Original Article

Emotional Intelligence, Depression, and Risk Factors in Pregnant Peruvian Andean Adolescents: A Multivariate Logistic Regression Study

Abstract

Background: There has recently been a high increase in the prevalence of adolescent pregnancies, especially in developing countries, because they are considered vulnerable populations. The objective of this study was to determine the risk factors for low emotional intelligence and for depression in pregnant Peruvian Andean adolescents seen in a public health centre. **Methods:** The study was a correlational analysis of 280 pregnant Peruvian Andean adolescents using logistic regression analysis. Emotional intelligence and depression were considered dependent variables, while independent variables were age, marital status, and education. The instruments used were Beck's Depression Inventory and the BarOn Emotional Quotient Inventory: Youth version. The threshold of significance was $P < 0.05$. **Results:** Age, marital status, and level of education were not risk factors for lower emotional intelligence, because they had respective ORs of 0.8 (95% CI: 0.5-1.4), 1.6 (95% CI: 0.8-3.4), and 0.7 (95% CI: 0.0-1.1). Nor were they risk factors for depression, showing ORs of 0.8 (95% CI: 0.4-1.5), 0.6 (95% CI: 0.2-1.3), and 0.6 (95% CI: 0.3-1.1), respectively. **Conclusions:** Thus, the risk factors studied do not significantly influence emotional intelligence or depression in pregnant Peruvian Andean adolescents.

Keywords: *Adolescent, emotional intelligence, pregnancy*

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Introduction

The adolescent stage occurs after childhood and before adulthood. During this period, the adolescent is able to conceive; likewise, during this period, the adolescent is attracted to the opposite sex, which in many cases is a factor in unwanted pregnancy. According to multiple studies, there is a high prevalence of adolescents who give birth before reaching the age of majority, and this is seen more common in underdeveloped countries where there are poor reproductive health policy programmes.[1-5]

Adolescent pregnancy is a hard problem in terms of public health given that these pregnancies come about despite the efforts of many institutions in charge of providing guidance and counselling on contraceptive methods, especially in places far from capital cities, where access to basic reproductive health services is difficult. In the pregnant woman, these can include deficiency states (e.g., anaemia), depression, abandonment, loneliness, isolation, and dropping out of school.[6-9]

An unplanned pregnancy during adolescence leads to psychological disorders such as stress, exasperation, anguish, anger, panic, and sadness, potentially leading to depression.[10-12] Pregnant adolescents run the risk of suffering serious psychological pathologies, such as sadness or depression, low self-esteem, and broken dreams. If they do not receive support from the family or environment, and even if they have suffered aggression within the family, the adolescents, if they have enough emotional intelligence, will be able to face their problems and solve them while always looking ahead to the future.[13-15]

The purpose of this study was to determine the risk factors related to emotional intelligence and depression in pregnant Peruvian Andean adolescents seen in a public health centre.

Methods

Participants in the study

This study was descriptive, prospective, and correlational in design. It was carried out during the months of February and

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June 2019 in the city of Huancayo, Peru. The sample was calculated based on the data obtained in a pilot study using the ratio comparison formula. Stata® 15 software was used with $\alpha = 0.05$ and $\beta = 0.8$. A total of 280 pregnant adolescents were selected by simple random sampling from the public health centre of the city of Huancayo. This research was performed following the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) guidelines. Emotional dependence and depression were dependent variables, while the independent variables (risk factors) were age (X1), marital status (X2), and education (X3).

Inclusion criteria:

- Pregnant adolescents between 11 and 17 years of age treated at the Pedro Sánchez Meza Health Centre, Huancayo, Peru.
- Pregnant adolescents who agreed to be surveyed with prior consent or authorization.
- First-time adolescent mothers.

Exclusion criteria

- Pregnant women older than 19 years of age
- Pregnant girls <11 years of age.

Calibration

To calibrate the researchers for this study, a pilot study was conducted in a sample of n = 30 pregnant adolescents. The researchers were trained in the use of the measuring instruments so that they could inform and convey the same message to all participants when filling out the surveys. Cohen's kappa coefficient test was used, and it had a value of 0.8 with $P < 0.001$.

Emotional intelligence

BarOn Emotional Quotient Inventory: Youth version. This questionnaire was applied in person, over approximately 15 minutes. It is composed of 30 questions that are distributed in five dimensions: Interpersonal, Intrapersonal, Adaptability, Stress management, and Mood. Each question is answered on a Likert scale with the following response options: Very rarely, 4 points; rarely, 3 points; often, 2 points; very often, 1 point. The overall score is measured as follows: Low, <73 points; medium, 74–79 points; and high: >80 points.

Depression

To evaluate depression, Beck's Depression Inventory was used. This instrument was applied to pregnant adolescents and was composed of 21 indicative items through which it is possible to recognize and determine the signs and symptoms of depression. Indicative items are the symptoms suffered, such as pessimism, sadness, feelings of disappointment and of crime or guilt, and suicidal ideation. Each item has a score of 4 points, with the exception of questions 16 and 18, which are composed of 7 variables; if the pregnant woman selects different categories, the category with the highest score is validated. The minimum score is 0, and the maximum is 63. The outcomes are categorized as follows: No depression, score 0 to 9; mild depression, 10 to 18; moderate depression, 19 to 29; and severe depression, >30.

Ethical aspects

The study was reviewed and approved in December 2019 by the Ethics Committee of UPeCEN through resolution No. 012-IFI/R-UPeCEN.

Statistical analysis

For the univariate analysis, statistical frequency tables were developed for the qualitative variables mentioned above. Second, for the bivariate analysis, the relationship between emotional intelligence and depression in pregnant Peruvian Andean adolescents was determined. This relationship was defined through the Chi-squared test. In addition, the probability of risk was identified using the odds ratio (OR). The level of significance was $P < 0.05$.

Results

According to the sociodemographic characteristics of the pregnant Andean adolescents, the age of 15 years was the most prevalent, at 97 (34.6%), while there was only one pregnant woman aged 13 (0.3%). The majority (219, 78.2%) of the adolescents were unmarried. Finally, according to educational level, 123 (43.9%) pregnant women had only a secondary education [Table 1].

When determining the relationship of risk factors with emotional intelligence, we found that the variables age (X1), marital status (X2), and education (X3) were not risk factors, because they had ORs of 0.8 (95% CI: 0.5-1.4), 1.6 (95% CI: 0.8-3.4), and 0.7 (95% CI: 0.0-1.1), respectively (all $P > 0.05$) [Table 2].

In determining the relationship of risk factors with depression, it was found that the variables age (X1), marital status (X2) and level of education (X3) were not risk factors

Table 1: Sociodemographic characteristics of pregnant Andean adolescents

Variable	Category	*F*	%
Age	13 years	1	0.3
	14 years	52	18.5
	15 years	97	34.6
	16 years	80	28.6
	17 years	50	17.8
Marital status	Single	219	78.2
	Cohabiting	37	13.2
	Married	24	8.5
Education	Primary	62	22.1
	Secondary	123	43.9
	University	57	20.3
	Technical	38	13.5

either, because they had ORs of 0.8 (95% CI: 0.4-1.5), 0.6 (95% CI: 0.2-1.3), and 0.6 (95% CI: 0.3-1.1), respectively (all $P > 0.05$) [Table 3].

Discussion

Adolescent pregnancy is considered an enigma in public health worldwide and occurs more often in low-income countries, especially in high plains where accessibility to health services is almost zero. This problem also afflicts developed nations. For example, in countries of the African continent, their adolescent population suffers from this problem, putting their lives at risk because the adolescent during pregnancy is exposed to serious pathologies of psychological origin, such as sadness or depression and shattered self-esteem and dreams.[16-18] Faced with this problem, a pregnant woman possessing some degree of emotional intelligence could mitigate this pathology. The benefit of possessing adequate emotional intelligence helps the pregnant mother resolve her problems, keep control of her emotions, seek to resolve her dilemmas, and in the end manage the circumstances she is going through well.[5,6,12]

A clear example is the study by Pires *et al*.[1] who evaluated the impact of maternal depression on the mental health of children born to adolescent mothers using a logistic regression analysis. They found that the longer the maternal depression was, the greater the probability that the child would experience behavioural problems. This suggests that investments in strategies to prevent mental disorders that begin during the gestation period are very important to reduce this impact. Reyes *et al*.[2] verified the

Table 2: Emotional intelligence and risk factors in pregnant Peruvian Andean adolescents

Risk factor	Emotional intelligence						Total		*P*	OR	95% CI
	Low		Medium		High						
	f	%	f	%	f	%	f	%			
Age											
13 years	1	0.4	0	0	0	0	1				
14 years	48	18.5	4	26.7	0	0	52	18.6			
15 years	90	34.7	5	33.3	2	33.3	97	34.6			
16 years	72	27.8	5	33.3	3	50.0	80	28.6	0.566	0.8	0.5-1.4
17 years	48	18.5	1	6.7	1	16.7	50	17.9			
Marital status											
Single	203	78.4	13	86.7	3	50.5	219	78.2	0.169	1.6	0.8-3.4
Cohabiting	36	13.9	1	6.7	0	0	37	13.2			
Married	20	7.7	1	6.7	3	50	280	100			
Education											
Primary	56	21.6	4	26.7	2	33.3	62	22.1	0.244	0.7	0.0-1.1
Secondary	114	44.0	6	40.0	3	50.0	123	43.9			
University	52	20.1	4	26.7	1	16.7	57	20.4			
Technical	37	14.3	1	6.7	0	0	38	13.6			

Table 3: Depression and risk factors in pregnant Peruvian Andean adolescents

Risk factor	Depression										*P*	OR	95% CI
	No depression		Mild		Moderate		Severe		Total				
	f	%	f	%	f	%	f	%	f	%			
Age													
13 years	0	0	0	0	0	0	1	0.7	1	0.4	0.573	0.8	0.4-1.5
14 years	2	14.3	6	12.5	17	23.0	27	18.8	52	18.6			
15 years	3	21.4	18	37.5	23	31.1	53	36.8	97	34.6			
16 years	4	28.6	15	31.2	22	29.7	39	27.1	24	16.7			
17 years	5	35.7	9	18.8	12	16.2	24	16.7	50	17.9			
Marital status													
Single	7	50.0	34	70.8	58	78.4	120	83.3	219	78.2	0.267	0.6	0.2-1.3
Cohabiting	5	35.7	6	12.5	11	14.9	15	10.4	37	13.2			
Married	2	14,3	8	16.7	5	6.8	9	6.2	24	8.6			
Education													
Primary	1	7.1	10	20.8	18	24.3	33	22.9	62	22.1	0.113	0.6	0.3-1.1
Secondary	6	42.9	16	33.3	35	47.3	66	45.8	123	43.9			
University	2	14.3	12	25.0	11	14.9	32	22.2	57	20.4			
Technical	5	35.7	10	20.8	10	13.5	13	9.0	38	13.6			

association between maternal depression and emotional and behavioural problems in school children in southern Brazil, finding that maternal depression increased the vulnerability of children to develop psychiatric disorders. In remote areas of lower socioeconomic status, they also showed a correlation between maternal depression and emotional and behavioural problems, which demonstrates the need for preventive child mental health care and free quality childcare for adolescent mothers and their children. On the other hand, Bilginer *et al*.[8] evaluated the sociodemographic characteristics of adolescent mothers in Turkey, as well as comparing their traumatic childhood experiences and their levels of depression and anxiety with those of adult mothers, finding that the initial psychiatric evaluation of adolescent mothers who stay pregnant could reflect their level of psychiatric well-being. They concluded that additional policies related to the prevention of adolescent pregnancy and the monitoring of adolescent mothers should be developed in Turkey.

According to the results of Cruise *et al*.[3] untreated maternal depression during the postpartum period can have a profound impact on psychological and physical well-being in the short and long term. Therefore, there is a need for a greater understanding of the risk factors for depression and better access to medical care to treat depression during this period. In addition, their results highlighted the prevalence of maternal depression in the postpartum period, particularly for the lowest socioeconomic groups, those with previous mental health problems, and those with limited social support. These results differ from those of the present study because we did not find a statistically significant influence of any factors on depression or emotional intelligence in the adolescent mothers. These differences were probably seen because the populations evaluated in other studies have generally been in developed countries, whereas we evaluated Peruvian Andean adolescents with limited economic resources.

The main limitation of this study was the scarce literature on emotional intelligence and depression in pregnant women in rural Andean areas, which makes it difficult to compare results. Another limitation is that the methodological design of this study was cross-sectional, so there was no follow-up over time. Finally, there was the limitation of working with adolescents who, owing to being pregnant, are considered a vulnerable population, so great care should be taken when evaluating them. The present study is of theoretical importance since pregnancy during adolescence and depression are currently public health problems not only associated with organic disorders of the mother but also sociocultural and economic factors that compromise the mother–child pair. Another important aspect of this study is its practical relevance because it allows the identification of a relationship between emotional intelligence and depression in pregnant adolescents living in Andean areas.

Conclusions

According to this logistic regression analysis in pregnant Andean adolescents, it was not evident that age, marital status, or educational level is a statistically significant risk factor for emotional intelligence or depression.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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