Factors associated with low uptake of postnatal care in the Central Region, Togo, 2020: A case-control study

KEYWORDS: Postnatal consultation, Low use, Central region, Togo

Péléké Mawaba Hilim[1,&], Jean Kaboré[2], Agballa Mébiny-Essoh Tchalla Abalo[3], Pauline Yanogo[2], Kassouta N'tapi[4], Hamadi Simon-Pierre Assane[5], Nicolas Meda[3], Ghislain Sopoh[6]

[1]Direction Préfectorale de la Santé de Tône, Togo, [2]Coordination du Programme de formation en épidémiologie et laboratoire de terrain du Burkina Faso (BFELTP) Université Ouaga 1, Professeur Joseph KI–ZERBO, Burkina Faso, [3]Direction de la Santé et de la Protection Sociale, Département du Développement Humain, Commission de l'Union Economique et Monétaire Ouest Africaine, [4]Direction régionale de la santé-Région Centrale, Togo, [5]Direction de la Lutte contre la Maladie et des Programmes de Santé Publique, Ministère de la Santé, Togo, [6]Institut Régional de Santé Publique Comlan Alfred Quenum, de Ouidah, Bénin.

&CORRESPONDING AUTHOR
Péléké Mawaba Hilim, Direction Préfectorale de la Santé de Tône, Togo, Email: hilimalain@yahoo.fr
ORCID: https://orcid.org/0009-0004-5277-7441

RECEIVED
03/01/2024

ACCEPTED
08/07/2025

PUBLISHED
08/07/2025

LINK

https://afenet-journal.org/factors-associated-with-low-uptake-of-postnatal-care-in-the-central-region-togo-2020-a-case-control-study/

©Péléké Mawaba Hilim et al. Journal of Interventional Epidemiology and Public Health [Internet]. This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

CITATION
Péléké Mawaba Hilim et al Factors associated with low uptake of postnatal care in the Central Region, Togo, 2020: case-control study. Journal of Interventional Epidemiology and Public Health. 2025;8:49. https://doi.org/10.37432/jieph-d-25-00004

ABSTRACT

Introduction: Postnatal care (PNC) helps reduce maternal and neonatal mortality. In the Togo Central Region, PNC coverage is low at less than 50% and the explanatory factors are not documented. We aimed to determine the factors associated with low PNC coverage among women aged 15 to 49 in the region. **Method**: We conducted a case-control study with 171 cases and 342 controls. A case was any woman who performed none or only one PNC visit within 42 days of leaving the health facility after a live birth, between December 26, 2019, and November 12, 2020, while a control was any woman who had carried out at least two PNC visits during the same period. The women were selected by systematic sampling. By multivariate logistic regression analysis, factors independently associated with low uptake of postnatal care were identified. **Results**: Adequate PNC coverage was 37.4% (95% CI: 36.0 – 38.8). The median age of cases was 25 years (IQR=20-30) and that of controls was 26 years (IQR=21-30), (p=0.056). Lower level education of the partner (aOR=1.82, 95% CI=1.09-3.04), unwanted pregnancy (aOR=2.07, 95% CI=1.32-3, 25), incomplete prenatal consultations (ANC) a(OR=3.14, 95% CI=2.02-4.88), having chronic diseases (aOR=4.89, 95% CI=1.25 -19,14) were independently associated with low uptake of postnatal care. **Conclusion**: The study confirmed the low uptake of postnatal care, and associated factors are sociodemographic and clinical. The implementation of strategies to promote universal access to education and universal health coverage will help improve uptake of postnatal care.

Introduction

Maternal mortality has reached an unacceptable level globally [1,2] and remains a major public health problem [3]. Complications related to pregnancy and childbirth still account for the deaths of approximately 810 women every day worldwide [1], and the majority of these deaths occur in the postnatal period [4–6]. Postnatal care (PNC) consultations are essential to preserve or restore the woman's health and monitor the condition of the newborn and infant after delivery; it is therefore a health service which contributes to the survival and development of the mother, the newborn and the infant. Togo has made good progress in the use of postnatal care, with initial postnatal care coverage outside the health centre, which increased from 40.37% to 58.6% between 2018 and 2019 [7,8]. However, adequate coverage of these services is still low at 28.13% in 2018 and 45.2% in 2019 [7–10]. Togo recorded a maternal mortality ratio of 401 per 100,000 live births in 2014 [11], while it was 216 maternal deaths per 100,000 live births in 2015[12,13] at the world level.

The World Health Organization (WHO) defines the postnatal period as the first six weeks after giving birth. This is a crucial period for the mother and her newborn [5,14,15]. Several serious complications can occur during this period and lead to maternal, neonatal and infant deaths, particularly in low- and middle-income countries. To overcome these risks, WHO recommends four postnatal visits. Two visits in the immediate postpartum period; the first visit during the first 24 hours and the second in the 48 to 72 hours before leaving the health center. Two visits after leaving the health center; the first between the seventh and fourteenth day after delivery, and the second to the sixth week after delivery[16,17]. Studies conducted in other contexts have identified factors associated with the use of postnatal care. Region, place of residence, age group, mother's education level, mother's occupation, media exposure, prenatal visits (ANC), place of delivery and access to health centres were determinants of the use of postnatal care in sub-Saharan Africa[18]. A cross-sectional study carried out in Burkina Faso revealed that the woman's educational level, economic level and decision-making power are factors associated with the use of postnatal consultation [19]. In Nigeria, in a cross-sectional study using the 2013 Demographic and Health Survey, the distance between the locality of residence and the health center, the level of education, the place of delivery, the region and the level of household income were associated with non-utilisation of postnatal care services [4].

Although PNC coverage has increased in Togo[7,8], its continued use remains low, and the maternal mortality ratio is 6 times higher than the 70 maternal deaths per 100,000 live births recommended by Objective No. 3 of the Sustainable Development Goals (SDGs) [20]. In Togo, no study has addressed the reasons for the non-use or low use of PNC in general and specifically in the Central Region.

Knowledge of these factors in the Central Region will make it possible to reorient, adjust the policy and strategies in place and identify specific ones whose implementation will contribute to reducing maternal, neonatal and child mortality in the Central Region. This study aims to identify the adequate coverage of the use of PNC and the sociodemographic, economic, as well as health care system factors associated with the low use of PNC among women aged 15 to 45 in the Central Region of Togo in 2020.

Methods

Study setting and study area

Togo's health system is organised into six health regions: Savanes Kara , Central, Plateaux, Maritime and Greater Lomé Regions. The management of the health system is based on a pyramidal organization at three levels: central, intermediate and peripheral[7]. Togo has retained in its protocol on reproductive health, two postnatal visits apart from the two immediate postpartum visits: the 8th day and the 42nd day after delivery[21]. The Central Region is subdivided into five health districts, namely Blitta, Sotouboua, Tchamba, Mo and Tchaoudjo, with a total population estimated at 777,509 inhabitants in 2019, distributed in 904 villages[7]. With a workforce of 108 health centres in 2019, of public, private and religious, geographical accessibility is 61%. Each health district has a district hospital playing the reference role and a regional hospital in the regional capital. Postnatal care is an integral part of the minimum primary health care package in health centres. The proportion of literate women aged 15 to 49 in the region is 41% and the poverty index is 47.3%[22]. The source of financing for health care comes from households, whose income

comes mainly from agriculture and small businesses [23].

Study design and population

An unmatched case control study was conducted among women aged 15-49 in a third of the health centres chosen by simple random sampling in all health districts, i.e. 35 health centres included in the study. The study population included women aged 15-49 whose last live birth occurred between December 26, 2019 and November 12, 2020.

Operational definitions

A case was any woman aged 15 to 49 who gave birth to a live child between December 26, 2019 and November 12, 2020, who did not carry out any PNC consultation or had only one within 42 days following leaving the health centre after childbirth. The control was any woman of the same age group who performed at least two PNC consultations during the same period. The socioeconomic level of the household was determined from 10 items to construct a subjective poverty score[24,25]. Adequate postnatal care coverage was defined as the proportion of women who had given birth who attended at least 2 PNC contacts after discharge from the health center, among all women reported to have given birth during the period. Initial coverage was defined as the proportion of women who had given birth and had a single health care contact (PNC) after discharge from the health centre among all women reported to have given birth during the period.

Data sources

The data sources for the study were delivery registers, prenatal consultation (ANC) registers, PNC registers in health centres and women interviewed at home as well as their pregnancy monitoring diary.

Data collection and study variables

We extracted from the records variables that were related to the study objectives using a predefined questionnaire. Age, mode of delivery, parity, occurrence of delivery complications and number of PNC visits were the main independent variables. The dependent variable in this study was low uptake of PNC, with a maximum of one PNC visit. It was classified as a dichotomous variable in relation to the number of PNC visits carried out within 42 days following discharge from the health centre after delivery. We included any woman meeting the definition of case or control, whose study data were available, and who consented to the study. Randomly selected women were interviewed individually using an interview guide during a community survey. Other sociodemographic, economic and sociocultural explanatory variables such as district of residence, area of residence, sex of the child, educational level of the mother and that of the spouse, marital status, type of marriage, professional category of the mother and that of the spouse, socio-economic level of the household, maternal health decision-making, knowledge of PNC services, knowledge of childbirth complications, and considering PNC necessary were collected. Obstetric variables and those linked to the health system such as desire for pregnancy, place of delivery, time to access the health center, medical insurance, history of abortion and chronic diseases were also collected. Data collection was digitized using the kobocollect® application v2021.2.4.

Sampling and sample size

The study included all health districts in the Central Region. In each district, one-third of healthcare facilities were selected by simple random sampling. In each selected health centre, we established a sampling frame of cases and controls using the delivery and postnatal consultation register, and we then carried out systematic sampling. In each of the sampling frames of cases and controls, we calculated a sampling step, then, using the "*ALEA*" formula in Microsoft Excel, we selected the required list of cases and controls. The mother's educational level was chosen as the main independent variable based on the literature review[3,5,18,26–28]. The minimum sample size of 495 women was estimated using the "Statcalc" function of Epi-Info® software version 7.2.1. The calculation elements were: a ratio of one case for two controls, a confidence interval (CI) of 95%, an odd ratio (OR) of 2, a power of 95%, an alpha risk of 5% and an literacy rate of women aged 15 to 49 in the central region in 2019 of 41%[22]. With a non-response rate estimated at 20%, 513 women were surveyed including 171 cases.

Data processing and analysis

An Excel database was extracted from the kobocollect® application v2021.2.4. The cleaning of this database consisted of ridding it of all erroneous data. We verified the completeness of the records, searched for and removed duplicates, completed missing data and checked the consistency of the

data. After processing, data analysis was carried out using SAS® version 9.4 software.

Descriptive phase

We calculated the median with its interquartile range (IQR) for the continuous variables and frequencies and proportions with 95% CI for categorical variables. We used the chi-square test to express the degree of significance of the difference between cases and controls. To determine the initial coverage of the PNC, we calculated the proportion between the number of women with live births who performed at least one PNC visit after leaving the health centre and the number of women with live births over the period. For adequate coverage of PNC, we calculated the proportion between the number of women delivered with a live birth who had achieved at least two PNC visits and the number of women delivered with a live birth.

Analytical phase

The identification of factors associated with the low PNC use led us to perform logistic regression (univariate and multivariate analysis) on the complete data. For model adjustment, the independent variables associated with the low use of PNC with a p-value≤0.20 were retained. Since the variable mother's educational level is our main independent variable, whatever its p-value of association with low PNC use, it was included in all models. All other explanatory variables found in the literature were also forced into the final model. Multivariate regression was performed to identify independent variables associated with low PNC use. We analysed the odds ratio with its 95% CI as well as the p-value associated with the 5% significance threshold. To check the adequacy of the model, we used the Hosmer-Lemeshow test.

Ethical considerations

The study was approved by the Central Region health office and the coordinator of the field epidemiology and laboratory training program of Burkina Faso. Anonymity was maintained by using identification numbers instead of respondents' names. Written informed consent was obtained from the respondents before participating in the study. Women and their spouses from the concessions visited were talked to about the importance of PNC.

Results

PNC coverage

Of the 4,721 live births delivered during the period, adequate coverage was 37.4% (1767/4721) 95% CI: [36.0 – 38.8] (**Table 1**).

Sociodemographic, economic and sociocultural characteristics

The median age of cases and controls was 25 years (IQR=20-30) and 26 years (IQR=21-30), respectively, p=0.056. The male newborn accounted for 59.7% of cases and 51.2% of controls. Mothers with at least a secondary education level were 28.1% among cases and 27.8% controls, p=0.111. Women who resided in rural areas represented 88.9% of cases and 78.4% of controls, p=0.004. The socioeconomic level was low in 45.6% of cases and 32.8% of controls, p=0.017 (**Table 2**).

Obstetric characteristics and those linked to the health system

Seventy per cent of cases had an unwanted pregnancy compared to 55.3% controls, p<0.001. The four recommended PNC visits were performed by 26.9% of cases and 54.4% of controls, p <0.001. Home births occurred in 5.3% cases and 2.9% controls, p=0.186. Women who did not have health insurance coverage represented 97.1% of cases and 91.2% of controls, p=0.013 (**Table 3**).

Factors associated with low PNC use

In univariate logistic regression analysis (**Table 4, 5**), of sociodemographic factors, women whose spouses had a primary education level had a higher probability of low uptake of PNC (crude odds ratio (cOR)=2.04, 95% CI: 1.32–3.15) compared to those whose spouses had a secondary education and above. Women residing in rural areas had 2.21 higher odds of low uptake of PNC than those residing in urban areas (cOR=2.21, 95% CI: 1.29–3, 80).

For economic factors, women from households with a low socioeconomic level were almost twice as likely to have low PNC use than those with a high socioeconomic level (cOR=1.69, 95% CI: 1.04 – 2.76). Not knowing about the existence of PNC had higher odds of low uptake of PNC compared to those who were knowledgeable (cOR=1.91, 95% CI: 1.06–3.42).

For obstetric and clinical factors, women who did not want their pregnancy had higher odds of low

uptake of PNC (cOR=1.96, 95% CI: 1.32–2.90). Performing less than 4 recommended antenatal care (ANC) before delivery represented higher odds of low uptake of PNC (cOR=3.24, 95% CI: 2.17–4.83). The presence of history of chronic diseases in the mother represented higher odds of low uptake of PNC (cOR=3.31, 95% CI: 1.07–10.27).

Regarding health care system factors, lack of health insurance coverage represented higher odds of low uptake of PNC (cOR=3.19, 95% CI: 1.22–8.38).
In multivariate logistic regression (**Table 6**) the factors independently associated with low uptake of PNC were low level of education of spouse (Adjusted OR (aOR)=1.82, 95% CI=1.09-3.04); non-desire for pregnancy (aOR=2.07, 95% CI=1.32-3.25), having performed less than 4 ANC (aOR=3.14, 95% CI=2.02-4, 88), and presence of a history of chronic illnesses (aOR=4.89, 95% CI=1.25-19.14).

Discussion

Uptake of PNC is lowest in Togo Central Region. This case-control study aimed at investigating correlates of low PNC uptake among women aged 15–49 in this region. In the multivariate regression model, four variables showed significant association with low PNC uptake and these are low education level of spouse, non-desire for pregnancy, having attended less than the recommended 4 ANC visits and presence of chronic illnesses history.. The results show low adequate coverage of postnatal care utilization in the Central Region of Togo, as has already been documented in the country[7].
Our study reported a low adequate PNC coverage at 37.4% in 35 health centers in the Central Region of Togo. This coverage is lower than the 50.6% reported for the entire Central Region in 2020[8]. This is probably because our sampling is drawn from health center registers; the results could be different if sampling was done at households to record births. The selection of 35 health centers out of 108 (32%) could also explain this difference given that the health centers with very high PNC coverage and those with very low coverage could have been overlooked hence study sites were not representative.
Our study revealed an initial PNC coverage of 78.6% which is slightly higher than results from other studies in sub-Saharan Africa[5,18,25]. These differences could be attributed to the varying coverage of countries in healthcare infrastructure, health policies and strategies to combat maternal, neonatal and infant mortality in place, cultural aspects and the design of the different studies.

Factors associated with low PNC use

The partner's low level of education is associated with low uptake of PNC use. This indicates that a higher level of education positively influences the PNC use. These results once again affirm the constancy of the association between this factor and PNC. In our study, the odds of low PNC use were 1.8 times more pronounced among mothers whose spouses had a low level of education. This result added to the previous one shows that the high level of education of the members of the couple predisposes to adequate use of postnatal care. These results coincide with the findings of other studies in Nigeria, Indonesia, Ethiopia, Malawi and Tanzania[28–30]. Education serves as a foundation for information about the benefits of using health services, and more educated spouses are more motivated to encourage their wives to use these services. The decision-making power of spouses regarding household health is quite important in our context.

In contrast to the partners, mothers' level of education was not associated with low uptake of PNC use in our study. This observation is corroborated by a study in Nepal[15]. However, most studies in the literature show the opposite[5,28-30]. This could be due to chance or the potentially unique context of our study site.
Unwanted pregnancy had twice higher risk of low PNC use. The conditions of occurrence and the status of the pregnancy determine the use of postnatal care of the children resulting from it. This observation has been reported in studies carried out in rural areas in Tanzania[30–32] and Ethiopia[32]. Indeed, women with an unwanted pregnancy may initially attempt to deny their pregnancy[32]. As a result, they are less motivated to use PNC services.

Our results showed that women who completed fewer than four recommended prenatal consultation (ANC) had three times higher odds of not completing the two PNC required. This result is comparable to studies conducted in three districts in Ethiopia[12,33,34], Uganda[35] and Malawi[28]. Indeed, women who have not benefited from complete ANC follow-up may not have been

sufficiently informed of the benefits of postnatal services for themselves and their newborns.

Our results showed that mothers with a history of chronic diseases were 4.9 times more likely to have low PNC use. A study in Nepal showed, on the contrary, that previous health problems were significantly associated with PNC use[36]. Our results could be explained by the fact that, in the absence of complications, chronic pathologies do not constitute a health concern for patients. In addition, chronic pathologies lead to exorbitant expenses, which affect the use of other health services.

Study limitations

The limitations of this study are firstly related to the non-probability sampling of health centres, which did not grant all women giving birth during the study period an equal chance of being selected, hence not generalizable. The fact of having selected the controls from the register and not from the community in the vicinity of the cases could affect the difference between cases and controls, which should only be based on the low or adequate use of postnatal care. Some data sources in this study were based on respondents' self-reporting, which may have introduced information biases affecting the validity of the information obtained.

Perceptives

Togo reported its first case of COVID-19 in May 2020, which is why we propose to assess the impact of this pandemic on the use of maternal care after this period.

Conclusion

Adequate PNC coverage is low among women aged 15 to 49 in the central region of Togo. The low use of these postnatal services was influenced by sociodemographic factors, including the spouse's education level, desire for pregnancy, obstetric factors, including the number of prenatal consultations and history of chronic illnesses. No economic factors or those relating to the healthcare system have been identified. Improving PNC use in the Central Region can be achieved by implementing measures to promote access to education for all, such as primary and secondary education subsidies, and increasing the coverage of the region in educational establishments. It could also improve by increasing the region's coverage of maternal, newborn and child care infrastructure and creating favourable conditions for access and care use. These conditions could be the subsidy of ANC, childbirth and postnatal care, and the creation of universal health coverage. These actions should be permanently supported by a local communication strategy on the importance of school education and also on the advantages of care for mothers, newborns and children. Local authorities should also draw inspiration from the national health policy for mothers, newborns, children, young people and adolescents to develop municipal strategic plans and mobilise resources for their implementation.

What is already known about the topic

- Around 810 women die every day worldwide from complications related to pregnancy and childbirth, and the majority of these deaths occur in the postnatal period, predominantly in low- and middle-income countries.
- Adequate use of postnatal care in these countries remains low, and education level, access to health centers, place of delivery, and wealth level were associated with PNC non-use.

What this study adds

- Very first study on the factors which explain the low PNC use specific to the Central Region of Togo.
- It confirmed the continued low utilisation of PNC in this region.
- The low PNC use was more reported among women who did not want to become pregnant, who carried out less than four ANC and whose spouses have a lower education.
- These results will be used to adjust and/or develop action plans specific to the central region on maternal, newborn and child health.

Competing Interest

The authors of this work declare no competing interests.

Availability of data and material

The dataset for this study can be viewed upon request. The dataset is an Excel database.

Acknowledgements

The authors would like to thank the following institutions: Burkina Faso Epidemiology and Field Laboratory Training Program (BFELTP), West African Health Organisation (WAHO), Regional Health Directorate of the Central Region of Togo, health district office of the Central Region.

Authors´ contributions

P.M.H. developed the study protocol, carried out data collection, processing and analysis, and manuscript development and revision. J. K., P. Y., A. M. T, H. A., N. M, G. S. participated in the drafting of the protocol, the processing and analysis of the data, and the development and revision of the manuscripts. K. N, participated in data collection and revision of the manuscript. All authors read and approved the final manuscript.

References

1. World Health Organization. Maternal mortality [Internet]. Geneva: World Health Organization; 2025 Apr 7 [cited 2025 Jul 8]. Available from: https://www.who.int/news-room/fact-sheets/detail/maternal-mortality
2. Khankhell RMK, Ghotbi N, Hemat S. Factors influencing utilization of postnatal care visits in Afghanistan [Internet]. Nagoya: Nagoya University Graduate School of Medicine, School of Medicine; 2020 Nov 26 [cited 2025 Jul 8]. Available from: https://doi.org/10.18999/nagjms.82.4.711
3. Lwelamira J, Safari J, Stephen A. Utilization of maternal postnatal care services among women in selected villages of Bahi district, Tanzania. Curr Res J Soc Sci [Internet]. 2015 Oct 25;7(4):106-11. Available from: http://dx.doi.org/10.19026/crjss.7.1690
4. Somefun OD, Ibisomi L. Determinants of postnatal care non-utilization among women in Nigeria. BMC Res Notes [Internet]. 2016 Jan 11;9:21. Available from: https://doi.org/10.1186/s13104-015-1823-3
5. Adhikari C, Yadav RK, Timilshina P, Ojha R, Gaire D, Ghimire A. Proportion and factors affecting for post-natal care utilization in developing countries: a systematic review. J Manmohan Mem Inst Health Sci [Internet]. 2016 Sep 26;2:14-9. Available from: https://doi.org/10.3126/jmmihs.v2i0.15791
6. Singh A, Padmadas SS, Mishra US, Pallikadavath S, Johnson FA, Matthews Z. Socio-economic inequalities in the use of postnatal care in India. Noor AM, editor. PLoS One [Internet]. 2012 May 18;7(5):e37037. Available from: https://doi.org/10.1371/journal.pone.0037037
7. Togo. Ministère de la Santé et de l'Hygiène Publique. Annuaires des statistiques sanitaires du Togo: Année 2019 [Internet]. Lomé: Ministère de la Santé et de l'Hygiène Publique; 2020 Nov [cited 2025 Jul 8]. 124 p. Available from: https://sante.gouv.tg/wp-content/uploads/2021/06/Annuaire-2019_final_V2.pdf
8. Togo. Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins. Annuaires des statistiques sanitaires du Togo: Année 2020 [Internet]. Lomé: Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins; 2021 Oct [cited 2025 Jul 8]. 197 p. Available from: https://sante.gouv.tg/wp-content/uploads/2022/06/Annuaire__Statistique_Sanitaire_2020.pdf
9. Togo. Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins. Rapport des activités de la Division de la Santé Maternelle et Infantile et de la Planification Familiale Année 2018 [Internet]. Lomé: Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins; 2019 Feb [cited 2025 Jul 8]. 76 p. Available from: https://sante.gouv.tg/wp-content/uploads/2024/01/2018-Rapport-annuel-DSMIPF.pdf
10. Togo. Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins. Rapport annuel 2019: Division de la Santé Maternelle et Infantile et de la Planification Familiale [Internet]. Lomé: Ministère de la Santé, de l'Hygiène Publique et de l'Accès

Universel aux Soins; 2020 [cited 2025 Jul 8]. 68 p. Available from: https://sante.gouv.tg/wp-content/uploads/2024/01/2019_-Rap-Annuel-DSMIPF-2019.pdf

11. Togo. Ministère de la Planification, du Développement et de l'Aménagement du Territoire, Ministère de la Santé, ICF International Inc. Enquête Démographique et de Santé 2013-2014 [Internet]. Rockville (MD): ICF International Inc; 2015 Jan [cited 2025 Jul 8]. 505 p. Available from: https://www.afro.who.int/sites/default/files/2017-10/EDST%20III.pdf
12. Manote M, Gebremedhin T. Determinants of postnatal care non-utilization among women in Demba Gofa rural district, southern Ethiopia: a community-based unmatched case-control study. BMC Pregnancy Childbirth [Internet]. 2020 Dec 18;20:546. Available from: https://doi.org/10.1186/s12884-020-03244-9
13. World Health Organization. Trends in maternal mortality: 1990 to 2015: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division [Internet]. Geneva: World Health Organization; 2015 [cited 2025 Jul 8]. 12 p. Available from: http://hdl.handle.net/10986/23550
14. World Health Organization. WHO technical consultation on postpartum and postnatal care [Internet]. Geneva: World Health Organization; 2010 [cited 2025 Jul 8]. 57 p. Available from: http://apps.who.int/iris/bitstream/handle/2">http://apps.who.int/iris/bitstream/handle/10665/70432/WHO_MPS_10.03_eng.pdf
15. Chhetri S, Shah R, Rajbanshi L. Factors associated with utilization of complete postnatal care service in Baglung Municipality, Nepal. Int J Reprod Med [Internet]. 2020 Jul 20;2020:2892751. Available from: https://doi.org/10.1155/2020/2892751
16. DiBari JN, Yu SM, Chao SM, Lu MC. Use of postpartum care: predictors and barriers. J Pregnancy [Internet]. 2014 Feb 20;2014:530769. Available from: https://doi.org/10.1155/2014/530769
17. World Health Organization. WHO recommendations on postnatal care of the mother and newborn [Internet]. Geneva: World Health Organization; 2014 Oct [cited 2025 Jul 8]. 62 p. Available from: https://iris.who.int/handle/10665/97603
18. Tessema ZT, Yazachew L, Tesema GA, Teshale AB. Determinants of postnatal care utilization in sub-Saharan Africa: a meta and multilevel analysis of data from 36 sub-Saharan countries. Ital J Pediatr [Internet]. 2020 Nov 27;46:175. Available from: https://doi.org/10.1186/s13052-020-00944-y
19. Kouanda S, Boina T, Nikièma L, Doulougou B, Meda B, Sondo B. Facteurs liés à la sous utilisation de la consultation post natale dans un district rural au Burkina Faso. Sci Santé [Internet]. 2007 Sep 21;30(1-2):97-103. Available from: https://revuesciences-techniquesburkina.org/index.php/sciences_de_la_sante/article/view/232
20. Togo. Institut national de la statistique et des études économiques et démographiques. TOGO MICS6 2017 Enquête par grappes à indicateurs multiples: rapport des résultats de l'enquête [Internet]. Lomé: Institut national de la statistique et des études économiques et démographiques; 2019 Oct [cited 2025 Jul 8]. Available from: https://togo.dataforall.org/sites/default/files/2023-10/MICS6-2017-Rapport.pdf
21. Togo. Ministère de la Santé. Protocoles de la santé de la reproduction du Togo la protection sociale: protocoles de la santé de la reproduction du Togo, 3ème édition [Internet]. Lomé: Ministère de la Santé; 2017 Nov [cited 2025 Jul 8]. 310 p. Available from: https://platform.who.int/docs/default-source/mca-documents/policy-documents/operational-guidance/TGO-MN-21-01-OPERATIONAL-GUIDANCE-2017-fra-Protocole-Tome.pdf
22. Togo. Institut national de la statistique et des études économiques et démographiques. Présentation des chiffres de pauvreté issus de l'enquête EHCVM 2018-2019 [Internet]. Lomé: Institut national de la statistique et

des études économiques et démographiques; 2020 Dec 20 [cited 2025 Jul 8]. Available from: https://inseed.tg/2020/12/20/presentation-des-chiffres-de-pauvrete-issus-de-lenquete-ehcvm-2018-2019/
23. Togo. Ministère Auprès du Président de la République, Chargé de la Planification, du Développement et de l'aménagement du Territoire. Recensement général de la population et de l'habitat (06 au 20 novembre 2010): résultats définitifs [Internet]. Lomé: Ministère Auprès du Président de la République, Chargé de la Planification, du Développement et de l'aménagement du Territoire; 2011 Dec [cited 2025 Jul 8]. 57 p. Available from: https://inseed.tg/download/2456/?tmstv=1751958182
24. Lollivier S, Verger D. Pauvreté d'existence, monétaire ou subjective sont distinctes. Econ Stat [Internet]. 1998;308(1):113-42. Available from: https://www.persee.fr/doc/estat_0336-1454_1998_num_308_1_2594
25. Misangumukini N. Les déterminants de la perception subjective de la pauvreté parmi les chefs de ménage objectivement non-pauvres au Mali. Région Dév [Internet]. 2016;44:159-74. Available from: https://regionetdeveloppement.univ-tln.fr/wp-content/uploads/6_Misangumukini.pdf
26. Akibu M, Tsegaye W, Megersa T, Nurgi S. Prevalence and determinants of complete postnatal care service utilization in northern Shoa, Ethiopia. J Pregnancy [Internet]. 2018 Aug 14;2018:8625437. Available from: https://doi.org/10.1155/2018/8625437
27. Khanal V, Adhikari M, Karkee R, Gavidia T. Factors associated with the utilisation of postnatal care services among the mothers of Nepal: analysis of Nepal Demographic and Health Survey 2011. BMC Womens Health [Internet]. 2014 Jan 31;14:19. Available from: https://doi.org/10.1186/1472-6874-14-19
28. Sagawa J, Kabagenyi A, Turyasingura G, Mwale SE. Determinants of postnatal care service utilization among mothers of Mangochi district, Malawi: a community-based cross-sectional study. BMC Pregnancy Childbirth [Internet]. 2021 Aug 30;21:591. Available from: https://doi.org/10.1186/s12884-021-04061-4
29. Babalola S, Fatusi A. Determinants of use of maternal health services in Nigeria – looking beyond individual and household factors. BMC Pregnancy Childbirth [Internet]. 2009 Sep 15;9:43. Available from: https://doi.org/10.1186/1471-2393-9-43
30. Kanté AM, Chung CE, Larsen AM, Exavery A, Tani K, Phillips JF. Factors associated with compliance with the recommended frequency of postnatal care services in three rural districts of Tanzania. BMC Pregnancy Childbirth [Internet]. 2015 Dec 21;15:341. Available from: https://doi.org/10.1186/s12884-015-0769-8
31. Mpembeni RN, Killewo JZ, Leshabari MT, Massawe SN, Jahn A, Mushi D, Mwakipa H. Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implications for achievement of MDG-5 targets. BMC Pregnancy Childbirth [Internet]. 2007 Dec 6;7:29. Available from: https://doi.org/10.1186/1471-2393-7-29
32. Dutamo Z, Assefa N, Egata G. Maternal health care use among married women in Hossaina, Ethiopia. BMC Health Serv Res [Internet]. 2015 Sep 10;15:365. Available from: https://doi.org/10.1186/s12913-015-1047-1
33. Heyi WD, Deshi MM, Erana MG. Determinants of postnatal care service utilization in Diga district, East Wollega zone, Western Ethiopia: case-control study. Ethiop J Reprod Health [Internet]. 2018 Dec 7;10(4):1-10. Available from: https://doi.org/10.69614/ejrh.v10i4.206
34. Belachew T, Taye A. Postnatal care service utilization and associated factors among mothers in Lemo Woreda, Ethiopia. J Womens Health Care [Internet]. 2016;5(3):318. Available from: http://dx.doi.org/10.4172/2167-0420.1000318

35. Annet N. Factors influencing utilisation of postnatal services in Mulago and Mengo Hospitals Kampala, Uganda [master's thesis] [Internet]. Western Cape (South Africa): University of the Western Cape; 2004 Nov [cited 2025 Jul 8]. 108 p. Available from: https://uwcscholar.uwc.ac.za:8443/server/api/core/bitstreams/6b1f0003-a351-498e-a5c5-e63e5cde5b5a/content

36. Dhakal S, Chapman GN, Simkhada PP, van Teijlingen ER, Stephens J, Raja AE. Utilisation of postnatal care among rural women in Nepal. BMC Pregnancy Childbirth [Internet]. 2007 Sep 3;7:19. Available from: https://doi.org/10.1186/1471-2393-7-19

Table 1: Postnatal consultation coverage, Central Region, Togo, 2020		
Number of PNC visits	**Number of births**	**Percentage (95% CI)**
None	1012	21.4 (20.2 – 22.6)
One	1942	41.2 (39.7 – 42.5)
Two and more	1767	37.4 (36.0 – 38.8)
Total	**4721**	**100**
Abbreviations: PNC = Postnatal Care, CI = Confidence Interval		

Table 2: Sociodemographic and economic characteristics among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Case n (%) n=171**	**Controls n (%) n=342**	**p-value**
Age of mother (Years)			
15 – 24	85 (49.7)	133 (38.9)	0.056
25 – 34	64 (37.4)	162 (47.4)	
35 and over	22 (12.9)	47 (13.7)	
Gender of child			
Male	102 (59.7)	175 (51.2)	0.069
Female	69 (40.3)	167 (48.8)	
Mother's educational level			
Secondary and above	48 (28.1)	95 (27.8)	0.111
Primary	71 (41.5)	114 (33.3)	
None	52 (30.4)	133 (38.9)	
Spouse's education level			
Secondary and above	62 (36.3)	152 (44.4)	<0.001
Primary	69 (40.3)	83 (24.3)	
None	40 (23.4)	107 (31.3)	
Marital status			
Bachelor	12 (7.0)	19 (5.6)	0.512
Married/Living together	159 (93.0)	323 (94.4)	
Residence area			
Urban	19 (11.1)	74 (21.6)	0.003
Rural	152 (88.9)	268 (78.4)	
Type of marriage/Union			
Polygamy	57 (33.3)	115 (33.6)	0.947
Monogamy	114 (66.7)	227 (66.4)	
Mother's occupation			
With Occupation	33 (19.3)	92 (26.9)	0.058
Without Occupation	138 (80.7)	250 (73.1)	
Occupation of spouse			
With Occupation	158 (92.4)	302 (88.3)	0.151
Without Occupation	13 (7.6)	40 (11.7)	
Socioeconomic level			
High	35 (20.5)	85 (24.8)	0.017
Medium	58 (33.9)	145 (42.4)	

Table 2: Sociodemographic and economic characteristics among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Case n (%) n=171**	**Controls n (%) n=342**	**p-value**
Low	78 (45.6)	112 (32.8)	

Table 3: Obstetric and health system-related characteristics among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Case n (%) N=171**	**Controls n (%) N=342**	**p-value**
Health district residence			
Tchaoudjo	49 (28.7)	109 (31.9)	0.457
Out of Tchaoudjo	122 (71.3)	233 (68.1)	
Health decision			
Independent	150 (87.7)	289 (84.5)	0.328
Not independent	21 (12.3)	53 (15.5)	
Knowledge of PNC existence			
Yes	147 (86.0)	315 (92.1)	0.028
No	24 (14.0)	27 (7.89)	
Knowledge of birth complications			
Yes	142 (83.0)	290 (84.8)	0.607
No	29 (17.0)	52 (15.2)	
Considers PNC necessary			
Yes	159 (93.0)	330 (96.5)	0.076
No	12 (7.0)	12 (3.5)	
Desire for pregnancy			
Yes	50 (29.2)	153 (44.7)	<0.001
No	121 (70.8)	189 (55.3)	
Parity			
5+	37 (21.6)	66 (19.3)	0.530
3–4	54 (31.6)	98 (28.6)	
1–2	80 (46.8)	178 (52.1)	
Number of ANC visits			
4+	46 (26.9)	186 (54.4)	<0.001
0–3	125 (73.1)	156 (45.6)	
Health center access time			
≤ 1 hour	112 (65.5)	220 (64.3)	0.794
> 1 hour	59 (34.5)	122 (35.7)	
Medical insurance coverage			
Yes	5 (2.9)	30 (8.8)	0.013
No	166 (97.1)	312 (91.2)	
Mode of delivery			

Table 3: Obstetric and health system-related characteristics among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Case n (%) N=171**	**Controls n (%) N=342**	**p-value**
Normal/Spontaneous	169 (98.8)	340 (99.4)	0.478
Cesarean/Instrumental	2 (1.2)	2 (0.6)	
Place of delivery			
Health center	162 (94.7)	332 (97.1)	0.186
Home	9 (5.3)	10 (2.9)	
History of abortion			
Yes	21 (12.3)	35 (10.2)	0.483
No	150 (87.7)	307 (89.8)	
History of chronic illnesses			
No	163 (95.3)	337 (98.5)	0.028
Yes	8 (4.7)	5 (1.5)	
Abbreviations: PNC = Postnatal Care, ANC = Antenatal Care			

Table 4: Crude association between sociodemographic and economic characteristics and low postnatal consultation use among women aged 15 to 49 who had live births, Central Region, Togo, 2020					
Variables	**Case n (%) n=171**	**Controls n (%) n=342**	**Crude OR**	**95% CI**	**p-value**
Age of mother (year)					
15–24	85 (49.7)	133 (38.9)	1	–	
25–34	64 (37.4)	162 (47.4)	0.61	0.41–0.92	
35 and over	22 (12.9)	47 (13.7)	0.73	0.41–1.30	0.057
Gender of child					
Male	102 (59.7)	175 (51.2)	1	–	
Female	69 (40.4)	167 (48.8)	0.70	0.48–1.02	0.069
Mother's educational level					
Secondary and above	48 (28.1)	95 (27.8)	1	–	
Primary	71 (41.5)	114 (33.3)	1.23	0.78–1.94	
None	52 (30.4)	133 (38.9)	0.77	0.48–1.24	0.112
Spouse's education level					
Secondary and above	62 (36.3)	152 (44.4)	1	–	
Primary	69 (40.4)	83 (24.3)	2.03	1.31–3.14	<0.001
None	40 (23.4)	107 (31.3)	0.91	0.57–1.46	
Residence Area					
Urban	19 (11.1)	74 (21.6)	1	–	
Rural	152 (88.9)	268 (78.4)	2.20	1.28–3.79	0.004
Mother's occupation					
With Occupancy	33 (19.3)	92 (26.9)	1	–	
Without Occupation	138 (80.7)	250 (73.1)	1.53	0.98–2.41	0.059
Occupation of spouse					
With Occupancy	158 (92.4)	302 (88.3)	1	–	
Without Occupation	13 (7.6)	40 (11.7)	0.62	0.32–1.19	0.154
Socioeconomic level					
High	35 (20.5)	85 (24.9)	1	–	
Medium	58 (33.9)	145 (42.4)	0.97	0.59–1.59	
Low	78 (45.6)	112 (32.8)	1.69	1.03–2.75	0.018

Table 5: Crude association between obstetric and health system-related characteristics and low postnatal consultation use among women aged 15 to 49 who had live births, Central Region, Togo, 2020					
Variables	**Case n (%) n=171**	**Controls n (%) n=342**	**Crude OR**	**95% CI**	**p-value**
Knowledge of PNC existence					
Yes	147 (86.0)	315 (92.1)	1	–	
No	24 (14.0)	27 (7.9)	1.90	1.06 – 3.41	0.030
Considers PNC necessary					
Yes	159 (93.0)	330 (96.5)	1	–	
No	12 (7.0)	12 (3.5)	2.07	0.91 – 4.72	0.081
Desire for pregnancy					
Yes	50 (29.2)	153 (44.7)	1	–	
No	121 (70.8)	189 (55.3)	1.95	1.32 – 2.90	<0.001
Parity					
5+	37 (21.6)	66 (19.3)	1	–	
3–4	54 (31.6)	98 (28.7)	0.98	0.58 – 1.65	
1–2	80 (46.8)	178 (52.1)	0.80	0.49 – 1.29	0.531
Number of ANC visits					
4+	46 (26.9)	186 (54.4)	1	–	
0–3	125 (73.1)	156 (45.6)	3.24	2.17 – 4.83	<0.001
Health center access time					
≤ 1 hour	112 (65.5)	220 (64.3)	1	–	
> 1 hour	59 (34.5)	122 (35.7)	0.95	0.64 – 1.39	0.794
Medical insurance coverage					
Yes	5 (2.9)	30 (8.8)	1	–	
No	166 (97.1)	312 (91.2)	3.19	1.21 – 8.38	0.018
Mode of delivery					
Normal/Spontaneous	169 (98.8)	340 (99.4)	1	–	
Cesarean/Instrumental	2 (1.2)	2 (0.6)	2.01	0.28 – 14.40	0.486
Place of delivery					
Health center	162 (94.7)	332 (97.1)	1	–	
Home	9 (5.3)	10 (2.9)	1.84	0.73 – 4.62	0.192
Occurrence of complications during childbirth					
Yes	21 (12.3)	34 (9.9)	1	–	
No	150 (87.7)	308 (90.1)	0.78	0.44 – 1.40	0.420
History of chronic illness					

Table 5: Crude association between obstetric and health system-related characteristics and low postnatal consultation use among women aged 15 to 49 who had live births, Central Region, Togo, 2020					
Variables	**Case n (%) n=171**	**Controls n (%) n=342**	**Crude OR**	**95% CI**	**p-value**
No	163 (95.3)	337 (98.5)	1	–	
Yes	8 (4.7)	5 (1.5)	3.30	1.06 – 10.27	0.038

Abbreviations: PNC = Postnatal Care; ANC = Antenatal Care; CI = Confidence Interval; OR = Odds Ratio

Table 6: Characteristics independently associated with low use of postnatal consultation among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Adjusted OR**	**95% CI**	**p-value**
Age of mother (year)			
25-34 vs. 15-24	0.66	0.42 – 1.04	0.194
35 and over vs 15-24	0.73	0.38 – 1.38	
Gender of child			
Female vs Male	0.68	0.44 – 1.04	0.079
Health district residence			
Excluding Tchaoudjo vs Tchaoudjo	1.25	0.78 – 2.00	0.351
Mother's educational level			
Primary vs Secondary and more	0.94	0.55 – 1.60	0.479
None vs Secondary and more	0.70	0.38 – 1.29	
Spouse's educational level			
Primary vs Secondary and more	1.82	1.09 – 3.03	0.023
None vs Secondary and more	0.92	0.50 – 1.70	
Residence Area			
Rural vs Urban	1.33	0.67 – 2.62	0.403
Mother's occupation			
Without Occupancy vs With Occupancy	1.30	0.77 – 2.18	0.320
Occupation of spouse			
Without Occupancy vs With Occupancy	0.92	0.42 – 2.00	0.841
Socioeconomic level			
Medium vs High	0.70	0.39 – 1.27	0.050
Low vs High	1.28	0.70 – 2.32	
Considers PNC necessary			
No vs Yes	0.97	0.32 – 2.90	0.967
Knowledge of PNC existence			
No vs Yes	1.48	0.68 – 3.19	0.317
Health center access time			
>1 hour vs ≤1 hour	0.85	0.54 – 1.32	0.473
Medical insurance coverage			
No vs Yes	2.55	0.87 – 7.47	0.085
Desire for pregnancy			
No vs Yes	2.07	1.31 – 3.25	0.001

Table 6: Characteristics independently associated with low use of postnatal consultation among women aged 15 to 49 who had live births, Central Region, Togo, 2020			
Variables	**Adjusted OR**	**95% CI**	**p-value**
Number of ANC			
Less than 4 vs 4 and more	3.13	2.01 – 4.87	<0.001
Place of delivery			
Home vs Health Center	1.57	0.53 – 4.66	0.413
History of chronic illness			
Yes vs No	4.89	1.25 – 19.14	0.022
Abbreviations: ANC = Antenatal Care; PNC = Postnatal Care; CI = Confidence Interval; OR = Odds Ratio			