


## Bayesian analysis for child maltreatment in Peruvian adolescents

Análisis bayesiano del maltrato infantil en adolescentes peruanos

Análise bayesiana do abuso infantil em adolescentes peruanos

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### ABSTRACT

**Introduction:** child maltreatment is a common psychological problem of children and adolescents around the world. Presence of various form of abuse can lead to other psychological and physical problems, so, it is necessary to identify which form of abuse is more likely to affect men and women. **Objective:** to analyze the differences observed in child maltreatment according to sex in Peruvian adolescents. **Method:** a cross-sectional, and quantitative and comparative approach study was carried out in the months of July and August 2022. A convenience sample of 1.376 adolescents who responded to a self-report on child abuse was analyzed. To compare both groups (men and women), the Mann-Whitney U-test for Bayesian independent samples was used. **Results:** among the various forms of child maltreatment, only was found in favor and with high evidence as alternative hypothesis, the emotional maltreatment (BF<sub>10</sub> = 190.38;  $\delta$  = 0.31; 95 % CI:

0.20-0.48). This difference was higher in females (M=8.28) compared to males (M=7.09). In emotional and physical neglect, strong evidence was reported for the null hypothesis. Robust Bayes factor analysis confirmed the same results. **Conclusions:** emotional maltreatment occurs mostly in adolescent females, being the gender that requires more psychological support. In the other forms of maltreatment, no differences were found in correspondence with gender. Consequently, health professionals should consider the role of gender in emotional maltreatment, but should not neglect the other forms of child maltreatment, emphasizing the specific particularities of each case.

**Keywords:** adolescent; mental health; Bayes theorem; adolescent health; child maltreatment

## RESUMEN

**Introducción:** el maltrato infantil es un problema psicológico frecuente en niños y adolescentes de todo el mundo. La exposición a diversos tipos de maltrato puede conducir a otros problemas psicológicos y físicos, siendo necesario identificar qué tipo de maltrato repercute con mayor probabilidad en hombres y mujeres. **Objetivo:** analizar las diferencias del maltrato infantil según sexo en adolescentes peruanos. **Método:** estudio transversal, enfoque cuantitativo y comparativo realizado en los meses de julio y agosto de 2022. Se analizó una muestra por conveniencia de 1 376 adolescentes, los cuales respondieron un auto-informe sobre maltrato infantil. Para comparar ambos grupos, se utilizó la prueba U de Mann-Whitney de muestras independientes bayesianas. **Resultados:** entre los diversos tipos de maltrato infantil, solo se encontró evidencia a favor de la hipótesis alternativa en el maltrato emocional ( $BF_{10}=190,38$ ;  $\delta=0,31$ ; IC 95 %: 0,20-0,48), con una evidencia muy fuerte. Esta diferencia fue superior en mujeres ( $M=8,28$ ) en comparación con los hombres ( $M=7,09$ ). En la negligencia emocional y física, se reportó evidencia fuerte para la hipótesis nula. El análisis robusto del factor Bayes confirmó los mismos resultados. **Conclusiones:** el maltrato emocional se presenta mayormente en mujeres adolescentes, siendo el género que requiere mayor apoyo psicológico en este tipo de maltrato infantil. En los otros tipos de maltrato, no se encontró diferencias respecto al sexo. En consecuencia, los profesionales de la salud deben considerar el rol del género en el maltrato emocional, pero no descuidar los otros tipos de maltrato infantil, enfatizando en las particularidades específicas de cada caso.

**Palabras clave:** adolescente; salud mental; teorema de Bayes; salud del adolescente; maltrato infantil

## RESUMO

**Introdução:** o abuso infantil é um problema psicológico frequente em crianças e adolescentes em todo o mundo. A exposição a vários tipos de abuso pode levar a outros problemas psicológicos e físicos, tornando-se necessário identificar qual tipo de abuso tem maior probabilidade de afetar homens e mulheres. **Objetivo:** analisar as diferenças no abuso infantil de acordo com o sexo em adolescentes peruanos. **Método:** estudo transversal, abordagem quantitativa e comparativa realizado nos meses de julho e agosto de 2022. Foi analisada uma amostra de conveniência de 1.376 adolescentes, que responderam a um autorrelato sobre abuso infantil. Para comparar os dois grupos, foi utilizado o teste U de Mann-Whitney para amostras independentes bayesianas. **Resultados:** entre os vários tipos de abuso infantil, foram encontradas evidências a favor da hipótese alternativa apenas no abuso emocional ( $BF_{10} = 190,38$ ;  $\delta = 0,31$ ; IC 95%: 0,20-0,48), com evidências muito fortes. Essa diferença foi maior nas mulheres ( $M=8,28$ ) em relação aos homens ( $M=7,09$ ). Na negligência emocional e física, fortes evidências foram relatadas para a hipótese nula. A análise fatorial robusta de Bayes confirmou os mesmos resultados. **Conclusões:** o abuso emocional ocorre maioritariamente em mulheres adolescentes, sendo o gênero que mais requer apoio psicológico neste tipo de abuso infantil. Nos outros tipos de abuso, não foram encontradas diferenças quanto ao sexo. Consequentemente, os profissionais de saúde devem considerar o papel do gênero no abuso emocional, mas não negligenciar outros tipos de abuso infantil, enfatizando as especificidades de cada caso.

**Palavras-chave:** adolescente; saúde mental; teorema de Bayes; saúde do adolescente; maltrato infantil

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## INTRODUCTION

Child maltreatment is defined as recurrent exposure to any type of emotional, physical, and sexual abuse, as well as emotional and physical neglect by parents, other family members, caregivers, social network, or strangers, resulting in potential harm to the physical and psychological health of the child or adolescent.<sup>(1)</sup>

The incidence of child maltreatment varies according to assessment modalities and forms of maltreatment. However, a study that assessed the incidence of child maltreatment worldwide from a meta-analysis found that prevalence rates were 127/1 000 for sexual maltreatment (76/1 000 among males and 180/1 000 females), for physical maltreatment 226/1 000, for emotional maltreatment 363/1 000, and 163/1 000 and 184/1 000 for physical neglect and emotional neglect, respectively.<sup>(2)</sup>

Given this problem, the concern about the phenomenon of child maltreatment stems from the prevalence of homicide deaths among children and adolescents worldwide. According to the World Health Organization (WHO), an estimated 41.000 children under 15 years of age die each year from homicide, although this figure is skewed, as some deaths from child maltreatment are wrongly attributed to falls, burns, drowning and other causes.<sup>(1)</sup>

In the Peruvian context, 26% of adolescents were affected by emotional violence, 22.8% by physical violence and 66.3% by sexual violence, while other studies indicate a prevalence of 40% in physical abuse and 55% in emotional and sexual abuse.<sup>(3,4)</sup>

Exposure to various types of maltreatment and other forms of violence in childhood and adolescent development can lead to other psychological problems and risk behaviors in adulthood. These negative health outcomes include symptoms of generalized anxiety, depression, post-traumatic stress disorder, alcohol and illicit drug use, and suicidal behaviors.<sup>(1)</sup>

Similarly, some parental factors (e.g., history of child maltreatment), relational factors (such as family break down or violence between family members) or social factors (such as economic inequality, unemployment or lack of prevention programs) may contribute to an increased risk of child maltreatment.<sup>(1)</sup> In addition, child maltreatment appears to have a gender difference, with the prevalence of emotional maltreatment being more frequent in females (24.7%) compared to males (21%), although the latter differ in the physical maltreatment (15.3%) received.<sup>(5)</sup>

The gender paradox linked to child maltreatment may have implications for professional health care and intervention regarding which types of maltreatment impact adolescent males and females at greater risk. Given that research findings may have impact for public health policy, based on evidence, it is timely to consider group comparisons based on robust approaches that overcome the limitations of null hypothesis statistical significance testing (NHTS) framed in frequentist statistics.<sup>(6)</sup>

Recent studies in the field of psychology have been incorporating Bayesian analyses to quantify the evidence for both the null hypothesis and the alternative hypothesis by means of the Bayes factor.<sup>(7,8)</sup>



All this within the framework of the credibility of the results, replication and good methodological practices. In this sense, the current study opted for a Bayesian approach to address the research objective, which analyzed the differences in child maltreatment according to gender in Peruvian adolescents.

## METHOD

The study design was non-experimental, cross-sectional and comparative, in which the differences in child maltreatment were analyzed according to gender.

Although 1.611 participants were initially included, 235 cases were discarded due to biased responses in the questionnaire (see the results section). The final sample consisted of 1.376 Peruvian adolescents residing in the city of Lircay, department of Huancavelica, Peru.

The population was selected from six educational institutions belonging to the local educational management unit (UGEL) of Angaraes. The technique used for this selection was non-probabilistic convenience sampling, and each adolescent had to meet the following inclusion criteria for the study: a) enrolled students studying at the selected educational institution, b) a high school student, c) between 10 and 19 years of age, and c) informed consent from parents or guardians, as well as acceptance of informed consent by the adolescent. The age range established for adolescence was based on the WHO classification.

The Child Trauma Questionnaire (CTQ-SF) was used to meet the study objective. The CTQ-SF is an abbreviated version of 28 items to assess the different types of child maltreatment, composed of five dimensions: emotional maltreatment (EM), physical maltreatment (PM), sexual maltreatment (SM), emotional neglect (EN) and physical neglect (PN).<sup>(9)</sup> In this study, the Peruvian validation was used and each item presented a Likert-type response system (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Almost always), where high scores were an indicator of greater child maltreatment.<sup>(10)</sup> In the study population, each subscale of emotional ( $\omega=0.79$ ), physical ( $\omega=0.69$ ), sexual ( $\omega=0.69$ ), emotional neglect ( $\omega=0.74$ ) and physical neglect ( $\omega=0.71$ ) maltreatment presented acceptable reliability.

The collection of information was carried out based on the approval of six educational institutions during the months of July and August 2022, in a face-to-face manner and respecting the health recommendations on the COVID-19. Subsequently, each participant gave the informed consent of the parent and, prior to the delivery of the survey, the research objective, the anonymity of their answers, voluntary participation, the confidentiality of the information collected and the freedom to leave the study at any time were explained. All participants were informed of their rights according to the Declaration of Helsinki and the code of ethics of the Peruvian College of Psychologists.



Finally, the statistical process was performed in the free software JASP. In the first stage, the demographic questions and atypical values were analyzed descriptively using the Mahalanobis distance ( $D^2$ ). From this, the arithmetic mean, standard deviation and reliability were explored. Subsequently, inferential normality was evaluated with the Shapiro Wilk (SW) test. Since the data showed signs of non-normality, the Mann-Whitney Bayesian U test was used.

Bayesian analysis was performed with a predetermined Cauchy distribution of  $r \approx 0.707$ , and additionally a Cauchy simulation was performed at  $r \approx 1$  and  $r \approx 1.41$  to check the robustness of the results. The magnitude of the Bayes factor (BF) was interpreted according to Jeffreys' classification, where values of 1 and 3 are linked to anecdotal evidence in favor of the alternative hypothesis, 3 and 10 represent moderate evidence, 10 and 30 strong evidence, and between 30 and 100 very strong evidence, it being advisable to interpret  $BF > 10$ .<sup>(6)</sup>

In addition, to verify whether the Markov chain Monte Carlo (MCMC) sampling has converged to the posterior distribution, the Rhat statistic that compares the variance within the chain with the variance between simultaneous chains was quantified, with a value close to 1 and no greater than 1.1 as recommended.<sup>(11)</sup>

## RESULTS

Table 1 shows the response bias analysis using the  $D^2$  with a cut-off point of 34.80 ( $gl=18$ ,  $p < 0.01$ ), where 235 atypical cases were identified, which were eliminated from the initial database, concluding with a final sample of 1,376 cases. In this sense, most of the participants were in the 1st (21.5%), 2nd (21.1%) and 5th (20.9%) school grade, followed by 4th (18.5 %) and 3rd (18 %).

The average age was 14 years (standard deviation (SD) = 1.54) in a range of 11 to 19 years, with the participation of women (56.9%) and men (43.1%). In addition, 90.7% indicated that they were not currently working and only 9.3% indicated that they were. When asked about the current status of their parents, 77.6% mentioned that both parents live together and 13.9% indicated that their parents are separated. A small group reported that their mother is a widow (4.9%) and that they never knew their father (1.8%), while others indicated that their father is a widower (1.2%), that they never knew their mother (0.3%) and some stated that they never knew their father or mother (0.2%).

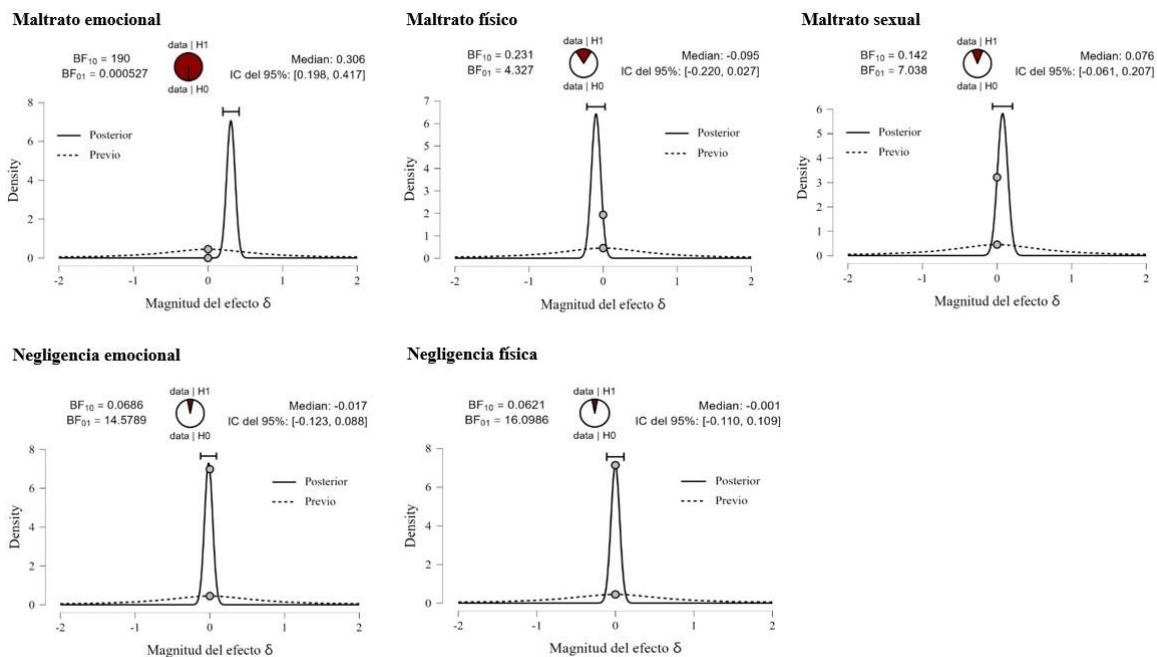
In relation to the descriptive analysis, the arithmetic mean was located between sexual abuse ( $M=5.32$ ) and emotional neglect ( $M=18.21$ ), the latter having the highest  $SD=4.88$ . MCMC sampling converged adequately in the model ( $Rhat=1$ ) and evidence was observed for both hypotheses. In particular, in Table 1 and Figure 1, it was observed that the Bayes factor found very strong evidence for the alternative hypothesis in the ME ( $BF_{10}=190.38$ ), while for the NE ( $BF_{01}=14.58$ ) and NF ( $BF_{01}=16.10$ ), strong evidence was reported for the null hypothesis.



**Table 1.** Descriptive analysis and Bayes factor of the dimensions of child maltreatment

	Descriptive		Bayes factor		Posterior effect size	
	M (SD)	BF <sub>10</sub>	BF <sub>01</sub>	Rhat	Median	95% IC
Emotional abuse	7,76 (3,51)	190,38	0,01	1,01	0,31	(0,20, 0,48)
Physical abuse	6,23 (1,99)	0,23	4,33	1,03	-0,09	(-0,22, 0,03)
Sexual abuse	5,32 (1,07)	0,14	7,04	1,01	0,08	(-0,06, 0,21)
Emotional neglect	18,21 (4,88)	0,07	14,58	1,01	-0,02	(-0,12, 0,09)
Physical neglect	11,57 (2,83)	0,06	16,10	1,03	-0,01	(-0,11, 0,12)

**Legend:** M: mean; SD: standard deviation; Rhat: potential downscaling factor; 95 % CI: 95 % credible interval when assuming an a priori Cauchy distribution with scale r: 0.707 under H<sub>1</sub>.



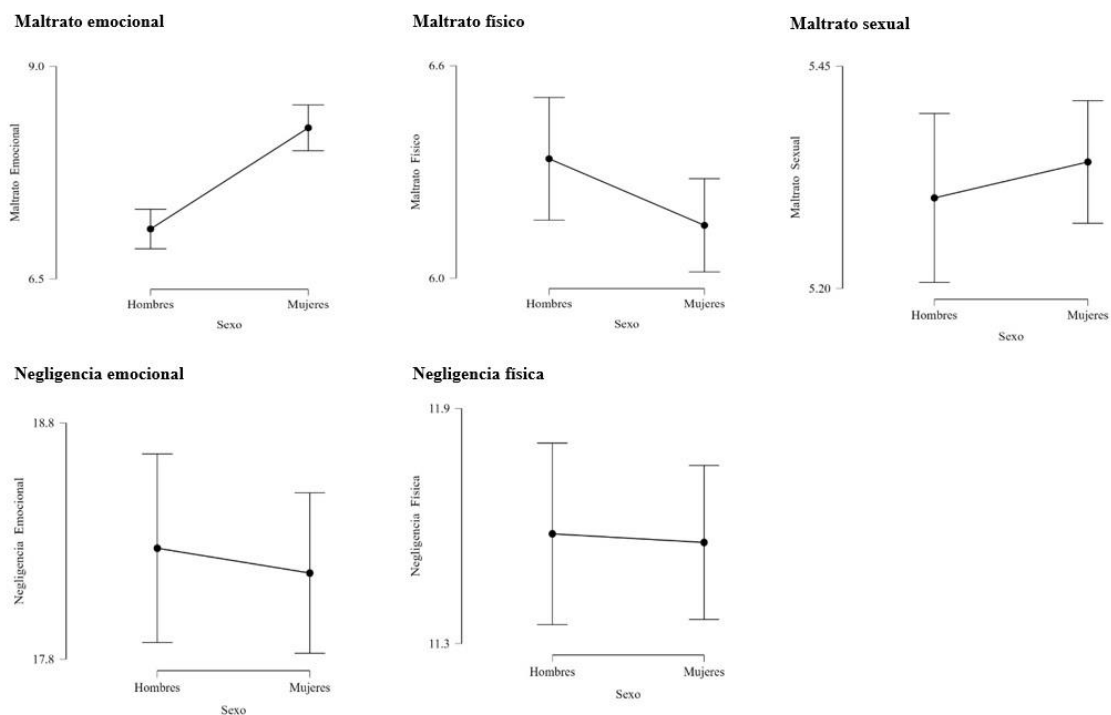
**Fig. 1.** Density of the  $\delta$  parameter for anterior and posterior distribution in each dimension of child maltreatment.

The evidence in favor of the alternative hypothesis postulated the difference in child maltreatment according to gender, where the mean score of females (M=8.28; SD=3.84; n=783) was higher than the score of males (M=7.09; SD=2.89; n=593) (Table 2). In fact, these differences were also reflected in the ME credibility interval (Figure 2).

**Table 2.** Comparative analysis by sex for each dimension of child maltreatment and Bayes factor credibility intervals

Group	N	Median	SD	95% credibility intervals	
				Lower	Upper
<b>Emotional abuse</b>					
Men	593	7,09	2,89	6,86	7,32
Women	783	8,28	3,84	8,01	8,55
<b>Physical abuse</b>					
Men	593	6,34	2,14	6,16	6,51
Women	783	6,15	1,88	6,02	6,28
<b>Sexual abuse</b>					
Men	593	5,30	1,18	5,21	5,40
Women	783	5,34	0,98	5,27	5,41
<b>Emotional neglect</b>					
Men	593	18,27	4,95	17,87	18,67
Women	783	18,16	4,84	17,82	18,50
<b>Physical neglect</b>					
Men	593	11,58	2,87	11,35	11,81
Women	783	11,56	2,80	11,36	11,75

SD: standard deviation.

**Fig. 2.** Credibility intervals of the Bayes factor for each dimension of child maltreatment.

Finally, in the robust Bayes factor analysis it was reported that, over a wide range of plausible values for the width of the prior distribution, the results remained stable, providing very strong evidence for the alternative hypothesis of ME, and strong to very strong evidence in favor of the null hypothesis in NE and NF.

**Table 3.** Simulation of the Cauchy distribution in each dimension of child maltreatment

	Cauchy prior distribution					
	$r \approx 0,707$		$r \approx 1$		$r \approx 1,41$	
	BF <sub>10</sub>	BF <sub>01</sub>	BF <sub>10</sub>	BF <sub>01</sub>	BF <sub>10</sub>	BF <sub>01</sub>
Emotional abuse	190,38	0,01	451,19	0,02	602,25	0,02
Physical abuse	0,23	4,33	0,14	7,26	0,09	10,99
Sexual abuse	0,14	7,04	0,10	9,86	0,07	14,24
Emotional neglect	0,07	14,58	0,04	20,34	0,03	31,11
Physical neglect	0,06	16,10	0,04	22,19	0,03	32,27

## DISCUSSION

Emotional maltreatment was the only type of child maltreatment that showed differential behavior with respect to gender. In particular, females on average presented higher scores than males. This finding is consistent with a multi-ethnic study based in five countries (Netherlands, Suriname, Turkiye, Morocco and Ghana), where emotional maltreatment was found to be higher in females.<sup>(5)</sup> Similarly, another study with a total of 14.500 Chinese adolescents reported differences in favor of females in emotional maltreatment.<sup>(12)</sup> No differences were found in the other types of maltreatment; this finding is not consistent with other studies that did report discrepancies in males and females.<sup>(12,13)</sup> A probable explanation is due to cultural differences between countries and, from the statistical approach, the studies relied on the NHST and p-values of significance to establish differences, which is susceptible to sample size, lack of effect size and errors related to type I or II, which threatens the replicability of the results.<sup>(6)</sup>

In this sense, the literature conceptualizes emotional maltreatment as the isolated or repeated incidence by parents or other family members of continued belittling, discrimination, blaming, threats and other forms of rejection or offensive treatment of the victim.<sup>(1)</sup> In this regard, like any other type of child maltreatment, emotional maltreatment would affect psychological development and have negative consequences on socio-emotional capacity and well-being. However, emotional maltreatment is often underestimated and difficult to identify compared to other forms of maltreatment (e.g. physical or sexual maltreatment), paying more attention to those, and ignoring the offensive verbalizations characteristic of emotional maltreatment.<sup>(5)</sup> In fact, emotional maltreatment can be harmful because the "negative cognitions" are either direct ("you are worthless") or indirect (such as ignoring the adolescent's emotional life circumstances), which can promote interpersonal stressors that increase vulnerability to psychological problems and risk behaviors (e.g., suicidal behaviors) in adolescence.<sup>(14)</sup>



Therefore, the prevention of child abuse and its various forms is fundamental and necessary for public health and school and family environments in the community. The implications of the study suggest that, in the professional practice of health or educational psychologists, child maltreatment has a differential behavior in men and women, being necessary to identify the particularities of each case. Furthermore, in general terms, child protection should be guaranteed and prioritized in a responsible and empathetic manner, promoting violence-free upbringing for adolescents in school environments and prevention and psycho-education programs, given that parents are unaware of the serious and lasting effects of child abuse on health, of the health burden that is present and the costs involved. Policy makers could improve child protection systems on how to improve early detection and accessibility for victims, as this would allow a better flow of care for adolescents with experiences of maltreatment, and decrease the associated psychological and physical problems.

Although the strengths of the study are linked to its sample size and statistical method, it is worth mentioning some limitations. First, the study findings do not allow us to infer causality between child maltreatment and gender, given the cross-sectional nature of the data. Second, the participants were selected on the basis of convenience sampling, which cannot be representative of the entire adolescent population, including cultural differences between departments and, even more so, of other developmental stages such as childhood and adulthood. Third, the information collected was from self-report scores, which may limit capturing a psychological phenomenon. In addition, the retrospective nature of the self-report is an additional point to note, even more so on negative experiences linked to child maltreatment. Finally, the results were based on the comparison of gender, but not on sexual orientation or economic level, where the results may be different, being a recommendation for future studies.

## CONCLUSIONS

The findings of the study show that emotional maltreatment occurs mostly in adolescent females, being the gender that requires more psychological support in this type of child maltreatment. In the other types of maltreatment, no gender-related differences were found. Consequently, health professionals should consider the role of gender in emotional maltreatment, but should not neglect the other types of child maltreatment, emphasizing the specific particularities of each case.

## REFERENCES

1. Organización Mundial de la Salud. Maltrato infantil. [www.who.int](http://www.who.int); 2022 [cited 7 Nov 2022]. Available in: <https://www.who.int/es/news-room/fact-sheets/detail/child-maltreatment>
2. Stoltenborgh M, Bakermans-Kranenburg MJ, Alink LR, van Ijzendoorn MH. The Prevalence of Child Maltreatment across the Globe: Review of a Series of Meta-Analyses. *Child Abuse Rev* [Internet]. 2015 [cited 7 Nov 2022]; 24(1):37-50. DOI: <https://doi.org/10.1002/car.2353>
3. Instituto Nacional de Estadística e Informática. Indicadores de violencia familiar



- y sexual, 2012-2019 [Internet]. Perú: INEI; 2019 [cited 7 Nov 2022]. Available in: <https://bit.ly/3yGoqoP>
4. PaseskuPetsayit R, LandacayLaulate TM, Santillán Sánchez Z. Maltrato y autoestima de adolescentes Awajún de Chipe Cuzu, región Amazonas, Perú, 2021. *Rev Inv Cient UNTRM* [Internet]. 2021 [cited 7 Nov 2022]; 4(3):17-22. Available in: <http://revistas.untrm.edu.pe/index.php/CSH/article/view/785>
  5. Sunley AK, Lok A, White MJ, Snijder MB, van Zuiden M, Zantvoord JB, *et al.* Ethnic and sex differences in the association of child maltreatment and depressed mood. *The HELIUS study*. *Child Abuse Negl* [Internet]. 2020 [cited 7 Nov 2022]; 99:104239. DOI: <https://doi.org/10.1016/j.chiabu.2019.104239>
  6. Ly A, Stefan A, van Doorn J, Dablander F, van den Bergh D, Sarafoglou A, *et al.* The Bayesian Methodology of Sir Harold Jeffreys as a Practical Alternative to the P Value Hypothesis Test. *Comput Brain Behav* [Internet]. 2020 [cited 7 Nov 2022]; 3:153-161. Available in: <https://link.springer.com/article/10.1007/s42113-019-00070-x>
  7. Baños-Chaparro J. Análisis bayesiano de la ideación suicida en adultos peruanos. *Medisan* [Internet]. 2021 [cited 7 Nov 2022]; 25(5):1158-70. Available in: <http://www.medisan.sld.cu/index.php/san/article/view/3787>
  8. Fuster Guillen FG, Baños-Chaparro J. Análisis Bayesiano del compromiso académico en estudiantes de psicología: diferencias según sexo y edad. *Rev Inv Psicol* [Internet]. 2021 [cited 7 Nov 2022]; 24(1):5-18. DOI: <https://doi.org/10.15381/rinvp.v24i1.20210>
  9. Bernstein DP, Stein JA, Newcomb MD, Walker E, Pogge D, Ahluvalia T, *et al.* Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse Negl* [Internet]. 2003 [cited 8 Nov 2022]; 27(2):169-90. DOI: [https://doi.org/10.1016/S0145-2134\(02\)00541-0](https://doi.org/10.1016/S0145-2134(02)00541-0)
  10. Yearwood K, Vliegen N, Chau C, Corveleyn J, Luyten P. Prevalence of Exposure to Complex Trauma and Community Violence and Their Associations With Internalizing and Externalizing Symptoms. *J InterpersViolence* [Internet]. 2021 [cited 8 Nov 2022]; 36(1-2):843-61. DOI: <https://doi.org/10.1177/0886260517731788>
  11. Gelman A, Carlin JB, Stern HS, Dunson DB, Vehtari A, Rubin DB. *Bayesian Data Analysis*. 3ed. Boca Raton (FL): Chapman & Hall/CRC; 2014.
  12. Song L, Fang P, Jiang Z, Li S, Song X, Wan Y. Mediating effects of parent-child relationship on the association between childhood maltreatment and depressive symptoms among adolescents. *Child Abuse Negl* [Internet]. 2022 [cited 9 Nov 2022]; 131:105408. DOI: <https://doi.org/10.1016/j.chiabu.2021.105408>
  13. Sekowski M, Gambin M, Cudo A, Wozniak-Prus M, Penner F, Fonagy P, *et al.* The relations between childhood maltreatment, shame, guilt, depression and suicidal ideation in inpatient adolescents. *J Affect Disord* [Internet]. 2020 [cited 9 Nov 2022]; 276:667-77. DOI: <https://doi.org/10.1016/j.jad.2020.07.056>
  14. McNeil SL, Andrews AR, Cohen JR. Emotional Maltreatment and Adolescent Depression: Mediating Mechanisms and Demographic Considerations in a Child Welfare Sample. *Child Dev* [Internet]. 2020 [cited 9 Nov 2022]; 91(5):1681-97. DOI: <https://doi.org/10.1111/cdev.13366>



**Conflict of interest:**

The author declares that there are no conflicts of interest.

**Author contributions:**

*Conceptualization:* Jonatan Baños-Chaparro.

*Data curation:* Jonatan Baños-Chaparro.

*Formal analysis:* Jonatan Baños-Chaparro.

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*Investigation:* Jonatan Baños-Chaparro.

*Methodology:* Jonatan Baños-Chaparro.

*Project administration:* Jonatan Baños-Chaparro.

*Validation:* Jonatan Baños-Chaparro.

*Visualization:* Jonatan Baños-Chaparro.

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**Supplementary information (Open Data):**

[Base de datos de Análisis bayesiano del maltrato infantil en adolescentes peruanos](#) (Data Base “Bayesian analysis of child maltreatment in Peruvian adolescents”)

