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Factors influencing the prevalence of early pregnancies in Guinean schools: a cross-sectional survey

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Sidikiba Sidibé[1,2,3], Djiba Diakité[3], Abdoulaye Sow[1], Lancinè Dramé[3], Mory 1 Kourouma[3], Mory Diakité[4], Fassou Kolié[3], Facely Camara[3], Gnoumé Camara[3], Fassou M. Grovogui[1,2] and Alexandre Delamou[1,2,3]*

African Center of Excellence for the Prevention and Control of Transmissible Diseases (CEA-PCMT), University Gamal Abdel Naser, Conakry. Guinea[1]; Maferinyah National Center for Training and Research in Rural Health (CNFRSR), Forecariah, Guinea[2]; Faculty of Health Sciences and Techniques, Gamal Abdel Nasser University, Conakry, Guinea[3]; Laboratory of Public Health and Health Management, Mohammed VI University of Sciences and Health, Casablanca, Morocco[4]

***For Correspondence:** Email: *djibadiakite943@gmail.com;* Phone:+224 622 312 438

Abstract

Pregnancy in schools is an obstacle to girls' education in low-income countries. The aim of this study was to examine the factors associated with early pregnancy in Guinean schools. It is a survey conducted from December 2020 to March 2021 among adolescent girls attending secondary schools in Guinea. A multivariate logistic regression analysis was performed. Adjusted odds ratios (AOR) and their 95% confidence intervals (CI) were reported, and the significance level was $p < 0.05$. Of the 8,178 teenage girls surveyed, 13.11% (95% CI: 12.39-13.86) were or had already been pregnant. Early pregnancy was associated with the following factors: age 20-24 (AOR = 3.27; 95% CI: 2.70-3.95), teenagers with a partner (AOR = 15.63; 95% CI: 12.74-19.18), need for family planning (AOR = 1.82; 95% CI: 1.51-2.21), and sex with casual partners (AOR = 2.65; 95% CI: 2.18-3.23). Adolescent girls attending private schools (AOR = 0.77; 95% CI: 0.64-0.93) and knowledge of family planning (AOR = 0.55; 95% CI: 0.46-0.67) were less at risk of pregnancy. Early pregnancy in Guinean schools is a reality. Integrating sex education into school curricula and setting up health services adapted to adolescents could prevent early pregnancies. *(Afr J Reprod Health 2025; 29 [8]:60-68).*

Keywords: Early pregnancy; prevalence; risk factors; schools; Guinea.

Résumé

Les grossesses en milieu scolaire constituent un obstacle à l'éducation des filles dans les pays à faible revenu. L'objectif de cette étude est d'examiner les facteurs associés aux grossesses précoces dans les écoles guinéennes. Il s'agit d'une enquête menée de décembre 2020 à mars 2021 auprès des adolescentes fréquentant les établissements secondaires en Guinée. Une analyse de régression logistique multivariée a été réalisée. Les odds ratios ajustés (AOR) et leurs intervalles de confiance à 95% (CI) ont été rapportés, et le niveau de signification était $p < 0,05$. Sur les 8 178 adolescentes interrogées, 13,11 % (IC 95 % : 12,39-13,86) étaient ou avaient déjà été enceintes. La grossesse précoce était associée aux facteurs suivants : l'âge de 20-24 ans (AOR = 3,27 ; IC 95% : 2,70-3,95), les adolescentes avec un partenaire (AOR = 15,63 ; IC 95% : 12,74-19,18), les besoins en planification familiale (AOR = 1,82 ; IC 95% : 1,51-2,21) et les rapports sexuels avec des partenaires occasionnels (AOR = 2,65 ; IC 95% : 2,18-3,23). Les adolescentes fréquentant des écoles privées (AOR = 0,77 ; 95% CI : 0,64-0,93) et la connaissance de la planification familiale (AOR = 0,55 ; 95% CI : 0,46-0,67) étaient moins exposées au risque de grossesse. Les grossesses précoces dans les écoles guinéennes sont une réalité. L'intégration de l'éducation sexuelle dans les programmes scolaires et la mise en place de services de santé adaptés aux adolescents pourraient prévenir les grossesses précoces. *(Afr J Reprod Health 2025; 29 [8]: 60-68).*

Mots-clés: Dysménorrhée ; Grossesse précoce; prévalence; facteurs de risque; école; Guinée

Introduction

Adolescence is a period of transition from childhood to adulthood. A more inclusive definition of adolescence corresponds to the period of life between the ages of 10 and 24.[1] It is a special stage in human development and an important time for laying the foundations for good health. Approximately 1.2 billion people are adolescents, representing one-sixth of the world's population.[2] It is estimated that 22% of people in sub-Saharan Africa are teenagers.[3]

Ensuring that girls receive an education is essential to securing a better future for them. A woman's education has a positive and considerable effect on the economy, reducing inequalities and offering more opportunities for all.[4] The health of young girls is greatly impacted by early pregnancy.

In low-income countries, pregnancy affects 21 million women under the age of 19 annually, and about 50% were unwanted.[5] In sub-Saharan African countries, early pregnancies are more frequent than any other country, and almost 10% of girls under the age of 19 have given birth.[3] Pregnancy is considered a global phenomenon, the causes of which are well known, as are the health, social and economic repercussions.[5] Among teenagers, 17% of deaths are due to reproductive and sexual health problems.[3] In this situation, it is crucial to prioritize sexual and reproductive health as a priority to reduce maternal, neonatal, child and adolescent mortality.

Several studies have evaluated the occurrence of pregnancies in African schools.[6–9] In a study of adolescent girls attending school during the COVID-19 pandemic in a district in western Uganda, the prevalence of pregnancy was 30.6%.[6] A study of adolescent girls aged 15-19 in southern Ethiopia found a pregnancy prevalence of 14.6%.[7] In Benin, in the study carried out among girls who had benefited from the Sexual Health Education project, the prevalence of pregnancy was 5.6%.[8] All these studies were carried out among adolescent girls in different contexts and age groups. Their limitations lie in the fact that, being a sensitive subject, they could be influenced by biases of social desirability or or under- declaration of pregnancies. A study carried out in Senegal identified the vulnerability of young people, inadequate sexual education in families and schools, peer pressure, early marriage and low contraceptive prevalence as the factors increasing teenage pregnancy in schools.[9] Based on the 2018 demographic health survey (DHS) results in Guinea, 26% of women aged 15-19 had already childbearing activity (urban 17% and rural 32.8%), 21% had at least one live birth, and approximately 5% were pregnant for the first time.[10] In addition, a number of published studies have examined the pregnancy occurrence in schools in Guinea. The study by Sidibé *et al*.[11] examined the frequency and influencing factors of the pregnancy in schools in the five municipalities of Conakry, while the study by Diallo *et al*.[12] on adolescent sexuality in a municipality of Conakry addressed the prevalence of pregnancies in school. These two studies conducted in Conakry offer an urban perspective on the occurrence of early pregnancies in schools. These studies were limited to adolescent girls aged 10 to 19. However, the 10 to 24 age group represents an essential developmental phase for adolescents, facilitating more diversified investments.[1]

A nationwide study would make it possible to include data from rural and semi-urban areas, where social, economic and cultural conditions influence the occurrence of these pregnancies differently. It would also make it possible to identify disparities between different regions, facilitating the adaptation of interventions to local contexts. Finally, it would provide a more comprehensive and strategic vision, enabling a better understanding of the phenomena and a more effective country-wide response. Therefore, the aim of this study was to conduct a cross-sectional study on the prevalence and risk factors for early pregnancy in Guinean schools.

Methods

Data source and study population

This study is a cross-sectional survey conducted from December 2020 to March 2021 in secondary schools (collèges and lycées) in Guinea. The survey was conducted as part of a larger study assessing barriers and facilitators to family planning uptake among adolescents and urban youth at risk of unwanted pregnancy. The study covered all middle and high school students in public and private schools. Initially, we selected the Conakry region, which is the capital, and five (05) of the country's eight (07) interior regions, which we chose at random. In the Conakry region, all five communes were included in the study. In the inland regions of Kankan and N'zérékoré, which are the most densely populated, two districts were chosen at random, one urban and one rural. For the other inland regions, an urban district was selected. In all, six (06) of the eight (08) regions were randomly selected (Conakry, Faranah, Kankan, Kindia, Labé and N'zérékoré). All students present in the classrooms at the time of the survey were included. Three-level sampling was carried out at each survey site. At the first level, schools (public and private), at the second level, classrooms (middle and high schools) and at the third level, students. At the first level and

on each site, a purposive sampling of ten public and private schools was carried out on the basis of the largest number of pupils. At the second level, classes were selected by grade (grades 7 to 10 for middle school, and grades 11 to 13 for high school). Within each class, if there was more than one, the class with the highest number of students was selected. At the third level, we carried out an exhaustive sampling of all students present in the classrooms and who had agreed to take part in the study. The questionnaire was redesigned using the Sidibé *et al*.[11] study as a basis, and improved according to the study's objectives. The questionnaire was pre-tested in an area not involved in the study, to assess the adolescent girls' understanding of the questions. Data were collected by trained interviewers deployed in the field. The data collection technique was a face-to-face interview, with responses collected directly via the Kobocollect application v1.25.1.

Dependent and explanatory variables

Pregnancy was measured by asking adolescents if they had ever been pregnant or not, including pregnancies that resulted in live birth, stillbirth or abortion.

Explanatory variables were age (13-19 and 20-24 years), matrimonial status (with a partner, without a partner), educational level (middle and high school), type of school (public and private), religion, region, knowledge of family planning, need and use of a contraceptive method and having sex with occasional partners.

Data analysis

Data were processed using Stata software (version 14.2) for analysis. Means and percentages were calculated. The dependent variable was coded 1 if survey participant was ever pregnant and 0 otherwise. Multicollinearity of explanatory variables was examined using the variance inflation factor (vif). Bivariate analysis was performed using Pearson's Chi^2 test to compare proportions. To identify risk factors for early pregnancy in Guinean schools, multivariate logistic analyses were performed. Explanatory variables that had a p-value < 0.2 in the bivariate analysis were reintegrated into the multivariate analysis. Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) were reported. A value of $p < 0.05$ was statistically significant.

Ethical considerations

The study was approved by the National Ethics Committee for Health Research (CNERS) under N°045/CNERS/19. Authorization was obtained from the administrators of each of the schools surveyed. Study participants were informed and gave their informed consent before taking part in the study. Some of the participants were minors under the age of 18, and their participation required the informed consent of their parents/guardians in addition to their own assent

Results

Description of participant characteristics

The response rate was 98.7%. The study involved 8,178 female students. The mean age was 17.8±1.9 years, with extremes of 13 and 24 years.

Table ***1*** shows the characteristics of adolescent girls in the selected schools in Guinea. The 13 to 19-year-old age group were the most represented, at (82.92%). Only (8.22%) of the students had a partner, more than two-thirds (69.7%) studied in public schools, (73.83%) were Muslim and (43.12%) lived in Conakry. Approximately (62%) had some knowledge of family planning, (16.2%) had family planning needs, (15.7%) having sex with occasional partners, and (21.3%) had previously used a contraceptive method.

Prevalence of early pregnancies in school-aged girls in Guinea

The prevalence of early pregnancies in the school-aged girls surveyed in Guinea was 13.11% (95% CI: 12.39-13.86). Pregnancy prevalence was higher in the 20-24 age group (35.43%) compared with the 13-19 age group, among teenagers with a partner (65.92%) compared with students without a partner, and in the public schools (14.40%) compared to those attending the private schools. Pregnancy prevalence was higher among high school teenagers (16.20%) compared to middle school teenagers, having sex with occasional partners (28.99%) have a higher proportion of early pregnancies.

Table 1: Sociodemographic characteristics of adolescent girls in schools in Guinea, 2020-2021 (N = 8,178)

Characteristics	Number (%)
Age (years)	
13 – 19	6,781 (82.92)
20 – 24	1,397 (17.08)
Marital status	
Without a partner	7,506 (91.78)
With a partner	672 (8.22)
Level of education	
Middle school	4,031 (49.29)
High school	4,147 (50.71)
Type of school	
Private	2,478 (30.30)
Public	5,700 (69.70)
Religion	
Muslim	6,038 (73.83)
Christian/others	2,140 (26.17)
Region	
Conakry	3,526 (43.12)
Faranah	1,055 (12.90)
Kankan	976 (11.93)
Kindia	745 (9.11)
Labe	541 (6.62)
Nzerekore	1,335 (16.32)
Knowledge of family planning	
No	3,075 (37.60)
Yes	5,103 (62.40)
Having family planning needs	
No	6,854 (83.81)
Yes	1,324 (16.19)
Having sex with occasional partners	
No	6,039 (73.84)
Yes	1,283 (15.69)
Don't know	856 (10.47)
Already used a contraceptive method	
No	6,436 (78.70)
Yes	1,742 (21.30)

Adolescents with knowledge of family planning (16.85%) and those who need contraceptive methods (30.36%) have a higher proportion of early pregnancies (Table 2).

Risk factors for early pregnancy among school-aged girls in Guinea

Table 3 shows the results of the risk factors associated with early pregnancy in the surveyed schools. The 20-24 age group (AOR = 3.27; 95% CI: 2.70-3.95) were at risk of pregnancy compared to the 13-19 age group. Adolescent girls with a partner (AOR = 15.63; 95% CI: 12.74-19.18) were at risk of pregnancy compared to adolescent girls without a partner. Having family planning needs (AOR = 1.82; 95% CI: 1.51-2.21), and having sex with occasional partners (AOR = 2.65; 95% CI: 2.18-3.23) were associated with teenage pregnancy. Adolescents with knowledge of family planning (AOR = 1.80; 95% CI: 1.48-2.19) were at more risk of pregnancy than those with no such knowledge. Adolescent girls in the regions of Faranah (AOR = 3.24; 95% CI: 2.53-4.14), Kankan (AOR = 2.26; 95% CI: 1.75-2.91), Kindia (AOR = 1.49; 95% CI: 1.08-2.05) and Nzerekore (AOR = 2.43; 95% CI: 1.92-3.08) were at risk of pregnancy compared with adolescent girls in Conakry. Adolescent girls in private schools (AOR = 0.77; 95% CI: 0.64-0.93) were less at risk of pregnancy compared with adolescent girls in public schools (Table 3).

Discussion

Early pregnancy is a common driving factor to teenage girls missing or dropping out of schools. Our study's objective was to examine the risk factors of early pregnancy in Guinean schools. The study revealed that more than one in eight teenage girls attending school (13.1%) had been pregnant. This result is higher than that of a study of schoolgirls in Conakry, which was observed to an eight percent pregnancy prevalence.[11] This difference could be explained by the fact that the Conakry study focused on adolescent girls aged 10 to 19, whereas ours was extended to 24. What's more, Conakry is the capital where teenage girls could be more emancipated, informed of the benefits and with easy access to modern contraceptive methods. On the other hand, almost a third of teenage girls had contracted a pregnancy in the study carried out in the commune of Matoto. The high prevalence of early pregnancy could be explained by the fact that this study focused only on sexually active adolescents.[12] Our result is far superior to that of Benin,[8] which was 5.6%. This low prevalence of early pregnancy could be explained by the fact that the participants in this study had benefited from a sexual health education program. Our result is significantly lower than that found in the study of adolescent girls

attending school during the COVID-19 pandemic in a district of western Uganda.[6]

Table 2: Proportion of pregnancies by the characteristics of adolescent girls in schools in Guinea, 2020-2021

Characteristics	**No pregnancy** (n= 7,106) **Number (%)**	**Pregnancy** (n= 1,072) **Number (%)**	**p-value**
Age (years)			
13 – 19	6,204 (91.49)	577 (8.51)	
20 – 24	902 (64.57)	495 (35.43)	0.000
Marital status			
Without a partner	6,877 (91.62)	629 (8.38)	
With a partner	229 (34.08)	443 (65.92)	0.000
Level of education			
Middle school	3,631 (90.08)	400 (9.92)	
High school	3,475 (83.80)	672 (16.20)	0.000
Type of school			
Private	2,127 (89.87)	251 (10.13)	
Public	4,879 (85.60)	821 (14.40)	0.000
Religion			
Muslim	5,347 (88.56)	691 (11.44)	
Christian/others	1,759 (82.20)	381 (17.80)	0.000
Knowledge of family planning			
No	2,863 (93.11)	212 (6.89)	
Yes	4,243 (83.15)	860 (16.85)	0.000
Having family planning needs			
No	6,184 (90.22)	670 (9.78)	
Yes	922 (69.64)	402 (30.36)	0.000
Having sex with occasional partners			
No	5,465 (90.50)	574 (9.50)	
Yes	911 (71.01)	372 (28.99)	
Don't know	730 (85.28)	126 (14.72)	0.000
Already used a **contraceptive method**			
No	5,678 (88.22)	758 (11.78)	
Yes	1,428 (81.97)	314 (18.03)	0.000
Region			
Conakry	3,234 (91.72)	292 (8.28)	
Faranah	876 (83.03)	179 (16.97)	
Kankan	786 (80.53)	190 (19.47)	
Kindia	680 (91.28)	65 (8.72)	
Labe	497 (91.87)	44 (8.13)	
Nzerekore	1,033 (77.38)	302 (22.62)	0.000

This difference may be explained by the fact that confinement during COVID 19 increased adolescent girls' vulnerability to health problems including risky sexual behaviour, thus increasing the risk of pregnancy.[13] In addition, the differences observed between the various studies can be attributed to context, socio-cultural and economic variations. A lack of information, low contraceptive use, negative peer influence, family pressure and parents' economic status are all causes of teenage pregnancy.[14–18]

In this study, the factors influencing early pregnancy among schoolgirls were advanced age, marital status, type of school, contraceptive knowledge, need for contraceptive methods, sex with casual partners and interior regions. In our study, the probability of pregnancy was higher in older adolescents. Our results are comparable to those of the Conakry and East African studies.[11,19] This may be due to the fact that, as they grow older, adolescents are increasingly exposed to sexuality and marriage.In our study, teenage girls with a partner were at risk of pregnancy. These results

corroborate those of several research studies that have found that early marriage or being in a couple increases teenage pregnancy susceptibility.[11,19–22] This may be caused by the cultural impact and early marriage practices.[23]

Table 3: Factors influencing early pregnancy in adolescent school girls in Guinea, 2020-2021

Characteristics	Bivariate analysis	Multivariate analysis
	OR (CI 95%)	AOR (CI 95%)
Age (years)		
13 – 19	Ref.	Ref.
20 – 24	5.90 (5.13–6.78)***	3.27 (2.70–3.95)***
Marital status		
Without a partner	Ref.	Ref.
With a partner	21.15 (17.68–25.30)***	15.63 (12.74–19.18)***
Level of education		
Middle school	Ref.	Ref.
High school	1.76 (1.54–2.00)***	1.05 (0.87–1.25) ns
Type of school		
Public	Ref.	Ref.
Private	0.67 (0.58–0.78)***	0.77 (0.64–0.93)**
Religion		
Muslim	Ref.	Ref.
Christian/others	1.68 (1.46–1.92)***	1.04 (0.85–1.27) ns
Knowledge of family planning		
No	Ref.	Ref.
Yes	2.74 (2.34–3.20)***	1.80 (1.48–2.19)***
Having family planning needs		
No	Ref.	Ref.
Yes	4.02 (3.49–4.64)***	1.82 (1.51–2.21)***
Having sex with occasional partners		
No	Ref.	Ref.
Yes	3.89 (3.35–4.51)***	2.65 (2.18–3.23)***
Don't know	1.64 (1.33–2.02)***	1.67 (1.29–2.17)***
Already used a contraceptive method		
No	Ref.	Ref.
Yes	1.65 (1.43–1,903)***	0.89 (0.74–1.07) ns
Region		
Conakry	Ref.	Ref.
Faranah	2.26 (1.85–2.77)***	3.24 (2.53–4.14)***
Kankan	2.68 (2.19–3.26)***	2.26 (1.75–2.91)***
Kindia	1.06 (0.80–1.40) ns	1.49 (1.08–2.05)*
Labe	0.98 (0.70–1.36) ns	1.13 (0.76–1.69) ns
Nzerekore	3.24 (2.72–3.86)***	2.43 (1.92–3.08)***

In most African societies, girls marry very at their early age to avoid losing their virginity, which would be a dishonour to the family. Once married, because of the social importance of motherhood, teenage girls want to have a child. In addition, marriage prevents the social stigma attached to childbearing among married women. In their study in Uganda, Musinguzi *et al*.[6] reported that unmarried teenagers were at risk of unwanted pregnancy.

In our study, adolescent girls attending public schools were more at risk of early pregnancy than those in private schools. Public schools generally enrol a large number of pupils from disadvantaged or low-income environments, where access to information on sexual and reproductive health may be limited. In addition, private schools benefit from more rigorous student monitoring and more frequent interaction between parents and teachers.[24]

Worthy of note, adolescents who had knowledge of contraception had a higher chance to have an early pregnancy. Our results corroborate those of two studies on influencing factors of early

pregnancy in sub-Saharan African countries.[22,25] Pregnancy may have occurred despite knowledge of family planning due to social pressure, the desire to conceive or difficulty accessing contraceptive methods.[26] The other explanation could be that teenagers were able to use modern methods of contraception after pregnancy had occurred.

The necessity of using contraceptive methods was linked to the occurrence of the early pregnancy in the school environment. For the most part, these family planning needs are unmet and expose women to unwanted pregnancies. According to Asmamaw D *et al*.[22], teenage pregnancy was substantially correlated with unmet contraceptive needs. In their study, Sidibé *et al*.[11] reported that adolescents' lack of accessibility to reproductive and sexual health services was a contributing factor to pregnancy. In addition, the shame of asking for a contraceptive method and sociocultural weight could be factors limiting their use.

In our study, teenage girls who had sex with casual partners were at greater risk of pregnancy. This result corroborates those of other studies, which have shown that the probability of pregnancy is high among teenagers with multiple partners. Having relationships with casual sexual partners could expose them to risky sexual behaviour.[27,28]

Teenage girls in the country's interior regions were at greater risk of the early pregnancy in the school environment than in the capital country. Adolescents in the interior may be faced with an inadequate knowledge and a scarcity of reproductive and sexual health services. In addition, they are less emancipated than their capital counterparts are.

Study limitations

Our research has its limitations. It does not establish a causal link between pregnancy and associated factors. It was unable to assess the negative influence of peers, family pressure and parents' financial situation and level of education, which are known to contribute to pregnancy. Nevertheless, this research is the first to be carried out on a large sample of girls aged 13 to 24, and provides evidence that may help to reduce the rate of early pregnancy in schools.

Conclusion

Early pregnancy in Guinea's schools is a reality. Eight out of every hundred teenage girls have had pregnancy while at school, which is far from negligible. The possible pregnancy in the school environment could be a cause of absenteeism or dropping out of school among adolescent pupils. Older age, early marriage, type of school, need for contraception and region of residence were found to be contributing variables to adolescent pregnancies in schools.

The potential implications of this research are to strengthen sex and reproductive health education in schools, improve access to reproductive health services, prevent early marriage and strengthen multi-sectoral policies. Therefore, there is the need of integrating sex education into school curricula, implementing adolescent-friendly health services in schools and health centers, providing free modern contraceptives to girls who need them, conducting community awareness campaigns to lift taboos around reproductive health, and rigorously enforcing laws prohibiting early marriage. Future research should explore the psychological, social, economic and cultural factors associated with adolescent pregnancy.

Ethical aspects

The study was approved by the National Ethics Committee for Health Research (CNERS) under N°045/CNERS/19. Authorization was obtained from the administrators of each of the schools surveyed. Study participants were informed and gave their informed consent before taking part in the study. Some of the participants were minors under the age of 18, and their participation required the informed consent of their parents/guardians in addition to their own assent.

Agreement to publish

Verbal informed consent was obtained from all study participants prior to data collection. It was explained to all study participants that they could, by personal choice, withdraw from the study at any time without consequences. All data collected is anonymous and stored securely in a password-protected database accessible only to the research team.

Access to data and materials

The corresponding author can provide the datasets used in this study upon reasonable request.

Conflict of interests

No conflicting interests are disclosed by the authors.

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Author's contributions

SS, DD and AS designed and developed the study protocol. SS, DD and AS designed the analysis plan. SS, DD, AS, LD, MK, MD and FK performed the data analysis, interpreted the results, and drafted the manuscript with contributions from FC, GC, FMG and AD. The final manuscript was approved after being critically reviewed by all authors.

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