



Maternal and Perinatal Outcomes of Unsupervised Pregnancies in African Settings

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Abstract

Introduction: To assess maternal and perinatal outcomes of pregnancies without antenatal care in Bamako, Mali.

Methods: A retrospective analytical case-control study was conducted over a 12-month period (January 1–December 31, 2020) at the Referral Health Center of Commune III, Bamako. Cases were women who delivered without any antenatal care visit, and controls were women who delivered immediately before or after a case and had attended at least three antenatal visits, in a 1:2 ratio. Data entry was performed using Word 2016 and analysis with SPSS version 21.1. The Chi-square test and Odds Ratio (OR) with 95% confidence interval (CI) were applied to assess associations. A p -value <0.05 was considered statistically significant.

Results: Among 3,600 deliveries, 80 were unsupervised pregnancies, corresponding to a frequency of 2.22%. The most represented age group was 18–25 years (62.5% of cases vs. 64.1% of controls, $p=0.0008$). Uneducated women were more frequent among cases (48.8%) than controls (21.2%, $p<0.05$). Term pregnancies occurred in 78.7% of cases versus 97.5% of controls ($p=0.000001$). Maternal anemia was significantly higher among unsupervised women (35.0% vs. 10.6%, $p<0.05$). Vaginal delivery was less frequent in cases (65.0% vs. 88.7%, $p<0.05$). Neonatal outcomes were poorer in the unsupervised group: normal Apgar scores (75% vs. 93.2%, $p<0.05$), preterm birth (22.5% vs. 2.5%), and low birth weight (16.25% vs. 2.5%).

Conclusion: Pregnancies without antenatal care are associated with adverse maternal and perinatal outcomes, particularly anemia, prematurity, and low birth weight. Strengthening prenatal care coverage and improving women's education are crucial to enhance maternal and neonatal health in low-resource settings.

Introduction

Pregnancy is a physiological event whose course may be complicated by conditions that can jeopardize both maternal and fetal outcomes [1]. For this reason, the World Health Organization (WHO) recommends between four and eight antenatal contacts during pregnancy [2]. These visits aim to identify risk factors, prevent complications, and ensure early and effective management of high-risk pregnancies. According to UNICEF, in 2009, the rate of pregnancies without any antenatal care in sub-Saharan Africa was 53%, reaching 56% in West and Central Africa [3]. In most low- and middle-income countries, antenatal follow-up remains insufficient in both quality and quantity. The prevalence of poorly monitored or unmonitored pregnancies varies considerably across countries and over time. In Kenya, for example, a rate of 32% unmonitored pregnancies has been reported. In Mali, data

from the Demographic and Health Survey (DHS-VI, 2018) indicate that the proportion of women who attended at least four antenatal visits increased from 30% in 2001 to 43% in 2018 [4]. Similarly, the proportion of live births occurring in health facilities rose from 38% to 67% during the same period. Evidence from the literature clearly demonstrates that adequate antenatal care is associated with improved maternal and perinatal outcomes [5]. Therefore, we conducted this study to determine the maternal and perinatal outcomes of unmonitored pregnancies in our department.

Materials and Methods

This was a cross-sectional analytical case-control study with retrospective data collection, conducted at the Reference Health Center of Commune III in the district of Bamako. The study covered a 12-month period, from January 1 to December 31, 2020. The study population included all women

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who delivered at the Reference Health Center of Commune III during the study period. Cases were defined as women who gave birth in the facility without having attended any antenatal consultations. Controls consisted of women who delivered immediately before or after the cases and who had attended at least three antenatal visits. A ratio of one case to two controls was applied. Pregnancies of less than 28 weeks of gestation and those with a birth weight below 500 grams were excluded from the analysis. Data were entered using Microsoft Word 2016 and analyzed with SPSS software version 21.1. Statistical analysis included the calculation of odds ratios (OR) with 95% confidence intervals (CI). The significance threshold was set at $p < 0.05$.

Results

During the study period, a total of 3,600 deliveries were recorded, including 80 cases of unmonitored pregnancies, representing a frequency of 2.22%. The age group 18–25 years was the most represented, accounting for 62.5% among cases and 64.13% among controls ($p = 0.0008$) (Table 1). Pauci-gravid women represented 46.2% of cases and 59.4% of controls, with no statistically significant association ($p = 0.052$) (Table 1). Uneducated women accounted for 48.8% of cases versus 21.2%

of controls, showing a statistically significant association ($p = 0.00002$). Term pregnancies were observed in 78.7% of cases and 97.5% of controls, with a statistically significant difference ($p = 0.000001$) (Table 2). Severe hypertension occurred in 8.7% of women without antenatal care compared with 7.5% of controls, showing no significant association ($p > 0.05$) (Table 2). Preeclampsia represented 50% of complications among cases and 64.75% among controls, without statistical significance ($p > 0.05$) (Table 2). Anemia was more frequent in cases (35.0%) than in controls (10.6%). Vaginal delivery occurred in 65.0% of cases versus 88.7% of controls, showing a statistically significant relationship ($p < 0.05$) (Table 2). A good Apgar score was recorded in 75% of newborns from unmonitored pregnancies versus 93.2% among controls ($p < 0.05$) (Tableau 3). More than half of the newborns from unmonitored pregnancies weighed between 2,500 and 4,000 g (61.2%) compared with 81.9% among controls, also showing statistical significance ($p = 0.003$) (Table 3). Prematurity was markedly higher among cases (22.5%) compared with controls (2.5%), and fetal growth restriction was also more frequent among cases (16.25%) (Table 3). Live births were recorded in 90.0% of cases versus 96.2% of controls, with no statistically significant association ($p = 0.07$) (Table 3).

Table 1. Distribution of Women According to Clinical Data

Clinical Data	Cases N (%)	Controls N (%)	OR (95% CI)	P
<18 years	10 (12.5)	15 (9.37)	1.30 (0.59–3.23)	0.6880
18–24 years	50 (62.5)	69 (43.13)	1.71 (0.98–3.00)	0.0008
25–35 years	19 (23.75)	72 (45.00)	0.29 (0.16–0.53)	0.0005
>35 years	1 (1.25)	4 (2.50)	0.49 (0.05–4.46)	0.4416
Term gestation	63 (78.7)	156 (97.5)	0.10 (0.03–0.31)	10^{-6}
Preterm	17 (21.3)	4 (2.5)	10.52 (3.41–32.50)	10^{-7}
Cord prolapses	2 (2.5)	1 (0.6)	0.25 (0.22–2.71)	0.254
Hemorrhage	4 (5.0)	5 (3.1)	0.61 (0.16–2.35)	0.475
Severe hypertension	7 (8.7)	12 (7.5)	0.85 (0.32–2.24)	0.736

Table 2. Distribution of Women According to Maternal Outcome

Variables	Cases N (%)	Controls N (%)	OR (95% CI)	P
Uterine rupture	1 (5.0)	0 (0)	-	0.1564
Placenta praevia	2 (10.0)	0 (0)	-	0.3152
Eclampsia	2 (10.0)	0 (0)	-	0.0446
Retroplacental hematoma	3 (15.0)	1 (7.15)	-	0.0746
Preeclampsia	10 (50.0)	9 (64.75)	-	0.398
Simple perineal tear	1 (0.0)	2 (21.0)	-	0.2177
Vaginal tear	2 (10.0)	1 (7.15)	-	0.7214
Normal postpartum	46 (57.5)	142 (79.4)	0.34 (0.19–0.60)	-
Anemia	28 (35.0)	17 (10.6)	4.53 (2.29–8.95)	-
Wound infection	5 (6.3)	1 (0.6)	0.09 (0.01–0.82)	-
Endometritis	0 (0.0)	2 (1.3)	-	-
Eclampsia	2 (2.5)	2 (1.3)	2.03 (0.28–14.68)	-
Malaria	8 (10.0)	3 (1.9)	5.81 (1.50–22.55)	-
Immediate PPH	7 (8.8)	11 (6.9)	1.23 (0.46–3.30)	-

Table 3. Distribution of Women According to Perinatal Outcome

Prognosis	Cases N (%)	ControlsN (%)	OR (95% CI)	P
Apgar 0 (stillbirth)	10 (12.5)	3 (1.8)	7.49 (2–28.02)	0.0006
Apgar 4–6 (morbid)	10 (12.5)	8 (5.0)	2.71 (1.03–7.16)	7×10^{-7}
Apgar ≥ 7 (good)	60 (75.0)	149 (93.2)	0.22 (0.1–0.49)	0.006
Birth weight 2500–4000g	49 (61.2)	131 (81.9)	0.35 (0.19–0.64)	0.0005
Birth weight 500–2500g	29 (36.3)	26 (16.2)	2.93 (1.58–5.45)	0.0005
>4000g	2 (2.5)	3 (1.9)	1.34 (0.22–8.19)	0.7492
Live birth	72 (90.0)	155 (96.87)	0.35 (0.12–1.05)	0.026
Fresh stillbirth	6 (7.5)	3 (1.88)	3.16 (0.87–11.54)	0.030
Macerated stillbirth	2 (2.5)	2 (1.25)	2.03 (0.28–14.68)	0.475

Discussion

Frequency

During the study period, a total of 3,600 deliveries were recorded, including 80 women who had not attended any antenatal consultations, representing a frequency of 2.22%. This result is lower than that reported by Maleya et al. [1], who found a rate of 21.23% in their study. The rate of women who had not attended any antenatal consultation in the present study was markedly lower than that reported in rural settings during our previous study conducted in 2014, in which 28.7% of patients had no antenatal follow-up [6]. This trend has also been reported in several studies conducted in Mali and other African countries. Samaké, in a study conducted in Mali, reported that 9.7% of patients had not attended any antenatal consultations [7]. In a study on severe obstetric hemorrhages, De Souza J. et al. [8] reported that 50.7% of patients had not attended any antenatal consultation. Similarly, Apkadza J.K. et al. [9], in their series on unsupervised deliveries, reported that 15.1% of women had no antenatal follow-up. Similarly, in the study carried out in 2003 at Gabriel Touré University Hospital, 27.6% of women had not attended any antenatal visits [10]. These differences may be explained by the better accessibility to antenatal care services in urban areas, as well as by the governmental efforts undertaken to improve the attendance of healthcare facilities and to promote antenatal follow-up from 2003 to the present. This difference reflects an improvement in antenatal consultation coverage in our setting, indicating better awareness and accessibility of prenatal care services.

Socio-demographic Profile

According to maternal age, in our study, the most represented age group was 18–25 years, accounting for 56.2% among women without antenatal care vs 80.0% of controls. The association was statistically significant ($p = 0.00008$). Maleya and col. [1] reported that women under 20 years accounted for 5.37% of well-followed pregnancies, 11.97% of non-followed pregnancies, and 7.59% of poorly followed pregnancies. They found that the absence of antenatal follow-up was 2.29 times higher among adolescents compared with women aged 20–34 years (OR = 2.29; 95% CI: 1.54–3.41). This finding may be explained by the fact that this age range represents the peak of reproductive activity, yet it is also a period of increased risk for intrauterine fetal death. The high frequency of unmonitored pregnancies among young women could also result from the higher proportion of unplanned pregnancies that they attempt to conceal.

Clinical Data

According to Gestational Age In our study, 8.7% of women were admitted with preterm pregnancies. The most common mode of delivery was vaginal birth, accounting for 65% among cases and 88.7% among controls. Similar findings were observed in our previous studies, in which vaginal delivery was the mode of childbirth in 50.8% of cases compared with 58% among controls, with no statistically significant difference ($p > 0.05$).

Likewise, the rate of cesarean section was 30% among cases versus 32% among controls, and this difference was not statistically significant ($p > 0.05$) [10].

Maternal outcomes

Obstetric complications were twice as frequent among women without antenatal care (25%) compared with controls (8.75%). However, in our previous studies, we recorded nine maternal deaths, all of which occurred in the case group [6]. Furthermore, in the 2003 study, the maternal outcome was marked by a 2.1% mortality rate (6 deaths out of 286 patients), showing a statistically significant difference ($p = 0.013$). No maternal deaths were observed in the control group, thereby confirming the statistical significance of this difference. Among women with no antenatal follow-up, 57.5% presented anemia compared with 10.6% of those who had received antenatal care. The association was statistically significant ($p < 0.05$). There was a significant association between postpartum complications — including anemia, wound infection, postpartum hemorrhage, and malaria — and lack of antenatal care ($p < 0.05$). Maleya et al. [1] reported an anemia rate of 1.25% in cases and 1.36% in controls, showing a significant difference, with the lack of prenatal follow-up increasing the risk of anemia 2.33-fold (OR = 2.33; 95% CI: 1.06–5.13). Indeed, without antenatal monitoring, pregnancy risk factors are not identified or managed, exposing women to complications during pregnancy and the postpartum period. Lack of antenatal care is a major risk factor for multiple complications. However, no cases of maternal death were recorded in our series.

Perinatal outcomes

The Apgar score at one minute was 0 (stillbirth) in 78.8% of newborns from unmonitored pregnancies versus 91.3% among controls, with a statistically significant difference ($p = 0.021$). In 78.7% of cases versus 91.2% of controls, newborns had an Apgar score ≥ 7 . There was a statistically significant association between the Apgar score and antenatal follow-up ($p < 0.05$). Diarra N. [11] also reported a significant association between low Apgar

scores and Among women with no antenatal visits, 22.5% of newborns were premature compared with 2.5% among controls ($p = 0.001$). Maleya et al. [1] observed rates of 5.37% low birth weight and 4.87% macrosomia among controls, versus 11.64% and 4.72%, respectively, among cases, concluding that the risk of low birth weight was 2.33 times higher among newborns of mothers without prenatal care ($OR = 2.33$; 95% CI: 1.56–3.46). We recorded 90.0% live births among women with no antenatal care compared with 95.6% among controls. The association was not statistically significant ($p = 0.116$). Fetal outcome largely depends on the early detection and management of maternal and fetal risk factors through adequate prenatal follow-up. This finding is consistent with our previous studies, in which stillbirth was observed in 24.8% of cases compared with 10% among controls, showing a statistically significant difference ($p < 0.05$) [6]. Similarly, in 2003, the rate of stillbirths was 10.9% (32/292), with a highly significant difference ($p = 0.0007$; $OR = 3.19$) [10]. Similar results were reported by Abu-Ghanem S. Perinatal mortality was 3.2%, with an odds ratio (OR) of 1.63 (95% CI: 1.47–1.80) [12].

Conclusion

Unmonitored pregnancies remain a common issue in our setting. The absence of antenatal care leads to severe obstetric complications affecting both the mother and the fetus. Strengthening national policies on public health information and education is essential to improve maternal and perinatal outcomes.

References

1. Maleya A, Kakudji YK, Mwazaz RM, et al. Issues materno-fœtales des grossesses non suivies à Lubumbashi, République Démocratique du Congo. *Pan Afr Med J*. 29 mai 2019 ;33 :66.
2. Recommandations de OMS concernant les soins prénatals pour que la grossesse soit une expérience positive, 2016.
3. Unicef la situation des enfants dans le monde 2009 : la santé maternelle et néonatale
4. Institut National de la Statistique (INSTAT) Enquête Démographique et de Santé du Mali (EDSM-VI) 2018
5. Zafar A, Shariq K, S. Suha T. Antenatal care and the occurrence of low-birth-Weight delivery among women in remote mountainous region of Chitral, Pakistan. 2012 ;800-5.
6. Théra T, Traoré Y, Tégoué I, Kouma A, Traoré M, Sangala M, Kané F, Dolo. Maternal and Perinatal Prognosis of no perinatal care's pregnancies in Malian rural environment. *Annales de la SOGGO N°27, Vol11* (2016)
7. Samaké A, Traore SO ; Keita Mamadou , and col Materno-foetal issue of pregnancy without prenatal care in a reference health center of Council V in Bamako Health Sci. Dis: Vol 21 (2) February 2020
8. De Souza J. Adisso S.Takpara I, Wanda D, Ngounou R, Alihonou E. Hémorragies graves en obstétrique: Incidence et pronostic à la Clinique de Cotonou. *Journal de la SAGO, 2003, Vol.1, n°1, 37-40.*
9. Akpaza J K, Baeta S , Amadou A , Ankou A. Accouchement sans surveillance medio obstétricale dans la commune de Lomé. *Journal de la SAGO, 2004, Vol.5, n° 1, p.9-14*
10. Traore Y., Tégoué I., Thera A.T, Mulbah J K., Mounkoro N., Diarra I., Diabate F. S., Traore M., Diakite S., Dolo A. Socio-demographic and prognosis aspects of unfollowed pregnancies of patients admitted in the department of Gynaecology-obstetric of Gabriel Toure hospital. *Mali Médical 2007 T XXII N°2: 39-43*
11. Diarra N. Aspects épidémio-cliniques et pronostic materno-foetal de l'éclampsie dans le service de gynécologie-obstétricale du CHU Kati Secteur d'intérêt: gynécologie-obstétricale. Université des Sciences, des Techniques et des Technologies de Bamako ; 2020
12. Abu-Ghanem S, sheiner E, Sherf M and col. Lack of prenatal care in traditional community: Trends ant perinatal outcomes. *Archives of Gynecology and Obstetrics*. 2011;285(5):1237-1242.