Prevalence of depression and associated factors in adolescents.

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Abstract

Introduction: The World Health Organization has stated that depression is a very frequent mental disorder, characterized by the appearance of sadness, loss of interest or pleasure, feelings of guilt or lack of self-esteem, sleep or appetite disorders, feeling tired, and having a lack of concentration. The aim of this study was to determine the prevalence of depression and associated factors in adolescents from 14 to 18 years students of the Luis Cordero High School in the city of Azogues, Cañar-Ecuador in the year 2019.

Methods: An analytical and cross-sectional investigation was carried out. The sample consisted of 262 students aged 14 to 18 in the Luis Cordero Luis Cordero High School. A survey was applied, which included the Hospital Anxiety and Depression Scale (HADS). Information was collected on forms, the data was processed using the SPSS V.15 program by absolute frequency, percentage, Chi square and odds ratio with a 95% confidence Interval and value P=0.05, which are represented in tables.

Results: When applying the HADS questionnaire, students were determined to have a rate of depression of 26%. The prevalence of depression in women was 14.1%, while in men it was 11.8%. These students resided in urban areas (21.4%) and did not have migrant parents (19.5%). The existence of domestic violence was 23.3% and poor academic performance was 21%. Regarding age, no differences were found with each age group corresponding to 13%.

Conclusions: The prevalence of depression in adolescents is high. The most affected are women and those with poor academic performance. However, there was no statistical association between the analyzed variables and the presence of depression.

Keywords: Adolescent; Students; Patient Health Questionnaire; Anxiety.

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Introduction

The conditions that are commonly called depressive disorders consider a set of clinical entities that are related to problems of greater or lesser intensity and duration. Within these are episodes of major depression (EDM) and dysthymia (D) that, as stipulated in the DSM-5, are considered mood disorders. In addition, they refer to syndromes made up of various behavioral patterns with clinical significance that do not obey conventional responses, and whose unique characteristics are centered on mood alterations mainly associated with discomfort and disability, as well as the risk of dying, losing freedom, or suffering pain. These disorders are characterized by their impact on people's moods and affects and are also linked to changes or problems in other spheres of life, such as fatigue, appetite, sleep, excessive guilt, cognitive difficulties, ideation, and suicide, among others [1].

The global governing body for health, the World Health Organization (WHO), has established that up to 50% of all disorders related to mental health appear at age 14, but most cases are not recognized nor are they treated, so they have serious consequences for people's mental health throughout their lives. Likewise, it is known that during this stage, depressive disorders increase in both sexes, occurring mainly in women [2].

Currently, depression is considered one of the mental disorders with the highest prevalence in various contexts globally. According to the World Health Organization (WHO), by 2020, depression will become the second leading cause of disability worldwide. Specifically, in first world countries, it occupies third place, while in developing countries, such as Ecuador, this disease occupies first place. Likewise, the WHO points out that more than 350 million individuals suffer from this pathology around the world and that, despite the fact that depression is a currently treatable mental disorder, the vast majority of patients who experience it do not request or receive the treatment required to improve their condition. It is known that in adolescents, depression is a problem with multiple causes and a predictor of social problems and other disorders. Therefore, it is considered a significant public health problem [3].

Depression is the main cause of disability in people between 15 to 44 years of age worldwide. It is also the main cause of years lost due to disability in young people between 10 and 14 years of age, calculated according to the prevalence and burden of morbidity of the condition. Due to its prevalence (0.5% in children between 3 and 5 years old, 1.4% in children between 6 and 11 years old and 3.5% in adolescents between 12 and 17 years old), it plays an important role as a risk factor for suicide and has an impact on the social and family structure [4, 5].

Taking into account that mental health plays a significant role in the development of adolescents, and it is not known why this situation occurs in this age group in the city of Azogues, Ecuador, the present study aims to determine: What is the prevalence of depression and associated factors in adolescent students aged 14 to 18 at the Luis Cordero Educational Unit in the city of Azogues in 2019? We conducted an observational study to answer this question.

Population and methods

Study design

The study design is cross-sectional and analytical.

Stage

The study was carried out at the Luis Cordero Educational Unit, in the city of Azogues, Cañar, Ecuador. The sampling period was from June 1, 2019 to July 20, 2019.

Participants

The following inclusion criteria were used:
• Adolescents between the ages of 14 and 18 who were present on the day of data collection at the Luis Cordero Educational Unit in the city of Azogues.
• Students who wanted to participate in the study and signed the informed consent and whose legal guardians also signed the informed consent.
The following participants were excluded: students who presented normal sadness, medical illnesses described in the differential diagnosis, other psychiatric disorders, or use of psychotropic substances.

Variables

The dependent variable was depression. The independent variables were age, sex, residence, family migration, domestic violence, and academic performance.

Data / Measurement Sources

Method: The non-participant observational method was used. Techniques: A survey was employed that included the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983), this survey has a sensitivity of 92% (CI: 95%: 0.85-0.90), specificity of 74% (CI: 95%: 0.66-0.83), positive predictive value of 66% (95% CI: 0.56-0.76), and negative predictive value of 95% (95% CI: 0.90-0.99). The HADS further showed a positive probability ratio of 3.6, a negative probability ratio of 0.12, Cohen's mean Kappa 0.59 (CI: 95%: 50-65), and area under the curve of 0.59 [6] for students aged 14 to 18 from the Luis Cordero Educational Unit in the city of Azogues. Instruments: The data were collected in a form which contains all the variables necessary in the study.

Control of Sources of Bias

The units of measurement were precisely delimited for each variable analyzed. The information was collected by two independent researchers and with a quality check by a third observer (supervisor).

Study Size

The sample was probabilistic. The universe was made up of 604 students between the ages of 14 and 18 from the Luis Cordero Educational Unit in the city of Azogues. The sample was calculated with a confidence level of 95% and a margin of error of 5%, obtaining a total of 235 participants. The following formula was used:

$$n = \frac{N \times Z_a^2 \times p \times q}{d^2 \times (N-1) + Z_a^2 \times p \times q}$$

Where: n = sample size, N = population size = 604. Z = confidence level = 1.96, p = prevalence = 50%, q = probability of failure = 50%, d = maximum permissible error = 5%. After calculations, n = 236 was obtained. Adding 10% for possible losses, a sample of 262 subjects was obtained. Participants were selected through simple random cluster sampling, selecting students from each course (see Table 1).

Management of Quantitative Variables

The quantitative variables in the scale are presented with means and standard deviation. Nominal quantitative variables are presented with frequency and percentage.

Table 1 Students divided by year of study

High School Year	Total students N=604	Percentage	Sample size n=262
Fourth grade	205	34%	90
Fifth grade	198	33%	86
Sixth grade	201	33%	86

Statistical Methods

The statistical program SPSS© (IBM Corp, Released 2013. Windows, Version 15.0. Chicago, USA) was used. For the bivariate analysis, Odds Ratio and its confidence interval are reported with the P value. Prevalence is presented with a confidence interval for a proportion.

Results

Participants

A total of 262 adolescents between the ages of 14 and 18 participated in the study. There were 143 women (54.6%), and the majority of students were from urban areas (85.9%). The average age of the group was 16.1 ± 1.1 years, and 59.5% of the participants were from 14 to 16 years old. These characteristics are presented in Table 2.

When applying the HADS questionnaire to the students, 68 had a score> 7, which corresponds to a prevalence of depression of 25.9% (95% CI 25.63-26.28%) (see Table 2).

Bivariate analysis

Table 3 shows that according to the HADS, there was no difference with respect to age; both age groups were statistically represented equally (P> 0.05). No statistical differences were found between sex, place of residence, the presence of domestic violence, the presence of family migration, or academic performance (See Table 3).

Discussion

A total of 262 students between the ages of 14 and 18 from the Luis Cordero Educational Unit in the city of Azogues were analyzed, with the aim of determining the prevalence of depression and its associated factors. Under this framework, we present the following aspects. Regarding the demographic characteristics of the population, the average age of the students was 16.1 ± 1.1 years, making the age group of 14 to 16 years

the most frequent at 59.5%. Females constituted 54.6% of the participants and 85.9% lived in urban areas.

When applying the HADS questionnaire to the students, 68 had a score greater than 7, which corresponds to a prevalence of depression of 26%. In a study carried out in the city of Loja, Ecuador, in 2014, depression and its relationship with the risk of suicide in adolescents, the author, found depression figures higher than those found in this research, with a prevalence of 37% [7]. However, more similar results to the current

analysis were observed in a study published in Mexico in 2015, where when analyzing a sample of 9,982 students aged 14 to 19 years, 27% presented depressive symptoms [8].

The HADS questionnaire showed a slight prevalence of the depressive condition was evidenced in women; however, no statistical association was found between the sexes (P = 1.00).

Table 2 General descriptive data of the group

Demographic characteristics	Frequency (n=262)	Percentage (%)	95% CI for a proportion
Age			
14-16 years	156	59.5	59.17-59.91%
17-18 years	106	40.5	40.09-40.83%
Sex			
Male	119	45.4	45.05-45.79%
Female	143	54.6	54.21-54.95%
Place of residence			
Urban	225	85.9	85.62-86.14%
Rural	37	14.1	13.86-14.38%
Depression			
Present	68	25.9	25.63-26.28%
Absent	194	74.0	73.72-74.37%

Table 3 Bivariate analysis

	Group with depression n=68	Group without depression n=194	OR	95 CI%	P
Age (years)					
14-16	34 (50.0%)	122 (52.9%)	0.59	0.34-1.03	0.09
17-18	34 (50%)	72 (27.5%)			
Sex					
Male	31 (45.6%)	88 (45.4%)	1.01	0.58-1.76	1.00
Female	37 (54.4%)	106 (54.6%)			
Place of residence					
Urban	56 (82.35%)	169 (87.11%)	0.69	0.32-1.46	0.44
Rural	12 (17.65%)	25 (12.89%			
Parental migration					
Yes	17 (25 %)	41 (21.13%)	1.24	0.65-2.38	0.62
No	51 (75%)	153 (78.87)			
Domestic violence					
Yes	7 (10.29%)	10 (5.15%)	2.11	0.77-5.79	0.23
No	61 (89.71%)	184 (94.85%)			
Academic performance					
Low	55 (80.88%)	151 (77.84%)	1.21	0.60-2.41	0.72
High	13 (19.12%)	43 (22.16%)			

OR: odds ratio. CI 95%: confidence interval of 95%

Research that supports these results was conducted in Cuba in 2013, and determined that that the prevalence rate of depression was higher in women [9]. A study published in Spain in 2015 also shows females as the most affected, finding statistically significant differences depending on the sex of the student body, showing higher depression scores in women in the "Depression Questionnaire for Children" (M = 108.75; DT = 30.01) than men (M = 102.22; DT = 28.89), t (1258) = -3.93; P <0.001 [10]. Likewise, in a study published in 2017 in the city of Loja, in which the most relevant risk factors that lead to depression in adolescents between 14 and 16 years of age were analyzed, the relationship of depression in women was 1.5 higher than in men [11].

In addition, it was determined that the majority of students with depression reside in urban areas however, there was no statistical association between both variables (P = 0.44). A study that supports these results was conducted in Spain in 2013. The author observed that the percentage of depressive disorder was lower in rural areas than in urban areas and explained it by the globalization of urban areas, since one of the stress factors mentioned was agglomeration [12]. Similarly, the Ministry of Health of Colombia (Minsalud) in 2017 stated that according to a survey carried out among Colombians, in urban areas (42.7%) there were more depressive symptoms than in rural areas (34.9%) [13].

It was observed that 19.5% of the affected students had migrant parents; however, no statistical association was found between both variables (P = 0.62). These results are striking, since there are multiple investigations that describe the migration of parents as a cause of various psychological disorders in children. For example, in a study carried out in 2012 in the provinces of Imbabura and Carchi in Ecuador, the authors concluded that the children of migrant parents had lower self-esteem than their peers who lived with their parents. The absence of one of the parents due to emigration generates some school problems in the children, such as lack of concentration in studies, dropping out of school, and lack of motivation in studies that can end in school failure. The affective, school, and emotional damage caused by physical separation of one of the parents cannot be considered, in any way, as family well-being; rather it causes damage at both the family and educational level [14].

In addition, the HADS questionnaire revealed that only 23.3% of students had evidenced episodes of intrafamily violence, but no statistical association was found between both variables (P = 0.23). An investigation carried out in Spain in 2014 refutes these results, indicating that boys and girls who are victims of gender violence present high levels of psychopathological problems and difficulties in other areas of functioning, such as social behaviour and values [15]. However, a possible explanation for the results obtained in our work is the low number of students who stated that they were victims of domestic violence, which barely represented 6.5%, so this variable could not be adequately assessed.

Finally, it was evidenced that those most affected had low academic performance (21%); however, no statistical association was found between both variables (P = 0.72). In a study conducted by Mexican students in 2013, according to the Inventory of Depression and Anxiety Symptoms (IDAS), of the 19 depression indicator factors, 6 were significantly correlated with the academic performance variable. That is to say, of the seven factor indicators of depression with respect to academic performance, only four factors were presented as significant, which meant that 57% of indicators of depression correlated with academic performance. The authors affirmed that depression was associated with poor school performance in more than half of the cases, leading to low self-esteem and pessimistic cognitions that can lead to depression [16]. Likewise, another study conducted in Mexico in 2018, in which the relationship between depression and lifestyle was analyzed in 523 adolescents, it was observed that as the academic level progressed, the boys showed more interpersonal problems, self-esteem problems, and anhedonia [17].

Conclusions

According to the HADS questionnaire, a high prevalence of depression was determined in the students, which corresponded to 25.9%, testing the hypothesis raised. No statistical association was found between these variables and depression in adolescents.

Abbreviations
H.A.D. Hospital anxiety and Depression Scale.

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Availability of data and materials

The data sets generated and / or analyzed during the current study are not publicly available due to the confidentiality of the participants, but are available through the corresponding author upon reasonable academic request.

Ethical statements

The Bioethics Committee of the Universidad de Cuenca approved the research protocol. Authorization was requested from the rector of the Luis Cordero Educational Unit and the Ministry of Education through the 03D01 Azogues-Biblián-Déleg Education District, to carry out the research at the institution.

Protection of people

The authors declare that the procedures followed were in accordance with the ethical standards of the responsible human experimentation committee and in accordance with the World Medical Association and the Singapore Declaration.

Data confidentiality

The authors declare that they have followed the protocols of their work center on the publication of patient data without identification.

Publication consent

The authors have obtained the informed consent of the guardians of the patients and the respective assent. This document is in the possession of the corresponding author. The authorization for the publication of this article has been signed by the guardians or parents.

Conflicts of interest

The authors declare not to have any interest conflicts.

References

1. González C., Hermosillo A., Vacio M., Peralta R., Wagner F. Depresión en adolescentes. Un problema oculto para la salud pública y la práctica clínica. Bol. Med. Hosp. Infant. Mex. [revista en la Internet]. 2015 Abr [citado 2019 Mar 05];72(2):149-155. SU: scielo.mx/S1665

2. Veytia M., Fajardo R., Guadarrama R., Escutia N. Inteligencia emocional factor positivo ante la depresión en adolescentes de bachillerato. Informes Psicológicos,2016;16(1):35- 50. SU: upb.co/6471/5968

3. Navarro J, Moscoso M, Calderon G. La investigación de la depresión en adolescentes en el Perú: una revisión sistemática. 2017;23(1):57-74.[internet].2017[citado 2019-03-08]. SU: scielo.pe/S1729. ISSN 1729-4827

4. Bonin L. Depresión Unipolar Pediatrica: Epidemiología, características clínicas, evaluación y diagnóstico. UptoDate 2018. [internet].2018, [citado 2019-03-10], Disponible en: uptodate/150

5. Sánchez O, Méndez X, Garber J. Prevención de la Depresion en niños y Adolescentes Revision y Reflexion. Revista de Psicopatología y Psicología Clínica 2014;19(1): 63-76. SU: uned.es/12983

6. Quezada T. Comparación entre el test de Hamilton y Beck para determinar mayor eficacia diagnóstica de depresión, aplicado a estudiantes de medicina de la Universidad Nacional de Loja módulo 10 en el período febrero – julio del 2014. [Internet]. 2015, [citado 05 abril 2019], SU: dspace.unl/13187

7. Morocho A. Depresión y su relación con riesgo de suicidio en los adolescentes de la Unidad Educativa José Antonio Eguiguren "La Salle"y el Instituto Superior Tecnológico "Daniel Álvarez Burneo" de la ciudad de Loja. [Internet]. 2014,[citado 05 agosto 2019]. SU: dspace.unl/12321

8. Rivera L, Rivera P, Berenice A, Leyva A, De Castro F. Factores individuales y familiares asociados con sintomatología depresiva en adolescentes de escuelas públicas de México. Salud pública de méxico / vol. 57, no. 3, mayo- junio de 2015. [Internet]. 2015, [citado 05 agosto 2019], Disponible en: scielosp.org/2015.57/3/219-226

9. Vázquez A. Depresión. Diferencias de género. [Internet]. 2013, [citado 05 agosto 2019]. SU: revmultimed.cu/319

10. Jauregizar J, Soroa M, Bernarñas E, Garaigordobil M. Depressive symptomatology in adolescents and variables associated with the school and clinical environments. [Internet]. 2015, [citado 05 agosto 2019], SU: researchgate/28665 3404

11. Vélez G, Jadan C. Depresión en adolescentes de 14 a 16 años del Colegio 27 de Febrero cd la ciudad de Loja. [Internet]. 2017, [citado 05 agosto 2019], SU: dspace.unl/19702

12. Provensal M. Títol: Depresión en la vida urbana y en la vida rural. [Internet]. 2013, [citado 10 septiembre 2019], SU: dspace.uib/11201/

13. Ministerio de Salud de Colombia (MINSALUD). Boletín de salud mental. Depresión. Subdirección de Enfermedades No Transmisibles. [Internet]. 2017, [citado 10 septiembre 2019]. SU: minsalud.gov.co/2017

14. Suárez M, Cuenca R, Hurtado D. Incidencia de la emigración familiar en el ámbito escolar y emocional en los niños/as de las provincias de Imbabura y Carchi-Ecuador. [Internet]. 2012, [citado 10 septiembre 2019]. SU: redalyc/55124665009

15. Lizana R. Problemas Psicológicos en Niños y Niñas Víctimas de la Violencia de Género en la Pareja. [Internet]. 2014, [citado 10 septiembre 2019]. SU: bitstream/285393

16. Serrano C, Rojas A, Ruggero C. Depresión, ansiedad y rendimiento académico en estudiantes universitarios. Revista Intercontinental de Psicología y Educación 2013, 15 (1). [Internet]. 2013, [citado 05 agosto 2019]. SU: redalyc/80225697004

17. Bazán G, Ramirez D, Osorio M, Torres L. Análisis de la relación entre depresión y estilo de vida en adolescentes. Revista Electrónica de Psicología Iztacala. 21, (3), 2018. [Internet]. 2018, [citado 05 agosto 2019], SU: unam.psiclin/21/19

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