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Problematic of adolescent childbirth in the African context

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Abstract

Introduction: Adolescent childbirth is considered a particular condition that raises both medical and social concerns.

Objective: To determine the frequency and evaluate maternal and perinatal outcomes of adolescent deliveries at Nianankoro Fomba Hospital in Mali

Materials and Methods: This was a 9-month prospective case-control analytic study, from November 1, 2019, to July 31, 2020. It included adolescents aged 10–19 years with singleton pregnancies of at least 28 weeks of gestation, compared to women aged ≥ 20 years meeting the same criteria. Data were entered and analyzed using IBM SPSS version 20. Pearson's chi-square test was applied for comparisons, with statistical significance set at $p \leq 0.05$.

Results: During the study period, 455 adolescents delivered at Nianankoro Fomba Hospital out of 2,381 deliveries, representing a frequency of 19.10%. Unmarried adolescents accounted for 10.48% (OR=0.073, $p=0.000$). Undesired pregnancies were more frequent among adolescents (6.52% vs 0.99%; $p=0.000$; OR=0.14). Absence of antenatal care (ANC) was higher (9.63% vs 11.33%; $p=0.002$; $\chi^2=12.857$). Preterm births were more common (29.49% vs 22.83%; $p=0.0531$; $F=11.869$). Instrumental deliveries were slightly higher (5.75% vs 3.42%; $p=0.055$; $\chi^2=4.913$). Cesarean section rate was significantly increased (35.98% vs 25.50%; $p=0.000$; OR=0.609). Eclampsia was more frequent in adolescents (25.98% vs 13.33%; $p=0.000$; $F=106.519$). Maternal deaths were also higher (0.28% vs 0.14%; OR=2.003).

Conclusion: Compared with adult women, adolescent deliveries in Ségu remain significantly associated with increased maternal, fetal, and perinatal risks.

Keywords: Childbirth, adolescents, maternal and perinatal prognosis

Introduction

Adolescence is a pivotal period extending from puberty to adulthood. It corresponds to a phase of physical, psychological, and social transformations marking the transition from childhood to adult life. In sub-Saharan Africa, about 12% of the population is aged 10–14 years and 11% is aged 15–19 years ^[1]. In Mali, 13% of the population is aged 10–14 years and 10% is aged 15–19 years ^[1]. The age of first sexual intercourse tends to decrease: in France, the median age is 17.5 years ^[2]; in Mali, among women aged 25–49 years, the median age at first intercourse is estimated at 16.5 years. This early biological maturation, combined with early onset of sexual activity, favors childbearing at a very young age. Adolescents contribute to about 14% of total fertility in Mali ^[3]. In several sub-Saharan African countries, 20–50% of young women have their first child before the age of 18 (Côte d'Ivoire, Liberia, Mali, Cameroon) ^[1]. Pregnancy in adolescents is associated with an increased risk of complications such as dystocia, prematurity, low birth weight, and neonatal mortality. According to WHO, age alone does not explain adverse outcomes; factors such as education, socioeconomic status, and limited access to health services also play a role ^[4]. Beyond maternal and neonatal health, adolescent pregnancy compromises schooling and the professional integration of young girls. In Mali, several studies have addressed adolescent pregnancy, but data specific to the Regional Hospital of Ségu remain limited. Hence the need for a local evaluation to guide prevention and management strategies.

Results

During the study period, a total of 2,381 deliveries were recorded, of which 455 occurred in adolescents, representing a frequency of 19.10 %.

The majority of adolescents were married (89.52 %) (Fig. 1). Adequate antenatal care coverage (≥ 3 antenatal consultations, ANC) was observed in 61.47 % of adolescents compared to 71.81 % of adult women (Table 2). Complete absence of ANC was more frequent among adolescents (9.63 %) than adults (5.67 %) (Table 2). Contracted pelvis was more common in adolescents (8.22 %) than in adults (3.26 %), although most

adolescents had a normal pelvis (79.32 %) (Table 3). Vaginal delivery predominated in both groups but was less frequent in adolescents (64.2%) than in adults (74.5 %) (Table 4). Maternal mortality was 0.28 % among adolescents versus 0.14 % among adults (Table 4). An Apgar score > 8 at the first minute was observed in 77.90 % of newborns from adolescent mothers compared to 83 % from adult mothers (Table 5).

Table 1: Distribution of Antenatal Care () Visits among Adolescents and Controls

Number of ANC* visits	Adolescents (n=353)	%	Controls (n=706)	%
0	34	9.63	40	5.67
1–2	102	28.90	159	22.52
≥ 3	217	61.47	507	71.81
Total	353	100	706	100

*ANC = Antenatal Care

Table 2: Distribution of Parturients According to Pelvic Type

Pelvic Type	Adolescents (n=353)	%	Controls (n=706)	%
Normal	280	79.32	630	89.24
BGR	29	8.22	23	3.26
Borderline	41	11.61	47	6.66
Pelvis not explored	3	0.84	6	0.85
Total	353	100	706	100

Table 3: Distribution of Parturients According to Mode of Delivery

Mode of Delivery	Adolescents (n=353)	%	Controls (n=706)	%
Vaginal delivery	226	64.02	526	74.50
Cesarean section	127	35.98	180	25.50
Total	353	100	706	100

OR = 0.609 CI = [0.462 – 0.802]

Table 4: Distribution of Parturients According to Maternal Vital Prognosis

Prognosis	Adolescents (n=353)	%	Controls (n=706)	%
Deceased	1	0.28	1	0.14
Alive	352	99.72	705	99.86
Total	353	100	706	100

OR = 2.003 CI = [0.125 – 32.115]

Table 5: Distribution of Newborns According to Apgar Score at the 1st Minute

Apgar 1st minute	Adolescents (n=353)	%	Controls (n=706)	%
0	12	3.40	23	3.26
1–4	12	3.40	18	2.55
5–7	54	15.30	79	11.19
≥ 8	275	77.90	586	83.00
Total	353	100	706	100

Chi² = 4.529 P = 0.223 CI = [0.198 – 0.248]

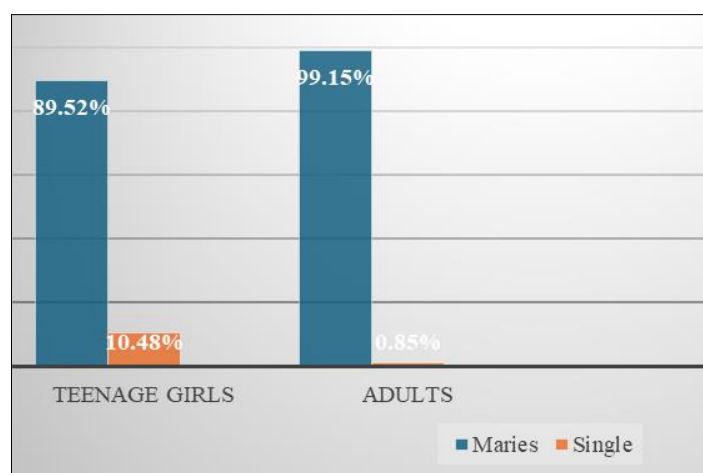


Fig 1: Distribution by marital status

Discussion

The definition of adolescence varies among authors, with age limits ranging from 16 to 18 years. In the present study, we used the World Health Organization (WHO) definition, which considers adolescence as the age range from 10 to 19 years, including patients aged 15–19 years. According to WHO, 90 % of adolescent deliveries occur in developing countries [5].

The high rate of adolescent deliveries has already been reported in Africa, notably by Iloki L.H. in Congo and Tal A. in Senegal [6,7]. Furthermore, Dedecker F observed that 4 % of deliveries in Reunion Island occurred in adolescents aged 13–17 years [8]. This rate is much lower in developed countries. In the United States, it ranges between 0.60 % and 5.60 %, and in the United Kingdom 2.60 % [9]. These differences between sub-Saharan Africa and developed countries can be explained by the high prevalence of early marriages, low educational levels, and limited use of contraceptive methods among youth.

Regarding marital status, child marriage is defined as any union involving a person under 18 years of age. This traditional practice, still frequent in our country, has a negative impact on the development, health, and well-being of girls [4]. In our series, 89.24 % of adolescents were married compared with 99.15 % of adult women, a statistically significant difference ($p < 0.05$). This high marriage rate among adolescents may be related to the early onset of sexual life. Similar findings were reported in previous studies in Mali, with 81% and 68.7% of adolescents being married [10, 11]. Luhete K [12] in Congo reported 81.4 % of adolescents married versus 98.4% of controls, with 18.6% single versus 1.6% in controls, a highly significant difference ($p < 0.001$). In comparison, in France, Faucher *et al.* [13] reported that only 17.70 % of adolescent mothers were married, while 51.40% were single. These differences reflect very distinct sociocultural contexts influencing the frequency of early pregnancies.

Non-attendance of antenatal consultations (ANC) was more frequent among adolescents than controls (9.63 % vs 5.66 %). Our findings are similar to those reported by Traore B [11], who observed 9 % of adolescents without ANC compared to 1.5% of adult women. This difference may be explained by the fact that adolescent pregnancy often occurs outside marriage, a socially stigmatized situation in our context, sometimes leading to family rejection and reduced access to prenatal care. According to Uzan M [14], obstetric risk is multiplied in girls under 15 years. Similar observations were made in Niger by Diouaga H [15], who reported 4.4 % of adolescents without ANC versus 3% among controls.

In our study, the proportion of adolescents with at least three ANC visits was lower than that of controls (61.47 % vs 71.81%). Luhete KP [9] reported comparable results in Congo, with 31.8% of adolescents without ANC compared to 20.5% of controls, and only 48.6% of adolescents having ≥ 3 ANC visits compared to 50.6% of controls. These data confirm that antenatal coverage remains insufficient among adolescents, which can negatively impact maternal and perinatal outcomes. Similar findings were reported by Ahmed AR *et al.* in Saudi Arabia, who compared adolescent and adult deliveries, concluding that adolescent pregnancy is not in itself a risk factor, provided that social and economic conditions are favorable [16]. Comparable results were also reported by Mahavarkar *et al.* in India [17].

In our series, most adolescents had a normal pelvis (79.32 %) versus 89.09 % among adult women, without statistically significant difference. Contracted pelvis was significantly more frequent among adolescents (8.78 % vs 3.12 %, $p < 0.05$). This finding was confirmed by our previous study, which reported 66.3% of normal pelvis in adolescents versus 73.5 % in adult

women, with no significant difference [10]. Vaginal delivery predominated in both groups but was less frequent among adolescents (64.02 % vs 74.50%, $p < 0.01$). This lower rate is explained by the normal pelvis found in most adolescents. Our previous study reported a cesarean section rate of 42.7 % in adolescents versus 53.8 % in adults, likely due to heavier obstetric history in the adult group [10].

In the present study, instrumental extraction was performed in 5.75% of adolescents versus 3.42% of controls. In Morocco, Laghzaoui B *et al.* [18] reported a much higher rate of instrumental deliveries among adolescents (20.25 %).

From the maternal outcomes, eclampsia was more frequent among adolescents (8.68%) compared to controls (1.56%). In Niger, Diouaga H [15] reported an even higher prevalence (20–31 %). Maternal mortality was twice as high among adolescents (0.28 % vs 0.14 %), though the difference was not statistically significant. In our previous study, there were no maternal deaths among adolescents, while 3 deaths occurred among 600 adult deliveries, likely due to the referral nature of the hospital, which receives complicated pregnancies.

Regarding neonatal outcomes, an Apgar score at the first minute between 5 and 7 was observed in 15.37 % of newborns of adolescents versus 11.19 % in controls, without significant difference. Low birth weight was significantly more frequent among adolescents (10.76 % vs 7.65 %). Perinatal mortality was also higher among adolescents (5.10 % vs 4.25 %, p significant). Similar results were reported in our previous study, with perinatal mortality of 2.7 % in adolescents compared to 3.5 % in controls, without significant difference.

Conclusion

Adolescent pregnancy remains frequent in our context, mainly due to early marriage and the low use of contraceptive methods. It is associated with an increased risk of obstetric and neonatal complications. Reducing this phenomenon requires a multidimensional strategy, including community awareness to delay the age at marriage, as well as appropriate sexual education for adolescents to promote responsible sexuality and proper use of contraception. These measures would help reduce maternal and fetal morbidity and mortality related to adolescent pregnancy.

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Conflict of Interest

Not available

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