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Variation in antenatal health services utilisation among women of reproductive age in the Democratic Republic of the Congo

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Abstract

One important maternal health service that ensures favourable feto-maternal outcomes are high-quality antenatal care (ANC) services. This study examined variation in ANC utilisation among women of reproductive age (15-49 years) in the Democratic Republic of the Congo (DRC) from 2001 to 2018. The Demographic Health Survey (DHS) for 2007 and 2013-2014 and UNICEF 2001, 2010, and 2017-2018 data of reproductive-age women seeking ante-natal care were analsyed using IBM-SPSS for Windows version 28.0. ANC use increased from 22.0% in 2001 to 52.0% in 2007 but declined to 44.9% in 2010 and 42% in 2018. In 2007, DRC women were 3.96 times, 2010, and 2017/2018, more likely to use ANC services than 2001 ($p<0.001$). Also, women aged 15-24 were 5.22 times, and those aged 25–34 were 2.75 (95%) more likely to use ANC than women aged 35 years or more ($p<0.001$). Secondary/higher educated women were 1.43 times more likely to attend ANC than uneducated ($p<0.001$). Married or women who lives with a man were 1.60 times more likely to use ANC than unmarried ($p<0.001$). Urban women were 1.11 times more likely to use ANC than rural ($p<0.001$). The result showed that apart from demographic characteristics, educational attainment, currently married/living with a man, place of residence, parity and age all impact antenatal care service usage. These needs can be met by designing a maternal health service utilisation model that considers these various aspects. *(Afr J Reprod Health 2023; 27 [8]: 95-104).*

Keywords: Antenatal care services, utilisation, maternal, mortality, women

Résumé

Les services de soins prénatals (CPN) de haute qualité sont un service de santé maternelle important qui garantit des résultats fœto-maternels favorables. Cette étude a examiné la variation de l'utilisation des soins prénatals chez les femmes en âge de procréer (15-49 ans) en République démocratique du Congo (RDC) de 2001 à 2018. L'enquête démographique et de santé (EDS) pour 2007 et 2013-2014 et l'UNICEF 2001, Les données de 2010 et 2017-2018 sur les femmes en âge de procréer cherchant des soins prénatals ont été analysées à l'aide d'IBM-SPSS pour Windows version 28.0. L'utilisation des soins prénatals est passée de 22,0 % en 2001 à 52,0 % en 2007, mais a diminué à 44,9 % en 2010 et 42 % en 2018. En 2007, les femmes de la RDC étaient 3,96 fois, 2010 et 2017/2018, plus susceptibles d'utiliser les services prénatals qu'en 2001. ($p<0,001$). De plus, les femmes âgées de 15 à 24 ans étaient 5,22 fois plus susceptibles, et celles âgées de 25 à 34 ans étaient 2,75 (95 %) plus susceptibles d'utiliser les soins prénatals que les femmes âgées de 35 ans ou plus ($p<0,001$). Les femmes ayant un niveau d'instruction secondaire/supérieur étaient 1,43 fois plus susceptibles de fréquenter les soins prénatals que les femmes sans instruction ($p<0,001$). Les femmes mariées ou vivant avec un homme étaient 1,60 fois plus susceptibles d'utiliser les soins prénatals que les femmes non mariées ($p<0,001$). Les femmes urbaines étaient 1,11 fois plus susceptibles d'utiliser les soins prénatals que les femmes rurales ($p<0,001$). Le résultat a montré qu'en dehors des caractéristiques démographiques, le niveau d'instruction, le fait d'être actuellement mariée/vivant avec un homme, le lieu de résidence, la parité et l'âge ont tous un impact sur l'utilisation des services de soins prénatals. Ces besoins peuvent être satisfaits en concevant un modèle d'utilisation des services de santé maternelle qui tient compte de ces divers aspects. *(Afr J Reprod Health 2023; 27 [8]: 95-104).*

Mots-clés: Services de soins prénatals, utilization, maternel, mortalité, femmes

Introduction

Maternal health is a major global development issue, with over 275000 deaths associated with pregnancy-related complications[1]. Africa accounts for more than half of all maternal deaths worldwide, with little or no progress toward maternal mortality reduction[2]. Antenatal, delivery and postpartum health for

women are intimately connected with maternal health, necessitating specific attention to protect the health of mothers and their children[3]. Hence, it requires the attention of stakeholders since it is critical to nation-building and economic growth. One of the objectives of the World Health Organization (WHO) and the United Nations' Sustainable Development Goals (SDGs) is to minimise maternal mortality by 2030[4–6]. Over 70% of maternal fatalities are caused by five major factors: "direct obstetric hazards, haemorrhage (25%), infection (15%), unsafe abortion complications (13%), hypertension (12%), and obstructed labour (8%)"[7]. This problem can arise during pregnancy or childbirth, sometimes without warning, necessitating immediate obstetric care[8].

Antenatal care services are required for pregnant women to enable health practitioners to provide appropriate health education to women and to screen, diagnose, and treat pregnancy-related problems[9–13]. To guarantee that a woman and her newborn baby achieve maximum health and well-being potential, each stage of maternal health provision should be comprehensive. It has been established that if all women had access to treatment and interventions that address pregnancy and delivery risks, such as emergency obstetric care, 74 percent of maternal deaths might be avoided[14].

Antenatal healthcare services assist pregnant women by counselling, managing chronic social and health issues, and screening for risk factors[15]. The importance of antenatal care for mother and child survival has been highlighted. Antenatal care helps women prepare for childbirth and recognise pregnancy and childbirth warning signs[1]. Additionally, pregnant women can access vitamin supplements and hypertension therapy for eclampsia prevention during antenatal care. Antenatal care also provides the chance for HIV testing and medication to prevent HIV transmission from mother to child if pregnant women are HIV positive and to enable the distribution of malaria-prevention medications and insecticide-treated mosquito nets[16]. Antenatal healthcare services that are both high-quality and affordable are crucial to improving mothers' health. However, most poor and developing countries fail in antenatal healthcare services[17].

In 2007, it was estimated that 85% of pregnant women in the Democratic Republic of the Congo (DRC) sought prenatal treatment at least once. However, coverage varied across urban and rural areas, with 92.0% and 80.9%, respectively[18]. Despite foreign assistance, increasing access to high-quality reproductive health care in the DRC had has been difficult due to decades of civil conflict, poor socioeconomic conditions, and poor hospital infrastructure[19]. In 2017, the DRC had a high maternal mortality ratio (MMR), with 473 maternal deaths per 100,000 live births[20], significantly above the global objective of SDG3.1, which is to lower the international maternal death ratio to less than 70 per 100,000 live births by 2030[21].

According to UNICEF, in 2018, just 82.4 percent of women in the DRC had at least one antenatal care visit with competent healthcare professionals, and only 80.1 percent had skilled attendance during birth, both of which were below the worldwide benchmark[22,23]. Despite the significant promotion of maternal health care throughout Western and Central Africa, little is known regarding maternal health service coverage and usage among women with a history of birth in the DRC. As a result, this study examined the variance in antenatal health service utilisation of women who gave birth in the DRC from 2001 to 2018. To lower the nation's maternal mortality rate, this study reveals the diversity and degree to which women of reproductive age (15-49) use antenatal health services. The study also looks into the factors that impact antenatal health care services usage among women with a birth history in the country. Finally, the study will examine the trend of using Antenatal health care within the age range.

Methods

Study design

In this study, we analysed secondary data from the Demographic Health Survey (DHS) of the Republic of the Congo for 2007 and 2013-2014 and UNICEF data for 2001, 2010, and 2017-2018. The data derived from the DHS and UNICEF involved extracting variables relevant to the study objectives. Antenatal uptake is the dependent variable, while the independent variables are socio-cultural, perceived needs, and accessibility-related factors. The survey covers a representative sample of women of

reproductive age (15–49 years) who had given birth to at least one child.

Study setting

The study location was the DRC, a nation in central Africa. As it is officially known, the DCR has a 25-mile (40-kilometre) coastline on the Atlantic Ocean but is otherwise landlocked. It is the continent's second-largest country, behind Algeria. Kinshasa, the capital, lies roughly 320 miles (515 kilometres) from Atlantic ocean on the south bank of the Congo River. It is the largest city in Central Africa and the country's official administrative, economic, and cultural centre. To distinguish it from the other Congo Republic, officially called the Republic of the Congo and generally referred to as Congo, the nation is often referred to by its abbreviation, the DRC, or as Congo (Kinshasa), with the capital appended parenthetically (Brazzaville). Antenatal care coverage in the DRC has historically been low, several factors contribute to the low utilisation of ANC in the DRC. These include inadequate availability and accessibility of healthcare facilities and staff shortage, especially in rural areas, and lack of awareness about the importance of antenatal care, amongst others. **T**he United Nations Children's Fund (UNICEF) reported that in 2018, only 82.4 % of women in the DRC have at least one antenatal care visit with skilled health care workers and only 80.1 % have skilled attendance at delivery, both below the global average level[24,25]. Antenatal care services are typically provided in both hospitals and health centers across the country. Hospitals are equipped to handle more complicated cases and emergencies, while health centers offer primary healthcare services, including antenatal care, to communities in rural and remote areas. There is scarcity of information regarding the cost of antenatal services in DRC. In rural areas, 42 percent of women made at least 4 antenatal care (ANC) visits, compared to 61 percent in urban areas.
Coverage of skilled attendance at birth is 74 percent in rural areas, compared to 94 percent in urban areas[26].

Study population/participants

Women of reproductive age (15-49 years) in the DRC who gave birth were included in the study. They were either pregnant at the time of data collection but must have given birth at least once before the study period. The study excluded women who were not within the age group of 15-49 and those who did not have a history of giving birth.

Data analysis

The data were analysed using IBM-SPSS for Windows version 25.0 for windows. Descriptive analysis was conducted using Chi-Square statistics to determine the association among variables, and $P<0.05$ was considered significant. Further data analysis involved binary logistic regression in assessing the association between the use of antenatal care and socio-demographic variables.

Outcomes variables

We used WHO terminology to establish consistency with prior investigations[27]. Antenatal care coverage was defined as the proportion of women who received Antenatal care from trained health staff at least once during their pregnancy among all women who gave birth to a live child at a particular time. Physicians, nurses, and midwives are examples of qualified health staff. The DHS of the Democratic Republic of Congo and UNICEF datasets were used to determine whether individuals received at least one Antenatal care from skilled birth attendants or skilled attendance at delivery. There was also information on whether Antenatal care was obtained at least four times.

Ethical consideration

Approval to use survey datasets was obtained from the DHS. The data obtained were used solely for research purposes in this study. Written permission to use this data was obtained from the Data Archivist of Demographic and health surveys (DHS) program (see the Appendix below for the approval letter).

Table 3: Demographic distribution of the women attending antenatal care at various years

		Year of survey n (%)				
Demographics	**Variable**	**2001**	**2007**	**2010**	**2018**	**Total**
Age (years)	15-24	2120 (24.1)	2792 (31.0)	2488 (26.4)	3681 (23.4)	11081 (25.8)
	25-35	3391 (38.6)	4141 (46.1)	3588 (38.1)	6496 (41.2)	17616 (41.0)
	35+	3278 (37.3)	2059 (22.9)	3347 (35.5)	5574 (35.4)	14258(33.2)
Education	Non-formal	2201 (25.0)	2214 (24.6)	2131 (22.6)	3574 (22.7)	10120 (23.6)
	Primary	3863 (44.0)	3831 (42.6)	3728 (39.6)	5972 (37.9)	17394 (40.5)
	Secondary/ Higher	2725 (31.0)	2947 (32.8)	3564 (37.8)	6205 (39.4)	15441 (35.9)
Currently married or lives with a man	Yes	7177 (81.7)	8114 (90.2)	7767 (82.4)	13045 (82.8)	36103 (84.0)
	No	1612 (18.3)	878 (9.8)	1656 (17.6)	2706 (17.2)	6852 (16.0)
Area of residence	Rural	5581 (63.5)	5417 (60.2)	5752 (61.0)	10929 (69.4)	27679 (64.4)
	Urban	3208 (36.5)	3575 (39.8)	3671 (39.0)	4822 (30.6)	15276 (35.6)
Parity	1	1510 (17.2)	1050 (11.7)	1643 (17.4)	2748 (17.4)	6951 (16.2)
	2	1278 (14.5)	1561 (17.4)	1464 (15.5)	2638 (16.7)	6941 (16.2)
	3	1156 (13.2)	1470 (16.3)	1272 (13.5)	2509 (15.9)	6407 (14.9)
	4	1022 (11.6)	1201 (13.4)	1131 (12.0)	2199 (14.0)	5553 (12.9)
	5	3823 (43.5)	3710 (41.5)	3913 (41.5)	5657 (35.9)	17103 (39.8)
Total		**8789 (100)**	**8992 (100)**	**9423 (100)**	**15751 (100)**	**42955 (100)**

Results

Socio-demographic

As shown in Table 1, across all the survey periods, women aged 25-35 years accounted for 41% of the women utilising antenatal care services. A higher percentage (40.5%) of these women had attained at least a primary level of education between 2001 and 2018. Across the four survey periods, most respondents (84.0%) were married or living with a man. Similarly, the majority of women (64.4%) accessing antenatal care services resided in rural areas across the four survey years. Additionally, it was observed that a higher percentage (39.8%) of the women utilising antenatal care services had a parity of 5 between 2001 and 2018.

Trends in the use of antenatal care among women from 2001 to 2018

Figure 1 shows a rise in the use of antenatal care from 2001 to 2007 and a decline thereafter. The proportion of women attending antenatal care rose from 22.0% in 2001 to 52.8% in 2007 but declined from 44.9% in 2010 to 42.0% in 2018.

Factors associated with the use of antenatal care among women in the DRC

As shown in Table 2, antenatal care (ANC) use among women with a history of birth in DRC decreases as age increases from 55.0% for women aged 15 – 24 to 24.9% for those above 35 years ($p<0.001$). The majority (42.5%) of the women using ANC were married or living with a man, compared to those not married (31.6%) ($p<0.001$). Similarly, respondents with secondary/higher education (44.2%) utilised ANC more than those with primary and non-formal education (40.8 and 35.7%, respectively) ($p<0.001$). Also, a higher proportion of women living in urban areas (42.4%) used ANC than those in rural areas (39.9%) ($p<0.001$). Similarly, the use of ANC services decreased with parity from 47.7% among women with one parity to 36.4% among those with five ($p<0.001$).

Determinants of the use of antenatal care among women of reproductive age with birth history in DRC

As shown in Table 3, compared to those who utilised ANC in 2001, women who used ANC in 2007 were 3.96 times [AOR=3.48, 95% CI; 3.253 –3.723], 2010 [AOR = 2.98 (95% CI: 2.783 - 3.182)], and 2017/2018 [AOR = 2.73 (95% CI: 2.565 - 2.903)], more likely to use ANC services ($p<0.001$). Also, women aged 15 - 24 years were 5.22 times [AOR = 5.22, 95% CI = 4.847 - 5.619] and those aged 25 – 34 [AOR = 2.75 (95% CI: 2.602 - 2.899)] more likely to use ANC services than women above 35

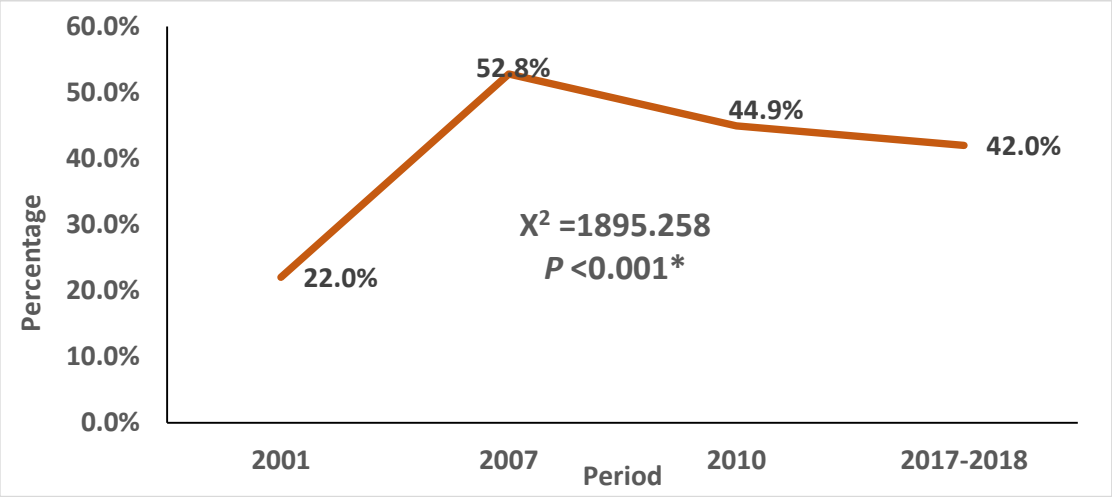


Figure 1: Trend in the use of antenatal care among women from 2001 to 2018

Table 2: Factors associated with the use of antenatal care among women in the DRC

Variables	Use of antenatal care Yes *n* (%)	No *n* (%)	Total *n* (%)	χ^2 -value	P-value
Age category					
15-24	6098 (55.0)	4983 (45.0)	11081 (25.8)	2527.616	<0.001*
25 - 34	7875 (44.7)	9741 (55.3)	17616 (41.0)		
35+	3554 (24.9)	10704 (75.1)	14258 (33.2)		
Currently married or lives with a man.					
Yes	15359 (42.5)	20744 (57.5)	36103 (84.0)		
No	2168 (31.6)	4684 (68.4)	6852 (16.0)		
Educational level					
Non-formal	3610 (35.7)	6510 (64.3)	10120 (23.6)	183.258	<0.001*
Primary	7095 (40.8)	10299 (59.2)	17394 (40.5)		
Secondary /Higher	6822 (44.2)	8619 (55.8)	15441 (35.9)		
Area of residence					
Rural	11046 (39.9)	16633 (60.1)	27679 (64.4)	25,849	<0.001*
Urban	6481 (42.4)	8795 (57.6)	15276 (35.6		
Parity					
1	3319 (47.7)	3632 (52.3)	6951 (16.2)	320.337	<0.001*
2	3089 (44.5)	3852 (55.5)	6941 (16.2)		
3	2660 (41.5)	3747 (58.5)	6407 (14.9)		
4	2242 (40.4)	3311 (59.6)	5553 (12.92)		
5	6217 (36.4)	10886 (63.6)	17103 (39.8)		
Total	**17527 (40.8)**	**25428 (59.2)**	**42955 (100)**		

*Statistically significant ($p<0.05$); ** χ^2 trend

Table 3: Determinants of the use of antenatal care among women of reproductive age in DRC

Use of Antenatal care Variable	COR (95% CI)	P-value	AOR (95% CI)	P-value
Survey Year				
2001	1.00		1.00	
2007	3.96 (3.712-4.229)	<0.001*	3.48 (3.253 - 3.723)	<0.001*
2010	2.89 (2.710-3.084)	<0.001*	2.98 (2.783 - 3.182)	<0.001*
2017/18	2.57 (2.417-2.723)	<0.001*	2.73 (2.565 - 2.903)	<0.001*
Age category				
15-24	3.69 (3.494 – 3.888)	<0.001*	5.22 (4.847 - 5.619)	<0.001*

25-34	2.44 (2.320 -2.555)	<0.001*	2.75 (2.602 - 2.899)	<0.001*
35+	1.00		1.00	
Educational level				
Non-formal	1.00		1.00	
Primary	1.24 (1.181 - 1.307)	1.181	1.22 (1.152 - 1.283)	<0.001*
Secondary/Higher	1.43 (1.356 - 1.503)	1.356	1.39 (1.310 - 1.469)	<0.001*
Currently married or lives with a man				
Yes	1.60 (1.514 – 1.690)	<0.001*	1.62 (1.527 - 1.723)	<0.001*
No	1.00		1.00	
Area of residence				
Rural	1.00		1.00	
Urban	1.11 (1.066 -1.155)	<0.001*	1.09 (1.044 - 1.143)	<0.001*
Parity				
1	1.60 (1.512 -1.693)	<0.001*	0.68 (0.625 - 0.731)	<0.001*
2	1.40 (1.327 – 1.486)	<0.001*	0.60 (0.562 - 0.649)	<0.001*
3	1.24 (1.172 - 1.318)	<0.001*	0.65 (0.610 - 0.700)	<0.001*
4	1.19 (1.114 - 1.262)	<0.001*	0.76 (0.706 - 0.810)	<0.001*
5	1.00		1.00	

Logistic regression Cl: Confidence level *Statistically significant (*p<0.05*) 1.00: Reference category

years (p<0.001). Women who had secondary/higher education were 1.43 times [AOR = 1.39, 95% CI = 1.310 - 1.469] more likely to attend ANC than those with no formal education (p<0.001). Married women were found to be 1.60 times [AOR = 1.62 95% CI = 1.527 - 1.723] more likely to visit antenatal care (ANC) compared to unmarried women. This means that married women had a higher likelihood of using ANC services. Additionally, women residing in urban areas were 1.11 times [AOR = 1.09 95% CI: 1.044 - 1.143] more likely to use ANC services compared to those living in rural areas (p<0.001); this suggests that access to ANC services may be better in urban areas. Furthermore, women with only one previous birth were 1.60 times [AOR = 0.68; 95% CI = 0.625 - 0.731] more likely to use ANC services compared to women with five previous births. This indicates that women with fewer previous births were more likely to utilise ANC services

Discussion

Antenatal care is one of the four pillars of the safe motherhood movement; while its relative contribution to maternal health care has been contested, its significance cannot be overstated[28]. The main aim of this study is to analyse the variation in antenatal health services utilisation among women of reproductive age (15-49 years) with a birth history in the DRC from 2001 to 2018. The findings showed a significant decline in ANC use among DRC women with a history of birth within the study period from 2007 to 2017/18 (52.8% to 42.0%). This result is a little lower than Adedokun and Yaya's study (2020), which reported 53% adequate use of antenatal services by women in sub-Saharan Africa[29]. Likewise, a higher figure of 88.9% was recorded by Berhe *et al.* (2014) among childbearing mothers in Ayder Kebelle, Mekelle City, the capital city of Tigray in Addis Ababa and 80% found in Maichew town[30]. The possible reason for the stable increase in the rates of receiving ANC from 2001 to 2007 could be increased awareness and education about the importance of antenatal care services among pregnant women and their communities, which could have led to higher utilisation rates. Efforts by healthcare providers, NGOs, and government agencies to promote and educate women about the benefits of antenatal care can have a positive impact. The declining use of antenatal services in the DRC might be due to a lack of awareness and accessibility since most women were uneducated and lived in rural areas. Another possible explanation is the political instability experienced earlier in country[31], which might have disrupted the healthcare system

Our study found that the higher the age of a woman, the lower the utilisation of antenatal care. Previous studies have established a significant relationship between women's age and adequate utilisation of antenatal care[32–34]. This finding agrees with[30] that the use of antenatal care services decreased with an increase in the age of women. However, the result contrasts Adedokun and Yaya (2020) and Dairo (2010), ascertaining the use of antenatal care services increases with women age[29,35]. Non-use of antenatal care among older

women in this study might be because older women are more likely to have several children to care for, and many older pregnant women may have persistent cultural prejudices towards proper health care. Besides, it may be due to some women giving birth previously without antenatal care during the unrest period in the country.

The findings also showed that women who were married or living with a man had a higher percentage or were most likely to use antenatal care services than those who were not. This was consistent with the finding of Wulandari (2020), who reported that women who were married or living with a man were more likely to use/complete their antenatal service than those who were not[36]. This might be related to socio-cultural factors since pregnant women without a partner experience prejudice in society, unlike those who are married or live with a man[36]. Teklesilasie and Deressa (2018) findings were similar: they discovered that women living with their husbands were more likely to participate in antenatal care services than those not living with their husbands[37]. This is because women had better results when their husbands/partners were directly involved in maternal health care, such as attending ANC appointments and supporting them during pregnancy. Another reason could be that some women are poor, but women living alone are poorer. Therefore, their access to antenatal care may be more difficult. Childcare can pose a significant obstacle for women who have infants and are not living with men, especially when they need to spend time at the health facility for antenatal care services[38]. This also shows that the impacts of others (particularly partners) are critical predictors of a woman's delivery location[38–40].

The survey also discovered that women of productive age with a secondary or higher education are more likely to receive adequate prenatal care than those with only primary or non-formal education. This suggests educated women are more exposed to information related to maternal and other healthcare services; hence, the more she uses prenatal care[41–43]. Adedokun and Yaya (2020), Raru *et al*. (2022) and Saleh (2012) also reported similar findings[29,45,46]. According to Muyunda *et al*. (2016), the higher education level of the woman was a very significant and essential factor in determining optimal ANC utilisation[47]. This is because education raises knowledge of issues, particularly health related matters; therefore, women with secondary or higher education have an advantage over their uneducated counterparts.

Furthermore, education may assist certain women in overcoming gender-specific discrimination, and obstacles such as domestic abuse and female genital mutilation, all of which are strong predictors of ANC use[48,49]. Besides being a significant determinant of socioeconomic status, education has the potential to empower women and increase their health literacy[50,51]. Long-term public health measures should thus go beyond health and embrace a holistic approach, such as improving women's education.

The findings also showed that residence was another factor influencing antenatal care utilisation among DRC women, which agrees with the results of[52–55]. The results showed that a higher proportion of women of reproductive age living in urban areas used ANC than those living in rural areas. This is consistent with Adedokun and Yaya (2020), who also reported a higher rate of adequate utilisation of antenatal care among women in urban areas compared to rural areas[29]. Infrastructure amenities are widely distributed in metropolitan regions, as are health services, which are insufficiently provided in rural areas. This allows women in metropolitan areas to access healthcare services. At the same time, women in urban regions have more access to health-related information than women in rural areas[52,55].

Parity was another factor which was significantly related to the utilisation of antenatal care among women of reproductive age in DRC, and this correlates with the findings of[56–58]. Women with one child were more likely than women with two or more children to use prenatal care effectively. This shows that the more parity, the fewer women need prenatal care. Previous studies have revealed that less prenatal care utilisation among high-parity women may be associated with greater confidence due to the experiences they had during their earlier pregnancies and deliveries[59–63].

Limitations

This study is based on data gathered from cross-sectional surveys conducted across several periods. This has only enabled the identification of related features of prenatal care utilisation, not the reasons. Because the surveys were conducted in different

years/periods, the variations in the characteristics of the respondents that happened through time could not be reconciled. It should also be noted that the questionnaire responses were from persons who recounted previous events. These responses might contain recall inaccuracies. Also, variables such as wealth index, distance from home to the hospital, counselling, and knowledge of antenatal services were not explored because they are inconsistent across the DHS and UNICEF datasets. Despite these shortcomings, the study used a bivariate logistic regression model that separated the outcome variable into two groups to evaluate differences in prenatal care utilisation. This provided a detailed discussion of the effect of the correlates on each category. In contrast, few previous studies characterised the outcome variable as numerous. Furthermore, the study evaluated massive data sets from four different periods (2001, 2007, 2010, 2017/2018), making the conclusions solid and generalisable.

Conclusion

The study found a declining use of ANC among women of reproductive age (15-49) with a history of birth in DRC from 2007 to 2018. Aside from demographic factors, educational attainment, currently married/living with a man, area of residence, parity, and age all influence prenatal care service utilisation. There is a need to address the poor use of ANC by developing a maternal health service utilisation model that considers all factors. Also, awareness-creation interventions are necessary to improve ANC utilisation in the country as well as improving ANC service availability, mainly in rural areas where the facilities are inadequate and a significant proportion of the women are uneducated. In addition, it may be recommended to conduct further in-depth qualitative studies with women. These studies will help explain why women do not benefit from health services.

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