



DEPRESSION AND STUDENT ANXIETY ASSOCIATED WITH LOW SELF-ESTEEM

DEPRESIÓN Y ANSIEDAD ESTUDIANTIL ASOCIADO CON BAJA AUTOESTIMA.

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ABSTRACT

Introduction: Adolescence is one of the most rapid phases of human development. It is characterized by physical, social and rapid growth, as well as changes in self-esteem. **Objective:** To determine the association between low school self-esteem and anxiety and depression. **Methods:** A cross-sectional study was conducted to recruit 500 students in three high schools. The Rosenberg self-esteem scale was used to assess global self-esteem. **Results:** The mean self-esteem score was 17.56 on a scale of 0 to 30. Medium and high educational stress was positively associated with low self-esteem. **Conclusions:** It was concluded that self-esteem is correlated with anxiety, depression and academic stress.

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RESUMEN

Introducción: La adolescencia es una de las fases más rápidas del desarrollo humano. Se caracteriza por un crecimiento físico, social y rápido, así como cambios en la autoestima. **Objetivo:** Determinar la asociación entre la baja autoestima escolar y la ansiedad y depresión. **Métodos:** Se realizó un estudio transversal para reclutar a 500 estudiantes en tres escuelas secundarias. Se utilizó la escala de autoestima de Rosenberg para evaluar la autoestima global. **Resultados:** La puntuación media de autoestima fue de 17,56 en una

escala de 0 a 30. Se asoció positivamente con la baja autoestima el estrés educativo medio y

alto. **Conclusiones:** Se concluyó que la autoestima está correlacionada con la ansiedad, la depresión y el estrés académico.

Palabras clave:

INTRODUCTION

It is well known that adolescence is one of the most rapid phases of human development. It is characterized by physical, social and rapid growth, as well as changes in self-esteem. Self-esteem is believed to significantly impact essential life outcomes, including



health and social outcomes during adolescence and adulthood⁽¹⁾. For example, there is a clear link between high self-esteem and positive outcomes, such as career success, improved social relationships, feelings of well-being and positive perceptions of peers, performance, and good coping skills. Conversely, low self-esteem is related to depression, substance abuse, antisocial behavior, and suicide. In addition, the literature shows that social functioning and peer acceptance are lower in children with low self-esteem⁽²⁾.

Much research has explored protective risk factors associated with developing low adolescent self-esteem. Reported risk factors include being female, having low family socioeconomic status, parental education, family eligibility for assistance, eligibility for free or priced school meals, parental employment status, performance and schooling, attendance, as well as obesity⁽³⁻⁴⁾.

Self-esteem is known to be affected by self-esteem, while self-esteem can also affect academic performance. High self-esteem is reported as a predictor of students' academic performance. However, another study found that while high self-esteem leads to many positive outcomes and benefits, it does not necessarily lead to good academic outcomes. On the other hand, adolescents with low academic performance do not always exhibit low overall self-esteem⁽³⁾.

There is an association between low esteem and adverse outcomes for youth mental health problems, including health behaviors such as substance abuse, early sexual activity, and eating problems⁽⁵⁾. However, a longitudinal study of a large sample of New Zealanders found that while low self-esteem significantly predicted adolescent dieting and other health-compromising diets, it was not related to early sexual activity⁽⁶⁾. Concerning mental health, a correlation was detected between low self-esteem and depression, anxiety, and suicidal thoughts and attempts in adolescents⁽⁵⁾.

Reports in recent years indicate a strong relationship between academic pressure and stress, depression, anxiety, low self-esteem and suicide among middle and high school

students and young adults. For example, a study describing perceptions of mental illness in Hue, Vietnam, noted that "studying or thinking too much" is a cause of mental health problems⁽⁷⁾.

In Ecuadorian culture, parental and school pressure can be expected to have an unintended effect, resulting in low self-esteem in high school students. Unfortunately, there are still no systematic studies on this topic in Ecuador, and few reports of descriptive or analytical research on adolescent self-esteem. This article aimed to determine the prevalence of low self-esteem; the characteristics associated with low self-esteem; and the relationships between self-esteem and anxiety, depression, school stress, and suicidal ideation among high school students. The hypothesis asserts that low self-esteem is associated with an increased risk of poor mental status.

METHODS

A cross-sectional study was conducted to recruit 500 students from three high schools in Ambato, Ecuador, in urban and suburban areas. All data were collected during the first academic semester, from September to December 2019. This cross-sectional study was approved by the Universidad Regional Autónoma de Los Andes (UNIANDES).

The 10-item Rosenberg self-esteem scale was used to assess global self-esteem⁽⁸⁾; higher scores indicate more positive self-esteem. Each item solicited a response using a 4-point Likert-type scale ranging from 1 (strongly agree) to 4 (strongly disagree). The scale is generally reliable, with test-retest correlation values between .82 and .88.

To address the issue of suicidal ideation, additional questions on whether the student ever seriously considered suicide or made a suicide plan were used using a 3-point scale (never, sometimes, and often). A yes/no question was also used to identify students who had attempted suicide.

All participants were invited to provide information through a questionnaire. This was done anonymously after class or at home to minimize possible reporting bias and keep the information confidential.



The database and statistical processing of the data were performed and analyzed in the SPSS 26 statistical program (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used for the results collection, presentation and interpretation, and the significance level was set at 0.05 to consider a result significant. The quantitative data used summary measures, such as arithmetic mean and standard deviation.

The χ^2 test² was used to assess the significance of differences in the distribution of participants by selected sociodemographic characteristics, risk factors, and outcome variables. Associations between low self-esteem and family characteristics, educational stress, and academic performance were explored using logistic regression analyses. Univariate independent predictors of low self-esteem with $p < 0.10$ were entered into a multivariate logistic regression model, and the backward Wald method was applied to study their influence on the presence of low self-esteem. Univariate logistic analyses were also

applied to determine the relationships between low self-esteem and anxiety, depression and suicidal ideation.

RESULTS

Of the 525 students invited to participate, 25 (4.7%) were excluded from the analysis because they did not adequately complete the questionnaire; for example, they did not answer five or more items. Table 1 shows that the final sample consisted of 500 high school students with a mean age of 15.7 years. The participating students were relatively evenly distributed in terms of gender: 37 % male and 63 % female. This ratio also reflects the proportion of males and females enrolled in the classes studied. The participation of students in each grade did not differ significantly, about 33% each.

The mean self-esteem score was 17.56 on a scale of 0 to 30. Scores for boys and girls were similar (17.83 vs. 17.40; $t = 1.720$; $p = 0.086$). Based on all scores, 19% of respondents reported low self-esteem according to Rosenberg's criteria, with scores below 15.

Table 1. Sociodemographic variables of participants by self-esteem status.

	Total		Low Self-Esteem		Normal self-esteem		p
	500	100	95	19	405	81	
Total Tested	185 315	37 63	30 65	31,5 68,5	150 255	37 63	0,085
Sex (n, %)							
M	15,78±2,7	-	15,28±	-	15,42±2,0	-	0,285
F	8		2,10		5		
Age (mean ± SD)	95 405	19 81	17 78	25,9 74,1	78 327	19,25 80,75	<0,001
Family economic situation							
Comfortable and rich life.	100	20	14	14,73	86	21,3	0,003
Very poor/poor/earn just enough to live on	325 75	65 15	70 11	73,7 11,57	255 64	62,9 15,8	
Academic performance in the last semester							
excellent/good	405	81	70	73,6	335	82,7	0,004
Fairly good/average	95	19	25	26,4	70	17,3	
Below average/very poor							
Personal tutor							
Yes	140	28	38	40	102	25,1	0,003
No	360	72	57	60	303	74,9	



Supplementary class attendance							
None	330	66	55	57,8	275	67,9	0,001
One or more	170	34	40	42,2	130	32,1	
mother's education							
> Primary school	500	100	95	19	405	81	
<= elementary school							

n= 500 source: questionnaire

Table 2 shows, based on the univariate logistic regression analysis, among the six variables investigated, two variables, "having a personal tutor" and "attending supplementary classes," were negatively associated with the risk of low self-esteem. In contrast, the other variables were positively correlated with low self-esteem. Students were likely to show lower self-esteem when their mother's education was elementary level or lower when they were often physically or emotionally abused at home or school, when they had below average/very low academic performance in the last semester, or when they reported experiencing high educational stress.

In the multivariate regression analysis (with the backward Wald method), without taking into account effect modification, four variables remained correlated with low self-esteem, either in a negative or positive direction. Having a personal tutor and academic performance in the last semester was no longer a significant association, but attending supplementary classes remained a protective factor for low self-esteem (reduced OR of 43% compared to students not attending). The study outcomes significantly positively associated with low self-esteem were medium and high educational stress (ORs = 2.25 and 4.02, respectively).

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Table 2. Factors associated with low self-esteem: multivariate logistic regression analysis.

Factors	Low self-esteem n (%)	Normal self-esteem n (%)	Univariate logistic regression OR (95% CI)	Value of p	Multivariate logistic regression OR (95% CI)	Value of p
Mother's education > Primary school <= elementary school	55 (16,6) 40 (23,2)	275 (83,4) 130 (76,8)	Reference 1,95 (1,31-2,90)	- 0,001	Reference 1,68 (1,09-2,69)	- 0.018
Academic performance in the last semester excellent/good Fairly good/average Below average/very poor	14 (14) 70 (21,5) 11 (14,6)	86 (86) 255 (78,5) 64 (85,4)	Reference 1,43 (0,95-2,14) 3,17 (1,60-6,28)	- 0.087 0.001	Reference - -	- - -
Educational stress Under Medium High	17(12,5) 31 (16,8) 47 (26,1)	119 (87,5) 153 (83,2) 133 /73,9)	Reference 2,04 (1,30-3,22) 3,90 (2,55-5,98)	- 0.002 <0.001	Reference 2,25 (1,41-3,58) 4,02 (2,60-6,23)	- 0.001 <0.001
Personal tutor						



Yes	70 (17,2)	335 (82,5)	Reference	-	-	-
No	25 (26,3)	70 (73,7)	1,67 (1,18-2,36)	0,004	-	-
Supplementary class attendance						
None	38 (27)	102(73)	Reference	-	Reference	-
One or more	57 (15,8)	303 (84,2)	0,62 (0,46-0,85)	0.003	0,57 (0,41-0,79)	0.001

p ≤ 0.05 n = 500 source: statistical analysis

DISCUSSION

The study examines the prevalence of low self-esteem among high school students, the characteristics associated with low self-esteem, and the relationships between self-esteem and anxiety, depression, and suicide. Almost 20% of the students had low self-esteem, with no difference between girls and boys. These results align with some previous studies but are inconsistent with others⁽⁹⁻¹¹⁾. Cultural and social differences in the study populations could explain some differences.⁽¹²⁾ The results of this study cannot provide precise reasons for the higher prevalence of low self-esteem among women; however, it is worth discussing several possible causes of gender differences. First, while gender equality has recently improved in Ecuador and is legislated, gender issues within the family and society remain challenging for most Ecuadorians, strongly influenced by traditional culture and customs. There is an association between the female gender and emotionally unstable personality. As a result, women are more likely to develop an emotionally unstable personality (e.g., borderline personality)⁽¹²⁾. Therefore, women's self-esteem is more likely to fluctuate, depending on how they or others, especially their parents, evaluate their achievements.

A high prevalence of low self-esteem among high school students should be considered an important mental health problem⁽¹³⁾ not only by parents, teachers and school principals but also by policymakers in the education and health sectors in Ecuador. Unfortunately, medical care related to psychological disorders has not yet received adequate consideration in Ecuador.

Our results confirm the findings of previous studies, namely that family characteristics,

including the low educational level of the mother and physical and emotional abuse by parents or other adults in the home, were associated with low levels of self-esteem⁽¹⁴⁾.

In addition, educational characteristics such as school environment, academic achievement and high educational stress were strongly associated with self-esteem⁽¹⁵⁾. These findings are consistent with the results of other studies, e.g., Pullmann & Allik⁽¹⁶⁾, which found that parents strongly influence their children's psychological development, including relationships outside the family environment. Students who attended one or more supplementary classes appeared to be at lower risk for low self-esteem.

Attending supplementary classes can reduce the stress of workload and academic pressure for these students⁽¹⁷⁾. It would be helpful to confirm this with further studies in the Ecuadorian context, but this support is unlikely to be available to families who cannot afford it.

Our finding also highlights that self-esteem plays a vital role in predicting academic performance. Although a cross-sectional study design cannot demonstrate causality, a prospective study to identify the causality of low self-esteem would be appropriate in future research.

Concerning mental health, the results showed that self-esteem was negatively correlated with anxiety, depression and educational stress, while univariate logistic regression results illustrated that low self-esteem contributed to a high risk of anxiety, depression and suicidal ideation. These results are comparable to others showing that low self-esteem was associated with depression and identifying a relationship between self-esteem and anxiety, as well as between low



self-esteem and suicidal ideation and suicide attempts in adolescents⁽¹⁸⁻¹⁹⁾. Therefore, screening for low self-esteem in adolescents is a possible strategy to help identify high school students at risk for anxiety, depression, and suicide⁽²⁰⁾.

Reducing mental health problems among today's high school students in Ecuador is necessary. Developing a website to provide psychoeducation designed to meet the needs of Ecuadorian youth and school counseling services for students will be explored as one of the solutions. About 66.3% of young Ecuadorians downloaded mobile health applications for disease prevention. However, one of the challenges of using a digital health intervention is that Ecuadorian youth with a higher level of perceived stress were significantly less likely to use such interventions.

Limitations of the study

One limitation of this study is related to the sample and its generalizability. Although the distribution of girls and boys reflected the actual/current situation in the selected classes, the sample was from only three schools. Another limitation relates to the study design, which specified collecting data from adolescents by self-report using standardized questionnaires. The personality and identity development of the respondents is still incomplete, resulting in fluctuating self-perceptions and, therefore, unreliable reports. In addition, the survey did not explore possible causes of low self-esteem as self-reported by the subjects. Another limitation is that the cross-sectional study design does not detect links between covariates; longitudinal studies on this topic are still needed. The results tell us how students perceive their health but are not in themselves evidence of medical concerns. In addition, there is no assessment of stress coping and stress levels, obesity, and chronic medical illness, which may confound and influence anxiety, depression, and suicidal ideation. Finally, a cause-effect relationship cannot be measured in a cross-sectional study; that requires a longitudinal cohort or randomized controlled study.

CONCLUSIONS

It was concluded that self-esteem is correlated with anxiety, depression, and academic stress, which significantly affects students' quality of life and is related to suicidal ideation. Therefore, the results suggest the need for providing school-based or web-based information or services to proactively increase students' self-esteem and coping skills to deal with academic stress.

REFERENCES

1. Nielsen L, Stewart-Brown S, Vinther-Larsen M, Meilstrup C, Holstein BE, Koushede V. High and low levels of positive mental health: are there socioeconomic differences among adolescents? *J Public Ment Health* [Internet]. 2016;15(1):37–49. Available from: <http://dx.doi.org/10.1108/jpmh-10-2014-0041>
2. Millings A, Buck R, Montgomery A, Spears M, Stallard P. School connectedness, peer attachment, and self-esteem as predictors of adolescent depression. *J Adolesc* [Internet]. 2012;35(4):1061–7. Available from: <https://www.sciencedirect.com/science/article/pii/S0140197112000358>
3. Oldfield J, Stevenson A, Ortiz E, Haley B. Promoting or suppressing resilience to mental health outcomes in at risk young people: The role of parental and peer attachment and school connectedness. *J Adolesc* [Internet]. 2018;64:13–22. Available from: <https://www.sciencedirect.com/science/article/pii/S0140197118300022>
4. Fenwick-Smith A, Dahlberg EE, Thompson SC. Systematic review of resilience-enhancing, universal, primary school-based mental health promotion programs. *BMC Psychol* [Internet]. 2018;6(1). Available from: <http://dx.doi.org/10.1186/s40359-018-0242-3>
5. Sampasa-Kanyinga H, Lien A, Hamilton HA, Chaput J-P. Canadian 24-h movement guidelines, life stress, and self-esteem among adolescents. *Front Public Health* [Internet]. 2022;10:702162. Available from:



- <http://dx.doi.org/10.3389/fpubh.2022.702162>
6. Mcgee R, Williams S. Does low self-esteem predict health compromising behaviours among adolescents? J Adolesc [Internet]. 2000;23(5):569–82. Available from: <http://dx.doi.org/10.1006/jado.2000.0344>
 7. van der Ham L, Wright P, Van TV, Doan VDK, Broerse JEW. Perceptions of mental health and help-seeking behavior in an urban community in Vietnam: an explorative study. Community Ment Health J [Internet]. 2011;47(5):574–82. Available from: <http://dx.doi.org/10.1007/s10597-011-9393-x>
 8. García JA, Y Olmos FC, Matheu ML, Carreño TP. Self esteem levels vs global scores on the Rosenberg self-esteem scale. Heliyon [Internet]. 2019;5(3):e01378. Available from: <https://www.sciencedirect.com/science/article/pii/S2405844018353763>
 9. Barragán Martín AB, Pérez-Fuentes MDC, Molero Jurado MDM, Martos Martínez Á, Simón Márquez MDM, Sisto M, et al. Emotional intelligence and academic engagement in adolescents: The mediating role of self-esteem. Psychol Res BehavManag [Internet]. 2021;14:307–16. Available from: <http://dx.doi.org/10.2147/PRBM.S302697>
 10. Baumeister RF, Campbell JD, Krueger JI, Vohs KD. Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? Psychol Sci Public Interest [Internet]. 2003;4(1):1–44. Available from: <http://dx.doi.org/10.1111/1529-1006.01431>
 11. Ghatol SD. Academic stress among higher secondary school students: A review [Internet]. Ijaret.com. [cited 2022 Jul 19]. Available from: <http://ijaret.com/wp-content/themes/felicity/issues/vol4issue1/snehalata.pdf>
 12. Martinsen KD, Rasmussen L-MP, Wentzel-Larsen T, Holen S, Sund AM, Pedersen ML, et al. Change in quality of life and self-esteem in a randomized controlled CBT study for anxious and sad children: can targeting anxious and depressive symptoms improve functional domains in schoolchildren? BMC Psychol [Internet]. 2021;9(1):8. Available from: <http://dx.doi.org/10.1186/s40359-021-00511-y>
 13. Piekarska J. Determinants of perceived stress in adolescence: The role of personality traits, emotional abilities, trait emotional intelligence, self-efficacy, and self-esteem. Adv Cogn Psychol [Internet]. 2020;16(4):309–20. Available from: <http://dx.doi.org/10.5709/acp-0305-z>
 14. Neumer S-P, Patras J, Holen S, Lisøy C, Askeland AL, Haug IM, et al. Study protocol of a factorial trial ECHO: optimizing a group-based school intervention for children with emotional problems. BMC Psychol [Internet]. 2021;9(1):97. Available from: <http://dx.doi.org/10.1186/s40359-021-00581-y>
 15. Quílez-Robres A, Moyano N, Cortés-Pascual A. Funciones ejecutivas y autoestima en el desempeño académico: un análisis mediacional. Int J Psychol Res (Medellin) [Internet]. 2021 [cited 2022 Jul 19];14(2):52–60. Available from: http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S2011-20842021000200052
 16. Pullmann H, Allik J. Relations of academic and general self-esteem to school achievement. Pers IndividDif [Internet]. 2008;45(6):559–64. Available from: <https://www.sciencedirect.com/science/article/pii/S0191886908002225>
 17. Thabrew H, Stasiak K, Hetrick SE, Wong S, Huss JH, Merry SN. E-Health interventions for anxiety and depression in children and adolescents with long-term physical conditions. Cochrane Database Syst Rev [Internet]. 2018;8(8):CD012489. Available from: <http://dx.doi.org/10.1002/14651858.CD012489.pub2>



18. Masselink M, Van Roekel E, Oldehinkel AJ. Self-esteem in early adolescence as predictor of depressive symptoms in late adolescence and early adulthood: The mediating role of motivational and social factors. *J Youth Adolesc* [Internet]. 2018;47(5):932–46. Available from: <http://dx.doi.org/10.1007/s10964-017-0727-z>
19. Pabayo R, Benny C, Veugelers PJ, Senthilselvan PhD A, Leatherdale ST. Income inequality and bullying victimization and perpetration: Evidence from adolescents in the COMPASS study. *Health Educ Behav* [Internet]. 2022;49(2):313–22. Available from: <http://dx.doi.org/10.1177/10901981211071031>
20. Benny C, Patte KA, Veugelers P, Leatherdale ST, Pabayo R. Income inequality and depression among Canadian secondary students: Are psychosocial well-being and social cohesion mediating factors? *SSM Popul Health* [Internet]. 2022;17(100994):100994. Available from: <https://www.sciencedirect.com/science/article/pii/S235282732100269X>

