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Prevalence and factors associated with unskilled childbirth attendance in Guinea: Analysis of the 2018 Demographic and Health Survey

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Fanta Barry[1], Mamadou D. Balde[1], Madeleine Toure[1], Ramata Diallo[1], Tiany Sidibe[1], Saran Camara[1], Kaba S. Keita[1], Bienvenu S. Camara[2,3], Karifa Kourouma[3] and Maimouna Balde[1]*

Center for Research in Reproductive Health in Guinea (CERREGUI), Conakry, Guinea[1] ; Gamal Abdel Nasser University of Conakry, Conakry, Guinea[2]; National Center for Training and Research in Rural Health in Maferinyah, Guinea[3]

***For Correspondence:** Email: *fantb244@gmail.com*; Phone: 224 628068112/ 656106488

Abstract

This study aimed to analyze the prevalence and factors associated with the unassisted delivery by qualified health personnel in the Republic of Guinea, based on data from the 2018 demographic and health survey. Multivariate logistic regression was used to identify the associated factors. The prevalence of unassisted delivery was 40.8%; it was 38.4% in rural areas and 2.3% in urban areas. Factors associated with this type of delivery included the performance of no ANC (ORa = 6.19 IC95%: [4.86 - 7.87], p<0.001) and those who had performed one to three ANC (ORa =1.75 IC95%: [1.49 - 2.05], p<0.001) the perception of the distance to the health institution as a problem (ORa =1.28 IC95%: [1.10 - 1.48], p<0.001), belonging to the poor wealth index (ORa = 2.77 IC 95%: [2.19 - 3.50], p<0.001) and average (ORa = 2.01 IC95%: [1.57 - 2.57], p<0.001), the fact of residing in the region of Faranah (ORa = 2.24 IC95%: [1.37 - 3.65], p<0.001) and rural areas (ORa = 4.15 IC95%: [3.10 - 5.56], p<0.001). Strengthening community awareness, making functional ambulances available to rural health centers and making prenatal care inputs available in health institutions would help to reduce the scale of unassisted deliveries in the Republic of Guinea. *(Afr J Reprod Health 2024; 28 [6]: 47-54).*

Keywords: Factors, unassisted delivery, Women aged from 15 to 49, Demographic and health survey, Guinea

Résumé

Cette étude visait à analyser la prévalence et les facteurs associés à l'accouchement non assisté par un personnel de santé qualifié en Guinée, partant des données de l'enquête démographique et de santé de 2018. La régression logistique multivariée a servi à identifier les facteurs associés. La fréquence de l'accouchement non assisté était de 40.8% ; elle était de 38.4% en milieu rural et 2.3% en milieu urbain. Les facteurs associés à ce type d'accouchement comprenaient la réalisation d'aucune CPN (ORa =6.19 IC95% : [4.86 - 7.87], p<0.001) et celles qui avaient réalisées une à trois CPN (ORa =1.75 IC95% : [1.49 - 2.05], p<0.001) la perception de la distance pour la structure de santé comme un problème (ORa =1.28 IC95% : [1.10 - 1.48], p<0.001), l'appartenance à l'indice de richesse pauvre (ORa =2.77 IC95% : [2.19 - 3.50], p<0.001) et moyenne (ORa =2.01 IC 95% : [1.57 - 2.57], p<0.001), le fait de résider dans la région de Faranah (ORa =2.24 IC95% : [1.37 - 3.65], p<0.001) et rurale (ORa =4,15 IC 95% : [3,10 - 5,56], p<0,001). Le renforcement de la sensibilisation communautaire, la mise d'ambulances fonctionnelles à la disposition des centres de santé ruraux et rendre disponible les intrants de soins prénatals dans les structures sanitaires contribueraient serte à réduire l'ampleur des accouchements non assistés en Guinée. *(Afr J Reprod Health 2024; 28 [6]: 47-54).*

Mots-clés: Facteurs, accouchement non assisté, Femmes de 15 à 49 ans, Enquête démographique et de santé, Guinée

Introduction

Globally in 2020, nearly 800 women died every day from complications related to pregnancy or delivery; 99% of these deaths occur mainly in low- and middle-income countries[1]. In sub-Saharan Africa, the high risks of maternal and neonatal morbidity and mortality are mainly linked to the practice of unassisted delivery by a qualified health personnel[2,3]. Thus, quality care provided by qualified health personnel before, during and after delivery helps to save the lives of women and their newborn babies[1].

In sub-Saharan Africa, a study carried out in thirty countries between 2010 and 2019 found that the overall prevalence of unassisted delivery by

qualified health personnel was 27%[2]. Previous studies have also highlighted that the prevalence of unassisted delivery by qualified health personnel was 12% in Tanzania in 2020 and 19% in Sudan in 2010[4,5]. A study carried out in sub-Saharan Africa showed that the place of residence, wealth quintile, age of the woman, the level of education, marital status, occupation, exposure to the media, obtaining money needed for care, the distance perceived as a problem, the desire to deliver, the number of prenatal consultations, and the country of residence had a significant relationship with unassisted delivery by qualified health personnel[2]. Also, in Sudan in 2010, the authors reported that the low level of education, the insufficient prior knowledge of pregnancy, the ignorance of the danger signs after delivery, and the non-utilization of maternal care services were associated with unassisted delivery by qualified health personnel[5].

In Guinea, data of the 2018 demographic and health survey (DHS) showed that 40.8% of women had given birth without the assistance of qualified health personnel[6]. However, studies carried out in Guinea have focused on the effect of antenatal care on the use of assisted delivery by qualified health personnel[7,8]. To date, we have not found any studies on the determinants of this phenomenon in the Guinean context of high maternal and neonatal mortality. To help resolve this problem, we intend, through this study, to answer the following question: what are the prevalence and factors associated with unassisted delivery in Guinea among women aged from 15 to 49, based on DHS data of 2018?

The results of this study will help guide maternal health service delivery policies to reduce maternal and neonatal morbidity and mortality. The objective of this study was to analyze the prevalence and factors associated with unassisted delivery in Guinea, based on data of the 2018 DHS.

Methods

Study framework

The Republic of Guinea is a country located in West Africa. It had nearly 13 million inhabitants in 2022[8]. Around 44% of the population lived below the poverty line, estimated at GNF 16 423/person/day or 1.6 EURO in 2019[9]. The Guinean households are distributed unequally, almost two thirds of households are located in rural areas (65%) compared to 35% in urban areas[8]. The Synthetic Fertility Index indicates an average of 4.8 children per woman in 2018[6]. The maternal mortality rate in 2020 was 553 women per 100 000 live births according to the latest data from the World Bank[10]. In Guinea, the primary health care system is supported at the base by the community health workers and community relays who provide health education, awareness, prevention and the referral of women for maternal health care in health institutions[11].

Type and period of study

This was a secondary analysis of data of the Guinea DHS carried out from March 27 to June 28, 2018.

Study population and sampling

Our study population consisted of all women aged from 15 to 49 with data collected from the individual questionnaire. The number of women interviewed was 10 874. For this analysis, we retained those 5467 women aged from 15 to 49 who declared having at least one live birth during the last five years preceding the survey (at the last delivery giving birth to a living child). The study excluded women who had no live births in the past five years, who had an assisted delivery by qualified health personnel and those whose age was less than 15 years. We extracted data from the 2018 Demographic and Health Survey of Guinea (DHS 2018). This is a nationally representative demographic and household survey that collects data on a wide range of topics related to maternal and child health, including delivery room attendance in Guinea. The 2018 DHS used a two-stage stratified random sample representative at the national level and at the level of residence[6].

Study variables

Dependent variable

We considered as dependent variable, unassisted delivery is when the delivery is carried out by unqualified personnel i.e. by a person who is neither a doctor, nor a nurse, nor a midwife, by a qualified birth attendant.

This variable was dichotomized (0=Assisted delivery) and (1=Unassisted birth)[12,13].

Independent variables

The independent variables were the woman's age, the woman's level of education, the distance from a health center perceived as a problem, the area of residence, the region of residence, the household wealth index, the woman's occupation, the number of antenatal consultations, parity, the spouse's level of education and exposure to the media[14,15].

Data processing and analysis

The data were processed and analyzed with stata version 16.1 software. The sociodemographic characteristics of participants to the study were described as proportions or means with their standard deviations.

In univariate analysis, simple logistic regression was performed to determine the association between the dependent variable and each of the independent variables. For the construction of the multivariate model, a variable is retained when its degree of significance p-value was less than 20%.

In multivariate analysis, the ascending stepwise method was adopted for fitting the final model. The adjusted odds ratios were estimated with their p-value and their 95% confidence intervals (CI). For the specification of the final model, post-estimation tests were used.

Ethical considerations

As part of the implementation of the DHS, approval of the Guinea Health Research Ethics Committee was obtained before its implementation and the survey participants gave their consent. For this study, we obtained the database after a request to the DHS database management program which gave us its agreement for its exploitation.

Results

Sociodemographic characteristics of participants

The average age of the women in the sample was 27.5 ± 0.09; those aged from 25 to 34 constituted the most represented age group (39%); adolescents and

Table 1: Sociodemographic characteristics of women aged 15 to 49 who have had at least one birth, based on data from the 2018 Demographic and Health Survey in Guinea

Variables	Numbers (%)
Women's mean age	27.7 ± 0.09
Age group (years)	
15-24	1872 (35.0)
25-34	2145 (39.0)
35-49	1450 (25.9)
Education level instead	
No formal education	4155 (75.9)
Primary	620 (11.0)
Secondary/ Higher	692 (13.0)
Husband's education level	
No formal education	3695 (72.8)
Primary	359 (7.0)
Secondary/ Higher	978 (20.1)
Marital status	
Single	232 (4.4)
Married/In union	5098 (92.9)
Widowed/Divorced	137 (2.5)
Whether the woman currently have a job	
Does not have a job	1748 (30.8)
Has a job	3719 (69.2)
Number of antenatal care visits	
None	790 (14.3)
1 to 3	2631 (49.3)
4 or more	1899 (36.2)
Media exposure	
No	1839 (32.8)
Yes	3628 (67.1)
Distance to the health facility perceived as a problem	
A problem	2695 (47.9)
Not a problem	2772 (52.0)
Household size	
≤ 6 Members	2364 (44.1)
>6 Members	3103 (55.8)
Household wealth index	
Poor	2471 (44.7)
Medium	1042 (19.5)
Rich	1954 (35.6)
Region of residence	
Conakry	518 (12.3)
Boké	779 (10.6)
Faranah	707 (10.0)
Kankan	802 (16.8)
Kindia	735 (15.0)
Labé	678 (11.4)
Mamou	550 (7.8)
Nzérékoré	698 (15.8)
Place of residence	
Urban	1646 (30.2)
Rural	3821 (69.7)

Table 2: Factors associated with unskilled birth attendance among women aged 15-49, using data from the 2018 Demographic and Health Survey in Guinea

Variables	Crude OR	95% IC	p-value	Adjusted OR	95% IC	p-value
Age group (years)						
15-24	1			1		
25-34	1.02	[0.89 – 1.18]	0.696	0.85	[0.7 – 1.01]	0.071
35-49	1.15	[0.98 – 1.34]	0.071	0.78*	[0.6 – 0.93]	**0.05**
Education level instead						
No formal education	7.90	[6.05 – 10.32]	< 0.001	1.90***	[1.3 – 2.62]	**< 0.001**
Primary	3.53	[2.56 – 4.87]	< 0.001	1.30	[0.8 – 1.89]	0.163
Secondary/ Higher	1			1		
Husband's education level						
No formal education	4.11	[3.41- 4.95]	< 0.001	1.47***	[1.18 - 1.83	**< 0.001**
Primary	2.44	[1.81- 3.30]	< 0,001	1.27	[0.9 - 1.76]	0.134
Secondary/ Higher	1					
Marital status						
Single	0.32	[0.22 – 0.47]	< 0.001	-	-	-
Married/In union	1					
Widowed/Divorced	0.58	[0.38 – 0.88]	< 0.001	-	-	-
Whether the woman currently have a job						
Does not have a job	1.06	[0.93 – 1.21]	0.314	1.12	[0.9 – 1.31]	0.139
Travaille actuellement	1					
Number of antenatal care visits						
None	11.62	[9.28 – 14.55]	< 0.001	6.19***	[4.8 – 7.87]	**< 0.001**
1 to 3	2.50	[2.16 – 2.89]	< 0.001	1.75**	[1.4 – 2.05]	**< 0.001**
4 or more	1			1		
Media exposure						
No	2.11	[1.85 – 2.41]	< 0.001	-	-	-
Yes	1					
Distance to the health facility perceived as a problem						
A problem	2.79	[2.45 – 3.17]	< 0.001	1.28***	[1.1 – 1.48]	**< 0.001**
Not a problem	1			1		
Household size						
≤ 6 Members	1			-	-	**-**
>6 Members	1.00	[0.88 – 1.14]	0.942	-	-	**-**
Household wealth index						
Poor	12.13	[10.0 – 14.65]	< 0.001	2.77**	[2.1 – 3.50]	**< 0.001**
Medium	5.95	[4.79 – 7.39]	< 0.001	2.01**	[1.5 – 2.57]	**< 0.001**
Rich	1			1		
Region of residence						
Conakry	1			1		
Boké	16.36	[10.6 – 25.19]	< 0.001	1.51	[0.9 – 2.46]	0.097
Faranah	26.60	[17.2 – 41.10]	< 0.001	2.24***	[1.3 – 3.65]	**< 0.001**
Kankan	12.61	[8.15 – 19.51]	< 0.001	1.16	[0.7 – 1.86]	0.517
Kindia	12.06	[7.82 – 18.59]	< 0.001	1.49	[0.9 – 2.38]	0.093
Labé	22.33	[14.4 – 34.52]	< 0.001	1.40	[0.8 – 2.29]	0.170
Mamou	11.60	[7.43 – 18.10]	< 0.001	0.70	[0.4 – 1.16]	0.174
Nzérékoré	10.55	[6.81 – 16.36]	< 0.001	0.83	[0.5 – 1.34]	0.461
Place of residence						
Urbain	1			1		
Rural	14.31	[11.6 – 17.62]	< 0.001	4.15***	[3.1 – 5.56]	**< 0.001**

****p< 0.001, **p< 0.01, *P< 0.05*

young people represented 35% (Table 1). The majority (92.9%) were married, lived in rural areas (69.7%) and were not educated (75.9%). Nearly a fifth of women (19.5) lived in households considered middle-rich.

Prevalence of unassisted delivery in Guinea

The prevalence of women in the sample who were not assisted by a qualified health personnel during delivery was 40.8% (95% CI = [39.28 - 42.37]). This prevalence was higher among women living in rural areas 38.4% (95% CI = [36.89 - 39.99]) compared to those in urban areas 2.3%.

Factors associated with unassisted delivery

Table 2 presents factors associated with unassisted delivery. These factors, in univariate analysis, were the level of education of the woman and that of the spouse, marital status, number of antenal consultations, current work of the woman, exposure to the media, distance from the establishment of health perceived as a problem, the wealth index, the region of residence and the place of residence.

In multivariate analysis, only the age of the woman, the level of education of the woman and that of the spouse, the distance from the health establishment perceived as a problem, the number of prenatal consultations, the wealth index, the region of residence and place of residence were associated with unassisted delivery. The uneducated Women were 1.90 times more likely to give birth without the assistance of a health worker compared to women with no secondary education (ORa = 1.90 CI 95%: [1.38 - 2.62], p<0.001). Likewise, women whose spouses were not educated had a greater risk of giving birth without the assistance of a qualified health personnel compared to those whose spouses had a secondary or higher levels of education (ORa = 1.47 CI 95%: [1.18 - 1.83], p<0.001). Those who had not performed any ANC and those who had performed one to three ANC were 6.19 and 1.75 times more likely to give birth without assistance compared to those who had performed 4 ANC and more (ORa = 6.19 CI 95%: [4.86 - 7.87], p<0.001) and (ORa = 1.75 CI 95%: [1.49 - 2.05], p<0.001), respectively. In addition, women who perceived the distance from their home to the health facility as a problem were 28% more likely to give birth without assistance of a qualified health personnel compared to those who did not perceive this distance as a problem (ORa = 1.28 CI 95%: [1.10 - 1.48], p<0.001). The risk of unassisted delivery was higher among women with an average wealth index compared to rich women 2.01% (ORa =2.01 CI95%: [1.57 - 2.57], p<0.001) and poor women 2.77% (ORa =2. 77 CI 95%: [2.19 - 3.50], p<0.001). The risk of unassisted delivery was 2.24 times higher among women in the region of Faranah than those in the city of Conakry (ORa =2.24 CI 95%: [1.37 - 3.65], p<0.001). Women residing in rural areas had a higher risk of giving birth without the assistance of a qualified health personnel compared to those living in urban areas (ORa =4.15 CI 95%: [3.10 - 5.56], p<0.001). Finally, women aged from 35 to 49 were less likely to give birth without the assistance of a qualified health personnel than those aged from 15 to 24 (ORa = 0.78 CI 95%: [0.65 - 0.93], p<0.05).

Discussion

Our study shows that in Guinea in 2018, out of ten women who had had at least one live birth, four had delivered without the assistance of a qualified health personnel. This prevalence was higher in rural areas than in urban areas. The factors associated with unassisted delivery were the failure to perform the ANC, the fact of carrying out at least three ANC, perceiving the distance from the health facility as a problem, having no level of education, having a spouse with no level of education, living in households with a poor and medium-poor wealth index, residing in the region of Faranah and residing in a rural area. These results have an important implication for maternal health in Guinea.

The prevalence in our study is higher than studies conducted in Nigeria in 2022 and Sudan in 2016[5,17]. This prevalence is much higher in rural areas than in urban areas. Similarly, a study covering thirty countries in Sub-Saharan Africa in 2023 reported that a third of women residing in rural areas used the services of unqualified birth attendants[2]. The high prevalence in the Guinean context could be explained in one hand by the fact that women living in rural areas are much more attached to morals and customs which could influence the choice of place of delivery. On the other hand, the fact that the number of health personnel is very limited in rural areas can be a barrier preventing women from attending health facilities. Therefore, this could increase the rate of

maternal and neonatal morbidity and mortality in the community. Thus, it would be necessary to deploy more health personnel in rural areas.

Regarding the issue of distance, our results show that women who considered distance from the health facility as a problem were more likely to deliver without assistance of a qualified health personnel. Our results are contrary to those reported by Konate *et al* in 2014 in Mali[12]. This could be explained by the fact that health personnel do not provide care for women who live far from health facilities. Consequently, this would increase the rate of unassisted births but also the risk of maternal and neonatal morbidity and mortality in the community. Strong government involvement would therefore be necessary in order to provide functional ambulances to primary health centers, especially in rural areas.

In addition, the study revealed that the number of ANC was a predictive factor for unassisted delivery by qualified health personnel. These results corroborate with those of previous studies carried out respectively in Sub-Saharan Africa[2] and Sudan[5]. The results found in this study could be explained by the shortage of inputs in health institutions. Consequently, failure to perform ANC not only results in complications linked to pregnancy but reduces the chances of going to health centers for medical follow-up. It would be important to ensure the availability of CPN inputs in health centers and to strengthen the awareness-raising activity of community relays by targeting all isolated localities.

The results of our study show that women residing in the Administrative Region of Faranah and those living in poor and middle-poor households are more likely to deliver without the assistance of qualified health personnel. In a study conducted in Mali in 2014, the authors reported that mothers from poor households were more likely to deliver without the assistance of qualified health personnel[12]. The higher susceptibility of poorer women to deliver without the assistance of a qualified health worker in Guinea could be due to the cost of providing health care services during delivery and the lack of information on risk of complications related to pregnancy and delivery. Thus, it would be necessary to ensure the access to maternal health care services in the community and to ensure the effective application of free delivery policies.

Strengths and limitations

The study has certain limitations. The information collected on unassisted delivery was based on the recall of women over the past five years and therefore, there may be recall bias. In addition, having carried out a secondary analysis of the data (already collected), we were unable to evaluate certain variables likely to influence women's use of health services, in particular variables relating to cultural norms and practices, attitudes of health personnel, health and women's perception regarding the choice of place of delivery. In addition, the 2018 DHS carried out a cross-sectional study, which does not make it possible to establish the temporal relationship between associated factors and unassisted delivery. Nevertheless, this study has a strength which gives it the merit of being published. The data analyzed are representative of the general population of the Guinean women of childbearing age in the sense that it was a national survey.

Implication for research and practice

The results of this study will help guide decision-makers in implementing promising strategies. One strategy would be to train the health personnel and community health workers on respectful care to raise community awareness. To promote the expansion of health centers for maternal and neonatal health care in rural areas and to provide functional ambulances to primary health centers, especially in rural areas. To strengthen the awareness-raising activity of community relays by targeting all isolated localities. To ensure the effective application of free delivery policies. However, future research is needed to better understand the reasons for unassisted deliveries by qualified health personnel from a qualitative perspective.

Conclusion

Our study shows that out of ten women who had at least one live birth, four delivered without the assistance of a qualified health personnel. This prevalence was higher in rural areas than in urban areas. Failure to perform the ANC, perceiving the distance from the health center as a problem, having no level of education, living in households with a

poor and medium-poor wealth index, residing in the region of Faranah and rural areas, were the factors associated with unassisted delivery by qualified personnel. In the Guinean context, it is crucial to deploy more health personnel in rural areas while motivating them with remoteness bonuses and privilege them with the opportunity of continuing training, to make ANC inputs available in health centers while strengthening the awareness-raising activity carried out by the community relays and making functional ambulances available to primary health centers, especially in rural areas.

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Authors' contributions

FB, MDB, BSC and KK participated in the study design, MT, BSC, RD, TS, FB, SC contributed to the data analysis. All authors participated in the interpretation of the data, writing and revision of the manuscript. All authors contributed to the revision of the final work.

Availability of data and materials

Data from the Guinea Demographic and Health Survey (DHS) generated and/or analyzed during this study are available and accessible on the DHS program website (https://dhsprogram.com/Data/terms- of-use.cfm).

Competing interests

The authors declare that they have no competing interests.

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