



# Cyber Victimization and Depression in High School Students in Northern Peru



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## ABSTRACT

**Aims** Cyber victimization can generate a series of negative effects on the mental, physical, and social health of those affected, triggering anxiety, depression, and other emotional problems. The aim of the study was to determine the relationship between cyber victimization and depression in high school students in the province of Tumbes, located in northern Peru.

**Instrument & Methods** The sample of this non-experimental, cross-sectional, and quantitative study consisted of 372 high school students between 11 and 18 years of age. The Cyber Victimization Questionnaire (CBV) was used as an instrument, obtaining a Cronbach's Alpha reliability of 0.902 in a pilot test. The Beck Depression Inventory-II was also used, with a Cronbach's Alpha reliability of 0.921.

**Findings** Using Spearman's Rho correlation method, there was a significant and positive relationship between cyber victimization and depression (two-sided p-value=0.0001). Likewise, the linear regression model showed that cyber victimization was a significant predictor of depression to a degree of 32.2% (R<sup>2</sup>=0.322; p-value =0.0001).

**Conclusion** Cyber victimization is significantly related to and predictive of depression.

**Keywords** Mental Health; Depression; Students; Adolescent

## CITATION LINKS

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## Introduction

In recent years, there has been a significant global increase in the use of social networks, internet access, and smartphones, with approximately 60% of the world's population now utilizing these technologies [1]. While these technological advancements have brought numerous benefits, such as instant communication and access to information and entertainment, they have also given rise to a growing dependence on them. The issue of dependence on social networks, the internet, and smartphones has become particularly prominent today, especially among the younger generation [2,3]. Many adolescents and young adults experience anxiety or discomfort when they are without their phones or internet access [4]. This is primarily driven by the constant need to stay connected, not only with friends and family but also with social networks and online content. Furthermore, the increased use of social networks has resulted in a rise in cases of cyberbullying and cyber victimization, especially among school-aged adolescents [5,6]. Social networks have introduced new forms of bullying and harassment, which can be equally damaging and traumatizing as traditional, in-person bullying. Cyberbullying may involve activities such as spreading rumors, sharing humiliating photos or videos, and creating fake profiles [7].

Cyber victimization, as defined, is the deliberate and repetitive use of information and communication technologies (ICTs) to harm, distress, humiliate, or embarrass an individual, making them the target of bullying, harassment, or assault [8,9]. It can have a multitude of adverse effects on the mental, physical, and social well-being of those subjected to it. Firstly, cyber victimization can lead to psychological stress [10,11], resulting in conditions like anxiety, depression, and other emotional issues [12]. Moreover, it can impact self-esteem [13,14], fostering feelings of insecurity, shame, and guilt. Additionally, cyber victimization can influence negative behaviors related to eating disorders [15] and can affect physical activity, particularly among adolescents. There is an inverse relationship between physical activity and adolescents who experience cyber victimization [16]. This form of victimization can also contribute to sleep disorders [17], school absenteeism, difficulty concentrating in class, and a decline in academic performance [18].

Apart from its direct impact on individuals' mental and physical health, cyber victimization can also lead to social consequences, often leaving victims feeling isolated and struggling to establish positive social relationships [19,20].

Cyber victimization has been linked to depression among individuals. Studies indicate that engaging in cyberbullying can predict depression and social anxiety [21]. Furthermore, it has been observed that neuroticism can elevate the risk of both

cyberbullying perpetration and victimization, mediated through the psychological mechanism of depression [22]. Additionally, involvement in sexting and experiencing cyber victimization has been associated with an increased likelihood of depressive symptoms and suicidal thoughts [23]. Both traditional and cyber victimization can have a detrimental impact on the well-being of college students by elevating the risk of depression [24]. Adolescent internet addiction has also demonstrated a connection with depression, personality traits, and prosocial peer relationships [25]. Moreover, social network addiction has been associated with cyber victimization and a propensity towards depression [12].

Cyber victimization, in particular, has been recognized as a distinct form of peer victimization linked to the development of negative self-cognitions and depressive symptoms in children and young adolescents [26]. Despite being potentially less stable than other victimization forms, its impact on depressive symptom development remains significant [27]. Moreover, research has revealed that the use of avoidant coping strategies may mediate the relationship between cyber victimization and depression [28]. Longitudinal studies have also indicated a bidirectional link between cyber victimization and depressive symptoms, particularly among males [29].

In the context of Peru, investigations into the connection between cyberbullying and depression among both school and university-level students have shown that cyberbullying is indeed associated with depression [30,31]. While limited prior research has explored this relationship in school-level students, existing studies have primarily focused on cyberbullying perpetration rather than victimization and its consequences on depression in school students.

Therefore, this study aims to contribute new insights into the relationship between cyber victimization and depression among secondary school students in northern Peru. Such findings will enable parents, educational institutions, and governmental authorities to gain a better understanding of the issue and develop appropriate prevention and support strategies to safeguard the mental well-being of school students.

## Instrument and Methods

### Research Type and Design

This study (conducted in 2021) was cross-sectional non-experimental research because the study variables were not manipulated, with a quantitative type since it used the collection of information to test the hypothesis based on a numerical measurement and statistical analysis and also was of the applied type at a correlational-causal level because it allowed

describing the relationships between the study variables at a given time in correlational terms [32].

It is a basic type of research since it facilitates the collection of a reality that contributes to the increase of scientific knowledge and understanding of a specific problem.

### Sample

The study population was 11,495 students from the department of Tumbes, of whom 372 high school students from the six districts of the province of Tumbes, aged 11 to 18 years were selected by the finite sample formula with a 95% confidence level and 5% margin of error [33] using information technology (filling out a Google form).

### Tools

Among the instruments utilized was the Cyber Victimization Questionnaire (CBV), validated by Álvarez *et al.* in 2014. This questionnaire consists of four dimensions: 1. verbal-written cyber victimization, 2. visual cyber victimization, 3. online exclusion, and 4. impersonation, comprising a total of 26 items. The reliability of this instrument, as measured by Cronbach's Alpha in the current investigation, was 0.902. Additionally, the Beck Depression Inventory-II with 21 multiple-response items was used and demonstrated a reliability of 0.921 according to Cronbach's Alpha.

### Data Analysis

Permission to access educational institutions and classrooms was obtained from the respective authorities and teachers. The study's purpose and the anonymous nature of participation were explained to the students, who were also requested to provide their consent and voluntarily collaborate in this research, emphasizing the importance of honest responses. Data analysis was conducted using SPSS 25 and the Excel program from the Microsoft Office package (V. 2016). The analysis involved the use of frequency tables, percentages, measures of central tendency, multiple linear regression, and correlation. Lastly, the reliability of the instruments was assessed through Cronbach's Alpha.

## Findings

Table 1 shows that the study population was made up of 16.4% in first grade, 28.8% in second grade, 25.8% in third grade, 10.2% in fourth grade, and 18.8% in fifth grade. Also, 58.3% were female and 41.7% were male. Finally, regarding age, more than 60% were between 13 and 14 years of age.

Cyber victimization could significantly (32.2%) predict depression variability ( $R^2$  adjusted=0.320;  $p=0.0001$ ;  $t=-8.388$ ). Likewise, the beta value indicated a positive relationship between cyber victimization and depression ( $b=0.567$ ;  $t=13.242$ ). Using Spearman's Rho correlation, there was a significant and positive relationship between cyber victimization and depression (two-sided  $p$ -value=0.0001;  $Rho=0.567$ ).

**Table 1.** Characteristics of the study sample

Parameter	Values
<b>Grade</b>	
First	61 (16.4)
Second	107 (28.8)
Third	96 (25.8)
Fourth	38 (10.2)
Fifth	70 (18.8)
<b>Sex</b>	
Male	155 (41.7)
Female	217 (58.3)
<b>Age (year)</b>	
11	1 (0.3)
13	135 (36.3)
14	121 (32.5)
16	61 (16.4)
17	10 (2.7)
18	4 (1.1)

Table 2 reports information on the levels of cyber victimization among secondary school students in the province of Tumbes, where 98.1% presented low levels and only 1.9% presented a medium level. Also, 64.2% of the students were not in a state of depression, 11.8% were suffering from a slight emotional disorder, 7.5% were already in a state of moderate depression, and 3% and 2% presented severe and extreme depression, respectively.

**Table 2.** Levels of cyber victimization and depression among the participants

Parameter	Values
<b>Cyber victimization</b>	
Low	365(98.1)
Medium	7(1.9)
High	0(0.01)
<b>Total</b>	372(100)
<b>Depression</b>	
Normal	239(64.2)
Slight emotional disturbance	44(11.8)
Clinical depression	28(7.5)
Moderate depression	42(11.3)
Severe depression	11(3)
Extreme depression	8(2.2)
<b>Total</b>	372(100)

Table 3 shows that all cyber victimization dimensions were significantly correlated ( $p$ -value=0.0001) with depression, presenting a higher degree of correlation than the others.

**Table3.** Relationship between dimensions of cyber victimization and depression.

Dimensions of cyber victimization	Depression
<b>Verbal-written cyber victimization</b>	
Correlation coefficient Rho	0.481
Two-sided p-value	0.0001
Number of samples	372
<b>Visual cyber victimization</b>	
Correlation coefficient Rho	0.428
Two-sided p-value	0.0001
N	372
<b>Online exclusion</b>	
Correlation coefficient Rho	0.378**
Two-sided p-value	0.0001
No.	372
<b>Impersonation</b>	
Correlation coefficient Rho	0.417
Two-sided p-value	0.0001
N	372

The verbal-written cyber victimization with a  $Rho=0.481$  showed the lowest correlation and the online exclusion with a  $Rho$  of 0.378 had the highest correlation with depression, thus confirming the associativity between the dimensions of cyber victimization and depression. This confirms the relationship between the dimensions of cyber victimization and depression, and it is concluded that the higher the cyber victimization of the four forms of cyber aggression, whether written, visual rejection, or impersonation, the higher the degree of depression in high school students in the province of Tumbes.

## Discussion

According to the World Health Organization (WHO), depression ranks among the leading causes of disability among adolescents. The prevalence of depression has markedly increased in the last decade, impacting the social, emotional, and cognitive well-being of adolescents [39]. Mental health has gained significant importance in the realm of healthcare [40], and research into mental health issues such as depression has seen heightened interest, given its impact on the general population [35, 36]. As a result, it is valuable to explore the foundations for developing interventions and treatments [41].

There is currently a growing interest in researching mental health, including depression, due to its impact on both the general population and healthcare professionals [34, 35]. Regarding the relationship between cyber victimization and depression, it has been discovered that there is a highly significant and positive correlation between these two variables. This implies that cyber victimization and depression exhibit an increasing pattern, indicating that a higher incidence of cyber victimization is associated with an elevated likelihood of experiencing depression. Studies have revealed the connections between cyber victimization and depression [28]. The use of electronic media for intimidating, harming, or threatening others carries severe psychological consequences that inflict emotional harm on the victims [36].

Regarding the relationship between cyber victimization and depression, a highly significant and positive correlation between both variables was observed. Depression exhibited a stronger degree of correlation compared to other variables, with verbal-written cyber victimization having an  $Rho$  value of 0.481 and online exclusion cyber victimization having the lowest  $Rho$  value at 0.378. Cyber victimization emerged as a highly significant predictor of depression. This result aligns with findings from previous studies [26, 37], which also demonstrated that cyber victimization predicts depression and anxiety. These studies also suggest that individuals who experience cyberbullying may develop depression, particularly when their self-

esteem is affected [38]. Therefore, the use of electronic media for intimidation, harm, or threats has a psychological impact that emotionally harms the victim [36].

The research results indicate that 11.8% of the participants experience mild emotional disorders, 7.5% exhibit moderate depression, and 3% and 2% suffer from severe depression. These findings differ from those reported by Islam et al. [42], who found a prevalence of moderate to severe levels of depression in 26.5% of school adolescents. Similarly, Bhattarai et al. [43] identified a high prevalence of depression in 44.2% of high school students, with 25.3% showing mild symptoms and 18.9% experiencing severe symptoms. Several studies suggest that depression among adolescents is on the rise [44-46].

Regarding cyber victimization, the results indicate that 98.1% of the studied population experienced low levels of cyber victimization, while 1.9% exhibited medium levels. In contrast, a study conducted by Jensen et al. [47] among Chilean school adolescents found that 14.3% experienced some form of cyber victimization. Cyber victimization is associated with severe psychological consequences, and adolescents who experience it tend to have lower overall well-being. According to Schunk et al. [48], building positive social relationships can serve as a buffer against the negative effects of cyber victimization.

Concerning the dimensions of cyber victimization, depression was found to have a higher degree of correlation with verbal-written cyber victimization. It is important to note that cyberbullying and cyber victimization are highly associated with depressive symptoms in adolescents [49, 50].

Additionally, verbal-written cyber victimization is the most prevalent type compared to other forms of cyber victimization, such as visual cyber victimization, online exclusion, or impersonation [51]. Therefore, it is crucial to consider that depression is one of the factors linked to suicidal behaviors, which is one of the most serious consequences that cyber victims may face [28].

The results of this study should not be generalized to the entire population of secondary school students, as the research was conducted in only one department of Peru. It is recommended to conduct similar studies in other regions of the country to compare statistics related to cyber victimization and its relationship with depression. Additionally, since the results were self-reported, social desirability bias may have influenced the data. Therefore, future research should employ more sophisticated assessment techniques, such as perspective assessment and ecological momentary assessment. Finally, the data collected in this study were of a cross-sectional design, which allows for the identification of associations but not causality. Therefore, a longitudinal investigation would provide more consistent insights into the causality of the study.



## Conclusions

In summary, there is a highly significant relationship between depression and cyber victimization, with cyber victimization being a significant predictor of depression. While the majority of adolescents did not exhibit depression, almost half of them experienced some level of depression. Furthermore, the majority of students presented low to medium levels of cyber victimization.

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