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Risk factors associated with pregnancy in adolescents

Factores de riesgo asociados al embarazo en adolescentes

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ABSTRACT:

Objective: To assess the risk factors for pregnancy in adolescents.

Method: Retrospective case-control study with a non-probability sample for convenience of 180 adolescents: 60 pregnant women (cases) and 120 non pregnant women (controls) Data collection was carried out between September and October, 2019 in a public health center in Trujillo, using FACES-III and a card identifying sociodemographic and family data. For the data analysis the Odds ratio was determined, the confidence intervals (CI) were calculated and the magnitude of effect was estimated.

Results: Exposure to violence (OR: 5.82), family functionality (OR: 3.87), age of mother's first pregnancy (OR: 4.07), and parents' emotional situation (OR: 4.24) were risk factors with a moderate magnitude of effect, whereas mother's education (OR: 2.03) was a risk factor with a small magnitude of effect and father's education (OR: 1.37) was insignificant.

Conclusions: Exposure to violence, family functionality, age of mother's first pregnancy, emotional situation and parents' level of education all acted as risk factors for adolescent pregnancy.

Key words: Adolescent pregnancy, associated factors, adolescence, family.

RESUMEN:

Objetivo: Evaluar los factores de riesgo para el embarazo en adolescentes.

Método: Estudio retrospectivo de casos y controles con una muestra no probabilística por conveniencia de 180 adolescentes: 60 gestantes (casos) y 120 no gestantes (controles). La recolección de datos se realizó entre los meses de setiembre y octubre del 2019 en un centro de salud público de Trujillo, mediante el FACES-III y una ficha de identificación de datos sociodemográficos y familiares. Para el análisis de datos se determinó el Odds ratio, se calcularon los intervalos de confianza (IC) y se procedió a estimar la magnitud de efecto.

Resultados: Tanto la exposición a la violencia (OR: 5.82), la funcionalidad familiar (OR: 3.87), la edad del primer embarazo de la madre (OR: 4.07) y la situación sentimental de los padres (OR: 4.24), actuaron como factores de riesgo con una magnitud de efecto moderada; en tanto que el grado de instrucción de la madre (OR: 2.03) se mostró como un factor de riesgo con magnitud de efecto pequeña y el grado de instrucción del padre (OR: 1.37) insignificante.

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Conclusiones: La exposición a la violencia, la funcionalidad familiar, la edad del primer embarazo de la madre, la situación sentimental y el grado de instrucción de los padres actuaron como factores de riesgo para el embarazo en adolescentes.

Palabras clave: Embarazo adolescente, factores asociados, adolescencia, familia.

INTRODUCTION

Adolescence is the transition period that occurs between childhood and adulthood; according to the World Health Organization (WHO) it is between 10 and 19 years ⁽¹⁾. The physical, psychological, and social changes present in this stage can expose young people to risk situations.

It is estimated that in the year 2016, more than one million adolescents died due to preventable causes. WHO estimates that 11% of registered births worldwide correspond to women between 15 and 19 years of age, and that complications in both pregnancy and childbirth are the main cause of death in this age group ⁽²⁾. As the Pan American Health Organization points out, Latin America and the Caribbean continue to have the highest percentage of pregnant adolescents with 66.5 births per 1000 women, surpassed only by Sub-Saharan Africa ⁽³⁾.

In the Peruvian context, after the 2017 census, it was reported that 30.5% of women between 14 and 19 years old were pregnant or had children already. This percentage was higher in the rural area (34.3%) than in the urban area (28.6%) ⁽⁴⁾. Likewise, statistics indicate that 13 out of every 100 adolescents are already mothers or they are pregnant, which increases in the Amazon area where it can be estimated that up to 40 out of every 100 adolescents, in younger cases, may respond to sexual violence ⁽⁵⁾.

There is a great impact on the lives of adolescents after early pregnancy, both individually and socially. On a personal level, it limits the right to education, which means a greater probability of unemployment ⁽⁴⁾. Adolescent girls are at greater risk with respect to their health and their children's health: high mortality rates from unsafe abortions and greater likelihood of low birth weight or death of the baby in the first year of life ⁽⁶⁾. Also, sexually transmitted diseases, sexual violence and limited access to health services ⁽⁷⁾. As a society, they are likely to perpetuate the transmission of poverty, as well as further population growth ⁽⁶⁾.

Both family and school were shown to have a positive impact on this issue. The family has a mediating role in the health-sickness processes of family members, as long as they know how to adapt to the circumstances ⁽⁸⁾.

Thus, it can be considered that within the family there are certain variables that may predispose to early pregnancy: there may be certain failures or difficulties in the family structure and dynamics, such as non-established parental roles, conflicts between parents, inadequate socialization styles and cultural idealization of gender roles, absence of the father figure in most cases, and repetition and history of pregnancy ^(8,9). The social part is also relevant, since societies where inequality, poverty and scarce opportunities for schooling prevail are identified as predisposing to this phenomenon⁽⁸⁾.

Therefore, the importance of this study lies in the fact that it responds to a real and imminent social problem; adolescent pregnancy is more prevalent in developing

countries such as Peru, and represents multiple difficulties for adolescents and the country's development in general; and despite the interventions carried out, pregnancy figures have not decreased significantly. Consequently, the objective of this study was to determine the risk factors for adolescent pregnancy.

METHOD

Design and sample

This is a retrospective case-control study, carried out in a public hospital in Trujillo, Peru, in September and October, 2019.

The sample was selected through non-probability sampling for convenience. The proportion of 2 controls per 1 case was used, obtaining 60 cases and 120 controls totaling 180 adolescents, who resided in the same area and attended the different services of the same hospital. Case definition: First pregnancy adolescent \leq 19 years old, treated in the hospital services. Control definition: Non-pregnant adolescent \leq 19 years old, treated in the same hospital with no history of pregnancy.

Instruments and measurement

The data collection was carried out during the months of September and October 2019, in the waiting room and hallways of the public hospital. The FACES-III instrument and an identification card on sociodemographic and family data were used. The Family Cohesion and Adaptability Evaluation Scale in its third version or FACES-III, aims to evaluate family functionality considering both dimensions as a basis. It consists of 20 items and a Likert-type response format. The interpretation of the functionality may happen in 4 levels: Very high, high, low and very low; however, due to the dichotomy requirement of the variable by the study design, it was decided to group the first two levels in High functionality and the last two in Low functionality, in order to obtain only two levels. Regarding its psychometric properties, this instrument was validated with Peruvian adolescents from Chimbote and Nuevo Chimbote, where the reliability of each scale was found by means of Omega indexes, obtaining a reliability of .74 for adaptability and .85 for cohesion. The construct validity was confirmed in the goodness of fit of the two-factor model with 10 items each (AGFI = .97, ECVI= .87, NFI= .93, GFI= .97, RMSEA= 0.06) (10). In this sample, a reliability of .76 on the adaptability scale and .84 on the cohesion scale was obtained using Cronbach's alpha.

The identification card had the necessary data to characterize the sample: age, occupation, sentimental situation, level of education, people who they live with and who support them financially; in addition, questions corresponding to the study variables: exposure to violence, age of the mother's first pregnancy, parents' sentimental situation and parent's level of education. The response categories were grouped in a dichotomous way; in the case of educational levels, only the primary and secondary education levels were used.

Data analysis

The Odds ratio was used to determine the associated risk factors and their confidence intervals were calculated. In addition, since this is a non-probabilistic study, the magnitude of effect (ME) was chosen rather than statistical significance. In this way, the ME allowed us to identify the strength of the association between the event of interest (adolescent pregnancy) and the risk factors ⁽¹¹⁾. To this end, the variation of Cohen's d was taken as a reference for use with Odds ratio, where: 1.68: small, 3.47: moderate, 6.71: large (12-13).

Ethical aspects

The study has the approval of the Ethics Committee of César Vallejo University (Trujillo Campus - Peru); and, for the collection of data, the hospital's institutional authorization was requested. After that, the informed consent from each of the adolescents was obtained after the purpose of the study was explained to them; furthermore, their participation was voluntary since they could refuse to participate, even after giving their consent.

RESULTS

The sample consisted of 180 adolescents: 60 pregnant (cases) and 120 non pregnant (controls). The ages of both groups were between 12 and 19 years, with an average of 15.6 years and an SD equal to 1.94.

Among the characteristics of those who participated as cases, the highest percentage were housewives, lived with their partners and depended economically on them; in addition, they did not attend educational institutions and had not completed their secondary education. The highest percentage had separated fathers, their mothers had a lower level of education than their fathers and it was them who worked, in contrast to the mothers who worked at home.

On the other hand, most of the controls were students and attended secondary school, did not have a partner and lived with their parents. As family characteristics, it was found that the highest percentage had parents who maintained a sentimental relationship, both father and mother had a secondary educational level and it was their parents who supported the household.

Table 1 shows the main findings. The associated risk factors were exposure to violence (OR: 5.82), family functionality (OR: 3.87), age of the mother's first pregnancy (OR: 4.07), and parents' relationship status (OR: 4.24) with a moderate magnitude of effect; less relevant factors were mother's level of education (OR: 2.03) with a small magnitude of effect, and father's level of education (OR: 1.37), which was insignificant.

Tabla 1: Factores de riesgo para el embarazo en adolescentes.

Variables	Pregnant adolescents		Non-pregnant adolescents		OR	Confidence intervals		Magnitude of effect
	n	(%)	n	(%)		(95%)		(ME)
Victim of violence								
Yes	37	61.67	26	21.67	5.82	2.95	11.46	Moderate
No	23	38.33	94	78.33				
Family Functionality								
Low	48	80	61	50.83	3.87	1.87	8.00	Moderate
High	12	20	59	49.17				
Mother's age of first pregnancy								
≤ 19 years	43	71.67	46	38.33	4.07	2.08	7.96	Moderate
> 19 years	17	28.33	74	61.67				
Parents' sentimental situation								
Separate	37	61.67	33	27.5	4.24	2.20	8.18	Moderada
Together	23	38.33	87	72.5				
Father's level of education								
Primary school level	26	43.33	43	35.83	1.37	0.73	2.58	Insignificant
Secondary school level	34	56.67	77	64.17				
Mother's level of education								
Primary school level	34	56.67	47	39.17	2.03	1.08	3.81	Pequeña
Secondary school level	26	43.33	73	60.83				

Source: Prepared by the authors.

DISCUSSION

Pregnancy in adolescents is a major problem that requires effective prevention strategies. Recognizing the associated risk factors is a fundamental requirement for an effective approach. The present study identified family functionality, exposure to violence, age of mother's first pregnancy as risk factors, as well as the sentimental status and parents' level of education.

One of the periods that causes major transformations in the family is having adolescent children, because it is a stage of increased autonomy and independence

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on the part of the children, causing a more critical attitude and apprehension on the part of the parents, who interpret this new freedom as a challenge. These changes require adaptability within the family nucleus in order to cope with them. When the home does not show disposition for changes or is not united, its functionality can be diminished ⁽¹⁴⁾. In this study, low family functionality acted as a risk factor. Similar results were found in another study, where low family union, i.e. emotional detachment, was identified as a risk factor for the development of early pregnancy ⁽¹⁵⁾. Similarly, the family also influences young people's sexual behavior: thus, open communication promotes safer sexual behavior and an initiation of sexual life at not so early age; in contrast, poor parental supervision accelerates independence and encourages involvement in risk behaviors ⁽¹⁶⁾.

As a result, in families with a history of violence, the interactions are not always the right ones: there may be conflicts that alter their dynamics and there may be difficulties in regularizing them. The association between child abuse and pregnancy in adolescence has been demonstrated, since research refers that adolescents who have suffered sexual abuse are more likely to get involved in risky situations -including the sexual aspect- in contrast to those who have not suffered such abuse (17). Other studies confirmed this fact (15), and added that the history of family violence is a factor associated with violence during the gestation period (18); furthermore, the most experienced violence is psychological followed by physical, and is caused mainly by members of the nuclear family (19).

The literature suggests that there is an intergenerational pattern of adolescent pregnancy, that is, a predisposition to pregnancy in adolescents who have had a mother or sister who was a mother at an early age, a fact that is corroborated in this study. In households where the mother or sister was an adolescent mother, there may be a repetition of these behavior patterns, due to social influence, since family members shape an individual's attitudes and values. This fact was also corroborated in other studies (20,21).

On the other hand, parents' sentimental situation was identified as a risk factor, that is to say, the fact that parents are separated or divorced is associated with adolescent pregnancy ⁽⁸⁾. In households with a history of separation or divorce, it is more common for the mother to take care of the children, which could be negative if there is total distancing from the father, given that the absence of the father figure has been identified in most cases of pregnant adolescents ⁽⁹⁾. Other studies point out that the altered family structure, especially due to the absence or distant relationship with the father figure, is related to an initiation of sexual life at an early age, compared to households where both parents are present ^(22,23).

Regarding the level of parents' education, the fact of only having studied up to the primary school level would be a risk factor for adolescents to be exposed to a pregnancy at a younger age. However, this study showed a stronger association between the risk of adolescent pregnancy with mother's education rather than the father's educational level. In this sense, one could consider the fact that we continue to live in a male chauvinistic society with traditional gender roles, considering that it is the mother who shares more time at home and the father is delegated the role of protector, since he is the one who in most cases works. For this reason, the mother is delegated exclusive responsibility for her children' education. A low educational level, that is, lack of knowledge about the current situation of adolescents, as well as little

knowledge about sexuality and communication difficulties, can influence the fact that adolescent girls do not find in their homes a place where they can acquire this knowledge and therefore they turn mainly to their peers or to the Internet, which many times may provide erroneous information. Therefore, as the research points out, deficient information on sexuality would have implications for this problem (15,24).

The methodological strengths and limitations of the study are discussed next. Although the sampling is non-probabilistic, we tried to minimize the selection bias by choosing controls from the same area of residence and the same hospital where the cases were attended. On the other hand, this study was not limited to the statistical significance of the association, since the p-value does not allow identifying the practical importance of such association ⁽²⁵⁾. Therefore, the magnitude of effect that goes beyond the dichotomous decision proposed by statistical significance was analyzed ⁽¹¹⁾.

Regarding the limitations, first of all, the non-probabilistic character of the sample, affects the external validity of the study; therefore, caution should be taken when generalizing the results obtained since they can only be considered in samples with similar characteristics. Likewise, case and control studies may be more susceptible to recall bias, given their retrospective nature.

For all these reasons, it is recommended that evidence-based preventive programs be implemented, aimed at both adolescent girls and their families, especially in sectors that have been identified as vulnerable. In the same way, the implementation of public policies that safeguard and protect the sexual and reproductive rights of adolescent girls, favoring equality and preventing the transmission of stereotypes that perpetuate male-dominated attitudes and the cycle of violence. Finally, since the study has been limited to family-type variables, it is recommended that future researchers, interested in youth problems, analyze individual and community variables that may be associated with early pregnancy.

CONCLUSIONS

The study of adolescent pregnancy not only acquires interest because of its theoretical value, but also because of its fundamental role in the planning of prevention strategies. As it is concluded, there are variables present in the family that are associated with this problem.

In this research, it was possible to evaluate the risk factors associated with pregnancy in adolescent girls living in Alto Trujillo, Trujillo, Peru. The most relevant risk factors for adolescent pregnancy were exposure to violence, family functionality, age of mother's first pregnancy, and their parents' sentimental situation, whereas parents' level of education acted as a risk factor with a minor magnitude of effect.

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