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Adolescent Pregnancy: Maternal and Fetal Outcomes of Deliveries at the University Hospital Center of Libreville in 2019

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Abstract

Objective: The objective of this work was to study the maternal and fetal prognosis of adolescent deliveries at the University Hospital Center of Libreville in 2019. **Patients and Method:** This was a 12-month cross-sectional retrospective study, from January 1, 2019 to January 1, 2020, concerning adolescents aged 14 to 19 who gave birth at the University Hospital Center of Libreville. The data extracted from the birthing room registers were analyzed with EPI info, version 2010. The significance threshold was set at 5%. **Results:** Out of 4051 deliveries, 619 (15.3%) concerned adolescents. The average age was 17.7 years. Gabonese represented 90.9% of the cohort and 78.3% were students. The majority of parturients were at their first pregnancy (primigest: 72.5%) and 78.3% were nulliparous. A proportion of 88.7% underwent prenatal follow-up. Home births accounted for 4.4%. Cesarean section was required in 5% of cases, its indications being the limit pelvis (56%), hematoma (16%), hypertension (19%) and acute fetal distress (9%). **Conclusion:** Teenage pregnancy remains very common in Gabon. Early and regular multidisciplinary care by qualified personnel improves maternal and fetal prognosis.

Keywords

Pregnancy, Adolescents, Maternal-Fetal Prognosis

1. Introduction

Adolescence corresponds to a period of physical and mental development that extends from puberty to adulthood. It usually begins with the hormonal upheavals of puberty, and its duration, from a social point of view, varies according to the

degree of financial dependence on parents.

Defined by the World Health Organization as the period from 10 to 19 years, adolescence represents a phase of physical, psychological and social maturation between childhood and adulthood [1]. According to the latest demographic and health survey in 2012, Gabon had 21% of women of childbearing age contributing 14% to total fertility [2].

According to the World Health Organization, about 80 million pregnancies each year result in 70,000 deaths, 97% of which are recorded in low-income countries where the issue remains a major public health issue [3]. Nearly 16 million adolescents aged 15 to 19 years give birth each year, of which 95% are in developing countries where obstetric complications are the leading cause of death in this range [4].

The objective of this study was to evaluate the frequency, describe the sociodemographic profile and analyze the maternal and perinatal prognosis of deliveries in adolescents at the University Hospital Center of Libreville.

2. Patients and Method

This was an observational, transversal and retrospective study, conducted over a period of 12 months from January 1, 2019 to December 31, 2019 at the gynecology-obstetrics department of the University Hospital Center of Libreville, which is a national reference for both care and for teaching, research and training. The department has a maternity hospital specialized in the care of high-risk pregnancies, the largest in the country, as well as two level 3B maternity hospitals for moderate-risk pregnancies. It also includes an operating room dedicated to gynecological surgery, a delivery room attached to the neonatology and resuscitation unit, and an operating room located near the intensive care unit.

Included in the study were all adolescents aged 14 to 19 years who gave birth in the department, whose information was complete in the register of the delivery room.

Patients with incomplete records were excluded.

The selection process was based on simple probabilistic sampling.

The minimum sample size was calculated by the SCHWARTZ formula, based on the prevalence of adolescent pregnancies in Gabon.

$$n = [La \times zap \times (1 - p)]/I \times 1 = [1.96 \times 1.96 \times 0.81 \times (1 - 0.81)]/0.05 \times 0.05 = 236$$

n is the minimum sample size, which is 236.

p is the prevalence of adolescent pregnancies in Gabon, which is 81%.

Za is the reduced deviation corresponding to a risk of a = 5%, which is 1.96.

I is the desired precision for the results, which is 5%.

The variables studied were:

- Sociodemographic: age, profession, place of residence, nationality, marital status.

- Reproductive: gesticity (primigest = 1st pregnancy, multigesture = ≥2), parity

(nulliparous = no birth ≥ 22SA, primiparous = one birth, multiparous = ≥2), abortions.

- Obstetrics: number of prenatal consultations (NPC), delivery route, maternal complications.
- Neonatal: prematurity (<37SA), state at birth (living/dead-born).
- Age: considered a dependent variable for associative analysis.

The data were collected from the registers and partograms, entered in Excel 2010, and then analyzed with Epi Info 2010, applying a significance threshold set at $p < 0.05$.

3. Results

The average age of adolescents was 17.7 years. The majority (61.2%) was 18-19 years old. Students represented 78.3% of parturients; 17.0% were without a profession; 90% were single.

The parturients mostly resided in Libreville (88.2%), 72.5% were primiparous and 78.1% primiparous. The average abortion rate was 0.13 per patient (10.2% had a history of spontaneous abortion).

The lower way concerned 95.0% of deliveries, cesarean section 5.0%; 11.4% had not performed prenatal follow-up.

The boundary pelvis was the main indication for cesarean section (56.0%), followed by preeclampsia (19%) and acute fetal distress (9%).

The rate of prematurity was 6.7%, while immediate maternal complications remained infrequent (4.8%) and no maternal deaths were reported; among newborns, 96.7% were alive and 3.3% stillborn.

There was no significant association between the mother's age (<18 or ≥18) and the delivery route ($p = 0.20$), nor between parity and the delivery route ($p = 0.51$) (Table 1).

Table 1. Association between age and delivery method/parity and delivery method.

Variables	Césarienne	Voie basse	Total	P Value	OR IC 95%
Age					
14 - 17	9	231	240	0.20	0.60 [0.27 - 1.32]
18 - 19	23	356	379		
Parité					
0	457	27	544	0.51	1.54 [0.58 - 4.07]
≥1	130	5	135		

There was no significant difference between the performance or not of prenatal follow-up (NPC) and the delivery route ($p = 1.00$).

The proportion of stillbirths was higher in women who gave birth by caesarean section than by vaginal section. The odds ratio of 3.46 suggests that cesarean section was associated with a more than three-fold higher probability of having a

stillborn child, compared to the low pathway.

However, the value of p (0.08) did not allow a statistical significance to be concluded in this study (Table 2). Finally, there was no association between the occurrence of immediate complications and the age of the mother (p = 0.57; Table 3).

Table 2. Association between delivery method and child's condition/completion of prenatal consultations.

Variables	Césarienne	Voie basse	Total	P Value	OR IC 95%
Nouveau-né					
Mort-né	3	17	20	0.08	3.46 [0.96 - 12.51]
Vivant	29	570	599		
CPN					
Non	3	67	70	1.00	0.80 [0.23 - 2.71]
Oui	29	520	549		

Table 3. Association between age and complications.

Variables	Complications suite couche		Total	P value	OR [IC]
	Oui	Non			
Age (ans)					
18 - 19	18	361	379	0.57	1.26 [0.56 - 2.86]
14 - 17	9	228	237		

4. Discussion

The limitations of this study were the retrospective character. We encountered some difficulties, including the lack of certain data making it impossible to collect certain information that could have allowed us to better cross our data.

The definition of the adolescent varies from one study to another. Some take as upper limit an age below 16 years, others an age of 18, 19 or even 20 years. This makes it difficult to compare percentages [5].

The high prevalence of adolescent pregnancies (15.3%) joins national and regional data such as those of Iloki *et al.* [6] in Brazzaville which observe a frequency of 13.3%.

Sub-Saharan Africa, Latin America and the Caribbean have the highest rates, with 101 and 53.2 births of teenage mothers per 1000 respectively in 2021 [7].

The mean age of adolescents was 17.7 years with a strong representation of the 18-19 years old group (61.2%) comparable to the observations of Diaouga *et al.* [8] in 2022 (55.7%) and Sidikiba *et al.* [9] in 2020 in Guinea (54.1%).

Hamada *et al.* [10] had found that students represented a third of adolescent girls. The high proportion of students (80.5%) found in our study as in Cameroon (78.6%) by Essiben *et al.* [11] suggest the need for better sex education at school

and in the family, where the subject is still taboo.

According to a study conducted by UNFPA-UNICEF in Gabon in 2017 [12], 5 groups of factors are at the origin of the phenomenon of early pregnancy in school girls had been retained:

- Factors related to early entry into sexual activity;
- Factors related to low contraceptive prevalence;
- Factors related to the family environment;
- Factors related to the school environment;
- Factors related to the socio-economic environment.

In our study, the majority of adolescents were single, reflecting a probably less favorable social situation in the Libreville agglomeration compared to the rest of the country.

Several studies have highlighted the protective role of education in reducing early fertility in adolescents; in our cohort 16.9 were not in school. This trend was also observed in other series that reported a predominance of school adolescents, as well as a significant number of school dropouts and illiterate cases [13] [14].

In addition, 10.2% of adolescents had a history of abortion, a result similar to that reported by Luhete *et al.* [15] in the Democratic Republic of Congo and Borg *et al.* in France [16]. In the latter, the abortions listed (6.5%) were exclusively spontaneous miscarriages.

The main reason for admission was the presence of painful uterine contractions, as also observed by Traoré A *et al.* [17]. The high rate of home birth could be explained by financial precariousness, the majority of parturients being students without their own resources, but also by the fact that a significant proportion of young people under the age of 18 do not benefit from free care, according to Gabonese legislation.

Finally, the absence of prenatal follow-up affected 11.4% of adolescents, a rate comparable to that reported by Traoré A *et al.* [17] in Mali.

5. Conclusions

Adolescent pregnancy is a worrying reality in Gabon. It mainly affects students and young single women living in urban areas.

The obstetric complications observed in some parturients, as well as the high frequency of prematurity and stillborns, underline the need for rigorous and systematic monitoring of these pregnancies, associated with adapted awareness-raising actions.

The care of the child also represents a major challenge for the adolescent, who often faces difficulties in continuing school, which can promote failure or school dropout.

This situation is undeniably a public health problem, the management of which requires the joint involvement of the authorities, health professionals and the community, in order to develop effective and appropriate prevention strategies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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