

Adequacy of Antenatal Care and Fetal Outcomes at a Tertiary Care Health Centre: A Comparative Study of 425 Pregnancies

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Abstract

Background: Adequate antenatal care (ANC) provides repeated opportunities for risk assessment, prevention, screening, timely treatment, birth preparedness, and referral. The World Health Organization recommends a minimum of eight ANC contacts for a positive pregnancy experience and improved perinatal outcomes. This study compared fetal outcomes among women receiving adequate ANC with those receiving markedly inadequate ANC at a tertiary health center.

Methods: This comparative analysis included 425 pregnant women categorized as adequate ANC (Group A, ≥ 8 visits; $n=208$) or inadequate ANC (Group B, ≤ 3 visits; $n=217$). The prespecified fetal outcomes available in the supplied analysis were live birth, preterm birth, intrauterine death, low birth weight, neonatal intensive care unit (NICU) admission, and low 5-minute Apgar score (<7). Group comparisons used chi-square tests, with relative risks (RRs) and 95% confidence intervals (CIs). A composite adverse fetal outcome comprised preterm birth, low birth weight, NICU admission, or low 5-minute Apgar score. Multivariable logistic regression adjusted for maternal age >30 years, residence, socioeconomic status, and educational status.

Results: Live birth was more frequent with adequate ANC (97.1% vs 91.2%; $p=0.008$). Inadequate ANC was associated with higher risks of preterm birth (29.0% vs 11.5%; RR 2.52, 95% CI 1.63–3.89), intrauterine death (8.8% vs 2.9%; RR 3.03, 95% CI 1.25–7.31), low birth weight (42.4% vs 18.3%; RR 2.32, 95% CI 1.67–3.23), NICU admission (37.3% vs 13.9%; RR 2.68, 95% CI 1.82–3.94), and low 5-minute Apgar score (30.9% vs 10.1%; RR 3.06, 95% CI 1.95–4.80), all $p<0.009$. The composite adverse fetal outcome occurred in 63.6% versus 34.6% (RR 1.84, 95% CI 1.50–2.25; $p<0.001$). After adjustment, inadequate ANC remained associated with adverse fetal outcome (adjusted odds ratio [AOR] 3.42, 95% CI 2.18–5.36; $p<0.001$), together with low socioeconomic status and rural residence.

Conclusion: In this tertiary-centre cohort, markedly inadequate ANC was strongly associated with multiple adverse fetal outcomes. The findings support strategies that improve timely, repeated, high-quality ANC while addressing socioeconomic and geographic barriers. Duration of NICU stay was not available in the supplied analysis; therefore, prolonged NICU admission could not be evaluated separately.

Keywords

Antenatal care, intrauterine death, low birth weight, preterm birth, pregnancy.