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Maternal Healthcare Service Utilization in Low and Middle Income Countries: A Systematic Review and Meta-Analysis

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A B S T R A C T
Maternal mortality remains a critical public health challenge in low and middle income countries (LMICs), where 95% of global maternal deaths occur. Quality maternal healthcare services are essential for reducing preventable mortality and morbidity. This systematic review and meta-analysis aimed to determine the prevalence of maternal healthcare utilization indicators and identify key determinants influencing service uptake in LMICs. Following PRISMA 2020 guidelines, we searched PubMed, Scopus, Web of Science, CINAHL, and Cochrane Library for studies published between 2015 and 2024. The review was prospectively registered with PROSPERO (CRD42024612847). Random-effects meta-analysis estimated pooled prevalence for antenatal care (ANC), skilled birth attendance (SBA), institutional delivery (ID), and postnatal care (PNC). Quality was assessed using the Newcastle-Ottawa Scale adapted for cross-sectional studies (Hoy et al., 2012). We included 145 studies from 89 LMICs involving over 2.8 million women. Pooled prevalence was 85.0% (95% CI: 82.3–87.4%) for at least one ANC visit, 50.8% (95% CI: 47.2–54.4%) for four ANC visits, 65.6% (95% CI: 62.1–69.0%) for SBA, 66.9% (95% CI: 63.4–70.3%) for ID, and 48.9% (95% CI: 45.3–52.5%) for PNC. Prediction intervals were wide across all indicators, reflecting genuine between-study variability (I^2 > 95%). Maternal education (OR = 3.42), household wealth (OR = 4.67), and urban residence (OR = 2.87) were strong positive predictors, while distance to facilities and poor service quality were significant barriers. Despite progress in initial ANC contact, critical gaps persist in comprehensive antenatal care and postnatal services

INTRODUCTION

Maternal mortality remains one of the most pressing global health challenges, with approximately 287,000 maternal deaths occurring annually worldwide (World Health Organization [WHO] et al., 2023). The burden falls disproportionately on low and middle income countries (LMICs), which account for 95% of these deaths, with sub-Saharan Africa alone bearing nearly two-thirds of the global toll (Alkema et al., 2016; Say et al., 2014). Despite significant international efforts and the establishment of Sustainable Development Goal (SDG) 3.1, which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030, progress has been uneven and insufficient in many regions (United Nations, 2023).

The provision and utilization of quality maternal healthcare services constitute essential strategies for reducing preventable maternal and neonatal mortality. Evidence consistently demonstrates that antenatal care (ANC), skilled birth attendance (SBA), institutional delivery (ID), and postnatal care (PNC) significantly improve maternal and infant health outcomes (Campbell et al., 2016; Moller et al., 2017). The WHO recommends a minimum of eight ANC contacts during pregnancy, delivery assisted by skilled health personnel, and postnatal examination within 48 hours after birth (WHO, 2016, 2018).

However, utilization of these services remains suboptimal in many LMICs, characterized by substantial variations across and within countries. Multiple factors influence maternal healthcare seeking behavior, operating at individual, household, community, and health system levels (Andersen & Davidson, 2014; Gabrysch & Campbell, 2009). Understanding these complex determinants is crucial for designing effective interventions to improve service uptake and reduce maternal mortality.

Previous systematic reviews have examined specific aspects of maternal healthcare utilization, yet comprehensive synthesis of contemporary evidence across all key service components in LMICs remains limited. Compared to Benova et al. (2018), who examined ANC content across a narrower timeframe, and Moyer and Mustafa (2013), who focused specifically on sub-Saharan Africa, this review uniquely synthesizes all four continuum-of-care components across 89 LMICs using updated WHO guidance on eight ANC contacts. This systematic review and meta-analysis aimed to (1) determine pooled prevalence estimates for major maternal healthcare utilization indicators, (2) identify and quantify key determinants influencing service uptake, and (3) provide evidence-based recommendations for policy and practice to advance progress toward universal maternal healthcare coverage in resource-limited settings.

LITERATURE REVIEW

Maternal mortality remains one of the most pressing global health challenges, with approximately 287,000 maternal deaths occurring annually worldwide (World Health Organization [WHO] et al., 2023). The burden falls disproportionately on low and middle income countries (LMICs), which account for 95% of these deaths, with sub-Saharan Africa alone bearing nearly two-thirds of the global toll (Alkema et al., 2016; Say et al., 2014). Despite significant international efforts and the establishment of Sustainable Development Goal (SDG) 3.1, which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030, progress has been uneven and insufficient in many regions (United Nations, 2023).

METHODOLOGY

Search Strategy and Selection Criteria

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021) and was prospectively registered with PROSPERO (CRD42024612847). The last database search was conducted on December 15, 2024. We conducted comprehensive searches of PubMed, Scopus, Web of Science, CINAHL, and Cochrane Library for studies published between January 2015 and December 2024. Search terms combined Medical Subject Headings and keywords related to maternal healthcare services, utilization, and LMICs. The full search strategy, including complete search strings for each database, is available in Supplementary Table S1.

We included observational studies (cross-sectional, cohort, case-control) and nationally representative surveys reporting prevalence or determinants of maternal healthcare utilization in LMICs, as classified by the World Bank (2024). Studies were excluded if published before 2015, conducted in high-income countries, qualitative without quantitative data, or lacking sufficient data for analysis. Two reviewers (RYT and a trained research assistant) independently screened titles, abstracts, and full texts, with disagreements resolved through discussion or third-reviewer consultation.

Data Extraction and Quality Assessment

Two reviewers independently extracted data using standardized forms, including study characteristics, population demographics, service utilization rates, and determinants with effect estimates. We assessed methodological quality using the Newcastle-Ottawa Scale adapted for cross-sectional studies (Hoy et al., 2012), rating studies as high (7–10 points), moderate (4–6 points), or low quality (0–3 points). Inter-rater reliability was calculated using Cohen's kappa and intraclass correlation coefficients.

Statistical Analysis

We performed random-effects meta-analysis using the DerSimonian-Laird method to calculate pooled prevalence estimates with 95% confidence intervals and 95% prediction intervals for ANC (one visit, four visits, eight contacts), SBA, ID, and PNC. Prediction intervals were reported alongside confidence intervals to convey the expected range of true effects across settings. Prevalence data were transformed using Freeman-Tukey double arcsine transformation to stabilize variance (Barendregt et al., 2013). Heterogeneity was assessed using Cochran's Q test and quantified with I^2 statistics (Higgins et al., 2003).

Subgroup analyses explored variations by geographic region, country income level, residence setting, study quality, and publication period. Meta-regression examined relationships between study characteristics and prevalence estimates when sufficient studies were available, including year of data collection, sample size, country income level, and urban/rural distribution as potential moderators. For determinants, we pooled adjusted odds ratios using random-effects models when three or more studies reported comparable estimates. Publication bias was assessed using funnel plots, Egger's test, and trim-and-fill methods. All analyses were conducted using R version 4.3.1 with meta and metafor packages.

RESEARCH RESULT

Study Selection and Characteristics

Database searches identified 8,742 records, of which 6,426 remained after duplicate removal. Following title and abstract screening, 623 full-text articles were assessed for eligibility. Ultimately, 145 studies met inclusion criteria, covering 89 LMICs and involving over 2.8 million women (Figure 1: PRISMA 2020 flow diagram). Geographic distribution included sub-Saharan Africa (n=78, 53.8%), South Asia (n=42, 29.0%), Southeast Asia (n=15, 10.3%), Latin America and Caribbean (n=7, 4.8%), and Middle East and North Africa (n=3, 2.1%). Most studies utilized Demographic and Health Surveys (n=97, 66.9%) or Multiple Indicator Cluster Surveys (n=22, 15.2%). Inter-rater agreement was substantial for screening (κ=0.78) and full-text assessment (κ=0.85).

Note on Figure 1: The PRISMA 2020 flow diagram is provided as Supplementary Figure S1.

Quality Assessment

Quality assessment using the adapted Newcastle-Ottawa Scale (Hoy et al., 2012) revealed 98 studies (67.6%) of high quality, 41 (28.3%) of moderate quality, and 6 (4.1%) of low quality. Common methodological strengths included representative sampling and large sample sizes. Limitations included potential recall bias, inconsistent outcome definitions particularly for PNC (where some studies used ≤1 day, ≤2 days, or ≤42 days as cut-offs), and inadequate adjustment for confounders in some studies. The sensitivity analysis excluding studies using differing PNC definitions did not substantially alter the pooled estimate (48.3%, 95% CI: 44.6–52.1%). Inter-rater reliability for quality assessment was excellent (ICC=0.89, 95% CI: 0.85–0.92).

Maternal Healthcare Service Utilization

Table 1 presents pooled prevalence estimates and prediction intervals for maternal healthcare indicators. Meta-analysis of 127 studies showed that 85.0% (95% CI: 82.3–87.4%; 95% PI: 58.2–97.1%) of pregnant women attended at least one ANC visit, though only 50.8% (95% CI: 47.2–54.4%; 95% PI: 19.3–82.6%) completed four visits. Remarkably, just 18.3% (95% CI: 14.2–23.1%; 95% PI: 4.1–52.6%) achieved the recommended eight ANC contacts. Skilled birth attendance reached 65.6% (95% CI: 62.1–69.0%; 95% PI: 21.4–93.8%), while institutional delivery was 66.9% (95% CI: 63.4–70.3%; 95% PI: 23.1–94.2%). Postnatal care showed the lowest utilization at 48.9% (95% CI: 45.3–52.5%; 95% PI: 15.7–83.1%). The wide prediction intervals confirm genuine between-setting heterogeneity and indicate that utilization rates may vary substantially in any given LMIC context. Substantial heterogeneity characterized all estimates ($I^2 > 95\%$, $p < 0.001$).

Table 1. Pooled Prevalence of Maternal Healthcare Service Utilization in LMICs

Service Indicator	Studies (n)	Prevalence % (95% CI)	95% Prediction Interval	I^2 (%)
At least 1 ANC visit	127	85.0 (82.3–87.4)	58.2–97.1	98.7%
At least 4 ANC visits	134	50.8 (47.2–54.4)	19.3–82.6	99.1%
At least 8 ANC contacts	23	18.3 (14.2–23.1)	4.1–52.6	97.4%
Skilled birth attendance	118	65.6 (62.1–69.0)	21.4–93.8	99.2%
Institutional delivery	121	66.9 (63.4–70.3)	23.1–94.2	99.3%
Postnatal care	89	48.9 (45.3–52.5)	15.7–83.1	98.9%

Note: CI = confidence interval; PI = prediction interval; ANC = antenatal care.

PI reflects the expected range of true prevalence in any given LMIC context.

Regional and Temporal Variations

Subgroup analysis revealed significant regional disparities. Sub-Saharan Africa consistently showed the lowest utilization across all indicators: ANC4 (42.1%), SBA (54.8%), ID (52.6%), and PNC (41.8%). South Asia demonstrated the highest ANC4 coverage (58.7%), while Latin America and Caribbean had the highest SBA (87.6%) and ID (89.3%). Urban-rural gaps were pronounced, with urban women having 2.87 times higher odds of completing ANC4 and 3.54 times higher odds of institutional delivery compared to rural counterparts ($p < 0.001$).

Meta-regression identified year of data collection, country income level, and urban population proportion as significant moderators of heterogeneity, collectively explaining approximately 18–24% of between-study variance across outcomes. ANC4 increased by 1.8% annually (β=1.8, 95% CI: 0.7–2.9, p=0.003), SBA by 2.1% (β=2.1, 95% CI: 1.0–3.2, p=0.001), and ID by 2.3% (β=2.3, 95% CI: 1.2–3.4, p<0.001). However, PNC showed minimal non-significant change (β=0.6, 95% CI: −0.6–1.8, p=0.42), and a substantial proportion of heterogeneity remained unexplained, suggesting the influence of unmeasured contextual factors such as healthcare system strength and cultural norms.

Determinants of Service Utilization

Meta-analysis of determinants identified strong socioeconomic gradients. Women with secondary or higher education had 3.42 times higher odds of completing ANC4 (95% CI: 3.08–3.79), 4.18 times higher odds of SBA (95% CI: 3.76–4.65), and 4.31 times higher odds of ID (95% CI: 3.85–4.82) compared to those with no formal education. Wealth disparities were even more pronounced, with women in the highest wealth quintile having 4.67 times higher odds for ANC4, 6.23 for SBA, and 6.45 for ID compared to the poorest quintile (all p<0.001).

Health system factors significantly influenced utilization. Distance to facilities greater than 5 km reduced odds of institutional delivery by 59% (OR=0.41, 95% CI: 0.35–0.48). Conversely, health insurance coverage increased odds of ID by 194% (OR=2.94, 95% CI: 2.51–3.44). Positive perception of service quality was associated with 3.1 to 4.2 times higher odds of utilizing all maternal health services. Community health worker contact during pregnancy increased odds of completing ANC4 by 154% (OR=2.54, 95% CI: 2.12–3.04).

Publication Bias

Visual inspection of funnel plots and Egger's test indicated potential publication bias for ANC4 (p=0.003), SBA (p=0.012), and ID (p=0.007). Trim-and-fill analysis suggested 12–18 potentially missing studies with lower prevalence estimates. Adjustment did not substantially alter pooled estimates (2–4 percentage point changes), indicating robustness of main findings. Nonetheless, it is acknowledged that the included studies may overrepresent better-resourced or better-documented settings, and estimates should be interpreted accordingly.

DISCUSSION

This comprehensive systematic review and meta-analysis of 145 studies from 89 LMICs provides current evidence on maternal healthcare service utilization patterns and determinants. Our findings reveal a paradoxical situation: while initial contact with health systems is relatively high (85% for at least one ANC visit), continuity and comprehensiveness of care remain critically deficient. The dramatic decline from first ANC contact to completion of recommended visits, coupled with alarmingly low postnatal care coverage (49%), represents a fundamental failure in maintaining women's engagement throughout the maternal care continuum.

These findings align with and extend previous reviews. Benova et al. (2018) similarly documented inadequate ANC content despite reasonable

coverage across a narrower set of LMICs, while Moyer and Mustafa (2013) emphasized the persistent role of socioeconomic barriers in sub-Saharan Africa. Compared to these earlier syntheses, the present review is distinguished by its larger dataset, broader geographic scope, incorporation of the updated eight-contact ANC recommendation, and explicit quantification of socioeconomic gradients across all four continuum-of-care components. The alarming 18% coverage for eight ANC contacts signals substantial distance from optimal care standards and has not previously been quantified at this scale.

The profound wealth and education gradients we documented—with four to sixfold differences in utilization between highest and lowest socioeconomic strata—reflect deep structural inequities that transcend individual choice. These disparities embody the social determinants of health framework (Marmot et al., 2008), wherein poverty, limited education, and social marginalization create compounding barriers to healthcare access. The even larger urban-rural gaps underscore geographic dimensions of inequity, where distance, transportation challenges, and facility distribution disadvantage rural populations.

Our finding that health insurance nearly triples odds of institutional delivery while perceived quality increases utilization three to fourfold highlights modifiable health system factors. These results support multilevel interventions addressing both demand-side barriers through financial protection mechanisms and supply-side constraints through quality improvement initiatives (Kruk et al., 2018). The strong association with community health worker contact suggests promise for community-based models in bridging health system and community gaps, particularly in underserved areas (Perry et al., 2014).

The exceptionally low postnatal care coverage warrants urgent attention, given that most maternal and neonatal deaths occur within 48 hours postpartum (WHO et al., 2023). This neglect of the postpartum period represents a critical gap in the continuum of care. Strategies must include strengthening immediate postnatal checks before facility discharge, implementing systematic community-based follow-up for home deliveries, and enhancing awareness of postpartum danger signs among women and communities.

Several limitations merit consideration. The cross-sectional design of most included studies limits causal inference regarding determinants. Substantial heterogeneity, while partially explained by meta-regression moderators, reflects unmeasured contextual factors; the wide prediction intervals in Table 1 underscore this variability. Inconsistent PNC definitions across studies were addressed through sensitivity analysis, which confirmed robustness of the main estimate. Reliance on self-reported data may introduce recall bias, though validation studies suggest reasonable accuracy for recent pregnancy-related events (Stanton et al., 2013). Publication bias favoring studies from better-resourced settings may have slightly inflated prevalence estimates, though sensitivity analyses indicated minimal impact on conclusions. Finally, this review was led by a single author institution; the second reviewer was an independently trained research assistant, and all disagreements were adjudicated by a third reviewer to minimize bias.

Future research should prioritize implementation science evaluating context-specific interventions to improve utilization among marginalized populations. Longitudinal studies examining trajectories of care-seeking throughout pregnancy and postpartum periods would illuminate critical points of disengagement. Moving beyond utilization metrics to assess quality and respectful care is essential, as high coverage means little if services fail to meet standards or respect women's rights (Bohren et al., 2019; Tunçalp et al., 2015).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This systematic review demonstrates that while initial antenatal care contact has reached relatively high coverage in LMICs, substantial gaps persist in comprehensive care throughout pregnancy and the critical postpartum period. Profound socioeconomic inequities in access demand urgent policy attention. Achieving universal maternal healthcare coverage requires multifaceted strategies including financial protection mechanisms to address economic barriers, quality improvement initiatives ensuring respectful and effective care, community-based delivery models reaching geographically isolated populations, and targeted interventions addressing the unique needs of marginalized groups. Only through such comprehensive, equity-focused approaches can the global community hope to meet SDG commitments and ensure that every woman, regardless of circumstance, receives the quality maternal healthcare that is her fundamental right.

Recommendations

1. **For Policymakers**: Implement universal health coverage with explicit focus on maternal services. Expand community health worker programs with adequate training and supervision. Develop transportation support schemes for rural women. Establish accountability mechanisms for service quality.
2. **For Health System Managers**: Strengthen continuity of care through appointment reminder systems and follow-up protocols. Integrate maternal health services with other primary care offerings. Implement respectful maternity care initiatives and quality improvement programs. Address geographical barriers through mobile clinics and waiting homes near facilities.
3. **For Healthcare Providers**: Provide person-centered, culturally competent care respecting women's autonomy and dignity. Ensure technical competence through continuous professional development. Build trust through empathetic communication and community engagement.
4. **For Researchers**: Conduct implementation research evaluating context-specific interventions. Employ mixed-methods approaches integrating quantitative and qualitative evidence. Focus on quality of care and outcomes beyond utilization metrics. Prioritize equity-focused research examining barriers and solutions for marginalized populations.

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Conflict of Interest

The author declares no competing interests.

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REFERENCES

Alkema, L., Chou, D., Hogan, D., Zhang, S., Moller, A. B., Gemmill, A., ... & Say, L. (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: A systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. The Lancet, 387(10017), 462–474. https://doi.org/10.1016/S0140-6736(15)00838-7

Andersen, R. M., & Davidson, P. L. (2014). Improving access to care in America: Individual and contextual indicators. In R. M. Andersen, T. H. Rice, & G. F. Kominski (Eds.), Changing the U.S. health care system: Key issues in health services policy and management (4th ed., pp. 3–31). Jossey-Bass.

Barendregt, J. J., Doi, S. A., Lee, Y. Y., Norman, R. E., & Vos, T. (2013). Meta-analysis of prevalence. Journal of Epidemiology and Community Health, 67(11), 974–978. https://doi.org/10.1136/jech-2013-203104

Benova, L., Tunçalp, Ö., Moran, A. C., & Campbell, O. M. (2018). Not just a number: Examining coverage and content of antenatal care in low-income and middle-income countries. BMJ Global Health, 3(2), e000779. https://doi.org/10.1136/bmjgh-2018-000779

Bohren, M. A., Mehrtash, H., Fawole, B., Maung, T. M., Balde, M. D., Maya, E., ... & Tunçalp, Ö. (2019). How women are treated during facility-based childbirth in four countries: A cross-sectional study with labour observations and community-based surveys. The Lancet, 394(10210), 1750–1763. https://doi.org/10.1016/S0140-6736(19)31992-0

Campbell, O. M., Calvert, C., Testa, A., Strehlow, M., Benova, L., Keyes, E., ... & Bailey, P. (2016). The scale, scope, coverage, and capability of childbirth care. The Lancet, 388(10056), 2193–2208. https://doi.org/10.1016/S0140-6736(16)31528-8

Gabrysch, S., & Campbell, O. M. (2009). Still too far to walk: Literature review of the determinants of delivery service use. BMC Pregnancy and Childbirth, 9(1), 34. https://doi.org/10.1186/1471-2393-9-34

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. BMJ, 327(7414), 557–560. https://doi.org/10.1136/bmj.327.7414.557

Hoy, D., Brooks, P., Woolf, A., Blyth, F., March, L., Bain, C., ... & Buchbinder, R. (2012). Assessing risk of bias in prevalence studies: Modification of an existing tool and evidence of interrater agreement. Journal of Clinical Epidemiology, 65(9), 934–939. https://doi.org/10.1016/j.jclinepi.2011.11.014

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., ... & Pate, M. (2018). High-quality health systems in the Sustainable Development Goals era: Time for a revolution. The Lancet Global Health, 6(11), e1196–e1252. https://doi.org/10.1016/S2214-109X(18)30386-3

Marmot, M., Friel, S., Bell, R., Houweling, T. A., Taylor, S., & Commission on Social Determinants of Health. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. The Lancet, 372(9650), 1661–1669. https://doi.org/10.1016/S0140-6736(08)61690-6

Moller, A. B., Petzold, M., Chou, D., & Say, L. (2017). Early antenatal care visit: A systematic analysis of regional and global levels and trends of coverage from 1990 to 2013. The Lancet Global Health, 5(10), e977–e983. https://doi.org/10.1016/S2214-109X(17)30325-X

Moyer, C. A., & Mustafa, A. (2013). Drivers and deterrents of facility delivery in sub-Saharan Africa: A systematic review. Reproductive Health, 10(1), 40. https://doi.org/10.1186/1742-4755-10-40

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ, 372, n71. https://doi.org/10.1136/bmj.n71

Perry, H. B., Zulliger, R., & Rogers, M. M. (2014). Community health workers in low-, middle-, and high-income countries: An overview of their history, recent evolution, and current effectiveness. Annual Review of Public Health, 35, 399–421. https://doi.org/10.1146/annurev-publhealth-032013-182354

Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A. B., Daniels, J., ... & Alkema, L. (2014). Global causes of maternal death: A WHO systematic analysis. The Lancet Global Health, 2(6), e323–e333. https://doi.org/10.1016/S2214-109X(14)70227-X

Stanton, C. K., Rawlins, B., Drake, M., Dos Anjos, M., Cantor, D., Chongo, L., ... & Ricca, J. (2013). Measuring coverage in MNCH: Testing the validity of women's self-report of key maternal and newborn health interventions during the peripartum period in Mozambique. PLOS ONE, 8(5), e60694. https://doi.org/10.1371/journal.pone.0060694

Tunçalp, Ö., Were, W. M., MacLennan, C., Oladapo, O. T., Gülmezoglu, A. M., Bahl, R., ... & Bustreo, F. (2015). Quality of care for pregnant women and newborns: The WHO vision. BJOG: An International Journal of Obstetrics and Gynaecology, 122(8), 1045–1049. https://doi.org/10.1111/1471-0528.13451

United Nations. (2023). The Sustainable Development Goals Report 2023: Special edition. United Nations Publications. https://unstats.un.org/sdgs/report/2023/

World Bank. (2024). World Bank country and lending groups. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519

World Health Organization. (2016). WHO recommendations on antenatal care for a positive pregnancy experience. World Health Organization. https://www.who.int/publications/i/item/9789241549912

World Health Organization. (2018). WHO recommendations: Intrapartum care for a positive childbirth experience. World Health Organization. https://www.who.int/publications/i/item/9789241550215

World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank Group, & United Nations Population Division. (2023). Trends in maternal mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. World Health Organization. https://www.who.int/publications/i/item/9789240068759