

Victimization during the COVID-19 pandemic and symptoms of psychological trauma in early and late adolescents: the mediating role of loneliness

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This study aims to analyze the effect of victimization suffered during the COVID-19 lockdown on psychological trauma in early and late adolescents. The sample of this study comprised of 933 Peruvian adolescents, 45.5% (n= 423) were males and (54.5%) (n= 506) were females. 44.5% (n=415) were in early adolescence (12 to 13 years) and 55.5 % (n=518) were in late adolescence (14 to 17 years). Data was collected online during the COVID-19 lockdown. Results show that early adolescents who have suffered victimization have higher probabilities of suffering psychological trauma than late adolescents compared to non- victims. In addition, loneliness is observed to play a significant role as a mediator in the relationship between victimization and psychological trauma in Early Adolescents ($B = .69$, $SE = 0.08$, $CI [.53, .86]$) and late adolescents ($B = .66$, $SE = 0.07$, $CI [.51, .81]$). Results suggests that the cost-benefit of COVID 19 lockdown should be reconsidered. Social distance could had made difficult for adolescents to stablish interpersonal relationships and solve conflicts associated with victimization. Loneliness could be an expression of these difficulties and therefore explain symptoms of psychological trauma. Finally, results are discussed in order to prevent the harmful effects of the pandemic and the measures taken on adolescent mental health, especially in middle- and low-income countries.

Keywords: victimization; trauma; adolescent; COVID-19; loneliness

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Victimización durante la pandemia de COVID-19 y síntomas de trauma psicológico en adolescentes tempranos y tardíos: el papel mediador de la soledad

Este estudio tiene como objetivo analizar el efecto de la victimización sufrida durante el aislamiento del COVID-19 sobre el trauma psicológico en adolescentes tempranos y tardíos. La muestra de este estudio estuvo conformada por 933 adolescentes peruanos, 45,5% (n= 423) eran varones y (54,5%) (n= 506) eran mujeres. El 44,5% (n=415) estaban en la adolescencia temprana (12 a 13 años) y el 55,5% (n=518) estaban en la adolescencia tardía (14 a 17 años). Los datos se recogieron en línea durante la cuarentena del COVID-19. Los resultados muestran que los adolescentes tempranos que han sufrido victimización tienen mayores probabilidades de sufrir traumas psicológicos que los adolescentes tardíos en comparación con los que no han sido víctimas. Además, se observa que la soledad juega un papel significativo como mediador en la relación entre victimización y trauma psicológico en adolescentes tempranos ($B = .69$, $SE = 0.08$, $CI [.53, .86]$) y tardíos ($B = .66$, $SE = 0.07$, $CI [.51, .81]$). Los resultados sugieren que debería reconsiderarse la relación costo-beneficio del aislamiento del COVID 19. La distancia social podría haber dificultado a los adolescentes el establecimiento de relaciones interpersonales y la resolución de conflictos asociados a la victimización. La soledad podría ser una expresión de estas dificultades y, por tanto, explicar los síntomas del trauma psicológico. Por último, se discuten los resultados para prevenir los efectos nocivos de la pandemia y las medidas adoptadas sobre la salud mental de los adolescentes, especialmente en los países de ingresos medios y bajos. *Palabras clave:* victimización, trauma, adolescentes, COVID-19, soledad

Vitimização durante a pandemia da COVID-19 e sintomas de trauma psicológico em adolescentes precoces e tardios: o papel mediador da solidão

Este estudo tem como objetivo analisar o efeito da vitimização sofrida durante o isolamento da COVID-19 sobre o trauma psicológico em adolescentes precoces e tardios. A amostra deste estudo foi composta por 933 adolescentes peruanos, 45,5% (n=423) do sexo masculino e 54,5% (n=506) do sexo feminino. 44,5% (n=415) estavam no início da adolescência (12-13 anos) e 55,5% (n=518) estavam no final da adolescência (14-17 anos). Os dados foram coletados on-line durante a quarentena da COVID-19. Os resultados mostram que os primeiros adolescentes que sofreram vitimização têm maior probabilidade de sofrer traumas psicológicos do que os adolescentes tardios, em comparação com aqueles que não sofreram vitimização. Além disso, descobriu-se que a solidão desempenha um papel significativo como mediadora na relação entre vitimização e trauma psicológico em adolescentes precoces ($B = 0,69$, $SE = 0,08$, $IC [0,53, 0,86]$) e tardios ($B = 0,66$, $SE = 0,07$, $IC [0,51, 0,81]$). Os resultados sugerem que a relação custo-benefício do isolamento da COVID-19 deve ser reconsiderada. O distanciamento social pode ter dificultado o estabelecimento de relacionamentos interpessoais e a resolução de conflitos associados à vitimização. A solidão poderia ser uma expressão dessas dificuldades e, assim, explicar os sintomas de trauma psicológico. Por fim, discute os resultados para evitar os efeitos nocivos da pandemia e as medidas tomadas para a saúde mental dos adolescentes, especialmente em países de baixa e média renda.

Palavras-chave: vitimização, trauma, adolescentes, COVID-19, solidão

Victimisation pendant la pandémie de COVID-19 et symptômes de traumatisme psychologique des adolescents précoces et tardifs: le rôle médiateur de la solitude

Cette étude vise à analyser l'effet de la victimisation subie pendant l'isolement de COVID-19 sur le traumatisme psychologique chez les adolescents précoces et tardifs. L'échantillon de cette étude était composé de 933 adolescents péruviens, dont 45,5 % (n=423) étaient des garçons et 54,5 % (n=506) des filles. 44,5 % (n=415) étaient au début de l'adolescence (12-13 ans) et 55,5 % (n=518) à la fin de l'adolescence (14-17 ans). Les données ont été collectées en ligne pendant la quarantaine COVID-19. Les résultats montrent que les adolescents précoces qui ont été victimes de violence sont plus susceptibles de subir un traumatisme psychologique que les adolescents tardifs, par rapport à ceux qui n'ont pas été victimes de violence. En outre, la solitude joue un rôle significatif en tant que médiateur dans la relation entre la victimisation et le traumatisme psychologique chez les adolescents précoces ($B = 0,69$, $SE = 0,08$, $IC [.53, .86]$) et tardifs ($B = 0,66$, $SE = 0,07$, $IC [.51, .81]$). Les résultats suggèrent que le rapport coût-bénéfice de l'isolement COVID 19 devrait être reconsidéré. La distance sociale pourrait avoir rendu plus difficile pour les adolescents l'établissement de relations interpersonnelles et la résolution des conflits associés à la victimisation. La solitude pourrait être l'expression de ces difficultés et expliquer ainsi les symptômes de traumatisme psychologique. Enfin, il examine les résultats obtenus pour prévenir les effets négatifs de la pandémie et les mesures prises en faveur de la santé mentale des adolescents, en particulier dans les pays à revenu faible ou intermédiaire.

Mots clés: victimisation, traumatisme, adolescents, COVID-19, solitude

The Coronavirus Disease 2019 (COVID-19) pandemic has implied a change in the daily life of the population in several countries around the world, with governments applying lockdown, social distancing and travel restriction measures, among others, in order to reduce virus transmission (Roje et al, 2020). However, this type of measures can become traumatic events for population, especially for children and adolescents, who are more vulnerable in these situations (Pappa et al., 2020; Phelps & Sperry, 2020), and in middle and low-income countries where are more prone to suffer multiples traumas (Cénat, 2020; Cénat et al., 2018). Psychological Trauma refers to the psychology effects of shocking or traumatic events expressed in symptoms as anxiety, depression, post- traumatic stress, dissociation, anger and sexual concerns (Kleber, 2019). In this sense, reducing the risk of complex trauma – understood as the exposure to multiple traumatic events- during the COVID-19 pandemic in children and adolescents has become a priority among the international public mental health concerns (Cenat & Dalexis, 2020).

Violence against children and adolescents has been observed to increase in emergency or catastrophe (Cerna et al., 2021). For example, in a recent systematic review of 11 scientific articles conducted by Sedighi et al. (2021), emergencies and natural disasters increased the risk of domestic violence against children and adolescents, especially in households with lower socioeconomic status. Some data gathered during the COVID-19 pandemic confirms this risk increase. For example, a significant increase in domestic violence was observed in February 2020 in China compared to data from 2019 (Fraser, 2020). In many areas of the USA a rise in cases of domestic abuse was reported during 2020 (Bosrup et al., 2020). This situation is recurrent in different countries that have applied confinement measures to prevent infections (e.g., Anurudran, 2020; Bradbury-Jones & Isham, 2020).

In addition, in middle- and low-income countries, where there is structural violence in different social spheres, domestic violence during this pandemic has become even more frequent (Alonzo et al., 2021; Kola et al., 2021). In the same line, a recent review by Kola et al. (2020) confirmed that in middle and low-income countries important mental health problems have been reported during the COVID-19 pandemic, such as mood disorders, stress, anxiety and trauma.

In middle and low-income countries, like Peru, the risk of suffering mental health problems is much higher due to the poly-victimization adolescents are often subject to (Oriol et al., 2017; Miller et al., 2020). For example, Peru is a country with high levels of community and domestic violence, especially against women (Castro et al., 2017; Flake & Forste, 2006) and the structural violence framework derived from this social inequity forces could explain how this was embodied in individual experiences and health outcomes (Shannon et al, 2017). This, in turn, results into other forms of violence against adolescents. For example, in Peru the bullying prevalence indicators during adolescence are higher than in other countries (Oriol et al., 2017; Miranda et al., 2019). In addition, teachers have been also observed to exert violence on students, particularly in the most vulnerable areas of the country (Oriol et al., 2017).

These forms of structural violence observed middle and low-income countries, due to poverty and socioeconomic inequality, increases exponentially the risks of mental health problems during pandemics, such as the COVID-19 pandemic (Kola et al., 2021).

Victimization in adolescence and mental health consequences during COVID-19

Violence against children and adolescents is still a global problem. Concretely, a minimum of 1 billion children and adolescents around the world are still exposed to some form of violence (Hillis et al., 2016).

Victimization- as Maria Muratore (2014) defines it- is the process of being victimized, either from a Physical, psychological, moral or a sexual point of view. Victimization could happen through direct exposure (or victimization) or indirect exposure (or witnessing).

In middle- and low-income countries the prevalence of different forms of violence is even more pronounced (Merill et al., 2018; Nkuba et al., 2018). Global prevalence of self-reported child physical neglect was estimated to be 16.3% (163 per 1000 children) and the global prevalence of self-reported child emotional neglect was estimated to be 18.4 % or 184 per 1,000 (Stoltenborgh et al., 2013). In Peru, it is observed that children and adolescents are highly exposed to violence at home (Rivera & Arias-Gallegos, 2020). For example, 73.8% of children aged 9 to 11 indicate that they were victims of physical or psychological violence at home (Instituto Nacional de Estadística e Informática [INEI], 2016). This is consistent with data on high prevalence of gender violence also observed in this country, which often also translates into indirect violence against children and adolescents. Specifically, 32% of women report having suffered physical and sexual violence, while 64% were victims of verbal and/or psychological violence (INEI, 2016). All these data alert us on the normalization of violence in different structures of Peruvian society (Oriol et al., 2017). Many families still defend physical violence against children when this is aimed at correcting some behavior (Miranda, 2016). For example, 42% of parents consider it necessary to shout (42%) or physically punish (36%) as disciplinary measures for correcting behaviors of children and adolescents (INEI, 2016).

During the COVID-19 pandemic some studies have already warned stay-at-home measures have increased the risk that children and adolescents suffer hardships and abuse (Becker-Blease et al., 2010; Phelps & Sperry, 2020). In a recent review conducted by Pereda and Díaz-Faes (2020), the authors pointed out that children and adolescents were at high risk of domestic violence during the pandemic; which could also have special consequences in the long term, especially in the most vulnerable contexts (Van Bavel et al., 2020). In this sense, the repercussions of domestic violence on mental health should be considered, especially during adolescence, when important physical, social and hormonal changes, among others, take place (Blakemore, 2019). Previous studies have shown that the exposure of adolescents to domestic violence may promote the onset of stress, anxiety and

depression symptoms (Mrug & Windle, 2009; Foshee, et al., 2016). Continuous exposure to domestic violence and other traumatic events may also increase the possibilities of developing post-traumatic stress disorder (PTSD) (Margolin & Vickerman, 2007; 2011).

Complementary to the risk of domestic violence, due to the COVID-19 pandemic, stay-at-home measures have increased considerably the use of electronic devices by adolescents, which has led to a rise in online victimization (Babvey et al., 2020). A recent study conducted by Karmakar and Das (2020) analyzed a total of 454, 046 public tweets related to cyberbullying between January 1st, 2020, and June 7th, 2020, confirming a significant increase of this type of tweets since mid-March, 2020 (which is coincident with the beginning of lockdown measures due to the pandemic). Another study by Jain et al. (2020) in India found that an increase in the type adolescents spent in social media during the COVID-19 pandemic coincided with a rise in forms of cybervictimization such as bullying, offensive comments, non-consented sharing of photos and videos and harassment.

In recent years, the number of studies on cyberbullying during adolescence has grown (Waasdrop & Mehari, 2019). Suffering this form of violence has been related to mental health problems such as depressive symptoms, social anxiety, post-traumatic stress symptoms etc. (Fahy et al., 2016; Baldry et al., 2019; Liu et al., 2020). Cyberbullying victims often suffer other forms of victimization at the same time (Waasdrop & Mehari, 2019). The same is true for adolescent victims of domestic violence (Chan et al., 2021). This has generated that in recent years, a special interest in studying the co-occurrence of victimization forms in adolescents, which is has been denominated poly-victimization, arises (Finkelhor et al., 2007; Chan et al., 2021). Poly-victimization implies an increase in the risk of mental health problems for children and adolescents, including post-traumatic stress disorder (PTSD) (Scheeringa et al., 2012; Ford & Delker, 2018). For example, in a study conducted with 4,532 adolescents in Norway, victims of poly-victimization had six times more probabilities of reporting depression, anxiety and trauma compared to non-victims (Mossige & Huan, 2017).

To summarize, the confinement measures adopted due to the COVID-19 pandemic, such as lockdown, social distance and school closing may entail a risk for adolescents, who may be exposed to more violent situations (Pereda & Díaz-Faes, 2020; Tang et al., 2021). This is specially observed in middle- and low-income countries, which are in a more vulnerable situation and where lockdown measures often have lasted longer (Hopman et al., 2020). Despite the data on the different forms of violence suffered by adolescents, there is still a lack of data on middle and low-income countries. This information will allow for visualizing the consequences for mental health during the COVID-19 pandemic of different forms of victimization.

Loneliness during COVID-19 and mental health problems in adolescents

Social distancing and reduction of physical contact have generated high levels of loneliness during the pandemic in different age groups (Wickens et al., 2021). Loneliness can be defined as a feeling of isolation, lack of sense of belonging and absence of satisfaction with interpersonal relationships (Ventura et al., 2020). Loneliness particularly affects adolescents, who due to their developmental characteristics, want to be accepted and feel that they belong into their peer group (Foulkes & Blakemore, 2018). Recently, a systematic review that considered 80 studies was conducted to alert about the consequences that loneliness could have for adolescent mental health during the COVID-19 pandemic (Loades et al., 2020). Some conclusions of this review are that loneliness in adolescence promotes anxiety and depression in the long term. In this sense, in a recent study conducted by Cooper et al. (2021), with 894 adolescents, it was observed that teenagers who reported higher loneliness experienced more mental health-related symptoms during lockdown. Loneliness has also been related to escape motivation and problematic mobile phone during lockdown (Li et al., 2021).

As commented above, another collateral effect of the pandemic is the increase in the risk of suffering some form of adolescent victimization during lockdown, which has a strong impact on the perception of

loneliness (Matthews et al., 2020). Some studies indicate that adolescents who have suffered some form of traditional bullying or cyberbullying present a stronger perception of loneliness (Acquah et al., 2016; Olenik-Shemesh et al., 2012). Similar results are observed with other forms of victimization exerted by adults. The abuse of adolescents by adults causes increases in surveillance towards external threats and a lack of trust that generate difficulties for the establishment of interpersonal relationships (McCrory et al., 2017).

All these data indicate that lockdown and other social distancing measures may have generated more isolation and loneliness in adolescents; however, this loneliness may be even more pronounced in cases in which some form of violence has been suffered during lockdown (Pereda & Díaz-Faes, 2020). As shown above, loneliness may have also increased mental health problems in the adolescent population during the pandemic (Loades et al., 2020). The relationship observed between loneliness, depression symptoms and anxiety have shown that feeling lonely may result in psychological trauma in adolescents (Hyland et al., 2018).

Finally, is important to clarify the differences about victimization impact between early and late adolescence. Data show peaks and increasing of socio-emotional disorders in adolescence during the onset of late adolescence (Rapee et al., 2019) as well as a decreasing in subjective well-being was identified in 11-12 years onwards being late adolescents the cohort with lower levels (González-Carrasco et al., 2017). Due this evidence is expected that the effect of victimization would be stronger in late adolescents. However, research show that adolescents could experience loneliness more strongly during early rather than late period (Ladd & Ettekal, 2013). The nature of loneliness as a risk factor could change the expectative of victimization impact depending on age.

Present study

Since the onset of pandemic, a large number of articles are discussing the possible effects of social distance and lockdown, as well as

fear to COVID-19, on the mental health of children and adolescents. These studies have also warned about a possible increase in victimization during the lockdown period. However, more studies are necessary to observe the consequences of having suffered some form of victimization during COVID-19 for adolescent mental health and more specifically for the different stages of adolescence (Magson et al., 2020). It should be noted that depression and anxiety levels increase with the progression of adolescence, while subjective wellbeing decreases (Rapee et al., 2019; González-Carrasco et al., 2017). This generates that a priori; these effects may be stronger in late adolescence.

In turn, in middle- and low-income countries like Peru, where there is a high prevalence of domestic violence, the lockdown situation could have exacerbated the prevalence of adolescent victimization. In this sense, H1. The effect of victimization on trauma will be stronger in late adolescents than in early adolescents. And H2. Perception of Loneliness due to lockdown is also expected to mediate the relationship between victimization and psychological traumatism in both early and late adolescents.

Method

Participants

The participants of the study were teenagers living in Perú. Data collection was open and online. In total, 933 teenagers responded the survey. The mean age of participants was 14.63 years (DE=1.56). Likewise, 45.5% (n= 423) were males and (54.5%) (n= 506) were females. Additionally, 44.5% (n=415) were in early adolescence (12 to 13 years) and 55.5 % (n=518) were in late adolescence (14 to 17 years). Is important to emphasize that this categorization was took by a previous study done in a similar population in Peruvian context (Oriol at al. 2017), which considers middle adolescence and late adolescence in one category named as the last one.

Instruments

Trauma Symptom Checklist for Children

Originally developed by Wolpaw et al. (2005) and psychometrically adapted to Spanish by Gonzales-García (2016), this instrument gives an efficient and standardized measure of both post-traumatic and associated symptomatology in children and adolescents from 8 to 17 years of age. The scale has 54 items that have a response Likert interval of four points ("never," 1 "sometimes," 2 "lots of times," and 3 "almost all of the time.") in six clinical scales (Anxiety, Depression, Post-Traumatic Stress, Dissociation, Anger and Sexual Concerns). There are also two validity scales: under response and hyper response. Finally, there are eight critical items that allows to define risk and need for clinical following ("Wanting to hurt myself", "Wanting to hurt other people" "Feeling scared of women", "Feeling scared of men", "Not trusting people because they might want sex", "Getting into fights", "Feeling afraid somebody will kill me" and "Wanting to kill myself). Concerning the reliability index of the scale, a Cronbach (α) of .96 was reported in its adaptation to Spanish and an optimal reliability was obtained for each of its subscales during its application in a group of Latin-American adolescents (Cuevas & Castro, 2009).

The total score of the eight critical items was used as a continuous variable. To establish a dichotomous variable that defines groups with or without risk of psychological trauma—as stated by Wolpaw et al. (2005)—, it was enough that participants responded "sometimes" to one of the critical items to be classified into the risk group.

Victimization during pandemics

Developed by Orue and Calvete (2010), this scale measures the form and context of exposure violence in children and adolescents from 8 to 17 years of age. The scale is assessed through 21 items on a 5-point Likert scale (0=never; 4=Everyday). Of them, 9 items measure direct exposure or victimization, and 12 items measure indirect exposition or witnessing. The items refer to three forms of violence (physical, verbal and threats) in four contexts: school, neighborhood,

domestic and TV. The Cronbach's alpha (α) for school, neighborhood and domestic victimization were .79, .75 and .80, respectively, while their reported omega coefficient was .80, .77 and .82. The scale has a psychometric validation in Peruvian adolescents (Martell-Cardenas & Vites-Timaná, 2019). For the purpose of this study, the domestic victimization sub-scale was used (example items are: "How often have you been insulted or offended at home?" "How often have you been yelled at or threatened with beatings at home?" "How often have you been hit or physically harmed at home?"), together with an adapted item that measured victimization from social network How often have you been insulted or offended through social networks or the Internet? Additionally, participants were asked to answer the questions according to their experiences during the present COVID 19 pandemics. The total score of the domestic victimization sub-scale and the adapted item for victimization from social networks were used as a continuous variable. To establish a dichotomous variable that defines groups with or without risk of victimization, it was enough that a participant responded "one time" to one of these items to be categorized into the risk group.

Loneliness Scale

Originally developed by De Jong and Van Tilburg (1999) and psychometrically adapted to Spanish by Buz et al. (2014). It includes eleven items with three response categories (0=No, 1=More or less and 2= Yes.) The scale assesses six items in a negative way (e.g., "I feel an emptiness sensation that surrounds me") and five items in a positive way (e.g., "I can count with my friends every time I need it"). Regarding the reliability indexes, a Cronbach's alpha of .80 and an omega coefficient of .82 are reported. Its validity and reliability have previously been explored in Peruvian adolescents (Ventura-Leon & Caycho, 2017).

Procedure

An informed consent was sent to the parents or legal guardians of participants. This document explained the voluntariness of the study and its objective. After parents or guardians signed the informed

consent, participants received the online survey. Participation was voluntary and therefore adolescents had to sign an informed assent before starting the survey. The informed assent and the survey were located in different Google Forms to preserve anonymity. The study was approved by the Ethics Committee of Universidad Continental. Data collection was conducted in 10 of the 25 regions of Peru during the first months of 2021. A non-probabilistic sampling was employed, specifically the snowball technique. In order to reach the initial participants an invitation was sent to different high schools for promote this open evaluation through their online forums. The parents or guardians of initial participants were asked to share the survey with other parents or guardians in the family, as well as with school and work connections in order to broad the number of participants.

Statistical Analysis

First, the data collected was analyzed using a descriptive analysis of means and standard deviation for each variable to be analyzed. Likewise, a T-student analysis was conducted to calculate the differences in the means of indicators by age (early and late adolescence). In relation to the descriptive analysis, correlations between variables were calculated.

Prior to the descriptive analysis of variables, a confirmatory factor analysis (CFA) was calculated for each variable proposed. These calculations used the software AMOS v.22. For this analysis, the robust maximum likelihood estimator (MLR) was employed. Following Hu and Bentler (1998) the adjustment indexes of Tucker–Lewis Index (TLI) and the comparative fit index (CFI), whose value should be above .90, were used, as well as the root mean square error of approximation (RMSEA), which should be below .08.

Complementarily, reliability was calculated for each indicator using Cronbach's alpha and McDonald's omega coefficient (Ω). For assessing the internal consistency of indicators, Kline's criteria (2013) were followed, which consider a coefficient acceptable if higher than 0.66, and good from 0.80 to analyze the effects of victimization in relation to psychological trauma trough loneliness, the bootstrap procedure proposed

by Preacher and Hayes (2008) was applied in the model with one independent variable through the SPSS macro-MEDIATE. This analysis estimates indirect effects, standard errors and confidence intervals. The non-parametric bootstrapping procedure was used with 5,000 repetitions to calculate the 95% confidence intervals. An indirect effect is significant if the confidence interval does not exceed zero (Preacher & Hayes, 2008; Hayes, 2013). Additionally, to test indirect effects and calculate effect size, the ratio of the indirect effect to the total effect the PROCESS macro was employed (Hayes, 2013). Sex and age were used as covariates. Two models were run for both early and late adolescence.

For the odds ratio analysis, a logistic regression analysis was conducted to determine the effect of the dichotomous variable of victimization during the pandemic on psychological trauma. This was calculated for the early and late adolescence groups at the overall level taking sex and gender as control variables.

Results

Descriptive and correlation analysis

Table 1 presents the descriptive results considering the analyzed variables by age (early and late adolescence) and sex. As observed, a higher level of loneliness ($M > 0.5$) is reported in both groups. Early adolescence group shows a mean (M) of 0.59 and a standard deviation (SD) of 0.26 and late adolescence group reports even higher levels of loneliness ($M = 0.67$, $SD = 0.24$). According to sex, women report higher levels of loneliness ($M = 0.67$, $SD = 0.24$) than men ($M = 0.59$, $SD = 0.27$), as in the case of psychological trauma, for which women report a higher indicator mean of 0.35 ($SD = 0.41$) compared to men, for whom the mean value was 0.23 ($SD = 0.37$). The absence of trauma is determined only with a punctuation of 0 in the critical items. Under these criteria 45.7% ($n = 427$) of adolescents were in the no trauma risk group and 54.3% ($n = 508$) in the psychological trauma risk group. A similar criterion was used to classify participants in the victimization group: 46.2% ($n = 432$) of adolescents fits into this category.

Table 1*Prevalence of key variables*

Variables	(Min - Max)	Overall	Early adolescence	Late adolescence	Men	Women
		M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Victimization during the pandemic	(0-4)	0.38 (0.55)	0.37 (0.54)	0.38 (0.56)	0.40 (0.29)	0.36 (0.51)
Loneliness	(0-1)	0.63 (0.25)	0.59 (0.26)***	0.67 (0.24)***	0.59 (0.27)***	0.67 (0.24)***
Psychological trauma	(0-3)	0.30 (0.39)	0.29 (0.38)	0.31 (0.40)	0.23 (0.37) ***	0.35 (0.41)***

Nota. *** $p < .001$

Table 2 presents the results for the correlation analysis of the variables. In the case of early adolescence correlations are positive and significant, with the highest coefficient ($r = 0.44$, $p < 0.001$) being between victimization during the pandemic and psychological trauma, as well as in the late adolescence group, for which this relationship had a score of $r = 0.38$, $p < 0.001$.

Table 2*Correlation analysis of variables under study*

Age group	Variables	1	2	3
Early adolescence	Victimization during the pandemic	-	0.33***	0.44***
	Loneliness		-	0.37***
	Psychological trauma			-
Late adolescence	Victimization during the pandemic	-	0.20***	0.38***
	Loneliness		-	0.31**
	Psychological trauma			-

Nota. *** $p < .001$

Odds ratio

As shown in Table 3, in the early adolescence group, having suffered violence during the pandemic increases the probabilities of experiencing psychological trauma in 3.88 times compared with not having experienced any violence during the pandemic, with an IC of [2.58-5.85]. When including the control variables of sex and age into the model, OR scores 4.10 CI [2.70-6.22]. In the late adolescence group, the possibility of being in the psychological trauma risk group is 3.59 times higher when some aggression has been suffered during the pandemic compared with not having suffered any (OR = 3.59, CI [2.50-5.17]). This probability increases to 3.82 times when the control variables are added to the regression model (OR = 3.82, CI [2.61-5.58]).

Table 3
Logistic regression of aggression during pandemic over psychological trauma

		Without control variables		Using control variables	
		OR [95% CI]	SE	OR [95% CI]	SE
Early adolescence	No aggression during pandemic				
	Experienced aggression during pandemic	3.88 [2.58-5.85]	0.21	4.10 [2.70-6.22]	0.21
	Sex			1.63 [1.0-2.46]	0.21
	Age			0.92 [0.75-1.14]	0.11
Late adolescence	No aggression during pandemic				
	Experienced aggression during pandemic	3.59 [2.50-5.17]	0.19	3.82 [2.61-5.58]	0.19
	Sex			2.71 [1.82-4.01]	0.2
	Age			1.00 [0.79-1.27]	0.12

Mediation analysis

As shown in Figure 1, the total effect of victimization during the COVID-19 pandemic on psychological trauma ($B = .84$, $SE = 0.08$, $CI [.68, 1.10]$) decreases after entering loneliness as a mediator, producing a partial mediation ($B = .69$, $SE = 0.08$, $CI [.53, .86]$). Complementary, as seen in Table 3, victimization during the COVID-19 pandemic has an indirect effect on psychological trauma via loneliness. In Figure 2, the total effect of victimization during the COVID-19 pandemic on psychological trauma ($B = .74$, $SE = 0.07$, $CI [.60, .90]$) decreases after entering loneliness as a mediator, producing a partial mediation ($B = .66$, $SE = 0.07$, $CI [.51, .81]$).

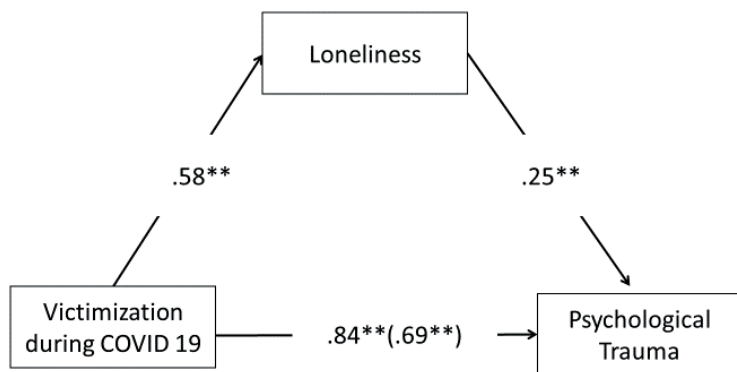


Figure 1. Mediation model of the association between victimization during COVID-19 pandemic and psychological trauma via loneliness (Early adolescence)

Regarding the indirect effects of the loneliness mediator in the relationship between victimization during the pandemic and psychological trauma, this is significant, as observed in Table 4. In the case of early adolescence, the value of the indirect effect was -0.15 , $p < 0.05$, while this value was -0.09 , $p < 0.05$ for the late adolescence group.

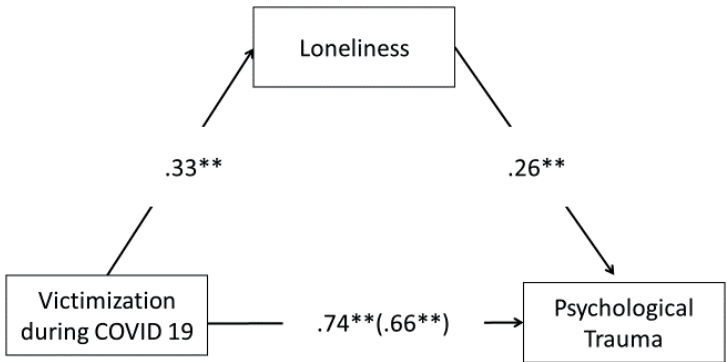


Figure 2. Mediation model of the association between victimization during COVID-19 pandemic and psychological trauma via loneliness (Late adolescence)

Table 4

Significant indirect effects of loneliness in the mediation analysis

VI on VD	Mediator	Parameter estimate	SE	Lower 95% CI	Upper 95% CI
Victimization during covid 19 pandemic on psychological trauma (early adolescence)	Loneliness	-0.15*	0.02	0.093	0.21
Victimization during covid 19 pandemic on psychological trauma (late adolescence)	Loneliness	-0.09*	0.02	0.054	0.13

Discussion

This study had the objective of contributing more scientific evidence about the consequences that violence may have for adolescents during pandemic times, such as the COVID-19 pandemic.

The present study analyzed the effect of victimization on traumatism in early and late adolescents from Peru. Our results emphasize the risk of developing stress, anxiety, depression and PTSD associated with exposure to violence (Mrug & Windle, 2009; Foshee, et al., 2016), particularly during adolescence, which is related to diverse forms of victimization experience in middle and low-income countries like Peru (Oriol et al., 2017; Miller et al., 2020) in general during the current COVID-19 pandemic (Kola et al., 2021). If we consider the already mentioned alerts on the increase in the risk of domestic violence against children and adolescents during the lockdown and suspension of school associated with the pandemic (Pereda & Díaz-Faes, 2020; Tang et al., 2021). Our findings suggest that the cost-benefit of these measures should be reconsidered.

Regarding the first hypothesis, and contrary to the expectations, the effect of victimization on psychological trauma is stronger in the early adolescent group compared to the late adolescent group. Although the literature shows a decrease in well-being during adolescence (Rapee et al., 2019; González-Carrasco et al., 2017), for which a greater impact on this age bracket would be expected, some previous studies also indicate that early adolescence is the most complex stage of adolescence due to the maturing transitions and the need for consolidating identity that take place in this age range (Frey et al., 2009; Meeus et al., 2010). The results reveal that younger adolescents may experience spending time alone (solitude) as aversive, having a negative perception about this behavior, which changes when transitioning to late adolescence, when solitude becomes important and positive (Wang et al., 2013). This aversion in younger adolescents is attributed to conflict between autonomy just attained and attachment to parents, which is solved when teenagers learn to preserve bonds by maintaining a warm, validating and collaborative attitude when dealing with disagreements (Chango et al., 2015). This progressive learning occurs precisely in the relationship with authority figures. Not solving this conflict is expressed through identity diffusion, which is present in different emotional conflicts such as psychological trauma (Truskauskaite-Kuneviciene et al., 2020).

One of the adverse consequences of the current pandemic that is more noticeable is the increase of loneliness in the population and the risk of associated psychological conditions (Bu et al., 2020; Okruszek et al., 2021). Evidently, this effect has been common to all age groups, forcing young adolescents to spend time alone, which they find aversive, as mentioned above. This could be solved if parents are able to connect with their sons and daughter adolescents and facilitate communication with them when facing conflict (Laible, 2007). If young adolescents experience victimization at home when they still need contact with their parents to develop their identity, adolescents would experience a need for compensating that bond with other adult figure that helps them develop skills for solving their identity conflict. However, with schools closed, the possibilities of finding guidance from other adults, for example, teachers, are minimal. These possibilities are even slimmer if this group suffers other forms of victimization like cyberbullying, which could increase due to the transition of educational environments to virtual platforms in the current pandemic (Karmakar & Das, 2020). This suggests that young adolescents who suffer victimization under lockdown are less likely to take the first steps for solving the conflict associated with their identity consolidation and therefore they may exhibit more signs of psychological trauma than late adolescents.

Regarding the second hypothesis, loneliness mediates the relationship between victimization and psychological trauma in both early and late adolescents. As stated above, diverse forms of victimization can generate more isolation and loneliness in adolescents (McCrary et al., 2017) (Acquah et al., 2016; Olenik-Shemesh et al., 2012) and specifically during lockdown due to the pandemic (Pereda & Díaz-Faes, 2020). In this context, loneliness is different from solitude. It has been previously mentioned that adolescents progressively accept solitude as an expression of their autonomy. This behavior is considered an achievement for identity development. In contrast, loneliness—especially in its emotional dimension—is an unpleasant experience that consists of a tension state associated with a feeling of void, deprivation

and a strong desire for company and closeness (Larson, 1990). Previous research indicates that the certainty adolescents have about maintaining stable commitments in educational environments allows them to establish and keep close relationships and therefore to feel less lonely (Kaniušonytė, et al, 2019). Conversely, loneliness may impede the in-depth exploration of teenagers as it decreases the opportunities for experiencing significant interactions. In other words, loneliness would explain the effects of victimization on signs of psychological trauma, not only due to the lack of trust that makes it difficult to establish interpersonal relationship (McCrory et al., 2017), but because distance affects the development of adolescent identity, causing a cycle that may be expressed through the signs of psychological trauma analyzed in this study. Educational environments where commitment and achievements are perceived are a way to regulate this conflict (Kaniušonytė et al., 2019). However, with schools closed and inadequately implemented virtual environments, adolescents may not perceive a space to achieve this regulation in middle-low-income countries like Peru.

The results indicate that one of the consequences of lockdown is the lack of spaces for adolescents to develop their identity. These was suggested by qualitative research that pointed out identity formation during crisis along with social exploration and autonomy as big themes for adolescents during COVID 19 restrictions (Stänicke et al., 2023). Especially in the case of teenagers exposed to victimization, who do not have adult figures—like teachers—to learn mature forms of communication nor physical spaces for achievement that give them a perception of autonomy and emotional stability. The consequence of this lack of development would be expressed as loneliness and therefore signs of psychological trauma risk.

Practical Implications

The results of this study should be considered in the implementation of public health policies in middle- and low-income countries like Peru, where, due to the levels of structural violence mentioned, high indexes of psychological conditions are expected in adolescents.

Therefore, having evidence that allows for both the prevention and intervention of these effects is fundamental.

Psychological trauma through victimization in adolescents implies costs at different levels, since there are not only trauma symptoms (anxiety, depression, post-traumatic stress and dissociation) but also related to the diffusion of identity and loss of autonomy (Truskauskaite-Kuneviciene et al., 2020), which can be associated with the persistence of structural violence in middle- and low-income countries like Peru. The following recommendations are made based on these results. First, focusing on preserving the bonds of adolescents exposed to violence is key to the development of their identity. Therefore, face-to-face classes should be resumed for both the detection and intervention of these cases. If cases are detected, the role of teachers or tutors should be to promote an empathetic, warm and assertive dialogue that allows adolescents exposed to violence not only to accept and adhere to a psychotherapeutic process but also to regain trust in themselves and reduce the feeling of loneliness. Finally, to prevent adolescents exposed to victimization from being psychologically affected in middle- and low-income countries like Peru, it is important to analyze, prioritize and preserve relationships when faced with measures such as the suspension of face-to-face school during the COVID-19 pandemic; which, despite the reduction in infections, has considerable costs in the long term, as exposed in this and other studies.

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