AUCTORES
Globalize your Research

International Journal of Clinical Case Reports and Reviews
Daniel Baptista *

Open Access

Research Article

Epidemiological Profile of Preeclampsia in Community Health Centers in the Sikasso Region of Mali

Sidibé AB 1*, Berthe M 2 , Coulibaly D 7, Traoré S 8, Traore SA 3, Ben MI 1, Cissé A 1, D elamou A 5, Traoré D 1, Tegueté I 4, Konaté B 1

[1]National Office for Reproductive Health (ONASR).

[2]National Institute of Public Health.

[3]Sikasso Hospital.

[4]Faculty of Medicine and Odontostomatology (FMOS).

[5]Gamal Abdel Nasser University of Conakry.

[6]Regional Directorate of Health of Sikasso.

[7]Reference Health Center of Commune II of Bamako.

[8]Koutiala Reference Health Center.

***Corresponding Author:** Sidibé AB, National Office for Reproductive Health (ONASR).

Received Date: December 08, 2025 | **Accepted Date:** December 26, 2025 | **Published Date:** January 07, 2026

Citation: Kapisyzi P, Tashi E, Nushi E, Gjoni J, Çuko A, et al, (2026), Epidemiological Profile of Preeclampsia in Community Health Centers in the Sikasso Region of Mali, *International Journal of Clinical Case Reports and Reviews*, 33(1); **DOI:10.31579/2690-4861/992.**

Abstract:

Preeclampsia and eclampsia are common complications of pregnancy worldwide, particularly in sub-Saharan African countries. In 2022, preeclampsia/eclampsia accounted for 33.8% of deaths in Mali, while hemorrhage was the leading cause of maternal death (42%).

Methods: This was a cross-sectional study based on retrospective data on pregnant women or women in childbirth admitted to the maternity wards of community health centers in the Sikasso region from January 1, 2021 to December 31, 2023. Sampling was exhaustive, based on data from pregnancy follow-up forms and partograms. Data entry and analysis were performed using STATA software version. 17.

Results: 230 cases of preeclampsia were identified out of a total of 1188 pregnancy and partogram follow-up forms, ie a frequency of 19.36%. The average age of preeclampsia cases was 27.10 years, with the 30-39 age group in the majority (35.65%). Primigravida and nulliparia accounted for 30% and 27.83% respectively. The use of ANC services was 92.17%, with 88.18% of cases recorded in the 3rd trimester of pregnancy. In 65.65% of preeclampsia cases, blood pressure was ≥ 140/90 and ≤ 159/109 at diagnosis, and proteinuria was 01 cross in 62.18% of cases. Pre-transfer treatment was used in 45.83% of severe preeclampsia cases, 72.73% of eclampsia cases and 30.97% of moderate preeclampsia cases. The route of administration of magnesium sulfate was intra-muscular in 100% of cases, and compliance with the pre-transfer treatment protocol was observed in 95%. Some 52% of cases were referred/evacuated to a higher-level healthcare facility.

Conclusion: the majority of women seek antenatal care services at their third trimester of pregnancy, doing screening for late preeclampsia in accordance with WHO-recommended standards.

Key words: epidemiology; preeclampsia ;

Introduction

Preeclampsia and eclampsia are common complications of pregnancy worldwide, including in sub-Saharan African countries. is defined as a (HTA) with proteins (>300 mg/24 h or RAC >30 mg/ mmol [265 mg/g]) [1] , [2] . The incidence of preeclampsia and discharge varies from country to country and is estimated between 02 and 10% of the annual pregnancy [3] . A systematic study carried out by 40 countries and by 39 million women estimated that 4.6% and 1.4% of all deliveries are complicated by preeclampsia and eclampsia , respectively , with a wide variation between regions [4] . According to estimates by the World

Health Organization (WHO), the incidence of preeclampsia in developing countries (2.8% of live births) is seven times higher than in developed countries (0.4% of live births) [5] .

In Mali, according to the published Studies show that the prevalence of preeclampsia/eclampsia is estimated at 2.60% at the Koutiala Reference Health Center in 2018 [6] and 12.32% at the Nioro Reference Health Center in 2023 [7] .

In 2022, preeclampsia /eclampsia accounted for 33.8% of deaths in Mali, while hemorrhage was the leading cause of maternal death in 42% of cases, according to the National Health and Social Information System (SNIS) [8] . The majority of deaths related to preeclampsia /eclampsia are preventable if affected women receive timely and effective care [3] . A quarter of stillbirths and neonatal deaths in developing countries are associated with preeclampsia and eclampsia[9].

Three main delays include an increase in the incidence of maternal mortality due to preeclampsia : delays in triage, transport and treatment . Thesis delays are produced respectively at the level of the community , the primary health center and the hospital establishment. Several factors are at the origin of these delays : the lack of financially feasible and accurate diagnoses at the point of service, inadequate means and/or transport routes and the unavailability of appropriate treatments due to financial cost or lack of pharmaceutical support [10] .

Many women can die or be irreversibly affected by preeclampsia before reaching the hospital. Furthermore , health agents at the community level are the first to receive patients, for the diagnosis and the implementation of a rapid treatment in cases of preeclampsia . It is to improve this prognosis that we initiated this situational analysis study at the level of community health centers (CSCom) in the Sikasso region to determine the epidemiological profile of preeclampsia and to assess the pre-transfer treatment of severe preeclampsia and the discharge of magnesium sulfate.

Materials and methods

OUR This study is developed in the Sikasso region in southern Mali. This was a descriptive cross-sectional study that took place from [January 1] , 2021 to December 31, 2023, a period of 3 years.

included cases of preeclampsia with fully completed pregnancy records and partograms. Cases of preeclampsia with incomplete pregnancy records and partograms were excluded.

The data were entered on Kobocollet and analyzed with STATA software version 17 (STATA Corporation, College Station, TX, USA).

Results

We collected 1188 pregnancy and partogram records, and 230 cases of preeclampsia were identified. The frequency of preeclampsia is 19.36% for pregnant and postpartum women .

The condition of the pre -clamp cycle is 27.10 years with a minimum of 15 years and a maximum of 46 years and the type is 7.6.

Cases of preeclampsia were more frequent in the 30-39 age group with 35.65% followed by the 20-29 age group with 34.35%, those under 20 years old constituted 23.91% (Table I).

Variable	Effective: n=230	Percentage
Districts		
Kadiolo	71	30.87
Sikasso	90	39.13
Bougouni	51	22.17
Koutiala	18	7.83
Age segment		
< 20 years	55	23.91
20-29 years	79	34,35
30-39 years	82	35.65
40-49 years	14	6.09
≥ 50 years	0	0
Gestité		
First pregnancy	69	30
Paucigest	60	26.09
Multigeste	45	19.57
Grand multigeste	56	24.35
Parité		
Nullipare	64	27.83
Primipare	35	15.22
Paucipare	58	25.22
Multipair	44	19.13
Grand multipare	29	12.61

Table I: Sociodemographic characteristics of the pre-eclampsia cases in the CSCom of the Sikasso region in Mali

Primigravidas were the majority, representing 30% of cases, followed by paucigestives at 26.90% (Table I). The current gestures is 3.66 with the extremes of 01 and 13. As for parity, the current 2.5 with a minimum of 0 and a maximum of 11. The nullipares are the most representative of the preeclampsia cases with 27.83% followed by pauciparous 25.22% and multipairs with respectively 19.13% (table I).

Only 4.35% of preeclampsia cases were recorded in the postpartum period and 95.65% during prenatal care and labor.

Of 230 cases, (92.17%) used ANC services, 33 had benefited from more than four (04) prenatal consultations (ANC) (14.35%) and 7.83% had not had ANC (Table II).

Variable	Effective: n=230	Percentage
Prenatal consultation		
Pass of CPN	18	7.83
CPN 1 - CPN 3	179	77.83
CPN4 and above	33	14.35
Age of pregnancy		
Quarter 1	0	0
Quarter 2	26	11.82
Quarter 3	194	88.18
Blood pressure value at the time of diagnosis		
TA not specified	2	0.87
≥ 140/90, and ≤ 159/109	151	65.65
≥ 160/110	77	33.48
Searching for signs of danger		
No signs of danger	13	5.65
Presence of signs of danger	198	86.09
Not specified	19	8.26
Proteinuria		
Trace	27	11.74
P=+	143	62.17
P=+ +	49	21.3
P=+ ++	11	4.78

Table II: Prevalence of preeclampsia and clinical characteristics of preeclampsia cases in the CSCom of the Sikasso region in Mali

The name most of the prénatal consultation is 2.18 with the extremes of 0 and 5.

The most recent week is 34.66 with a minimum of 16 and a maximum of 42. However, preeclampsia cases were notified in the first quarter of the gross and 88.18%, since the case was registered in the third quarter due to the fact that the majority The women who ont fait recours au service de CPN étaient vues au 3e trimester de la grossesse.

In our study , the entire group of houses that had used the health center came of their own accord.

In the majority of preeclampsia cases (65.65%), blood pressure was between ≥ 140/90 and ≤ 159/109 at the time of diagnosis (Table I).

Concerning the search for signs of dangers, the majority of cases of prééclampsie present a sign of dangers (86.09 %). The main signs of dangers include the céphalée (33.04%), visual troubles (24.35%), seizures/coma (11.30%) and others (7.39%).

All cases of preeclampsia of our échantillon available réalisé la protéinurie à la bandelette urinary (230) soit 100 %. The results of the protein designed plus the moitié of the cases of preeclampsia (143) have a positive protein at 01 croix (62.18 %) and 02 croix (21.30 %), the traces [27] represent 11.74 % and the positive proteins at 03 croix [11] constituted 4.78% (tableau II).

One hundred and thirteen cases were classified as moderate preeclampsia (49.13%), severe preeclampsia 95 cases (41.30) and eclampsia 22 cases (9.57) (Table II).

On the frame of the treatment I indicated the level of the health centers, 44 cases of pre-eclampsia were set and 16 cases of pre-clamption on the recent transfer of magnesium sulfate with respectively 45, 83% and 72.73%. In contrast, 30.97% of cases of moderate pre-elampsia [35] received magnesium sulfate even though this treatment is not indicated in these cases.

The intramuscular route was the most preferred for the administration of MgSO4 (100%).

Regarding adherence to the pre-transfer treatment protocol , 95% of borrowers complied. Post-administration monitoring of MgSO4 to detect toxicity was effective in 97% of cases, and the main signs were the detection of the deep tendon reflex and diuresis (73.12%), and respiratory rate (15%).

One hundred and twenty (120) cases of preeclampsia (52.17%) were referred/evacuated to a reference health facility I or II, 101 cases or 43.91% were taken care of at the CSCom level and 06 cases not determined (2.61%).

Referral/ evacuation was commonly performed in women with severe preeclampsia at 73.63%, for eclampsia it was 40.91% and for moderate preeclampsia 39.63%.

In our study , in this case we registered 09 cases of maternal deaths for 120 taken care of at the CSCom level is a fatality of 7.5 %.

Regarding the outcome of the pregnancy, there were 9 stillbirths (9%), 89 live births (89%), including 11 resuscitated (12.35%) and one newborn referred (1.12%).

Discussions

The prevalence is very high in developing countries , with varying prevalence rates depending on the authors. In our study , on 1188 large data files and exploitable partograms , the found frequency is 19.46% which is three times greater than the world's cell (4.6%) with a large variation between regions [4] In Africa , the prevalence rates found in hospital statistics vary , with rates of 12.32% in Mali [7] and 12.4% in Ethiopia. [12] , 10.5% in Benin[13], 7% in Morocco [14] , 1.74% in Nigeria [15] and 4.85%. in Bangladesh [16] .

The average age found in our study was 27.10 years, with extremes ranging from 15 to 46 years. Age categorization varies from study to study; most studies categorized young age as under 20 years. Preeclampsia was more frequently encountered in the 30-39 age group, with 35.65% in our study. Certain authors are available to obtain similar results . In the study of Benjelloun, 46% of women are aged between 30-39 years , the age of patients at 29.9% with extremes of 16 and 46 years [14] . Unlike other studies, the most represented age group was 14-19 years (40.1%), 20-29 years (74%), 25-29 years (36.4%), 20-24 years (44.7%), 20-34 years (67.1%),[17][16][18][19][20].

From the perspective of gravidity , primigravidas were the most affected (30%), which is similar to the literature consulted with (37.7%, 60%, 57%)[7][20][4]. This predominance of primigravidas conforms to the literature that are considered to be the most important fact.

Nulliparous women represented the majority of preeclampsia cases with 27.83% in our study, which is close to that of the author Sidiki with 47.7% [17] .

According to a systematic review and meta-analysis, nulliparity presents the largest attributable fraction in the population for preeclampsia with 32.3% [21] .

Contrary to our study, primiparous women were the most frequently represented with 37.7% according to different studies [7] 57% [14] 64.7% (19) and multiparous (48.1%) [22] .

Our study recorded 92.17% use of ANC services, which consolidates the data from the literature of 98% in high-resource countries, but is somewhat far from that of low or middle-income countries of 68%[23].

The measurement of arterial pressure at the time of diagnosis, (65.65%) avails arterial tension between ≥ 140/90 and ≤ 159/109. The other authors have a retrouvé of 12.4% for the most recent categorization of arterial tension [12] . In return, the chiffres tensionnels are three elevated in the other studies (81.8%) in cases with a SBP comprising between 160 and 250 mmHg and (97.4%) with a DBP comprising between 90 and 109 mmHg[13][7][17].

The warning signs were dominated by headaches in our study, which is consistent with authors such as Benjelloun et al . (14) . Authors like Sena found abdominal pain to be more frequent (26.5%) [13] .

protein level in the urine dipstick was 100% in our study, which was not the case in some other studies, such as those by the authors Williams and Firoz. (23) (16) . For the result of the proteinuria performed by strip we recorded the frequency of one cross of 62.17% contrary to other authors who had recorded three crosses in 70% of cases [7] and 6%[14].

Preeclampsia was diagnosed in 88.18 % of cases in the third quarter of pregnancy, with extremes of 16 and 42 weeks, which is consistent with the results of authors such as Benjelloun [14] , [13] . However, the National Institute for Health and Clinical Excellence in London in 2008 recommended preeclampsia assessment at weeks 16, 28, 34, 36, 38, 40, and 41 for healthy women with a single fetus [24] **.**

The predominance of moderate forms in our study (41.30 %) is agreed According to the literature , arterial pressure in preeclampsia is usually moderate [14] , [25] . This predominance differs from that found by Williams et *al* in 2019, where more than half (81.62%) were cases of severe preeclampsia and eclampsia [16] .

In Mali, the primary care for preeclampsia in community health centers (CSComs) consists of administering pre-transfer treatment and referring/evacuating the woman, according to reproductive health policies, norms , and procedures [26] . In our study, we focused on pre-transfer treatment with magnesium sulfate (MgSO4) for cases of severe preeclampsia and eclampsia. The following pre -clamp cases require this treatment in 41% of the assembly , with 45.83% for the current pre -clamp and 72.73% for pre -clamp. In the literature, MgSO4 has been frequently used in cases of eclampsia compared to severe pre-eclampsia at primary health centers, while the WHO recommends MgSO4 for women with severe pre-eclampsia and eclampsia [27] . This shows an underutilization of this drug where it should be used, but also an overuse compared to cases of moderate pre-eclampsia (30.97%).

The predominant route of administration for the primary level is the IM route as indicated in our study (100%) and in the literature[16],[27].

The reference/ evacuation concerns plus the cases of severe preeclampsia (73.63%), eclampsia (40.91%), and moderate preeclampsia (39.63%) . Contrary to the literature, where almost all cases of eclampsia (94%) and preeclampsia were referred... severe (60%)[16].

Conclusions

Community health centers are the first point of contact for women for prenatal care and the primary care provider for any complications related to pregnancy, childbirth, and the postpartum period. Our study showed that the majority of women access prenatal care services in their third pregnancy, resulting in late screening for preeclampsia, in accordance with WHO recommendations. Furthermore , the primary care provider for preeclampsia at this stage... The protocol regarding pre-transfer treatment with MgSO4 and referral /evacuation to the appropriate level of care is not implemented, according to national guidelines. However, it is necessary to train community health workers on concepts related to the prevention and management of preeclampsia and eclampsia in particular.

Boundaries

specific data on CSComs , combined with biases related to the level of care, insufficient prenatal follow-up and record completion, makes it difficult to accurately estimate the epidemiological profile of preeclampsia in these centers.

Conflicts of interest

The authors declare no conflict of interest.

References

1. Unger T, Borghi C, Charchar F, Khan NA, Poulter NR, Prabhakaran D, et al. (2020). International Society of Hypertension Global Hypertension Practice Guidelines. Hypertension. 2020 Jun;75(6):1334–1357.
2. Ramos JGL, Sass N, Costa SHM. (2017).Preeclampsia. Rev Bras Ginecol Obstet. Sep;39(09):496–512.
3. Duley L.(2009). The Global Impact of Pre-eclampsia and Eclampsia. Seminars in Perinatology. Jun;33(3):130–137.
4. Abalos E, Cuesta C, Grosso AL, Chou D, Say L. (2013).Global and regional estimates of preeclampsia and eclampsia: a systematic review. European Journal of Obstetrics & Gynecology and Reproductive Biology. Sep;170(1):1–7.
5. Say L, Chou D, Gemmill A, Tunçalp Ö, Moller AB, Daniels J, et al. (2014). Global causes of maternal death: a WHO systematic analysis. The Lancet Global Health. Jun;2(6):e323–33.
6. Djigande ,(2020).PMN. Presented and published on / by the Faculté de Médecine et d'Odonto-Stomatologie de Bamako.
7. Telly N. (2023).Prize in charge of preeclampsia at the Nioro du Sahel Reference Health Center in Mali.
8. Health And Development Sector Statistics. 2022 yearbook. national health and social information system [Internet]. Ministry of Health and Social Development ; 2023, p. 205. Available from: http://www.sante.gov.ml/index.php/component/k2/item/7135-annuaire-2022-systeme-national-d-information-sanitaire-et-social-sniss
9. Nguyen Ngoc NT. (2006).Causes of stillbirths and early neonatal deaths: data from 7993 pregnancies in six developing countries. Bull World Health Organ. Sep 1;84(9):699–705.
10. Firoz T, Sanghvi H, Merialdi M, Von Dadelszen P. (2011). Pre-eclampsia in low and middle income countries. Best Practice & Research Clinical Obstetrics & Gynecology. Aug;25(4):537–548.
11. Ministry of Health and Social Development, Mali. Strategic Plan for Maternal, Newborn, Child, Adolescent and Reproductive Health and Nutrition (SRMNIA-NUT) 2020–2024

12. Belay AS. (2019). Prevalence and associated factors of preeclampsia in pregnant women attending antenatal care at the Mettu Karl Referral Hospital, Ethiopia: a cross-sectional study.;
13. SENA NZ. (2020).Preeclampsia: Epidemiological, Clinical, and Prognostic Profile in Ziguinchor Hospitals.
14. Benjelloun AT, Benchrifi Y, Mahdaoui S, Samouh N. Epidemiology of preeclampsia in the greater Casablanca region.
15. Haha LO. (2016). The Feto-Maternal Outcome of Preeclampsia with Severe Features and Eclampsia in Abakaliki, South-East Nigeria. JCDR [Internet]. [cited 2025 Mar 17];
16. Williams A, Khan MA, Moniruzzaman M, Rahaman ST, Mannan II.(2019). Price in charge of preeclampsia, severe preeclampsia and eclampsia in primary care facilities in Bangladesh.;7.
17. Sidiki B.(2020). Evaluation of magnesium sulfate prescription in the management of severe preeclampsia and eclampsia in the obstetrics and gynecology department of Gabriel Touré University Hospital
18. Ma'ayeh M, Costantine MM. (2020).Prevention of preeclampsia. Seminars in Fetal and Neonatal Medicine. Oct;25(5):101123.
19. Das S, Das R, Bajracharya R, Baral G, Jabegu B, Odland JØ, et al.(2019). Incidence and Risk Factors of Pre-Eclampsia in the Paropakar Maternity and Women's Hospital, Nepal: A Retrospective Study. IJERPH. Sep 24;16(19):3571.
20. Grum T, Seifu A, Abay M, Angesom T.(2017). Determinants of preeclampsia/eclampsia in women attending delivery services in selected public hospitals in Addis Ababa, Ethiopia: a case-control study.;
21. Meazaw MW, Chojenta C, Muluneh MD, Loxton D. (2020).Systematic and meta-analysis of factors associated with preeclampsia and eclampsia in sub-Saharan Africa. Spradley FT, editor. PLOS ONE. Aug 19;15(8):e0237600.
22. Belay AS. (2019).Prevalence and associated factors of preeclampsia in pregnant women attending antenatal care at the Mettu Karl referral hospital, Ethiopia: a cross-sectional study.
23. Firoz T, Sanghvi H, Merialdi M, Von Dadelszen P.(2011). Pre-eclampsia in low and middle income countries. Best Practice & Research Clinical Obstetrics & Gynecology. Aug;25(4):537–548.
24. National Institute of Health and Clinical Practice. Prenatal care: routine care for the healthy pregnant woman, clinical guidelines. 2008.
25. Haha LO. (2016).The Feto-Maternal Outcome of Preeclampsia with Severe Features and Eclampsia in Abakaliki, South-East Nigeria. JCDR [Internet]. [cited 2025 Mar 17];
26. Ministry of Health and Social Development. Reproductive Health Policy, Norms and Procedures: Volume 3 [Internet]. 2019.
27. World Health Organization. WHO recommendations for the prevention and treatment of preeclampsia and eclampsia [Internet]. Geneva: World Health Organization; 2014 [cited 2024 Sep 18]. 38 p.

DOI:10.31579/2690-4861/992