

Pregnancy and Adolescence: Problem and Outcome at the University Hospital Center of Brazzaville (Republic of Congo)

Potokoue Mpia Nuelly Samantha Bialay^{1,2}, Buambo Gauthier Regis Jostin^{1,2,*}, Itoua Nadine¹, Mokoko Jules Cesar^{1,2}, Itoua Clotaire^{1,2}, Iloki Léon Herve^{1,2}

¹Obstetrics Gynecology Department, University Hospital Center of Brazzaville, Brazzaville, Congo

²Faculty of Health Sciences, Marien Ngouabi University, Brazzaville, Congo

Email address:

samanthasekangue@gmail.com (Potokoue Mpia Nuelly Samantha Bialay), buambogauthier@yahoo.fr (Buambo Gauthier Regis Jostin), nadineci@yahoo.fr (Itoua Nadine), jlskokoko@gmail.com (Mokoko Jules Cesar), clotairei@yahoo.com (Itoua Clotaire), herviloki@yahoo.fr (Iloki Léon Herve)

*Corresponding author

To cite this article:

Potokoue Mpia Nuelly Samantha Bialay, Buambo Gauthier Regis Jostin, Itoua Nadine, Mokoko Jules Cesar, Itoua Clotaire, Iloki Léon Herve. Pregnancy and Adolescence: Problem and Outcome at the University Hospital Center of Brazzaville (Republic of Congo). *Journal of Gynecology and Obstetrics*. Vol. 10, No. 6, 2022, pp. 270-274. doi: 10.11648/j.jgo.20221006.16

Received: November 27, 2022; Accepted: December 14, 2022; Published: December 29, 2022

Abstract: *Introduction:* adolescence is a period of physical, psychological, and social maturation that extends between childhood and adulthood (10 to 19 years). The occurrence of teenage pregnancy is a high-risk situation about the complications associated with its outcome, the psychological and socioeconomic vulnerability of adolescents, and their anatomical and physiological immaturity. *Objective:* to analyze the problem and the outcome of adolescent pregnancy at the University Hospital Center of Brazzaville. *Patients and Methods.* Case-control study of women giving birth from January 1, 2018, to December 31, 2021, at CHU-B. Adolescents (< 20 years old) were compared to adults (≥ 20 years old). The variables studied were pre and per partum. Usual statistics and logistic regression were used to analyze the results. The probability p-value was deemed significant for a value less than 0.05. *Results.* The frequency of childbirth among adolescents was 14.28%. The teenagers were in secondary school (OR=5.44 [3.01-9.82]; p<0.05), with no remunerative activity (OR=78.0 [10.48580.3]; p<0.05), resident in the parents (OR=9.43 [4.69-18.95]; p<0.05), primigravida (OR=19.52 [9.69-39.34]; p<0.05), unmonitored pregnancy (OR=3.97 [1.08-14.7]; p<0.05), caesarean section for mechanical dystocia (p>0.05). *Conclusion.* Teenage women in labor have unfavorable socio-demographic characteristics and are primigravidae. Antenatal care is of poor quality and starts late. Dystocia is the main indication for caesarean section.

Keywords: Pregnancy, Adolescence, Issue, Brazzaville

1. Introduction

Adolescence is a period of physical, psychological, and social maturation that extends between childhood and adulthood (10 to 19 years) [1]. It is also a stage during which precocious sexuality occurs, resulting in unwanted pregnancies [2]. In 2012, the WHO estimated that nearly sixteen million young girls aged 15 to 19, two million young girls under the age of 15 give birth each year in the world, of which 95% in developing countries [3]. The occurrence of teenage pregnancy is a high-risk situation about the

complications associated with its outcome [4-6], the psychological and socioeconomic vulnerability of adolescents, and their anatomical and physiological immaturity. As a result, the course and outcome of pregnancies seem to be determined by the age factor and certain pre-pregnancy characteristics such as the desire or not to become pregnant, marital status, parity, nutritional and health status, and the quality of prenatal follow-up [7]. In addition, many authors report an increase in the incidence of caesareans in relation to bone dystocia in adolescents [8-10].

In the Congo, studies on pregnancy and childbirth among

adolescents have focused on the essentially descriptive aspects. Thus, the present study has set itself the objective of analyzing the problem and the outcome of pregnancy among adolescents at the University Hospital Center of Brazzaville.

2. Patients and Method

This was a case-control study, conducted from January 1, 2018 to December 31, 2021, in the Obstetrics Gynecology Department of the University Hospital Center of Brazzaville, comparing teenage women in labor from 15 to 19 years old (Cases) and adult women delivered (Controls) at a ratio of 1:1. Were included for the two groups, in a simple random manner without replacement, the mothers who carried a single-fetal pregnancy of at least 28 weeks of amenorrhea according to the date of the last menstrual period or a newborn with a birth weight of at least 1000 g when the theoretical term was not known. Those admitted in the expulsive phase or secondarily after childbirth were excluded. The variables studied were socio-demographic (level of education, gainful activity, residence); reproductive (gestation, parity, obstetric history); related to pregnancy monitoring (prenatal contacts) and childbirth (mode of admission, reason, term, type of labor,

presentation of the fetus, condition of the membranes, obstetric pelvis, phase of labor, route of delivery, indication caesarean section).

The EPI-INFO 7 software was used for data analysis. To establish the link and the degree of causality, the odds ratio (OR) was calculated with its confidence interval (CI). The significant association was determined by a 95% CI not containing the number 1 for a p-value < 0.05. In multivariate analysis, all variables with a value of p<0.5 were included in the logistic regression model to eliminate confounding factors.

3. Results

Pregnancy occurred most among adolescents with low levels of education, no gainful employment and living with their parents (Table 1).

They were significantly primigravidae and primiparous (table 2). Compared to adults, the prenatal check-up was six times more likely to be missed by adolescents.

The risk of having an unmonitored pregnancy was multiplied by 4 in adolescents (Table 3).

Concerning the characteristics related to childbirth, a significant occurrence of premature rupture of membranes lasting more than six hours was noted in adolescents (Table 4).

Table 1. Sociodemographic characteristics of women giving birth.

| | Cases (N=105) | | Controls (N=105) | | OR | CI (95%) | P |
|-------------------------------|---------------|-------|------------------|-------|-------|--------------|-------------------|
| | n | % | n | % | | | |
| Age (years) | | | | | | | |
| Mean \pm standard deviation | 17 \pm 1.1 | | 32 \pm 2.5 | | | | 0.001 |
| Min-Max | 17 – 19 | | 25 – 38 | | | | |
| Educational level | | | | | | | <10 ⁻⁷ |
| None | 7 | 6.67 | 16 | 15.24 | - | - | 0.09 |
| Primary | 21 | 20.00 | 30 | 28.57 | 4.90 | [1.49-16.05] | 0.004 |
| Secondary | 73 | 69.52 | 31 | 29.52 | 16.48 | [5.33-50.96] | <10 ⁻⁷ |
| Superior | 4 | 3.81 | 28 | 26.67 | 1 | | - |
| Gainful activity | 1 | 0.95 | 45 | 42.86 | | | <10 ⁻⁷ |
| Residence | | | | | | | <10 ⁻⁷ |
| Only | - | - | 2 | 1.90 | - | - | 0,4 |
| With parents | 60 | 57.14 | 13 | 12.39 | 9.23 | [4.59-18.55] | <10 ⁻⁷ |
| In a relationship with | 45 | 42.86 | 90 | 85.71 | 1 | - | - |

Table 2. Reproductive characteristics of postpartum women.

| | Cases (N=105) | | Controls (N=105) | | OR | CI (95%) | P |
|------------------------|---------------|-------|------------------|-------|-------|--------------|-------------------|
| | n | % | n | % | | | |
| Gesture | | | | | | | <10 ⁻⁷ |
| 1 | 83 | 79.05 | 17 | 16.19 | 4.88 | [2.19-10.85] | 0.0001 |
| 2 – 3 | 21 | 20.00 | 21 | 20.00 | 1 | - | - |
| ≥ 4 | 1 | 0.95 | 67 | 63.81 | 0.01 | [0.002-0.11] | <10 ⁻⁷ |
| Parity | | | | | | | <10 ⁻⁷ |
| 1 | 100 | 95.24 | 33 | 31.43 | 14.39 | [4.56-45.35] | <10 ⁻⁶ |
| 2 – 3 | 4 | 3.81 | 19 | 18.10 | 1 | - | - |
| ≥ 4 | 1 | 0.95 | 53 | 50.47 | 0.08 | [0.009-0.85] | 0.02 |
| History of prematurity | 1 | 0.95 | 1 | 0.95 | - | - | 0.7 |
| Toxaemia of pregnancy | - | - | 1 | - | - | - | 0.5 |

Table 3. Pregnancy follow-up.

| | Cases (N=105) | | Controls (N=105) | | OR | CI (95%) | P |
|---------------------------------|---------------|-------|------------------|-------|------|--------------|-------|
| | n | % | n | % | | | |
| Number of contacts | | | | | | | 0.1 |
| 0-3 | 23 | 24.47 | 15 | 14.71 | - | - | 0.1 |
| 4-7 | 50 | 53.19 | 58 | 56.86 | - | - | 0.7 |
| >7 | 21 | 22.34 | 29 | 28.43 | 1 | - | |
| Prenatal check-up | | | | | | | 0.002 |
| Complete | 16 | 15.24 | 29 | 27.62 | 1 | - | - |
| Incomplete | 68 | 64.76 | 70 | 66.67 | - | - | 0.1 |
| Not done | 21 | 20.00 | 6 | 5.71 | 6,34 | [2,12-18,93] | 0.01 |
| Tracking Quality ⁽¹⁾ | | | | | | | 0.07 |
| Good | 26 | 24.76 | 32 | 30.48 | 1 | - | - |
| Bad | 68 | 64.76 | 70 | 66.67 | - | - | 0.6 |
| Not tracked | 11 | 10.48 | 3 | 2.86 | 4,51 | [1,14-17,89] | 0.02 |

Clinical plan (assessment of weight gain, measurement of blood pressure, measurement of uterine height), prenatal check-up (compulsory and systematic examinations carried out), prophylactic plan (malaria prophylaxis, systematic deworming, iron supplementation, vaccination against tetanus).

Table 4. Childbirth characteristics.

| | Cases (N=105) | | Controls (N=105) | | OR | CI (95%) | P |
|----------------------------------|---------------|-------|------------------|-------|------|--------------|------|
| | n | % | n | % | | | |
| Mode of entry into labour | | | | | | | 0.6 |
| Spontaneous | 96 | 91.43 | 84 | 80.00 | - | - | - |
| Sets off | 9 | 8.57 | 21 | 20.00 | - | - | - |
| Stage of labour | | | | | | | 0.8 |
| Latency | 62 | 59.05 | 65 | 61.90 | - | - | - |
| Active | 34 | 32.38 | 19 | 18.10 | - | - | - |
| Presentation | | | | | | | 0,7 |
| Summit | 96 | 91.43 | 94 | 89.52 | - | - | - |
| Headquarters | 6 | 5.71 | 9 | 8.58 | - | - | - |
| Transverse | 3 | 2.86 | 2 | 1.90 | - | - | - |
| State of the membranes | | | | | | | 0.2 |
| Intact | 59 | 56.19 | 68 | 64.76 | - | - | - |
| Broken | 46 | 43.81 | 37 | 35.24 | - | - | - |
| Appearance of amniotic fluid | | | | | | | 0.3 |
| Light | 33 | 71.74 | 31 | 83.78 | - | - | - |
| Meconial | 13 | 28.26 | 6 | 16.22 | - | - | - |
| Membrane rupture time | | | | | 4.24 | [1.51-11.94] | 0.01 |
| Greater than or equal to 6 hours | 7 | 15.22 | 16 | 43.24 | - | - | - |
| Less than 6 hours | 39 | 84.78 | 21 | 56.76 | - | - | - |
| Pelvis examination | | | | | | | 0.5 |
| Normal | 99 | 94.29 | 102 | 97.15 | - | - | - |
| Limit | 4 | 3.81 | 2 | 1.90 | - | - | - |
| Surgical | 2 | 1.90 | 1 | 0.95 | - | - | - |
| Delivery route | | | | | | | 0.3 |
| Low | 63 | 60.00 | 55 | 52.38 | - | - | - |
| High | 42 | 40.00 | 50 | 47.62 | - | - | - |

After adjustment using the binary logistic regression method, the level of secondary education, the absence of remunerative activity and primigestity represented the specific characteristics of adolescent women giving birth (Table 5).

Table 5. Logistic regression.

| Type of patient | ORa | CI (95%) | P>z |
|-------------------|-------|----------------|-------|
| Educational level | 3.23 | [1.43; 7.29] | 0.005 |
| Residence | 2.85 | [0.94; 8.64] | 0.065 |
| Gainful activity | 58.56 | [4.79; 715.87] | 0.001 |
| Gesture | 5.15 | [1.99; 13.33] | 0.001 |
| Parity | - | - | 0.083 |

| Type of patient | ORa | CI (95%) | P>z |
|-------------------|-------|---------------|-------|
| Tracking provider | 21.83 | [2.3; 207.51] | 0.007 |
| Delivery route | - | - | 0.366 |
| Work phase | - | - | 0.232 |
| Presentation | - | - | 0.476 |
| Mode of admission | - | - | 0.933 |
| State of members | - | - | 0.857 |
| Tracking quality | - | - | 0.949 |

4. Discussion

The high prevalence of early childbearing has been observed in several African studies, with the average age being 17 years [13]. The profile of adolescents who have given birth remains the same depending on the series. Because of their young age, they are the most in secondary education, and thus without remunerative activity [13]. The immaturity coupled with the Congolese culture which does not encourage early marriages explained the fact that they were with the parents. The significant differences in age would justify the significant differences observed in gestality and parity. Teenagers were the most primigravid and primiparous, unlike adults who were multigravida and multiparous. Although not encouraging early marriage, these observations reflect a pronatalist African society that is not very inclined to contraception [14, 15].

Prenatal follow-up is the preferred period when high-risk pregnancies are detected with a view to specific management. 64.76% of adolescents against 66.67% of adults who had poor quality prenatal contact, due to the late start of contact (73.40% of adolescents and 57.84% of adults) with an average term of start of contact of 20.12 ± 4.7 WA in adolescents and 18.25 ± 4.5 WA in adults, thus reducing the number of contacts required by the WHO (8 contacts) [16] and the incomplete realization prenatal checkup. Several authors have observed the insufficient number of prenatal contacts [15, 17, 18].

However, 10.48% of pregnancies not followed in adolescents against 2.86% in adults with a statistically significant difference. Finding observed by other authors [16-9].

The non-realization of prenatal contacts could be explained by: Immaturity linked to young age, lack of family support, poverty, unwanted pregnancy or denial of pregnancy, refusal of the partner.

In our study, 41.49% of adolescent parturient were referred against 33.33% of adults without statistical difference.

Childbirth occurred spontaneously in 91.43% of adolescents against 80.00% of adults without significant statistical difference; more than three quarters of pregnancies were carried to term in the proportions of 83.81% in adolescents and 82.86% in adults without statistical difference. These results overlap with those observed by several authors [16, 17].

The proportion of arrivals in the active phase of labor was not significantly (32.38% in adolescents and 18.10% in adults), this was explained by the fact that parturient were referred in the context where the management of childbirth

had begun in other structures that were poorly equipped or did not have qualified personnel. However, most adolescents (59.05%) and adults (61.90%) had come in early labor, without significant difference.

The vertex presentation was the most frequent, 91.43% in adolescents against 89.52% in adults, like the results of certain authors [17]. The proportion of breech presentation, 5.71% in adolescents, is superimposable to that documented by Sylla A in Dakar [18].

In adolescence, the pelvis grows slowly and gradually until old age. In addition, the acquisition of height does not imply an equivalent growth of the pelvis because the pelvis does not definitively complete its configuration until around the 25th year, although adult forms are reached around the age of 16 [20]. This immaturity of the pelvis is responsible for anomalies of the pelvis, borderline pelvis, generally narrowed pelvis in adolescents. And the latter is in turn responsible for more frequent obstetric complications, mainly below 15 years of age [20]. However, in our study, we observed that 94.29% of adolescent parturient had a normal pelvis against 97.15% of adults. This could be explained by the fact that in our study, the most represented age group was that of 17-19 years and that at this age the pelvis would have already reached the adult form.

In our study, adolescents (40%) had less delivered by caesarean compared to adults (47.62%), without significant difference. Some authors had made the same observation [21], while other authors observed more caesareans in adolescents compared to adults [16, 18]. However, the vaginal route was the most represented in our study with 60% of adolescents and 52.68% of adults with no statistical difference.

The most representative cesarean indication was mechanical dystocia with the proportions of 30.95% in adolescents and 16.00% in adults with no statistical difference. The same results were observed by Balde in Conakry [22]. The dynamic dystocia was linked either to a problem of the pelvis or to the fetus. In our setting, we ruled out the pelvis because more than three-quarters of adolescent girls had a normal pelvis, implicating the fetus, which we thought to be malflexion of the fetal head and fetal macrosomia.

Caesarean sections were performed during labor and at term (57.14% in adolescents and 56% in adults).

The profile of the adolescent who gives birth by caesarean is that of the one who has a secondary level residing with the parents, without remunerative activity, primigest and mainly followed by a midwife.

For Raatikainen [23], age may not be a risk factor for caesarean deliveries, but rather the low socioeconomic level

which would lead to poor follow-up of pregnancy in adolescent mothers compared to adults, and a higher probability to have a cesarean delivery. Moreover, Penfield [24] found the same results in adolescent girls.

5. Conclusion

Teenage mothers are mostly in secondary school, residing with parents, without remunerative activity and primigest. Prenatal contacts were started late and of poor quality. The pregnancies were carried to term; labor was spontaneous. The most representative delivery route was the vaginal route. The main indication for caesarean section was dystocia.

6. Recommendations

- 1) Any amenorrhea in an adolescent girl in genital and sexual activity must rule out a pregnancy.
- 2) The monitoring of adolescent pregnancy should be early, between 12 and 15 weeks of amenorrhea.
- 3) All pregnant teenagers should benefit from preventive care and iron and vitamin supplements as recommended by the WHO.
- 4) The delivery prognosis must be made systematically from the eighth month of pregnancy by an obstetrician and the delivery plan drawn up.

Conflicts of Interest

All the authors do not have any possible conflicts of interest.

References

- [1] World Health Organization (WHO). World Adolescent Health Day. Safe motherhood: delaying births, Geneva, April 1998: 1-13.
- [2] Ba MG, Sangaré M, Moreira P, Bah MD, Diadhiou F. Knowledge, practices, and perspectives of contraception among adolescent girls. *Black Afr Med* 1999; 46: 62.
- [3] World Health Organization (WHO). Teenage pregnancy. Fact sheet n°364, May 2014. <https://www.who.int/mediacentre/factsheets/fs364/en>.
- [4] Magicmom. Early pregnancy: becoming a mother in adolescence. <https://www.magicmaman.com/grossesse-precocce-become-mother-to-adolescence,3404538.asp>.
- [5] Lao TT, Ho LF. Obstetric outcome of teenage pregnancies. *Hum Reprod (England)* 1998; 13: 452-5.
- [6] Van CHA. Teen pregnancy. *CME* 1991; 9: 1379-81.
- [7] Picaud A, Nlomenze AR, Ogowet N, Mouely G. Uterine ruptures: Apropos of 31 cases observed at the Libreville hospital center. *Rev Fr Gynecol Obstet* 1989; 84: 411-6.
- [8] JOHN LIBBEY www.john-libbey-eurotext.fr, May 2007.
- [9] World Health Organization (WHO). Teen pregnancy and childbirth. Media Centre, January 2020. <https://www.who.int/en>.
- [10] Belkheri MSN, Zian D, Lakhdar A, Chaoui A. Teenage pregnancy, and childbirth. *The notebooks of the doctor* 2004 (7): 77-83.
- [11] Iloki LH, Koubaka R, Itoua C, Mbemba MG. Adolescent pregnancy and childbirth. *Int J Gynecol Obst and Biol Reprod* 2004; 33: 37-42.
- [12] Gandzien PC, Ekoundzola JR. Teenage pregnancy and childbirth at the Talangai Maternity Hospital in Brazzaville, Congo. *Black Afr Med* 2005; 52 (7): 429-33.
- [13] Kakudji LP, Mukuku O, Kalenga MKP. Study of low birth weight associated with maternal age and parity in a mother-child couple population followed in Lubumbashi. *Pan Afr Med J* 2015; 20: 246. Doi: 10.11604/pamj.2015.20.246.5169.
- [14] Tambwe MNK, Kalenga M, Kakoma S. Childbirth among adolescents in university clinics in Lubumbashi (Congo). *Rev Fr Gynecol Obstet* 1999; 94 (5): 379-83.
- [15] Faucher P, Dappe S, Madelenat P. Maternity in Adolescence: Obstetric Analysis and Review of the Influence of Cultural, Socio-economic and Psychological Factors on a Retrospective Study of 62 Files. *Gynecol Obstet Fertil* 2002; 30: 944-52. doi.org/10.1016/S1297-9589(02)00497-6.
- [16] Alouini S, Randriambololona D, Randriamboavonjy R. Risk Factors of Teenage Pregnancies, Deliveries and Post-partum in the Department of Loiret. *J Gynecol Obstet Biol Reprod* 2015; 44 (5): 443-50. doi: 10.1016/j.jgyn.2014.07.004.
- [17] Debras E, Revaux A, Bricou A, Laas E, and al. Obstetric and Neonatal Outcomes of Adolescent Pregnancies: a Cohort Study in a Hospital in Seine-Saint-Denis France. *Gynecol Obstet Fertil* 2014; 42 (9): 579-84. doi: 10.1016/j.gyobfe.2014.04.012
- [18] Sylla A, Gueye-Ba M, Ndong M, Ndiaye O, M, Diagne I, Ba M, et al. Obstetrical and neonatal risks associated with the delivery of adolescents in a hospital center in Dakar. *Arch Pediatr* 2002; 8: 874-5.
- [19] Laghzaoui BM, Bouhya S, Bennani O, Hermas S, Soummami A, Aderdour M. Adolescent pregnancy and childbirth. *Int Medical Morocco* 2022; 24 (3): 182-5.
- [20] Mahavarkar SH, Madhu CK, Mule VD. A comparative study of teenage pregnancy. *J Obstet Gynecol* 2008; 28 (6): 604-7.
- [21] Dedecker F, De Baillencourt T, Barau G, Fortier D, Robillard PY, Roge-Wolter MM, et al. Study of Obstetrical Risk Factors in the Follow-up of 365 Adolescents Primiparous Pregnancies on Reunion Island. *J Gynecol Obstet Biol Reprod.* 2005; 34 (7): 694-701.
- [22] Balde IS, Sylla I, Adjoby CR, Diallo IT, Conde JG, Sy T, Keita N. Prognosis of childbirth at the extreme ages of reproductive life. *SAGO Journal* 2021; 22 (1): p 9.
- [23] Raatikainen K, Heiskanen N, Verkasalo P, Heinonen S. Good outcome of teenage pregnancies in high-quality maternity care. *Eur J Public Health* 2006; 16 (2): 157-61.
- [24] Penfield CA, Cheng YW, Caughey AB. Obstetric outcomes in adolescent pregnancies: a racial/ethnic comparison. *J Matern-Fetal Neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet.* 2013; 26 (14): 1430-4.