Risk factors associated with unwanted pregnancy in female medical students

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Abstract

Introduction: Most pregnancies in adolescents and young adults are unwanted and many are the consequence of inconsistent contraception use. **Objective:** To analyze the risk factors that may influence on female adolescents with unwanted pregnancies. **Method:** Cross-sectional, descriptive study in Ecuadorian female medical students, where the 2013 National Sexual and Reproductive Health Survey, the family APGAR scale, and the Graffar-Méndez Castellanos socio-economic scale were used. **Results:** There was statistically significant difference in the age of active sexual life initiation between those who became pregnant (18.11 ± 1.45) and those who did not (19.22 ± 2.28). Average age at pregnancy was 20.41 ± 2.18 ; 59.3 % of those who had a pregnancy and 32% of those without pregnancy did not use protection in their first intercourse. Pregnancy was more common in city residents (100 %), Catholic females (85.2 %), who belonged to middle-high (55.6 %) and middle socio-economic strata (29.6 %) and to families with moderate dysfunction (40.7 %). **Conclusions:** A significant percentage of adolescents in our study had an unwanted pregnancy at an early age despite being young undergraduate medical students, coming from moderately dysfunctional families and belonging to a middle-high socioeconomic status.

KEY WORDS: Medical students. Pregnancy. Contraception. Family functionality. Socioeconomic stratum.

Introduction

Sexuality is a broad concept that encompasses interests, behaviors, functioning, satisfaction, intimate relationships and sexuality self-perception. Historically, it has been considered within a biomedical context, with an emphasis on the sexual response cycle, as well as on heteronormative and heterosexist behaviors. A comprehensive view should include the emotional, social and intellectual aspects. Conversely, somatic experiences represent diverse sexual experiences and focus on pleasure.¹

Among adults, little is spoken about adolescent sexuality, since addressing the subject is considered to be a trigger for unleashing sexual acts. It remains a taboo, which is reproduced through silence, myths and negative emotions; consequently, the possibility

of its open and comprehensive approach from a perspective of rights is low, which negatively impacts on adolescent pregnancy prevention.²

Studies on sexual behaviors in students of the Polytechnical Higher School of Chimborazo, Ecuador, found that 46.24 % of women started their active sex life at an average age of 18 years; 52.33 % did not use contraceptive methods during their first intercourse.³

In a study in Cuenca, Ecuador, sexual active life onset and the possibility of early pregnancy were considered to be an obstacle to reaching socioeconomic independence, in a society where early pregnancy is linked to the cycle of poverty.^{4,5}

Childbirths in young females of between 15 and 19 years of age account 11 % of worldwide childbirths, approximately 16 million every year.⁶ Adolescents have disproportionately high morbidity rates derived

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from their sexual behavior, including sexually transmitted infections and unwanted pregnancies.⁷

In Portugal, 14.7 % of adolescent pregnancies were observed.⁸

In developing countries, 43 % of pregnancies are unplanned and are more prevalent in poor, rural women with low educational level. Every year, 89 million unplanned pregnancies and 48 million abortions occur.^{9,10} In one study in Colombia, adolescent pregnancy was associated with poverty, low educational level and school dropout, with social class, economic and social inequality persisting as structural determinants.¹¹ In France and Great Britain, surveyed subjects of higher socioeconomic groups had lower probabilities of pregnancy before 20 years of age.¹²

In Latin America and the Caribbean, pregnancy in adolescents is a public health priority, since it ranks second in the world, after Sub-Saharan Africa. Ecuador is the third country in the region with the highest adolescent pregnancy rate, after Nicaragua and the Dominican Republic.^{13,14}

In recent years, particularly in Ecuador, the perception on pregnancy, family transformation and the conception of adolescence as a social group have changed, which affects pregnancy at this stage of life and perpetuates the circle of violence, poverty and interrupted educational processes.¹⁵

Most pregnancies in adolescents and young adults are involuntary, and many are a consequence of inconsistent contraception use.⁶

Numerous female adolescents conceive their life projects within marriage and motherhood; in those cases, pregnancy can be experienced as an escape or solution rather than as a problem.²

Family functionality, as well as cultural, biological, religious, emotional and environmental factors influence on adolescent sexual decisions, which underlines the importance of family in sexual and reproductive health throughout the world.¹⁶ Freud stated: "childhood is destiny", since our relationship with the world will depend on our first personal relationships. In a functional family, conflicts are lived as a difference of opinions between family members and do not threaten family stability; in a dysfunctional family, conflict is perceived as a challenge to authority and as a risk for destabilization of the system and, therefore, it is avoided or repressed.¹⁷ In Colombia, family dysfunctionality was found to be a factor related to early motherhood;^{10,18} similar results were obtained in Ecuador in 2013¹⁹ and in Mexico, with 50.8 % of unwanted pregnancies in adolescents coming from dysfunctional families.²⁰

The number of undergraduate students who use a condom at first sexual encounter is low, and it decreases as they move forward in their sexual life.²¹

In the CERCA project of Cuenca, Ecuador, most sexually active adolescents were observed to systematically fail to use contraceptives.²² Another study in Cuenca recorded that 90 % of adolescents knew about contraceptive methods; however, 70 % stated that their use was not frequent.²³ Despite initial use of some contraceptive method, 51.9 % of female adolescents reported having been pregnant sometime.²⁴

Among students from the Netherlands, the prevalence of condom use in the last sexual encounter was 68.2 %, and for the pill, it was 65.2%.²⁵

Based on the aforementioned works, where a high number of unwanted pregnancies has been found to be a social issue that requires urgent attention, and where dysfunctional family relationships and poverty levels have been associated, this study was carried out to analyze the possible factors that may influence on unwanted pregnancies in students of the Cuenca universities.

Objective

The main goal of the study was to analyze the risk factors that may influence on female adolescents with unwanted pregnancies.

Method

A descriptive cross-sectional study was conducted in female medical internship students (year of pre-professional practical training) from all universities of Azuay, Ecuador (University of Cuenca, Catholic University of Cuenca, University of Azuay).

The study population consisted of 127 women enrolled during the 2016-2017 academic year in all universities of Azuay and who had started having an active sex life. Those who had not yet started active sexual life were excluded from the study. For data collection, the 2013 National Survey of Sexual and Reproductive Health, from the Ministry of Health of Argentina, for women, was used. Sociodemographic information was also collected (age, place of residence, religion), as well as variables related to sexual intercourse (age of onset, intercourse voluntary nature, use of contraceptive methods, unwanted pregnancy).

To establish the degree of family functionality, the family APGAR scale was used, which shows how family members globally perceive the functioning of the family unit.²⁶ This tool was designed in 1978 by

Table 1. Comparison of sociodemographic characteristics in women who have had a pregnancy or not

Variables	Pregnancy				p
	Yes		No		
	Mean ± SD		Mean ± SD		
Age	27	24.96 ± 3.03	100	23.75 ± 1.31	< 0.01*
	n	%	n	%	
Religion					
Catholic	23	85.2	90	90	> 0.05*
Non-Catholic	3	11.1	9	9	
Atheism	1	3.7	1	1	
Place of residence					
Urban	27	100	94	94	> 0.05*
Rural	0	0	6	6	
Socioeconomic stratum					
I High	0	0	0	0	> 0.05*
II Middle-high	15	55.6	58	58	
III Middle	8	29.6	28	28	
IV Middle-low	4	14.8	14	14	
V Low	0	0	0	0	
Family functionality					
Normal	3	11.1	17	17	> 0.05*
Mild dysfunction	6	22.2	25	25	
Moderate dysfunction	11	40.7	42	42	
Severe dysfunction	7	25.9	16	16	

*Statistically significant ($p < 0.05$) with Mann-Whitney's U-test.

doctor Gabriel Smilkstein (Washington), who proposed it as an instrument for primary care teams, in their approach to family function analysis. The family APGAR evaluates five basic functions of the family (adaptation, participation, personal resource gradient, affection and resources).²⁷

This scale was validated by Bellon et al. in 1996. Its internal consistency was good, with a Cronbach alpha of 0.770.²⁸ The degree of family functionality is interpreted as follows:

- Normal, 17 to 20 points.
- Mild dysfunction, 16 to 13 points.
- Moderate dysfunction, 12 to 10 points.
- Severe dysfunction, $\leq$ 9 points.

The instrument used to measure the socioeconomic level was Graffar-Méndez Castellanos scale, which has four dimensions: head of the family occupation, maternal level of education, source of income and housing conditions. It was validated at the Autonomous University of Mexico with Cronbach's alpha (reliability of 0.69).^{29,30} Each variable has five categories with progressive scores. A final score classifies subjects into five categories:^{31,32}

- High socioeconomic level (I), 4 to 6 points.
- Middle-high socioeconomic level (II), 7 to 9 points.

- Middle socioeconomic level (III), 10 to 12 points.
- Middle-low socioeconomic level (IV), 13 to 16 points.
- Low socioeconomic level (V), 17 to 20 points.

For statistical management, the statistical program SPSS, version 22, was used. Univariate analysis was performed: for qualitative variables, frequencies were calculated with their respective percentages, and for quantitative variables, mean $\pm$ standard deviation.

For the comparison of qualitative variables, the chi-square test was used, for a statistical significance of $p < 0.05$; for the comparison of quantitative variables, Mann-Whitney's U-test was used.

Results

The participants were 127 undergraduate females, with an average age of 24 ± 1.86 years at the time of the study; 21.2 % had had an unwanted pregnancy (UWP).

Table 1 describes the participants' sociodemographic characteristics, depending on whether they had had an UWP or not. Of the women who had had an UWP, 85 % were Catholic, as well as 90 % of those who had not. All the women who had had an UWP and 94% of those who had not, resided in the urban sector.

Table 2. Comparison of sociodemographic characteristics of women who have had a pregnancy or not

Variables	Pregnancy				p
	Yes		No		
	n	Mean ± SD	n	Mean ± SD	
Age at first sexual encounter	27	18.11 ± 1.45	100	19.22 ± 2.28	< 0.01*
Age at which she had the first couple	27	19.78 ± 3.40	100	21.87 ± 3.04	< 0.001*
Age at pregnancy	27	20.41 ± 2.18			
	n	%	n	%	
Voluntary nature of first intercourse					
Voluntary	20	74.1	75	75	> 0.05*
Not voluntary	7	25.9	25	25	
Relationship with first sexual partner					
Friend, neighbor, acquaintance	0	0	6	6	> 0.05*
Boyfriend	27	100	91	91	
Spouse/roommate	0	0	3	3	
Contraceptives at first intercourse					
Yes	11	40.7	68	68	< 0.01
No	16	59.3	32	32	

*Statistically significant ($p < 0.05$) with Mann-Whitney's U-test.

The Graffar Méndez Castellanos socioeconomic scale results showed that 55.6 % of women with UWP belonged to middle-high and 29.6 % to middle socioeconomic status; with 14.8 % corresponding the middle-low level. There were no women of the high or low strata with UWP. Among the women who had not had any pregnancy, 58 % belonged to the middle-high stratum, 28 % to the middle stratum and 14 % to the low stratum. These results showed no statistically significant differences between adolescent girls who had had an UWP and those who had not had any pregnancy.

As regards the APGAR family functionality scale, 40.7 % of the adolescents who had had an UWP came from families with moderate dysfunctionality, 25.9 % had families with severe dysfunctionality, 22.2 % with mild dysfunctionality and 11.1 % came from functional families. Of the students who had had no pregnancy, 42 % came from families with moderate dysfunction, 25 % from families with mild dysfunction, 16 % from families with severe dysfunction and 17 % came from functional families. These results showed no statistically significant differences (Table 1).

Adolescents who had had an UWP had her first sexual encounter at the age of 18.11 ± 1.45 years and those who had not had any pregnancy at 19.22 ± 2.28 years, with statistically significant results. Mean age of the adolescents when they got pregnant was 20.41 ± 2.18 .

Approximately 25 % of adolescents, both those who had had an UWP and those who had not, indicated that their first sexual encounter had not been voluntary.

All adolescent girls who had had an UWP and 91 % of those without a history of pregnancy had their first sexual intercourse with their boyfriend.

As for the use of contraceptive methods, 59.3 % of adolescents who had had an UWP and 32 % without this history indicated not having used contraceptive methods on their first sexual encounter, which was an issue that showed statistically significant differences (Table 2).

The reasons of women with UWP for not using contraceptives on their first sexual intercourse were that their partner refused to (36.8 %), the belief of not getting pregnant (26.3 %) and ignorance (21.1 %). Women who had not had a pregnancy pointed out as causes that their partner did not want to (45.3 %), ignorance (17 %) and the belief of not getting pregnant (17 %). No statistically significant differences were identified.

Discussion

At the Azuay universities that offer the medical degree, among 127 participant females, the frequency of UWP was 21.2 %. These figures are similar to those described in 2014 by the United Nations Children's Fund, with 20 % of pregnant young females in Latin America and the Caribbean;² as well as to figures found in 2013 by Zhou in Chinese female students, where the prevalence was 19.8 %, ³³ and by Morales, in Cuba, with a prevalence of 18.7 %. ³⁴

In contrast, our results differ from others that show higher figures, such as the study by Shu in China in 2016, where 34.03 % was recorded,³⁵ or the trial carried out by Ariza, in 2014, in young Colombian females, which showed UWP figures of 32.3 %;¹⁰ in 2015, Wang found 31.8 % in China.³⁶ In another work carried out in Spain by Yago in 2014, the prevalence of UWP was 29.8 %.³⁷

Other studies, such as the one conducted by Xiao Ming in China (2013), showed lower UWP data than those obtained in ours (15.1 %).³⁸ Coronado, in an investigation carried out in Spain indicated 1 % in female medical students.³⁹

In our study, 18.5 % of women who indicated having a history of pregnancy had aborted. These data are similar to those reported by Scott (2017): 18 % of adolescents who became pregnant also aborted.¹² In 2016, Shu described a very different scenario: 96.7 % of adolescents in this situation used to abort.³³ In that same year, Coronado recorded that 40 % of female adolescent medical students that got pregnant had an abortion.³⁹

Adolescents who had had an UWP belonged to middle-high and middle socioeconomic strata (55.6 and 29.6 %, respectively). These results differ from those obtained by Blanco in 2015, in Venezuela, according to which extreme and non-extreme poverty were risk factors for UWP.⁴⁰ The study carried out by Scott in 2017 in France and Great Britain, showed that UWP practically did not occur in adolescent girls belonging to high and middle socioeconomic strata.¹²

In our study, female adolescent who had had an UWP came mostly from families with moderate dysfunction. Similar results were reported by Soto in a study in Mexico, where family functionality was normal in adolescents with UWP.²⁰ The above-mentioned findings differ from those of Blanco in Venezuela, who associated pregnancy with severe dysfunctionality.⁴⁰ Results obtained by Ariza and Betancur in Colombia, indicate that a dysfunctional or conflictive family is a risk factor for UWP.^{10,18} In 2013, Aquino published a study on Ecuadorian adolescents that revealed that family problems and family abuse predisposed to UWP.¹⁹

Average age at first sexual intercourse among the female students who had an UWP was 18.11 ± 1.45 years, which is consistent with the results referred by Zhou in China, which show that the younger the age of sexual debut, the higher the risk of UWP.^{33,35} Okigbo and Panova, in 2015 and 2016, found a relationship between UWP and age of sexual debut younger than 15 years.^{41,42}

In our study, 59.3 % of female adolescents who had had an UWP had not used contraceptives on first intercourse. These data are consistent with those reported in Zhou studies and Shu studies.^{33,35} In a study conducted in Mexico, 100 % of pregnant female adolescents recognized the lack of contraceptive use on their first sexual intercourse as the cause of their UWP.⁴³

In conclusion, a significant percentage of female adolescents in our study, despite being young medical students, coming from families with a moderate degree of functionality and middle-high socioeconomic status, had had an unwanted pregnancy at an early age.

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