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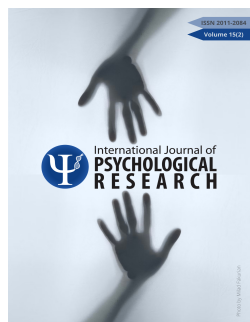
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Validation of a Bullying Scale in Peruvian Adolescents and Gender-Specific Differences

Validación de una escala de acoso escolar en adolescentes peruanos y diferencias según género

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Abstract.

The objective of the study was to evaluate the psychometric properties of the European Bullying Intervention Project Questionnaire (EBIPQ) in Peruvian adolescents and to determine gender-specific differences. The sample comprised 532 students in sixth grade of elementary school to third grade of high school. To validate the instrument, we requested an expert judgement and conducted a pilot test. Subsequently, we performed the exploratory factorial analysis, which showed that all the questions were correctly loaded in both components, an aspect that explained the 48.6% variance. We determined the reliability by means of the internal-consistency method using the Cronbach's alpha ($\alpha_{\text{total}} = .856$; $\alpha_{\text{victimization}} = .807$; $\alpha_{\text{aggression}} = .828$). We found gender-specific differences in bullying roles ($p < .001$). In conclusion, the factorial structure of the EBIPQ in Peruvian adolescents is similar to the original questionnaire and presents high reliability and construct validity.

Resumen.

El estudio tuvo como objetivo evaluar las propiedades psicométricas del European Bullying Intervention Project Questionnaire (EBIPQ) en adolescentes peruanos y determinar sus diferencias según el género. La muestra estuvo conformada por 532 escolares de sexto grado de Primaria a tercer grado de Secundaria. Para la validez del contenido, se realizó el juicio de expertos y una prueba piloto. Posteriormente, se realizó el análisis factorial exploratorio, el cual mostró que todas las preguntas fueron cargadas en forma correcta en los dos componentes, lo que explica el 48.6% de varianza. La confiabilidad se estableció mediante el método de consistencia interna, a través del Alfa de Cronbach ($\alpha_{\text{total}} = .856$; $\alpha_{\text{victimización}} = .807$; $\alpha_{\text{agresión}} = .828$). Se encontraron diferencias en el rol de acoso escolar según el género ($p < .001$). En conclusión, la estructura factorial del EBIPQ en adolescentes peruanos es similar al cuestionario original y presenta elevada confiabilidad y validez de constructo.

Keywords.

Bullying; Adolescent Behavior; Violence; Validation Study; Surveys and Questionnaires; Peru.

Palabras Clave.

Acoso escolar; Conducta del adolescente; Violencia; Estudio de Validación; Encuestas y Cuestionarios; Perú.

1. Introduction

School bullying is a social problem that affects children and adolescents' health. According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2019a), over 200 million children and adolescents around the world may suffer from the effects of violence in schools, which includes physical, emotional, and sexual aggression. From an educational perspective, for instance, it impacts academic performance and increases school dropout rates. From a health perspective, it raises the risk of suicide (Romo & Kelvin, 2016) and of using psychoactive substances in order to feel safe (UNESCO, 2019b). Individuals' self-esteem and social abilities are also affected by this phenomenon (Martínez et al., 2020; Sandoval-Ato et al., 2018).

Each year, around 246 million children and adolescents are reported as victims of school violence, and almost a third of this age group experiences physical aggression from peers (UNESCO, 2019a, 2019b). However, the prevalence of this social problem varies depending on the region. While a study reported a prevalence of 29.2% in Europe and North America (Chester et al., 2015), a global survey reported a prevalence of 33.3% in developing nations (Han et al., 2019). Additionally, a sub-analysis of global school-based student health surveys from five Latin American countries revealed that the prevalence of bullying victimization ranges from 47.8% to 19.5% (Romo & Kelvin, 2016).

Compared to Bolivia, Honduras, Uruguay, and Costa Rica, Peru reports the highest rate of victimization and aggression (Romo & Kelvin, 2016). In addition, according to a study that analyzed data from a case reporting system on school violence, the prevalence of school bullying was 62.6 per 100,000 Peruvians (Arjuís et al., 2021). Regarding research conducted in Peruvian cities, one study indicated that 47% of students in Trujillo experienced bullying in 2013 (Solar-Armas et al., 2019), and another study found that 57.4% of students in Iquitos were involved in some bullying role (Martínez et al., 2020).

Through the timely identification of negative situations in the school environment, such as school violence, the effects of this social problem can be lessened. To that end, many detection and assessment tools have been developed. These tools, besides allowing data to be collected thanks to their design and content, assess favorable environments for students in terms of competence, autonomy, relationships, and responsibility, among other factors (Menéndez et al., 2021; Patiño-Masó et al., 2021).

One of the tools used to measure school violence, which in turn evaluates other aspects or repercussions, is the Risk Factors in Secondary School Students (FRESC by its Spanish acronym) questionnaire. This tool assesses students' behaviors and lifestyles in relation to health aspects and considers bullying, alcohol consumption, health status, and quality of family relationships

(Patiño-Masó et al., 2021). There is also the Youth Risk Behavior Surveillance System (YRBSS), which monitors six health-risk behaviors: behaviors that contribute to injuries and violence, sexual behaviors, alcohol and other drug use, tobacco use, unhealthy dietary habits, and inadequate physical activity (Centers for Disease Control and Prevention, 2020).

Particularly in terms of school bullying, we have the School Bullying Assessment Questionnaire (CAES by its Spanish acronym), which evaluates students' understanding of issues like bullying and cyberbullying, their involvement in such forms of violence, and their ability to handle interpersonal and group problems (García et al., 2020). Another tool is the Prevalence of Teasing and Bullying (PTB) scale, which measures students' understanding of bullying as a problem, teasing about clothing or physical appearance, situations involving sexual topics, and humiliation because of race or ethnicity (Cornell et al., 2013). There is also the Spanish version of the Adolescent Peer Relations Instrument (APRI), which can be used to identify bullied individuals (Gascón-Cánovas et al., 2017). In addition, we have the Revised Olweus Bully/Victim Questionnaire (OVBQ-R), which was developed based on the bullyvictim relationship. This tool is employed in many countries and has appropriate psychometric properties to evaluate the prevalence of victimization and aggression (Gaete et al., 2021).

In South America, various instruments to measure school bullying have also been validated. For instance, the Violence Among Peers Scale by Cajigas de Segredo, which includes four subscales, was used in the Chilean population (Sepúlveda & Padilla, 2009). Also, the Spanish version of the Aggression and Victimization Scale, which, through self-report, measures physical and verbal aggression among schoolchildren, was tested in Chile (López & Orpinas, 2012).

One of the instruments to measure school bullying that not only assesses physical aggression, but also psychological and relational aggression is the European Bullying Intervention Project Questionnaire (EBIPQ). This questionnaire, which was initially validated in Spain (Ortega-Ruiz et al., 2016), includes fewer questions compared to other instruments developed in Spanish-speaking countries (González & García, 2021). It was culturally adapted to the Latin American context and validated using a sample of Colombian high school students, because of its optimal internal consistency and factor structure ($\Omega_{\text{total}} = .85$; $\Omega_{\text{victimization}} = .78$; $\Omega_{\text{aggression}} = .82$; Herrera-López et al., 2017). Moreover, a study conducted in a Peruvian city reported that the EBIPQ has adequate psychometric properties (Martínez et al., 2020). Later, a study carried out in Brazil—which compared personal bullying with ethnic and cultural bullying—confirmed that the questionnaire has good levels of reliability ($\alpha_{\text{total}} = .859$; $\alpha_{\text{victimization}} = .826$; $\alpha_{\text{aggression}} = .821$; Rodríguez-Hidalgo et al., 2019).

Despite the high prevalence of this social problem in Peru, there are not many validated scales to measure school violence (Martínez et al., 2020; Romo & Kelvin, 2016; Zegarra et al., 2022). As a result, the EBIPQ is often employed to determine the association of school bullying with suicide risk (Sandoval-Ato et al., 2018), self-esteem, empathy, and social skills (Martínez et al., 2020). The purpose of this study was thus to assess the psychometric properties of the EBIPQ in a sample of Peruvian adolescents and to identify any gender-specific differences.

2. Methodology

2.1 Design

The study design was psychometric and cross-sectional. We employed exploratory factor analysis (EFA) to validate the EBIPQ in the Peruvian population.

2.2 Sample

We selected the sample using convenience sampling. It comprised 532 students (54.0% women) aged between 10 and 17 ($M = 12.96$ and $SD = 1.31$) and in sixth grade of primary school to third grade of secondary school of *educación básica* (basic education) from public educational institutions located in marginal urban areas of Lima, Peru.

2.3 Instrument

In this study, we used the EBIPQ to measure school bullying. This questionnaire, which was created in 2012, considers a reference period of two months prior to its application. We, however, set such reference period to the twelve months prior to its application. The items of the questionnaire correspond to aspects related to aggression and victimization, and refer to actions such as beating, insulting, threatening, stealing, using coarse language, and spreading rumors. All items are rated on a Likert-type scale ranging from 0 (*never*) to 4 (*always*).

Ortega-Ruiz et al. (2016) highlighted this instrument's acceptable internal consistency values and high degree of reliability obtained in the test-retest study of the original analysis ($\alpha_{T1_{victimization}} = .84$, $\alpha_{T2_{victimization}} = .88$; $\alpha_{T1_{aggression}} = .73$, $\alpha_{T2_{aggression}} = .69$).

2.4 Instrument validity and reliability

To assess the instrument's validity and reliability, we performed a content validity and internal consistency check. For content validity, we used expert judgment. We asked three nurses specialized in adolescents' care, two basic education teachers, and a psychologist to indicate their level of agreement with each item using Lawshe's (1975) technique adapted by Tristan (2008). Likewise, we conducted a pilot with 30 students using the EBIPQ validated by Ortega-Ruiz et al. (2016) in order

to evaluate, through an interview, each participant's understanding of the questionnaire items.

2.5 Procedure

After selecting the public educational institutions in Lima's urban areas, we requested authorization from the principals to administer the questionnaire at a time that did not conflict with academic activities.

We collected data in 2019. One day before data collection, the participants' parents were asked for their informed consent; likewise, before data collection, students were asked for their informed assent. We administered the questionnaire in the classrooms, at hours agreed with the principal and teachers, by two members of the research team who had received prior training.

2.6 Statistical analysis

For the statistical analysis, we used R software, version 4.0 (R Core Team, 2020). We performed a univariate descriptive analysis with the gender variable. In addition, we applied EFA to the EBIPQ. Prior to the EFA, we assessed sample adequacy using the Kaiser-Meyer-Olkin (KMO) test. For the EFA, we used principal component analysis as the extraction method and varimax with Kaiser normalization as the rotation method. After the EFA, we analyzed total internal consistency and factor structure using Cronbach's alpha. We employed the factor scores obtained from a confirmatory factor analysis (CFA) to estimate the scores in each dimension of bullying (aggression and victimization).

Since factor scores are based on the mean, scores of 0 represent the average scores in each dimension. Hence, using these scores, we grouped the students according to their roles in bullying. Students were considered *bullies* when their score in the aggression dimension was above 0 and that in the victimization dimension was below 0; *victims*, when their score in the aggression dimension was below 0 and that in the victimization dimension was above 0; *victimized bullies*, when their score in both the aggression and victimization dimensions was above 0; and *not involved in bullying*, when their score in both the aggression and victimization dimensions was below 0.

Finally, to identify gender-specific differences in bullying roles, we performed a bivariate analysis using Pearson's chi-square test, with a significance level of .05. Additionally, we conducted a post-hoc analysis to identify the source of significance.

2.7 Ethical aspects

This study was approved by the Ethics and Research Committee of Universidad María Auxiliadora (Minutes No. 007–2019). Likewise, we adhered to the provisions of the Peruvian personal data protection law (Law No. 29733).

Table 1

Adjustments to the questionnaire, based on the pilot and expert judgment

Items of scale validated in Spain	Items of final scale
¿Has vivido alguna de las siguientes situaciones en los últimos DOS MESES? (Have you experienced any of the following situations in the last TWO MONTHS?) VB3. <i>Alguien les ha dicho a otras personas palabras malsonantes sobre mí.</i> (VB3. Someone has said coarse words about me to other people.) AB2. <i>He insultado y he dicho palabras malsonantes a alguien.</i> (AB2. I have insulted and said coarse words to someone.) AB3. <i>He dicho a otras personas palabras malsonantes sobre alguien.</i> (AB3. I have said coarse words about someone to other people.)	¿Has vivido alguna de las siguientes situaciones en los últimos DOCE MESES? (Have you experienced any of the following situations in the last TWELVE MONTHS?) <i>Alguien les ha dicho a otras personas palabras ofensivas sobre mí.</i> (Someone has said offensive words about me to other people.) <i>He insultado y he dicho palabras ofensivas a alguien.</i> (I have insulted and said offensive words to someone.) <i>He dicho a otras personas palabras ofensivas sobre alguien.</i> (I have said offensive words about someone to other people.)

3. Results

Regarding content validity, we obtained a content validity index of .83 after subjecting the instrument to expert judgment. Moreover, the pilot we carried out allowed us to realize that students had trouble understanding the word *malsonantes* (coarse), so we replaced it by *ofensivas* (offensive) in items 3 (*Someone has said offensive words about me to other people*), 9 (*I have insulted and said offensive words to someone*), and 10 (*I have said offensive words about someone to other people*). The group of experts also assessed this modification and agreed that it was appropriate, as it was necessary to avoid ambiguities or misunderstandings (de Vet et al., 2011). Table 1 lists the changes that we made to the questionnaire considering the feedback obtained from the pilot and expert judgment.

In terms of internal consistency, the KMO test conducted before the EFA yielded a value of .865, which suggests the appropriateness of applying factor analysis. As observed in Table 2, all items loaded cleanly on the intended factors, with factor loadings above .65. Likewise, there were no cross-loadings because all the factor loadings in the opposing components were below .35. Also, the communalities of each item were all above .36, which may be attributed to the fact that, in this model, the first and second components explained 37.70% and 12.91% of the total variance, respectively. According to this, all the items are fairly consistent in measuring school bullying. The Cronbach's alpha of the entire questionnaire was .856, which further demonstrates the instrument's internal consistency and reliability. Similarly, the Cronbach's alpha of the victimization and aggression dimensions was .807 and .828, respectively, which confirms the internal consistency of each dimension.

3.1 Bullying roles

In our sample, 40.7% of students were found not to be involved in bullying. With regard to those involved, victims had the highest percentage (25.6%), followed by victimized bullies (17.7%) and bullies (16.0%).

Table 3 reports the gender-specific differences in bullying roles ($\chi^2 = 22.56$, $gl = 3$, $p < .001$). Particularly, the post-hoc analysis revealed that the proportion of bullies is 10% higher in men than in women ($p = .005$). No gender-based differences, however, were observed for the roles of victim, victimized bully, and those not involved in bullying ($p > .05$).

4. Discussion

The EFA conducted in this psychometric study revealed that the EBIPQ comprises two dimensions (aggression and victimization) with high factor loadings, which demonstrates the consistency of the items in measuring school bullying. This, in addition to the content validity evidence, which confirmed the coherence between the theory and the instrument's semantic and syntactic content, supports the results of the study by Ortega-Ruiz et al. (2016), in which the questionnaire was validated for the first time. Therefore, we may conclude that the EBIPQ is reliable and appropriate for use in the Peruvian population.

Moreover, the entire scale and each variable obtained a high Cronbach's alpha coefficient, which indicates the instrument's reliability and internal consistency. This finding is consistent with those of studies conducted in Spain (Rodríguez-Hidalgo et al., 2019), Colombia (Herrera-López et al., 2017), and Peru (Martínez et al., 2020). In this latter study, in fact, the authors highlight the appropriate psychometric properties of the EBIPQ after per-

Table 2

Exploratory factor analysis of the questionnaire

Item	Component		Communalities
	Aggression	Victimization	
1. Someone has hit, kicked, or pushed me	.110	.650	.434
2. Someone has insulted me	.208	.718	.559
3. Someone has said offensive words about me to other people	.160	.737	.568
4. Someone has threatened me	.199	.569	.364
5. Someone has stolen or broken my things	.152	.573	.352
6. I have been excluded or ignored by other people	.095	.683	.475
7. Someone has spread rumors about me	.216	.679	.507
8. I have hit, kicked, or pushed someone	.609	.264	.441
9. I have insulted or said offensive words to someone	.645	.301	.506
10. I have said offensive words about someone to other people	.739	.186	.580
11. I have threatened someone	.706	.090	.507
12. I have stolen or broken someone's things	.667	.115	.458
13. I have excluded or ignored someone	.655	.212	.474
14. I have spread rumors about someone	.756	.095	.581
Explained variation	37.70%	12.91%	

Table 3

Gender-specific bullying roles assumed by schoolchildren

	Female		Male		χ^2
	N	%	N	%	
Bully	23	9.7	58	20.6	22.56*
Victim	30	12.7	60	21.3	
Victimized bully	112	47.2	101	35.8	
Not involved	72	30.4	63	22.3	

Note. *Value of $p < .001$

forming CFA, which confirms that it is reliable. This is in line with the findings of a secondary study, in which the majority of bullying questionnaires validated in Spanish and adapted to this language were found to have appropriate psychometric properties (Vera-Giraldo et al., 2017).

One of the advantages of the EBIPQ is that it can determine students' bullying role based on the scores obtained in the two components. This aspect is relevant because, when measuring bullying, it is crucial to consider all those involved in the bullying context under analysis (Gonzales & García, 2021). Another benefit of using this tool is that it favors the identification of the type of aggression (physical, psychological, or relational), which is key when implementing school-based violence prevention programs. In fact, a meta-analysis conducted by Kennedy (2020) revealed how critical it is for the success of such programs to identify the type of aggression.

In this study, we changed the reference period by setting it to the twelve months prior to the application of the questionnaire. We did this modification so that our results could be compared to those of polls conducted annually in Peru (INEI, 2020). In addition, it allows the questionnaire to be administered at any time of the year. Likewise, as in the study conducted by Herrera-López et al. (2017) with Colombian adolescents, we made some

adjustments to several questions in the original instrument during the pilot so that students in the Peruvian context could better comprehend them.

Concerning bullying victimization, 43.3% of the surveyed students were found to be either victims or victimized bullies. This percentage is slightly lower than that reported in 2019 in the National Survey on Social Relations (ENARES by its Spanish acronym), which was conducted among 911-year-old Peruvian students. According to this survey, the percentage of victims of psychological and physical aggression in schools was 47.4%. Also, a study that employed the EBIPQ on students in their first years of medical school in Panama found that 33.2% of participants were either victims or victimized bullies (Silva-Villarreal et al., 2013). In this regard, Rodrigues Veloso et al. (2020) recommend taking immediate actions to prevent vulnerable situations that affect students' well-being and quality of life.

Furthermore, the results of our study reveal that the prevalence of bullies is higher in male students than in female students. Similarly, a study carried out in Brazil reported that being male is more associated with being a perpetrator in bullying situations (Rodrigues Reis e Silva et al., 2020). Also, a study conducted in Peru found that being male was a predictor of bullying acts

(Solar Armas et al., 2019). Another study found that men are more likely to engage in school violence (Zeladita Huaman et al., 2020). Contrary to this, a study conducted in Spain using the EBIPQ revealed that there are no statistically significant differences across gender regarding the role of bully (Feijóo et al., 2021). It did, however, find that the prevalence of victimized bullies is higher in men than in women. Despite this, the logistic regression analysis showed that these differences were minor and that there is not a clearly differentiated bullying pattern across gender (Feijóo et al., 2021). These discrepancies could be explained by cultural and individual differences, as well as by the participants' responses to the questionnaire's items.

It would be interesting to further investigate the relationship between gender and bullying roles, including the varied forms in which aggression manifests itself. For instance, a recent study by Björkqvist (2018) provided information relevant to such matters. According to this author, in proportions of their total aggression scores, girls are more indirectly aggressive, boys are more physically aggressive, and both are equally verbally aggressive. Likewise, the author states that there are genetic components that determine both physical and indirect aggression and that prenatal hormonal exposure is key in the development of an aggressive behavior.

In terms of clinical implications, and beyond the repercussions on the mental health of those involved in bullying situations, the effects of bullying on educational processes and school climate should be analyzed. In a recent meta-analysis, Yang et al. (2018) indicated, after controlling student and school demographic variables, that a positive school climate was linked to a higher student behavioral/cognitive and emotional engagement across all grade levels. Additionally, they found negative correlations between student-level bullying victimization and engagement, which intensified in more positive school climates. According to their findings, the impact of bullying should be examined more thoroughly beyond the effects on the mental health of those involved; its repercussions on school climate and students' motivation for school and attitude towards learning should also be analyzed.

The role of bullying (both in terms of cause and effect) in school climate seems to be complex and diverse. As indicated by various studies, bullying and antisocial behaviors are less prevalent in authoritative classroom climates (Thornberg et al., 2018). All of this reveals the need to thoroughly examine bullying beyond its effects on the mental health of those involved. Moreover, to advance in the study of this phenomenon—as well as its dynamics, social representations, causes, and emotional, social, and educational repercussions—the scales and instruments used to determine students' bullying role should be validated in Latin America.

School climate and students' perceived life satisfaction, which refers to individuals' subjective evaluation of their quality of life, are both impacted by negative peer interactions, such as those that result from bullying. This is because they have long-term negative effects on students' emotional and social growth.

School satisfaction and school bonding are two dimensions of school climate that can influence the occurrence of bullying during adolescence. The validation of bullying assessment instruments will surely contribute to an increase in studies into the causes, dynamics, and consequences of this phenomenon. Although there has been substantial research on school climate worldwide, not much has been done in South America, particularly in the form of longitudinal studies that examine the importance of school variables influencing bullying and perceived quality of life (Varela et al., 2021). In this regard, Varela et al. (2021) conducted a study that employed structural equation modeling and a sample of 555 Chilean adolescents with a mean age of 13.5 (42.9% of whom were female). According to their findings, perceived school satisfaction was negatively associated with bullying perpetration but not with bullying victimization. For its part, school bonding was found to be negatively associated with bullying victimization but not with bullying perpetration.

These results stress the influence of school and social determinants of bullying in school climate and perceived quality of life, as well as the importance of preventive actions in schools to properly manage this phenomenon in the classrooms.

4.1 Limitations

We are aware that our research has some limitations. First, since our sample consisted of students from basic education institutions located in marginal urban areas, the results cannot be generalized. Second, we did not perform a CFA because the dimensions of the instrument had already been shown to be consistent. Finally, the reference period we used (twelve months prior to the application of the questionnaire) may be too long to be certain about each student's bullying role, considering all the events that can occur in a school environment.

4.2 Future considerations

The results of this study will serve as support for research on school violence in Peru and will favor comparisons with other contexts, especially with those of Latin American countries if we consider that the problem of bullying occurs in a high percentage in such countries (Romo & Kelvin, 2016).

Furthermore, the present research proposes a method to identify the role in bullying, an aspect that was not considered in the initial validation of the scale. This identification is relevant, as it reveals the level of engagement and participation of schoolchildren in violent

behaviors. However, the existing gender-specific differences in adolescents' bullying roles, as determined by the chi-square test, need to be confirmed by other more rigorous statistical analysis methods.

5. Conclusions

In conclusion, we can say that the EFA confirms the existence of two components (aggression and victimization) in the EBIPQ and that it is a reliable and valid questionnaire in the Peruvian context. It constitutes a contribution to empirical research, considering that there are few instruments in Peru that have been subjected to an EFA. However, we report on the need to conduct further research in highland and jungle areas of the country to verify the cross-cultural validity of the instrument.

The prevalence of the role of aggressor in school bullying is higher in males compared to females. Therefore, it is necessary to implement gender-based multi-sectoral policies that enable sustained work at school and at home, that count on the participation of those involved, and that address present and future psychological damages.

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