Factors associated with optimal antenatal care use among women of reproductive age in South Africa

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Abstract

Background: Antenatal care plays an important role in monitoring pregnancies, reducing maternal and foetal deaths, and preventing pregnancy-related complications. Despite the introduction of various initiatives in South Africa, many women still do not use optimal antenatal care. This study aims to investigate the factors associated with optimal antenatal care use in this context.
Methods: Data from the 2016 South Africa Demographic and Health Survey are analysed. A sample of 2863 women was used to analyse bivariate and binary logistic regression.
Results: Optimal antenatal care use was in the Western Cape and Free State, but lower in Northern Cape and Gauteng. Key determinants of optimal antenatal care included age at birth, level of education, child wantedness, household poverty, and province.
Conclusion: Socioeconomic and demographic factors significantly influence the use of optimal antenatal care in South Africa. Targeted interventions are needed to address disparities in maternal healthcare access.

Introduction

Antenatal care is an important component of maternal healthcare services, which provides an opportunity to monitor the pregnancy, educate mothers, and detect any potential complications early (National Department of Health, 2017; World Health Organization et al., 2017). Having early and regular visits to a skilled antenatal care provider plays an important role in reducing maternal foetal deaths as well as morbidity (Kuhnt & Vollmer, 2017; Palamuleni, 2024; World Health Organization, 2018). Early and regular antenatal care ensures timely interventions aimed at preventing pregnancy-related complications such as hypertension, anaemia, and other illnesses (Belete et al., 2024; Palamuleni, 2024). In sub-Saharan Africa, where there are several countries with the highest rates of maternal and infant mortality globally, the uptake of antenatal care services is often suboptimal (Abdo et al., 2023; Muriithi et al., 2024). Various factors such as geographical barriers, socioeconomic inequalities, and cultural practices, often affect the use of antenatal services in this region (Anguzu et al., 2023; Tsawe & Susuman, 2022). The World Health Organization recommends that women make a minimum of eight antenatal visits when pregnant (World Health Organization, 2018), but many developing countries, including South Africa, have a challenge adhering to this recommendation.

The government of South Africa introduced several initiatives to improve the quality of care for women during the antenatal period — most of which were also aimed at ensuring optimal use of these services. For instance, the Basic Antenatal Care Plus (BANC Plus) initiative was introduced to improve the quality of antenatal care services and enhance maternal healthcare in the country (National Department of Health, 2017). Despite the availability of antenatal services, many women in South Africa still do not receive optimal care during pregnancy. Analysis of available data shows that although the prevalence of skilled antenatal care use is high (National Department of Health et al., 2019), there is a gap in the use of the recommended antenatal services. This gap in the use of antenatal services can be attributed to various socio-economic and demographic factors. Existing studies from other sub-Saharan African countries have

found several determinants of antenatal care use, such as women's age, educational attainment, employment status, marital status, distance to healthcare facilities, and a wide range of other determinants (Kibesa et al., 2022; Okedo-Alex et al., 2019; Tumwizere et al., 2024). However, these factors may interact differently in South Africa's diverse socio-economic and cultural context, requiring a more context-specific understanding of the challenges that affect antenatal care use in this context. Understanding the determinants of optimal antenatal care is crucial for developing targeted interventions aimed at improving maternal health outcomes. This study aims to examine the factors associated with optimal antenatal care among women of reproductive age in South Africa.

Methods

Data source

Data for this study were obtained from the 2016 South Africa Demographic and Health Survey (SADHS). The SADHS collected data on various social and demographic factors. The SADHS used multi-stage sampling to collect the data (National Department of Health et al., 2019). The analytical sample for this study included 2863 women of reproductive age. This sample considers women who (i) had a birth in the past five years preceding the survey and (ii) had an antenatal care visit (at least one visit) for their most recent birth.

Description of variables

The outcome variable used in this study is optimal antenatal care. This variable is derived from those who had eight or more antenatal care visits within the first trimester and had (a) blood pressure taken during an antenatal care visit, (b) a urine sample taken during an antenatal care visit, and (c) blood sample taken during an antenatal care visit. Those who answered fit any of the conditions above were coded as 1=Yes or 0 otherwise.

Eleven explanatory variables were added to this study. These include age at birth, population group, marital status, level of education, employment status, child wantedness, parity, media exposure, household wealth, place of residence, and province.

Statistical analysis

Stata version 17 was used for the analysis (StataCorp, 2021). Bivariate analysis (with a χ^2 test), and logistic regression were conducted. A weighted sample of 2863 women was included in this study.

Results

Factors associated with optimal antenatal care use

Figure 1 shows that the use of optimal antenatal care was higher among women from the Western Cape and Free State provinces, while it was lower among those from the Northern Cape and Gauteng provinces. Moreover, the findings (Table 1 – *not shown here*) showed that age at birth, population group, marital status, level of education, employment status, child wantedness, media exposure, household wealth, place of residence, and province were statistically associated with the use of optimal antenatal care.

Determinants of optimal antenatal care use

The binary logistic regression results (Table 2) showed that age at birth, level of education, child wantedness, household poverty, and province, were key determinants of optimal antenatal care use.

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Table 2: Binary logistic results for the determinants of optimal antenatal care use

Characteristics	AOR	SE	t	95% CI
Age at birth				
<20	0.72	0.18	-1.27	[0.44-1.19]
20-29	1			
30-39	0.84	0.15	-0.93	[0.59-1.21]
40-49	0.44*	0.17	-2.15	[0.21-0.93]

Characteristics	AOR	SE	t	95% CI
Level of education				
No education	1.02	0.53	0.04	[0.37-2.85]
Primary	1.18	0.31	0.63	[0.70-1.98]
Secondary	1			
Higher	1.94**	0.41	3.16	[1.28-2.93]
Child wantedness				
Wanted then	1			
Wanted later	0.66*	0.11	-2.56	[0.48-0.91]
Wanted no more	0.89	0.17	-0.60	[0.61-1.30]
Household wealth				
Poor	0.94	0.17	-0.35	[0.66-1.33]
Average	1			
Rich	1.57*	0.30	2.39	[1.08-2.27]
Province				
Western Cape	2.88***	0.91	3.35	[1.55-5.34]
Eastern Cape	1.86*	0.52	2.21	[1.07-3.23]
Northern Cape	1.30	0.43	0.78	[0.67-2.49]
Free State	3.26***	0.85	4.52	[1.95-5.46]
KwaZulu-Natal	1.59	0.45	1.61	[0.90-2.78]
North West	2.83***	0.81	3.64	[1.61-4.95]
Gauteng	1			
Mpumalanga	2.30**	0.67	2.83	[1.29-4.08]
Limpopo	2.21**	0.62	2.85	[1.28-3.83]
Intercept	0.04***	0.02	-5.91	[0.01-0.12]

Note: * = *p<0.05*; ** = *p<0.01*; *** = *p<0.001*; ® = reference category; AOR = adjusted odds ratio; CI = confidence interval