUVINO cuenta con adecuadas propiedades psicométricas para su uso en la muestra de estudio.

Palabras clave: violencia; CUVINO; validez; confiabilidad; universitarios.

Resumo: O objetivo deste estudo foi determinar as propriedades psicométricas do Questionário de Violência entre Namorados (CUVINO) em estudantes universitários da província de Tacna, Peru. A amostra foi composta por 500 alunos de uma universidade privada, com idades entre 18 e 35 anos. Foram aplicados o CUVINO e a Escala de Violência Contra as Mulheres nos Relacionamentos (VcM). Para avaliar as evidências de validade com base na estrutura interna do instrumento, foi realizada uma análise fatorial confirmatória, que resultou em índices de ajuste adequados para o modelo de oito fatores relacionados (χ^2 / gl = 4.574, CFI = .961, TLI = .956 SRMR = .054, RMSEA = .085). Foi calculada a consistência interna e obtiveram-se valores de alfa e ômega variando entre .84 e .91. O teste não paramétrico de Spearman foi usado para a análise da validade convergente. Os resultados das análises de correlações entre os fatores do modelo proposto e a Escala VcM foram todos positivos e estatisticamente significativos (p < .05), com magnitude elevada (rs > .50) e moderada (rs > .30). Conclui-se que o CUVINO possui propriedades psicométricas adequadas para utilização na amostra estudada.

Palavras-chave: violência; CUVINO; validade; confiabilidade; universitários.

_____

Correspondence: Eduardo Manzanares-Medina, Universidad Peruana de Ciencias Aplicadas, Perú. E-mail: pcpsemam@upc.edu.pe

In the dating, violence is an almost imperceptible phenomenon that can be confused with signs of affection and protection (Yanes, Hernández de la Cruz & Bautista 2019). Maltreatment in couples is a phenomenon of a universal, multidimensional and multicausal nature, which continues to increase despite the efforts that public and private entities have made to developed prevention and control strategies (Ocampo, 2015). Nowadays, violence in young couples is a major problem due to its serious consequences and the increase in its prevalence (Carrascosa, Cava & Buelga, 2018).

In Latin America, during the last decades, this situation has also generated an increase in public awareness about the risk of experiencing violence as part of the closest interpersonal ties. Although intimate interpersonal relationships are a space to live love and acceptance it can also be a space to promote power and violence (Rodríguez, Riosvelasco & Castillo, 2018). The World Health Organization (WHO) considers violence to be a public health problem since the beginning of this century. Worldwide, it is estimated that between 10 % and 69 % of women have suffered some form of abuse (phychological, physical or sexual) by their partners (WHO, 2002). Intimate partner violence is the most common type of violence against women since it affects 30 % of women worldwide (WHO, 2013)

In Peru, according to the figures reported by the Instituto Nacional de Estadística e Informática (INEI, 2019 [National Institute of Statistics and Informatics]), in 2018, 63.2 % of women between 15 and 49 years of age suffered some type of violence exerted by their partners. Within this group, 58.9 % were victims of psychological violence, 30.7 % were physically attacked, and 6.8 % were sexually assaulted. The Ministerio de la Mujer y Poblaciones Vulnerables (MIMP; Ministry of Women and Vulnerable Populations), attended 133697 victims of family and sexual violence in 2018 (INEI, 2019). In the following year, according to the MIMP (2019), 181885 cases of violence against women, family and sexual violence were attended from January to December at Centros de Emergencia Mujer (CEM; Women Emergency Centers) nationwide, among which 85 % of women and 15 % of men were considered victims.

Various investigations show high figures of violence in departments of Peru, with Tacna being one of the most affected. The MIMP reported 1485 registered cases of violence, with 86 % female victims and 14 % men attacked at CEM (La República, 2019). Likewise, according to the Encuesta Demográfica y de Salud Familiar (ENDES; Demographic and Family Health Survey), Tacna shows that it is as one of the departments of Peru with a high rate of violence and has little research. A study on violence against women and members of the family group in Tacna resulted in it occupying the eight place in terms of physical violence indexes, and twelfth in sexual violence in the country. The prevalence of violence in 2017 in women by their partners was 51.4 %. The most frequent type of violence was psychological (45.5 %), followed by physical (26.9 %) and sexual (4.9 %). The reasons why victims do not seek help are because: They do not consider it necessary (47.7 %), they do not know where to go (16.7 %), they are afraid of being hit again (9.2 %), fear of causing problems for their aggressors (8.5 %), it is useless (5.7 %) and other reasons (12.2 %) (ENDES, 2018, cited in Observatorio Nacional de la Violencia Contra las Mujeres y los Integrantes del Grupo Familiar, 2018).

All these data bring to light the problem linked to gender violence, which is defined as a set of acts that cause bodily harm and psychological abuse, which can occur in private or social situations (Rodríguez et al., 2010). Dating violence is considered to be any type of intentional aggression by one member of the couple against the other during the relationship. (Rubio, López, Carrasco & Amor, 2017). In other words, acts that hurt the other person (Rodríguez et al., 2018).

As part of this general context, it is worth emphasizing the difficulty that adolescents and young people have to recognize that they are victims of abuse (Díaz et al., 2013). One of the aspects that increases the inability to recognize violence during dating at this stage is the idealization that adolescents and young people carry out of violent behaviors based on romantic love, as well as downplaying violent behaviors such as jealousy and obsessive control. Both reasons would be a justification to continue with the couple, which prevents them from recognizing a hostile environment within the relationship (Gómez, Delgado & Gómez, 2014).

Dating violence is a phenomenon that can follow a bidirectional pattern; however, men are considered as the perpetrators and women as victims, without considering that both of them can play both roles (Del Ángel & Barraza, 2017). From this perspective, both men and women who are part of a relationship in a context of violence are a pair of human beings subject to rights, who must face the consequences of their actions and receive professional help, as well. (Beltrán, Albán, Zumba, Vera & Figueroa, 2018).

As part of the relationships of couples that have a dynamic where violence is present, eight types of abuse have been identified: (a) detachment, considered an attitude of indifference towards the partner and their feelings; (b) humiliation, defined as personal criticism against self-esteem and personal pride; (c) sexual, includes unwanted sexual behavior by the partner; (d) coercion, is the pressure exerted on someone to force their will or conduct through threats or manipulations; (e) physical punishment, in which the person hits or damages objects with emotional significance for the victim; (f) gender-based violence, would be the dismissal of the status of woman / man; (g) emotional punishment, which are displays of anger with the aim of manipulating the partner; (h) instrumental, in which the person uses indirect means to inflict harm or suffering the victim (Cortés-Ayala et al., 2015).

The need to continue studying the phenomenon of partner violence and its associated problems is highlighted, for which instruments are required that allow its appropriate measurement. Within the literature review, some instruments have been found focused on measuring partner abuse; but that do not specifically evaluate the experience that occurred during the dating. For example, in 2005, Langhinrichsen-Rohling, pointed out the appearance of the *Conflict Tactics Scale* (CTS, Straus, 1979) as one of the first instruments to quantitatively evaluate the aggression that occurred between interpersonal relationships of coexistence. This instrument offers information only about two forms of aggression: physical and verbal. The CTS-2 (Straus, 2008) included two new scales: sexual coercion and injury severity. The *Index of Spouse Abuse* (ISA, Hudson & Mcintosh, 1981), contains two subscales: Physical and non-physical, in a similar way to the original CTS and does not specifically evaluate couple relationships. Additionally, another instrument considered useful was the Conflict in Adolescent Dating Relationships Inventory (CADRI; Fernández, Fuertes & Pulido, 2006) which offers six subscales that cover and improve the physical, psychological and sexual criteria and has been designed for the adolescent and young

population. However, the validation carried out in Spain, provides data on the attacks carried out and not on the experience itself (Rodríguez et al., 2010).

It should be noted that none of the above instruments described was designed specifically for young couples and the validations with this age range seem to obey more to a matter of accessibility to university students than to the interest in obtaining information about how their relationships are carried out. Therefore, the Cuestionario de Violencia Entre Novios (CUVINO) is an instrument that covers the mentioned gaps indicated in terms of measuring violence in the dating of young people, which was validated in Spain, Mexico and Argentina in year 2010, and in Spanish, in a sample of 5170 participants. It is specific for the evaluation of violence suffered within intimate relationships, designed based on information provided by adolescents and young people of both sexes, and has been reviewed through pilot experiences carried out in the youth population. It has 42 behavioral items that must be answered in Likert format (between 0 and 4) and 8 dimensions: detachment, humiliation, sexual, coercion, physical, gender, emotional and instrumental punishment, which have been previously described.

In cross-cultural validation of CUVINO in Spain, Mexico and Argentina, the factorial structure showed a total of eight types of abuse with an explained variance of 51.3 %. The structure found was similar to the one initially proposed by Rodríguez, Antuña, Rodríguez-Díaz & Herrero (2007); however, item 20 ("Has thrown blunt objects at you"), which in the first study was in the instrumental violence factor, was assigned to physical violence. The total reliability of the scale (Cronbach's alpha of .93) and of the subscales alphas between .58 and .81, indicate psychometric data to consider CUVINO as a valid and reliable tool.

Based on the aforementioned, it is considered that the present study has an instrumental contribution, since it will allow to review the psychometric quality of an instrument to measure violence in couples' relationships, in a sample of young Peruvians. In terms of practical value, it will be a useful tool to measure the effects of prevention programs that could be applied with respect to dating violence. In addition, it is socially relevant since this tool provides an alternative for assessing violence between couples, which will be useful to prevent and deal with affective interpersonal relationships that suffer from abuse and mistreatment.

In this way, the general objective of the research is to determine the psychometric properties of the CUVINO scale. With respect to the specific objectives, it seeks to determine the validity evidence based on the internal structure, establish evidence of convergent validity through the relationship of the scores obtanied from CUVINO and the Escala de Violencia Contra las Mujeres (Scale of Violence Against Women) in couple relationships (VcM, Vara-Horna & López-Odar, 2016) and finally estimate reliability by internal consistency.

Materials and method

Participants

Five hundred university students participated in this study, out of which 46.8 % are women and 53.2 % men, with an age range between 18 and 35 years old (M = 24.10, DE = 2.70), of various careers (13.6 % of psychology, 7.2 % of law, 13.8 % of engineering, 11.8 % of education, 20.6 % of business, 7.6 % of hospitality and tourism, 5.2 % of communications, 10.8 % of accounting, 4.6 % of engineering y 4.8 % of medicine). 80.8 % have a current relationship, while the 19.2 % have had a relationship in the past. This sample has been chosen on the basis of some criteria about the size of the sample in instrumental studies, considering 50 very poor; 100 poor; 200 acceptable; 300 good; 500 very good; 1000 or more excellent (Comrey & Lee, 1992, cited in Lloret-Segura, Ferreres-Traver, Hernández-Baeza & Tomás-Marco, 2014).

The participants were selected through non-probability sampling, (Hernández, Fernández & Baptista, 2014). The sampling technique was for convenience, given the accessibility and availability of the participants. The following are considered as inclusion criteria: people born in Perú who are residing in Tacna, who have or have had a partner and agree to participate, voluntarily, in this study.

Instruments

Cuestionario de Violencia Entre Novios (CUVINO; Dating Violence Questionnaire). For the present investigation, CUVINO was reviewed by three experts, and it was determined that no language adaptation would have to be made. It has been validated in Spain, Mexico and Argentina. Its objective is to evaluate interpersonal relationships in couples and identify the existence or not of violence within them. CUVINO is specific for the evaluation of violence received within intimate relationships and can be applied to young people and adults, as well. CUVINO is composed of 42 items, which are divided into 8 dimensions: detachment (items 6, 14, 22, 30, 32, 33 and 37), humiliation (7,15, 23, 31, 36, 40 and 41), sexual (2, 10, 18, 26, 34 and 39), coercion (1, 9, 17, 25, 38 and 42), physical (5, 13, 20, 21 and 29), gender (3, 11, 19, 27 and 35), emotional punishment (8, 16 and 24) and instrumental (4, 12 and 28). Items must be answered in a five-option frequency Likert format (0 = *never* and 4 = *very often*). The factorial loads of the items range between .37 and .77. Regarding the reliability by internal consistency the alpha values oscillate between .68 and .82 (Rodríguez et al., 2010).

Escala de Violencia Contra las Mujeres (VcM; Violence Against Women Scale). This scale was used in couple relationships (Vara-Horna & López-Odar, 2016), with the purpose of determining evidence of convergent validity through the relationship of the scores obtained from CUVINO and VcM. This scale has 14 items that measure indicators of psychological, economic, mild physical, severe physical, sexual violence, and damages exerted by the current or ex-partner. Psychological violence refers to the actions or omissions exercised by the aggressor in order to control the behavior or reduce the autonomy of the partner, such as verbal attacks, insults, humiliations, abandonment and threats. Economic violence implies the control of financial resources or material goods, using physical force to achieve it. Mild physical violence includes hitting, shoving, slapping, and attacks on parts of the body. While serious physical violence involves the use of sharp and blunt objects, or

firearms. Sexual violence are acts carried out against sexual freedom, such as rape and undue touching. Regarding the damages, it is in case the aggressor has generated serious bruises, sprains, fractures or injuries.

Each item evaluates the level of intensity of the attack and has alternative responses with interpretation values: never, happened before, not now, one or two times, between 3 to 5 times, between 6 to 10 times, between 11 to 20 times and more than 20 times. This scale has been designed and used to estimate the level of violence in women who work in large and medium-sized companies and in micro-companies, as well. With the scale, the violence that occurred in the last year and prior to the last year can be determined (Vara-Horna & López-Odar, 2016). Reliability values using Cronbach's alpha range between .65 y .83; *rho* between .65 y .83 and the composite reliability between .85 and .90. Regarding the validity based in internal structure, the percentage of explained variance of the factors is greater than 50 % and factorial weights greater than .71. For the current study, the internal consistency reliability values, by means the omega coefficient ranged between .77 and .92, indicating adequate reliability.

Procedures

Permission was requested and obtained from the authors of the tests that were applied and the necessary permission was processed to Access a private university in Tacna to collect the information. Once the corresponding permissions were obtained, the questionnaires were applied to the students inside the classrooms, previously agreeing with the teachers and asking the students if they would be willing to fill out the questionnaires voluntarily. The Informed Consent and a Sociodemographic record were given to the participants.

The questionnaires were applied by the researcher in an approximate time of 30 to 45 minutes. A small description of the questionnaire was made in the attached comment so that they could carry it out properly and it was communicated that it will only be used for research-related topics. The voluntary participation and confidentiality of the study were clarified, as well as the anonymity in the responses.

Data Design and Analysis

This study is of an instrumental type (Ato, López & Benavente, 2013). Protocols were reviewed and those in which there was any omission of data from the sociodemographic record or questionnaires were discarded. The data analysis was performed, using the statistical programs Jamovi and RStudio to which the database was exported from an Excel sheet. The items analysis was performed, calculating the mean, standard deviation, the value of the skewness, and the kurtosis of all items (g_1 y $g_2 > |1|$); as well as the value of the corrected item-total correlation for each of the dimensions ($r_{itc} < .20$). For the confirmatory factor analysis, the RStudio software and the Lavaan package were used (Rosseel, 2012). The Weighted Least Squares Means and Variance adjusted (WLSMV) estimation method recommended when working with categorical data was used normality in the distribution of the items is not fulfilled (Li, 2016). Under the above-mentioned reasons, the CFA estimates were worked on the basis of the polychoric correlation matrix. To evaluate the fit, the following indices were taken into account. First, the indices analyzed to compare the models were the chi-square between the degrees of freedom (χ^2/gl,), comparative fit index (CFI), the root of the standardized mean square residual (SRMR), the root means square error

approximation index (RMSEA) and the non-normalized fit index criterion or Tucker- Lewis index (TLI).

Regarding the specific utility, the chi-square between the degrees of freedom ($\chi^2/gl < 3$) checks the significance of the model, contrasting the null-hypothesis that all errors in the model are null; however, since it is sensitive to the sample size, it is compared with the degrees of freedom (Ruiz, Pardo & San Martín, 2010). The comparative fit index (CFI), indicates a good fit of the model for values close to 1. It is considered that to be acceptable it must range in values greater than or equal to .90 and from .95 they are considered excellent fittings (Wu, Li & Zumbo, 2007). The Standardized Root Mean Square Residual (SRMR), values less than or close to 0.5 are recommended to indicate a good fit of the model (Byrne, 2006). For the square Root Mean Square Error of Approximation (RMSEA), values less than .08 are indicative of a good fit (Medrano & Muñoz, 2017). Finally, the non-normalized fit index (TLI) compares the adjustment by degrees of freedom of the proposed and null model. This index tends to 1 for models with a very good fit, with values above .90 being considered acceptable (Medrano & Muñoz, 2017).

Evidence of the validity based on the relationship with another variable was determined using the Jamovi program. For this, the score obtained in the CUVINO was related to the score obtained in the VcM. For the interpretation of the magnitude of the correlations, the criterion proposed by Cohen (1988) was considered: .10 to .29 (low), .30 to .49 (moderate) and .50 to more (high). Finally, the reliability was estimated based on the internal consistency of the instrument with the omega coefficient ($\omega > .70$).

Results

Descriptive analysis and homogeneity of the items

The statistics of central tendency and dispersion of the items were calculated (table 1). Where the skewness indices were lower than |1| but higher values were observed in kurtosis (Lloret-Segura et al., 2014). Subsequently, the homogeneity of the CUVINO items was analyzed using the corrected item-test correlations (ritc), where values higher than .20 were obtained (Kline, 1986). The range of the ritc of the items was between .62 and .81, which is why all items were maintained for the factorial analysis.

Table 1.
Descriptive statistics and corrected item-test correlations from CUVINO

Item	Min.	Max.	M	SD	g_1	g_2	r_{itc}
1	0	4	1.56	1.26	.35	-1.06	.69
2	0	4	1.62	1.25	.21	-1.08	.74
3	0	4	1.75	1.26	.17	-1.08	.74
4	0	4	1.30	1.34	.55	-1.09	.71
5	0	4	1.66	1.40	.20	-1.35	.81
6	0	4	1.89	1.24	-.01	-1.06	.73
7	0	4	1.45	1.32	.37	-1.19	.74
8	0	4	1.85	1.38	.05	-1.28	.69
9	0	4	1.80	1.35	.13	-1.26	.75
10	0	4	1.60	1.31	.28	-1.12	.72
11	0	4	1.60	1.31	.25	-1.16	.69
12	0	4	1.34	1.40	.59	-1.06	.71
13	0	4	1.66	1.42	.25	-1.34	.80
14	0	4	1.67	1.30	.28	-1.05	.77
15	0	4	1.65	1.35	.23	-1.20	.81
16	0	4	1.76	1.44	.19	-1.38	.80
17	0	4	1.58	1.48	.35	-1.36	.78
18	0	4	1.77	1.40	.12	-1.32	.80
19	0	4	1.62	1.42	.29	-1.31	.75
20	0	4	1.38	1.39	.55	-1.09	.74
21	0	4	1.45	1.36	.43	-1.20	.77
22	0	4	1.69	1.21	.07	-1.15	.77
23	0	4	1.70	1.35	.12	-1.30	.83
24	0	4	1.75	1.36	.12	-1.29	.78
25	0	4	1.99	1.34	-.10	-1.26	.64
26	0	4	1.66	1.31	.21	-1.12	.74
27	0	4	1.65	1.30	.20	-1.17	.77
28	0	4	1.31	1.32	.60	-.97	.67
29	0	4	1.43	1.36	.34	-1.34	.76
30	0	4	1.84	1.37	.03	-1.28	.70
31	0	4	1.67	1.27	.06	-1.26	.75
32	0	4	1.70	1.31	.06	-1.26	.71
33	0	4	1.80	1.25	.20	-1.06	.77
34	0	4	1.58	1.24	.16	-1.11	.75
35	0	4	1.37	1.26	.35	-1.22	.70
36	0	4	1.48	1.31	.35	-1.12	.62
37	0	4	1.69	1.36	.07	-1.35	.76
38	0	4	1.76	1.32	.07	-1.25	.68
39	0	4	1.47	1.21	.30	-.97	.69
40	0	4	1.39	1.22	.38	-1.11	.72
41	0	4	1.53	1.22	.14	-1.17	.74
42	0	4	1.70	1.21	.04	-1.04	.72

Notes: g_1 = skewness; g_2 = kurtosis; r_{itc} = corrected item-test correlation.

Validity evidence based on internal structure

To investigate the validity evidence related to the internal structure, a confirmatory factor analysis (CFA) was performed (table 2) in order to subject the previous findings to a more robust method. The original test model was tested to assess whether it adequately fit the data.

As part of the first analysis, the following results were obtained: χ^2 / gl = 4.938 (p <.001), CFI = .952, TLI = .948, SRMR = .059, RMSEA = .089. Because the indices did not reach the expected values in some indices, modification indices were analyzed to obtain an improvement in the fit of the model.

Regarding these modifications, the correlated errors between items 40-41 (humiliation = .66) and 20-21 (physical = .54) were specified. Secondly, the indices referring to the location of the items in the dimensions were analyzed, of which 17, 29, 30 and 14 were eliminated. The first three, it was observed that their load was related by more than one factor. Regarding the last item, a confusing wording was observed. With these new specifications, the new indices obtained were: χ^2 / gl = 4.574 (p <.001), CFI = .961, TLI = .956 SRMR = .054, RMSEA = .085 (IC90% = .82, .88).

The factor loadings that the items presented ranged between .75 and .83 (detachment), .67 and .88 (humiliation), .74 and .84. (sexual), .74 and .86. (coercion), .81 and .87 (physical), .74 and .82. (gender), .77 and .88 (emotional punishment) and .82 and .87 (instrumental). In all cases, the factorial loads obtained are considered acceptable, since they exceed the minimum value recommended by Tabachnick and Fidell (2013) of .30.

Table 2.
Factorial matrix with standardized loads of the CUVINO

Item	Factor							
	DET	HUM	SEX	COE	PHY	GEN	EPU	INS
22	.83							
33	.83							
37	.80							
06	.78							
32	.75							
23		.88						
15		.86						
07		.79						
31		.79						
40		.77						
41		.77						
36		.67						
18			.84					
26			.80					
34			.79					
02			.77					
10			.76					
39			.74					
09				.86				
42				.81				
01				.79				
38				.77				
25				.74				
05					.87			
13					.87			
21					.82			
20					.81			
27						.82		
19						.82		
03						.80		
35						.78		
11						.74		
16							.88	
24							.84	
08							.77	
12								.87
04								.86
28								.82

Notes: DET = detachment; HUM = humiliation; SEX = sexual; COE = coercion; PHY = physical; GEN = gender; EPU = emotional punishment; INS = instrumental.

Evidence of validity based on relationships with other variables

A normality analysis was performed using the Kolmogorov-Smirnov (KS) test, taking the sample size (N> 50) as a reference, with which it was found that none of the factors presented a normal distribution (p < .05), which is why it was determined to use Spearman's nonparametric test for convergent validity analysis.

The correlation analysis between factors was carried out in order to establish the degree of intensity between the existing relationships between the factors of the proposed model and the VcM Scale. It is observed that the instrumental dimension of the CUVINO presented significant and moderate correlations with the VcM dimensions. On the other hand, it can be seen that the dimensions of severe economic and physical violence presented significant and moderate correlations with the dimensions of the CUVINO. In all the other cases, the correlations obtained were significant (p <.05) and of high magnitude (rs> .50; table 3).

Table 3.
Descriptive statistics and correlation matrix between the CUVINO and VcM dimensions

Dimension	*M*	*SD*	VcM					
			PSY	ECO	MPV	SPV	SEX	DAM
CUVINO								
DET	8.92	5.03	.55 **	.36 **	.54 **	.39 **	.53 **	.54 **
HUM	11.33	7.08	.53**	.40**	.59**	.46**	.50**	.54**
SEX	10.10	5.96	.53**	.42**	.56**	.48**	.59**	.54**
COE	9.18	5.06	.61**	.34**	.59**	.39**	.50**	.50**
PHY	6.41	4.78	.55**	.36**	.58**	.50**	.51**	.54**
GEN	8.32	5.15	.51**	.40**	.59**	.46**	.57**	.55**
EPU	5.58	3.55	.61**	.35**	.56**	.43**	.51**	.50**
INS	4.10	3.51	.33**	.46**	.39**	.49**	.42**	.45**
M	-	-	10.97	2.79	4.01	2.98	3.17	3.21
SD	-	-	6.02	1.55	2.53	1.79	1.99	1.94

Notes: DET = detachment; HUM = humiliation; SEX = sexual; COE = coercion; PHY = physical; GEN = gender; EPU = emotional punishment; INS = instrumental; PSY = psychological; ECO = economic; VFL = mild physical violence; VFG = several physical violence; SEX = sexual; DAM = damage. **p < .01

Evidence of reliability

      For the reliability evidence, the internal consistency was calculated from the omega coefficient. It was taken as a reference that adequate reliability must be greater than .70 to be considered acceptable (Viladrich, Angulo-Brunet & Doval, 2017). Omega coefficient values ranging between .84 and .91 were obtained, which are considered acceptable (table 4).

Table 4.
Internal consistency of CUVINO scores

Dimension	ω
Detachment	0.91 (CI 95%: .89, .92)
Humiliation	0.91 (CI 95%: .89, .92)
Sexual	0.89 (CI 95%: .87, .91)
Coercion	0.89 (CI 95%: .87, .91)
Physical	0.90 (CI 95%: .88, .92)
Gender	0.90 (CI 95%: .88, .92)
Emotional punishment	0.84 (CI 95%: .81, .86)
Instrumental	0.84 (CI 95%: .81, .86)

Discussion

      As a result of the factor analysis carried out and the internal consistency of its dimensions, the internal structure found in the original instrument (eight factors) was confirmed. Omega coefficient values ranging between .84 and .91 were obtained.

      The adjustment indices of the confirmatory factor analysis performed were: $\chi^2 / gl = 4.937$, $p < .001$; CFI = .952; SRMR = .059; RMSEA = .089; TLI = .948. Since the indices did not reach the expected values, modification indices were carried out. Unlike the one proposed by Rodríguez et al. (2010), in this study modification indices and correlated errors were analyzed between items 40 and 41 (humiliation) and 20 and 21 (physical). These items showed some similarity in the wording. Furthermore, since they are consecutive items, they could have generated these results (Domínguez-Lara, 2019). The indices referring to the location of the items in the dimensions were also analyzed, of which 17, 29, 30 and 14 were eliminated. Regarding the first three, it was observed that their loads were shown in more than one factor (Blum, Auné, Ahumada, Galibert & Deseoresi, 2013). With respect to item 14, a wording was observed where the negation is used, which often confuses those who respond (Muñiz, 2018).

With these new specifications, the new indices obtained were $\chi^2 / gl = 4.574$, CFI = .961, TLI = .956 SRMR = .054 and RMSEA = .085 (IC90% = .82, .88). These results indicate that in most of the indices they reached the expected value according to the specialized literature. Although it is true that the absolute adjustment index (χ^2 / gl) did not reach the recommended value, authors such as Abad, Olea, Ponsoda and García (2011) advise against its use and warn to be careful in its interpretation because it is still sensitive to sample size, even if the discrepancy between the chi square and the degrees of freedom is small. Additionally, the RMSEA did not meet the expected criteria according to the consensus of the literature to consider an acceptable fit (<.08). However, authors such as Keith (2015) point out that within the evaluation of the models, which would indicate an unacceptable fit, would be to find values above .10.

It should be mentioned that the results of the confirmatory factor analysis have been obtained by using the Robust Weighted Least Squares (WLSMV) estimation method, which is recommended to be used when working with items that do not present normality (Li, 2016). In other words, the type of sampling was not limited to a population with certain characteristics. Hence, the greatest amount in the response pattern has been concentrated in the lower options of the instrument (positive skewness).

Regarding the reliability evidence, the internal consistency was calculated and omega values ranging between .84 and .91 were obtained, which are considered acceptable (Viladrich et al., 2017). Values were reported for each factor of violence received. Regarding the omega coefficients, the humiliation factor was obtained (.91 and .91), sexual (.89 and .89), coercion (.88 and .89), physical (.90 and .90), gender (.90 and .90) and for emotional punishment (.84 and .84.) respectively. These values are higher than the one proposed by Rodríguez et al. (2010), where alpha values are between .58 and .81. This is probably due to the fact that in Rodriguez et al. (2010) study, there were atypical or inconsistent response cases, which were not considered due to the size of the sample. Furthermore, in the original study alpha reliability coefficients were calculated, without having evaluated the assumptions for their use (equality of factor loadings and absence of correlated errors), which is why the reliability values may have been underestimated.

Regarding the results of the analysis of convergent validity between the factors of the proposed model and the VcM scale, it was obtained that all are positive and statistically significant (p <.05), with a high magnitude (rs> .50) for the dimensions of psychological violence (between .51 and .61), mild physical (between .54 and .59), sexual (between .50 and .59) and harm (between .50 and .55) (Vara-Horna & López -Odar, 2016). It is observed that the instrumental dimension of the CUVINO presented significant and moderate correlations with the VcM dimensions. On the other hand, it can be seen that the dimensions of severe economic and physical violence presented significant and moderate correlations with the dimensions of the CUVINO. The results specifically for these correlations, which were significant and moderate, were probably given that VcM does not evaluate the type of instrumental violence. Likewise, the CUVINO does not evaluate the type of economic violence or serious physical aggression in a specific way, which is why the correlations did not show a high magnitude, as in the other cases. In the other results, the correlations obtained were significant (p <.05) and of high magnitude (r_s> .50). It should be noted that the convergent validity analysis allows corroborating the existing relationships between the eight factors of the CUVINO and the six factors of the VcM Scale, which also measures violence

in relationships. The results show that the relationships are highly significant in the sample studied, and being high indicate that they are relevant associations.

Conclusions

It is concluded that CUVINO has adequate psychometric properties for its use in the study sample by having evidence of validity and reliability. It is recommended to perform a difference analysis according to the sex of the participants in order to determine if the CUVINO model is invariant between the groups. In this way, it could be concluded that both groups work in the same way and avoid some group bias for a specific group.

It is convenient to indicate the limitations found after conducting this study. Being a self-report questionnaire, these are subject to social desirability. Likewise, the type of sampling used to carry out the study was non-probabilistic (Hernández et al., 2014). Consequently, the generalization of the results is a limitation, since it is a sample with specific characteristics. It is suggested that more validations be carried out in other sample groups to continue with the accumulation of evidence of validity of the instrument and obtaining absolute fit indices within the expected values.

References

Abad, F., Olea, J., Ponsoda, V. & García, C. (2011). *Medición en ciencias sociales y de la salud*. Madrid: Síntesis.

Ato, M., López, J. & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología*, *29*(3), 1038-1059. doi: 10.6018/analesps.29.3.178511

Beltrán, G., Albán, J., Zumba, I., Vera, J. & Figueroa, M. (2018). *Parejas violentas; análisis desde la perspectiva sistémica: una experiencia desde la práctica. Dilemas Contemporáneos: Educación, Política y Valores*. Retrieved from http://www.dilemascontemporaneoseducacionpoliticayvalores.com/index.php/dilema s/article/view/330/815

Blum, D., Auné, S., Ahumada, C., Galibert, M. & Attorresi, H. (2013). Criterios para la eliminación de ítems de un Test de Analogías Figurales. *Summa Psicológica UST*, *10*(2), 49-56.

Byrne, B. M. (2006). *Structural Equation Modeling with EQS: Basic Concepts, Applications, and Programming* (2ª ed.). New Jersey: Taylor Francis.

Carrascosa, L., Cava, M. J. & Buelga, S. (2018). Perfil psicosocial de adolescentes españoles agresores y víctimas de violencia de pareja. *Universitas Psychologica*, *17*(3), 1-10. doi: 10.11144/Javeriana.upsy17-3.ppae

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Nueva York: Academic Press. Retrieved from https://books.google.es/books?hl=es&lr=&id=rEe0BQAAQBAJ&oi=fnd&pg=PP1& dq=Statistical+Power+Analysis+for+the+Behavioral+Sciences+&ots=swTQPsPOnb &sig=hMsK0jVMhr1JJJR-RSMwA9YtlxY#v=onepage&q=Statistical%20Power%20Analysis%20for%20the%2 0Behavioral%20Sciences&f=false

Cortés-Ayala, L., Flores Galaz, M., Bringas Molleda, C., Rodríguez-Franco, L., López-Cepero Borrego, J. & Rodríguez Díaz, F. J. (2015). Relación de maltrato en el noviazgo de jóvenes mexicanos: análisis diferencial por sexo y nivel de estudios. *Terapia Psicológica*, *33*(1), 5-12. doi: 10.4067/S0718-48082015000100001

Del Ángel, M. & Barraza, A. (2017). Violencia mutua en el noviazgo: perfil psicosocial víctima-victimario en universitarios. *Psicología y Salud*, *27*(2), 231-244.

Díaz, V., Feito, A., Díaz, F., González, M., Díaz, M. & Pérez, A. (2013). Violencia de género en estudiantes de enfermería durante sus relaciones de noviazgo. *Atención Primaria*, *45*(6), 290-296. doi: 10.1016/j.aprim.2012.11.013

Domínguez-Lara, S. (2019). Correlación entre residuales en análisis factorial confirmatorio: una breve guía para su uso e interpretación. *Interacciones*, *5*(3), e207. doi: 10.24016/2019.v5n3.207

Fernández, A., Fuertes, A. & Pulido, R. (2006). Evaluación de la violencia en las relaciones de pareja de los adolescentes. Validación del Conflict in Adolescent Dating Relationships Inventory (CADRI)-versión española. *International Journal of Clinical and Health Psychology*, *6*(2), 339-358.

Gómez, M., Delgado, A. & Gómez, Á. (2014). Violencia en relaciones de pareja de jóvenes y adolescentes. *Revista Latinoamericana de Psicología*, *46*(3), 148-159. doi: 10.1016/S0120-0534(14)70018-4

Hernández, R., Fernández, C. & Baptista, P. (2014). *Metodología de la investigación*. México: McGraw-Hill.

Hudson, W. & McIntosh, S. (1981). The assessment of spouse abuse: Two quantifiable dimensions. *Journal of Marriage and the Family*, *43*(4), 873-888. doi: 10.2307/351344

Instituto Nacional de Estadística e Informática [INEI]. (2019). *Perú: indicadores de violencia familiar y sexual, 2012-2019*. Retrieved from https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib1686/libro.pdf

Keith, T. Z. (2015). *Multiple Regression and Beyond: An Introduction to Multiple Regression and Structural Equation Modeling* (2ª ed.). Nueva York: Routledge

Kline, P. (1986). *A Handbook of Test Construction: Introduction to Psychometric Design*. Nueva York: Methuen.

La República. (2019, noviembre 8). En Tacna el 86 % de víctimas de violencia son mujeres y 14 % varones. *La República*. Retrieved from https://larepublica.pe/sociedad/2019/08/11/en-tacna-el-86-de-victimas-de-violencia-son-mujeres-y-14-varones/

Li, C. H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods*, *48*(3), 936-949. doi: 10.3758/s13428-015-0619-7

Lloret-Segura, S., Ferreres-Traver, A., Hernández-Baeza, A. & Tomás-Marco, I. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada. *Anales de Psicología*, *30*(3), 1151-1169. doi: 10.6018/analesps.30.3.199361

Medrano, L. & Muñoz-Navarro, R. (2017). Aproximación conceptual y práctica a los modelos de ecuaciones estructurales. *Revista Digital de Investigación en Docencia Universitaria*, *11*(1), 216-236. doi: 10.19083/ridu.11.486.

Ministerio de la Mujer y Poblaciones Vulnerables [MIMP]. (2019). *Informe Estadístico. Violencia en cifras.* Retrieved from https://www.mimp.gob.pe/contigo/contenidos/publicar-articulos/server/php/files/Informe-Estadistico-12-2019-Diciembre-2019.pdf

Muñiz, J. (2018). *Introducción a la Psicometría*. Madrid: Pirámide.

Observatorio Nacional de la Violencia Contra las Mujeres y los Integrantes del Grupo Familiar. (2018, diciembre 31). *Tacna inaugura Observatorio de la violencia contra las mujeres y los integrantes del grupo familiar*. Retrieved from https://observatorioviolencia.pe/tacna-inaugura-observatorio-de-la-violencia-contra-las-mujeres-y-los-integrantes-del-grupo-familiar/

Ocampo, L. (2015). Autoestima y adaptación en víctimas de maltrato psicológico por parte de la pareja. *Psicología desde el Caribe*, *32*(1), 145-168. doi: 10.14482/psdc.32.1.5204

Rodríguez, L., Antuña, A., Rodríguez-Díaz, F. J. & Herrero, F. J. (2007). Violencia de género en relaciones de pareja durante la adolescencia. Análisis diferencias del cuestionario de violencia entre novios (Cuvino). En R. Arce, F. Fariña, E. Alfaro, C. Civera & F. Tortosa (Eds.), *Psicología Jurídica. Violencia y Víctimas* (pp. 137-146). Valencia: Diputación de Valencia.

Rodríguez, L., López, J., Rodríguez, F. J., Bringas, C., Antuña, M. & Estrada, C. (2010). Validación del cuestionario de violencia entre novios (CUVINO) en jóvenes hispanohablantes: Análisis de resultados en España, México y Argentina. *Anuario de Psicología Clínica y de la Salud, 6,* 45-52.

Rodríguez, R., Riosvelasco, L. & Castillo, N. (2018). Violencia en el noviazgo, género y apoyo social en jóvenes universitarios. *Escritos de Psicología*, *11*(1), 1-9.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of Statistical Software*, *48*(2), 1-36.

Rubio, F., López, M., Carrasco, M. & Amor, P. (2017). Prevalencia de la violencia en el noviazgo: una revisión sistemática. *Papeles del Psicólogo*, *38*(2), 135-147. doi: 10.23923/pap.psicol2017.2831

Ruiz, M. A., Pardo, A. & San Martín, R. (2010). Modelo de ecuaciones estructurales. *Papeles del Psicólogo*, *31*(1), 34-45.

Straus, M. (1979). Measuring intrafamily violence and conflict: the Conflict Tactics (CT) Scale. *Journal of Marriage and Family*, *41*, 75-88. doi 10.2307/351733

Straus, M. (2008). Dominance and symmetry in partner violence by male and female university students in 32 nations. *Children and Youth Services Review*, *30*(3), 252-275. doi: 10.1016/j.childyouth.2007.10.004

Tabachnick, B. & Fidell, L. (2013). *Using Multivariate Statistics* (6° ed.). Northridge: California State University.

Vara-Horna, A. & López-Odar, D. (2016). *La violencia contra las mujeres en las universidades peruanas. Prevalencia e impacto en la productividad académica en las facultades deficiencias empresariales e ingenierías*. Lima: GIZ & USMP. Retrieved from https://info.comvomujer.org.pe/catalogocomvo/productoscatalogos2016/21_ComVo Mujer_Estudio%20de%20Costos%20en%20Universidades%20Peru_2016.pdf

Viladrich, C., Angulo-Brunet, A. & Doval, E. (2017). A journey around alpha and omega to estimate internal consistency reliability. *Anales de Psicología*, *33*(3), 755-782. doi: 10.6018/analesps.33.3.268401

World Health Organization [WHO]. (2002). *Informe mundial sobre la violencia y la salud: resumen. Oficina Regional para las Américas de la Organización Mundial de la Salud.* Washington: OPS.   Retrieved   from https://www.who.int/violence_injury_prevention/violence/world_report/es/summary_ es.pdf

World Health Organization [WHO]. (Ed.). (2013). *Informe de la OMS destaca que la violencia contra la mujer es un problema de salud global de proporciones epidémicas.* Retrieved   from https://www.who.int/mediacentre/news/releases/2013/violence_against_women_2013 0620/es/

Wu, A., Li, Z. & Zumbo, B. (2007). Decoding the meaning of factorial invariance and updating the practice of multigroup confirmatory factor analysis: A demonstration with TIMSS data. *Practical Assessment Research & Evaluation, 12*(3), 1-26. doi: 10.7275/mhqa-cd89

Yanes, M., Hernández de la Cruz, A. & Bautista, A. (2019). Violencia en el noviazgo en opinión de un grupo de adolescentes de la Sierra Norte de Puebla. *Revista Chakiñan de Ciencias Sociales y Humanidades*, *7*, 25-39.