 Saint Paul's Hospital Millennium Medical College

Magnitude, disparity and predictors of quality Antenatal care service: a systematic review and meta-analysis

**Dereje Bayissa Demissie1, Gebeyaw Molla1, Firew Tiruneh Tiyare1, Abebe Sorsa Badacho1 & Ashenif Tadele1**

**Dereje Bayissa Demissie\* (PhD, Associate Professor)**

Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, Tel. +251 912189560

**\*Principal Investigator author**, [**dereje.bayissa@sphmmc.edu.et**](mailto:dereje.bayissa@sphmmc.edu.et) **or** [**derebayu@gmail.com**](mailto:derebayu@gmail.com)

**Introduction/Problem/Context**

Maternal and neonatal health remains a global priority, with high maternal and neonatal mortality rates. 98% of the burden comes from low-middle-income countries (LMICs). Effective intervention exists at reasonable costs, and optimum antenatal care can alleviate two-thirds of the burden. ANC works directly, through detection and treatment, and indirectly, through risk identification and referral. It is an entry point for communicable, non-communicable, and family health care.

Quality antenatal care has been stipulated as a means to achieve targets of SDGs 3.1 and 1.2.

Poor quality antenatal care is linked to significant mothers' and neonatal mortality. There is evidence that quality antenatal care can avert 2/3 of maternal and neonatal health burdens. Inconsistent with the evidence showing the quality of antenatal care (ANC) is varying across countries, and there is no global evidence showing the current pooled quality of ANC is concerning findings. This study estimated the global, regional and National pooled prevalence of poor-quality Antenatal Care services among pregnant women. This study aims to fill evidence gap on ANC quality, enabling programmers and policymakers to rely on the evidence for their businesses. Researchers will gain insight into other research questions

to further study quality of antenatal care.

**Method and Materials/procedures**

We conducted a comprehensive literature search for published and unpublished sources from 2002 to September 08 /2022, which reported the prevalence of Quality of Antenatal Care, or “prenatal care or “focused Antenatal Care Service delivery”.

We sought electronic databases such as; PubMed, CINAHL (EBSCOhost), Global Health (CABI), Medline, Hinari, Scopus, and other sources (Google Scholar and Google).

Statistical heterogeneity was assessed using Cochran’s Q test. Sensitivity and sub-group analyses were conducted and presented in a forest plot in the presence of heterogeneity.

The pooled proportions of poor-quality Antenatal Care service delivery were estimated using a random effect model. All statistical analyses in this study were performed on stata16.0.

**Results** and **Policy Implications**

**Results:** 76 studies with a sample size of 940,164 pregnant women reported that highly diverse poor quality of ANC utilization ranging 2.5% to 97.47% globally.

The global pooled poor quality of ANC was 64.28% (95%CI: 59.58% − 68.98%) (I2= 99.97%, p =0.001). In the subgroup analysis conducted by continental revealed that the pooled poor-quality ANC were:

* 70.07% (95% CI: 58.784% 81.364%) with (I2= 99.99%, p = 0.001) in Asia,
* 66.26% (95%CI: 61.81% − 70.71%) with (I2= 99.95%, p = 0.001) in LMICs
* 66.87% (95%CI: 61.908% − 71.84%) with (I2= 99.86%, p = 0.001) in Africa
* 57.577% (42.65- 72.50 with (I2= 99.94%, p= 0.0001) in South America
* 38.65% (95%CI: 18.42% − 58.88%) in developed countries (North America and Europe)
* 70.52% (95%CI: 64.55% − 76.48%) (I2= 98.37%, p =0.001) in Ethiopia

The identified pooled predictors of good quality antenatal care service were:

number of ANC visits (fourth and above ANC visit) (AOR = 2.6 and 95% CI: 1.37- 3.84), family wealth index (AOR = 2.72 and 95% CI: 1.89- 3.55),

maternal education attainment (AOR = 3.03 and 95% CI: 2.24- 3.82),

residence (urban dwellers) (AOR = 4.06 and 95% CI: 0.95- 7.17), and

maintained confidentiality during ANC follow-up (AOR = 2.23 (-0.36-4.82), respectively).

**Policy implications: -** This study revealed regional and country-level disparities where pregnant women who resided in Asia, Africa, and the South American continents had the lowest quality antenatal care services provided. Therefore, policymakers and health planners would put a great deal of emphasis on addressing the quality of Antenatal care services.

**Recommendation 1:** Policymakers and global funders need to invest resources to monitor and improve the quality of antenatal care in order to meet the global maternal mortality target as per the SDGS plan by shifting health systems from coverage of ANC services to quality of ANC services based on World Health Organization (WHO) quality ANC contents.

**Recommendation 2**: Health care systems in LMICs should provide high-quality ANC based on WHO recommendations for pregnant women in need of quality services at all levels.

**Recommendation 3**: The Ministry of Health should maintain high-quality antenatal care services per nationally accepted WHO recommendations at all levels.

**Recommendation 4**: Policymakers and health planners should prioritize the quality of ANC service as current international and national public health agendas to reduce maternal and neonatal mortality and morbidities as per SDGs plan 2030.