
Prevalence and Associated Factors with Attending Antenatal Care in Akre City, Iraq

Bnar Mustafa Ahmed; *Department of Nursing, College of Nursing, University of Duhok, Duhok, Kurdistan Region, Iraq*
(Correspondence: bnar27akre@gmail.com)

Hamdia Mirkhan Ahmed; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Kurdistan Region, Iraq.*

ABSTRACT

Background and Objectives: Antenatal care is essential for protecting the health of women and their unborn children. Antenatal care utilization is a key intervention in problem detection and treatment, promoting health-seeking behavior, and preparing pregnant women for birth. The present study aimed to investigate the prevalence and associated factors that affect attending and utilizing antenatal care in primary health care centers among pregnant women in Akre city.

Methods: A cross-sectional study was conducted in the Maternity Hospital of Akre City from November 21 to February 21, 2022. Data were collected through interviews with 400 women who attended the hospital for delivery and via a questionnaire constructed for the study. The questionnaire included women's socio-demographic characteristics, socio-economic status, obstetrical and reproductive history, and factors affecting antenatal care. Frequency, percentage, and chi-square tests were used to analyze the data.

Result: The rate of attending antenatal care was 20%. The study findings showed a statistically significant association between attending antenatal care in the last pregnancy with residency, type of family, parity, and previous mode of delivery.

Conclusion: The prevalence of women who attend antenatal care is few. Effective media and providing special health care in primary health care centers and services are required to improve the level of awareness of pregnant women for utilizing antenatal care.

Keywords: Antenatal care; Prevalence; Factors; Iraq.

Received: 14/07/2022

Accepted: 12/09/2022

Published: 30/5/2023

INTRODUCTION

Pregnancy is necessary to promote good health psychologically and emotionally and prepare women and their families for parenthood. Antenatal care (ANC) is given to pregnant women and adolescent girls by skilled healthcare providers to ensure the best health conditions for both mother and baby during pregnancy [1]. Antenatal care is one of the "four pillars" of safe motherhood initiatives to promote and establish good health during pregnancy and early postpartum [2]. Antenatal care also allows women to communicate with their healthcare providers and increases the likelihood of using a skilled birth attendant [3]. Approximately 303,000 women and adolescent girls died from pregnancy and child-birth-related complications in 2015; 2.6 million babies were stillborn [4]. Maternal mortality is much too high. In 2017, approximately 295,000 women died during and after pregnancy and childbirth. The vast majority of these deaths (94%) occurred in low-resource settings, which could have been avoided [5]. The World Health Organization (WHO) envisions a world where every pregnant woman and newborn is provided with high-quality care throughout their pregnancy, delivery, and postpartum. Antenatal care (ANC) is an essential component of the reproductive healthcare continuum because it serves as a platform for crucial healthcare tasks such as disease prevention, screening and diagnosis, and health promotion. It has been demonstrated that ANC can save lives by implementing timely and appropriate evidence-based practices. Notably, developing these ANC recommendations has emphasized the importance of providing pregnant women with respectful communication about physiological, biomedical, behavioral, and sociocultural issues and practical support, including social, cultural, emotional, and psychological support [6].

The WHO's new recommendation declares that pregnant women should have at least eight visits to healthcare professionals [7].

The first visit between these should occur within the first 12 weeks of gestation, and the following visits occur repeatedly at weeks 20, 26, 30, 34, 36, 38, and 40 [4]. Maternal mortality rates in Maternity Teaching Hospital in Erbil city were found to be 44/per 100,000 live births. Because not all childbirths occur in hospitals, death in the hospital is a good predictor of death in the community [8]. The advantages of prenatal care were more readily available, particularly regarding gestational diabetes, hemoglobinopathy, and ultrasonography, and the update was started. This update has also given us a chance to look at a number of antenatal care-related issues, such as the creation of a tool to identify women who need additional care (the "antenatal assessment tool"), the distribution of information to women, lifestyle (vitamin D supplementation, alcohol consumption), and fetal screening (using ultrasound for assessing gestational age and screening for fetal abnormalities, methods for determining normal fetal growth, and plausibility tests) (hemoglobinopathy screening, gestational diabetes, pre-eclampsia and preterm labor) [9]. The researcher was interested in the use of antenatal care centers among pregnant women. This study aimed to assess the prevalence of antenatal care attendance and its associated characteristics among women in Akre City.

METHODS

A cross-sectional study was conducted among 400 women in the Maternity Hospital in Akre city in the Kurdistan region of Iraq. This hospital is a public site. Akre is a small city with many villages comprising four primary healthcare centers. Four hundred women attending the mentioned

hospital were interviewed by reviewing their records. Inclusion criteria included women who were attending the maternity hospital for delivery at the time of collecting data, willingness to participate in the study, ability to speak clear Kurdish or Arabic. Exclusion criteria included women who disagreed to participate in the study. A questionnaire was developed for data collection and included (socio-demographic, socio-economic status, and obstetrical history of women and questions regarding the rate of attending antenatal care). All the women in the sample completed the questionnaire using face-to-face interview techniques. The questionnaire form filled out the questionnaire took approximately 10 to 15 minutes. Before data collection, permission to conduct the study was obtained from the Scientific and Ethics Committee of the University of Dohok /College of Nursing, the code of Ethical Approval 42001. Each question in the questionnaire was coded, and the data were entered and analyzed by JMP Pro 14.3.0. The patients' general information was presented in mean, standard deviation (SD), or number (No.). The prevalence utilization of ANC services and satisfaction with the ANC services were determined in number and percentage. The level of ANC quality was determined by mean and standard deviation (SD). A point was given for each item done by the medical staff during each ANC session. The total items were added together to obtain the total quality of ANC services. Before data collection, informed consent was taken from the study sample, and they had the right to withdraw from the study at any time.

RESULTS

Table 1 shows the socio-demographic characteristics of the study sample. Regarding age groups, they ranged between

15-43 years old. The highest percentage (36.75%) of women aged 30 years or more, and the majority (97.25%) of them were housewives. Regarding residency, most of the study sample (69.50%) were living outside Akre (rural). More than half of the study sample were passive smokers (50.63) and lived in an extended family (52.00%).

Table 1: Socio-demographic characteristics of the study sample

Variable	No.	(%)
Age (years)		
15-43	27.16	(5.66)
< 20	30	(7.5)
20-24	110	(27.5)
25-29	113	(28.25)
30 and older	147	(36.75)
Occupation		
Contract	5	(1.25)
temporary employee		
Governmental employee	5	(1.25)
House wife	389	(97.25)
Self-employed	1	(0.25)
Residency		
Akre	122	(30.5)
Outside	278	(69.5)
Smoking		
Active	1	(0.25)
Passive	202	(50.63)
Non	196	(49.12)
Type of family		
Extended	208	(52.00)
Nuclear	192	(48.00)

Table 2 shows the socio-economic status of the study sample, which was calculated according to women and husbands' education , crowding index , possession of care, type of housing, and cost of electrical machines. Overall socio-economic status divided into three groups, in which 67.5% of the study sample had medium status.

Table 2: Distribution of socio-economic status of the study sample n=400

Socio-economic Criteria	Category	No.	(%)
Women Education			
	Illiterate	144	(36)
	Read and Write	73	(18.25)
	Primary	106	(29.5)
	Intermediate and Secondary	30	(7.5)
	Diploma, University and High Education	47	(11.75)
Husband Education			
	Illiterate	85	(21.25)
	Read and Write	94	(23.5)
	Primary	100	(25)
	Intermediate and Secondary	39	(9.75)
	Diploma, University and High Education	82	(20.5)
Crowding Index			
	<1.2	201	(50.25)
	1.5-2.9	196	(49)
	≥3	3	(0.75)
Possession of Car			
	Yes	191	(47.75)
	No	209	(52.25)
Type of Housing			
	Owned	163	(40.5)
	Partially Owned	195	(48.75)
	Rented	43	(10.75)
Cost of Electrical Machines			
	< 1500\$	222	(55.5)
	1500 – 3000 \$	175	(43.75)
	> 3000 \$	3	(0.75)
Overall socio-economic status			
	Low SES	67	(16.75)
	Medium SES	270	(67.5)
	High SES	63	(15.75)

Table 3 shows the obstetrical and reproductive history of the study sample. The highest percentage of them were multipara (47.25%),

had no abortion (76.50), and stillbirth (52%). Most of the study sample (74.50%) did not attend antenatal care in the previous pregnancy.

Table 3: Distribution of the study according obstetrical and reproductive history

Variable	No.	(%)
Gravida Category		
Prime gravida	131	(32.75)
Multi-gravida	169	(42.25)
Grand multigravida	100	(25)
Parity		
Null Parity	1	(0.25)
Prime para	150	(37.5)
Multi para	189	(47,25)
Grant multi para	60	(15)
Abortion		
0	306	(76.5)
1	50	(12.5)
2-4	44	(11)
Still birth		
0	352	(88)
1	35	(8.75)
2-4	13	(3.25)
Delivery Mode		
C/S	192	(48)
Normal Delivery	208	(52)
Attending ANC During Previous Pregnancies		
No	298	(74.5)
Yes	102	(25.5)

Figure 1 shows the prevalence and rate of attending and utilizing antenatal care in the last pregnancy.

The majority (80%) of women did not attend antenatal care. The rate of attending to antenatal care was 20%.

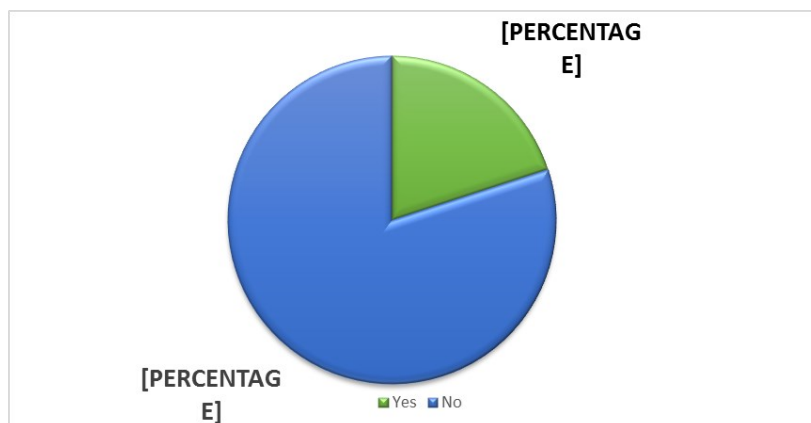


Figure 1: Prevalence and rate of attending and utilizing antenatal care in last pregnancy

Table 4 shows the association between attending ANC in the last pregnancy with women's socio-demographic characteristics and socio-economic status. There was no significant association between attending antenatal care in the last pregnancy, women's age (P=0.0805) , occupation

(P=0.0893), and smoking (P=0.3295). In contrast, there was a significant association between attending antenatal care in the last pregnancy with residency (P=0.0020), and type of family (P=0.0043).

Table 4: Association between attending ANC in last pregnancy with socio-demographic characteristic and socio-economic status of women

Characteristics (n=400)	No (n=320)	Yes (n=80)	P-value
	No. (%)	No. (%)	
Age			
< 20	22 (73.33)	8 (26.67)	0.0805
20-24	82 (74.55)	28 (25.45)	
25-29	89 (78.76)	24 (21.24)	
Occupation			
contract/temporary employee	2 (40)	3 (60)	0.0893
Governmental employee	5 (100)	0 (0)	
House wife	312 (80.21)	77 (19.79)	
Self-employed	1 (100)	0 (0)	
Residency			
Akre			0.0020
Outside	109 (89.34)	13 (10.66)	
Type of family			
Extended	155 (74.52)	53 (25.48)	0.0043
Nuclear	165 (85.94)	27 (14.06)	
Smoking			
Active	1 (100)	0 (0)	0.3295
Passive	167(82.67)	35 (17.33)	
None	151 (77.04)	45 (22.96)	
Socio economic status			
Low SES	57(85.07)	10(14.93)	0.5214
Medium SES	213(78.89)	57(21.11)	
High SES	50(79.37)	13(20.63)	

Table 5 describes the association between attending antenatal care in the last pregnancy and women's obstetrical and reproductive history. In this study, parity (P=0.0200) and previous mode of delivery

(P=0.0356) have a significant association with attending antenatal care, while gravida (P=0.0928) and having stillbirth (P=0.4655) do not.

Table5: Association between attending antenatal care in last pregnancy with Obstetrical and reproductive history of pregnant women

Variables=400	No (n=320) No. (%)	Yes (n=80) NO. (%)	P-value
Gravida category			
Prime	97 (74.05)	34 (25.95)	0.0928
2-4	138 (81.66)	31 (18.34)	
≥ 5	85 (85)	15 (15)	
Parity			
Null parity	1 (100)	0 (0)	0.0200
Prime	108 (72)	42 (28)	
Multipara	161 (85.19)	28 (14.81)	
Grant multipara	50 (83.33)	10 (16.67)	
Abortion			
0	244 (79.74)	62 (20.26)	0.0712
1	36 (72)	14 (28)	
2-4	40 (90.91)	4 (9.09)	
Still birth			
0	279 (79.26)	73 (20.74)	0.4655
1	29 (82.86)	6 (17.14)	
2-4	12 (92.31)	1 (7.69)	
Previous mode of delivery			
C/S	162 (84.38)	30 (15.63)	0.0356
Normal delivery	158 (75.96)	50 (24.04)	

DISCUSSION

The prevalence and rate of attending antenatal care in the last pregnancy in Akre city was low (20%). Compared to another study, a high proportion of women in the Syrian refugee camps in Erbil attended antenatal care services during the last pregnancy (99.6%), with different results [10]. According to this study, Egyptian women in 2000-2014 utilizing ANC was low; its similar result [11] about (28.5%) of women's attending ANC women's education and quality of health services play significant roles in increasing accessibility of antenatal health care services. On the other hand, women's empowerment has shown a positive effect; another study shows the utilization of ANC service is very low even for women who have access to the service in Ethiopia in general (49.8%) of the study sample attending ANC in the last delivery, in a study conducted in North Maharashtra Utilization of Antenatal care (ANC) services is poor in the tribal areas, causing increased maternal morbidity and mortality [12]. (64.2 %) its different result [13, 14]. The Study participants might be in similar socio-demographic status, understanding of antenatal care options, and common traditional practices encouraging home treatment, which could explain the consistency. However, this figure is higher than the (34%) attendance rate reported in the Ethiopia Demographic Health Survey 2011 its similar result [15]. The analysis was done on any women who received antenatal care follow-up by any health professional, more awareness, and better access to service, which could be the main component that boosted antenatal care service use in this study. Regarding residency, the highest percentage (69.50 %) of women were living outside Akre (rural) and attending antenatal care, while in this

finding, a high percentage (89.5%) of women were living in urban areas attending ANC; the result of this study is different result with the study done in Akre, that residency is significantly associated with antenatal care utilization [16,17]. Women in Nigeria [18] attended (82%) more ANC visits than rural women (45%); according to the report, a study conducted in Nigeria found that living in an urban setting increases the likelihood of using antenatal care services by more than twofold [19]. This contradicts research is done in eastern Sudan, which found no link between residency and antenatal care utilization [20]. The discrepancy could be because women in urban areas have better access to health facilities and information and hence receive services from nearby health facilities. There is no study that is similar to this study regarding residency. Regarding socio-economic status, the high percentage of socio-economic classes in this study was reported as a medium class (67.50%), which is similar to the results of a study done in Erbil city in which the rate of attending ANC (80.5%) [21]. Higher than this finding was reported by the study [22] in Ethiopia, they found (1.41%) low percentage of women were in the middle class of SES. The current study revealed that the use of ANC was higher (92.2%) among women with a high SES. This finding was similar to previous studies done in Turkey [23]. These findings are similar to those of previous studies indicating that family income and the cost of accessing care played a very important role in the utilization of ANC services and in encouraging pregnant women to visit ANC [24,25]. In a recent review conducted in low and middle-income countries, the mother's and her partner's education were the most significant factors that influence the utilization of maternal healthcare services [26]. A study in sub-Saharan African countries

revealed that use of antenatal care was associated with mother's age, parity, interaction with healthcare provider and cost of antenatal care [27]. Another study in urban slum areas in Islamabad found that family income was not significantly associated with antenatal care utilization women's education and husband's education were significantly associated with the utilization of antenatal care facilities in this study [28].

CONCLUSION

The results show the majority of women have not attended and utilized ANC during pregnancy. There were statistically significant associations between attending antenatal care with residency, type of family, parity, and previous mode of delivery. It is recommended that effective media and health education can be used to raise pregnant women's awareness and that professional staff in primary health care centers. Pregnant women should encourage to attend antenatal care to ensure the best health conditions for both mother and baby during pregnancy.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

- [1] Organization WH. WHO antenatal care recommendations for a positive pregnancy experience: nutritional interventions update: vitamin D supplements during pregnancy. 2020.
- [2] Konje ET, Magoma MT, Hatfield J, Kuhn S, Sauve RS, Dewey DM. Missed opportunities in antenatal care for improving the health of pregnant women and newborns in Geita district, Northwest Tanzania. *BMC pregnancy and childbirth*. 2018 Dec;18(1):1-13. Available from: <https://doi.org/10.1186/s12884-018-2014-8> [Accessed: 20th Aug 2022].
- [3] World Health Organization. WHO recommended interventions for improving maternal and newborn health: integrated management of pregnancy and childbirth. World Health Organization; 2007.
- [4] Tunçalp Özge, Pena-Rosas JP, Lawrie T, Bucagu M, Oladapo OT, Portela A, et al. WHO recommendations on antenatal care for a positive pregnancy experience-going beyond survival. *An international Journal of Obstetrics and Gynaecology*. 2017;124(6):860–862.
- [5] World Health Organization. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division; 2019;
- [6] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience: summary: highlights and key messages from the World Health Organization's 2016 global recommendations for routine antenatal care. World Health Organization; 2018.
- [7] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience; World Health Organization. 2016b.
- [8] Ali MS, Jawad AK, Jawad RK. Maternal mortality at the Maternity Teaching Hospital in Erbil, Kurdistan: A hospital-based data 2011-2013. *Zanco Journal of Medical Sciences*. 2015;19(3):1116–22.
- [9] Guia NI. National Collaborating Centre for Women's and Children's Health (UK) and National Institute for Health and Care Excellence (UK). *Bronchiolitis. Diagnosis and Management of Bronchiolitis in Children*. 2015.
- [10] Fared SM, Ismail KH. Utilization of antenatal care services in Syrian refugee camps in Erbil, Iraq. *Zanco Journal of Medical Sciences*. 2019;23(2):250–6.
- [11] Zaky HH, Armanious DM, Hussein MA. Determinants of Antenatal Health Care Utilization in Egypt (2000-2014) Using Binary and Count Outcomes. *Health (N Y)*. 2019;11(01):25.
- [12] Tura G. Antenatal care service utilization and associated factors in Metekel Zone, Northwest Ethiopia. *Ethiopian Journal of Health Sciences*. 2009;19(2).
- [13] Mumbare SS, Rege R. Ante natal care services utilization, delivery practices and factors affecting them in tribal area of North

- Maharashtra. *Indian journal of Community Medicine*. 2011;36(4):287.
- [14] Kushwaha P, Mehnaz S, Ansari MA, Khalil S. Utilization of antenatal care services in periurban area of Aligarh. *International Journal of Medical Science and Public Health*. 2016;5(10):2004–8.
- [15] Tarekegn SM, Lieberman LS, Giedraitis V. Determinants of maternal health service utilization in Ethiopia: analysis of the 2011 Ethiopian Demographic and Health Survey. *BMC Pregnancy Childbirth*. 2014;14(1):1–13.
- [16] Ali SA, Dero AA, Ali SA, Ali GB. Factors affecting the utilization of antenatal care among pregnant women: a literature review. *Journal of Pregnancy and Neonatal Medicine*. 2018;2(2): 41–45.
- [17] Rafaeli T, Hutchinson G. The secondary impacts of COVID-19 on women and girls in Sub-Saharan Africa. Brighton, UK: Institute of Development Studies; 2020.
- [18] Doctor HV. Intergenerational differences in antenatal care and supervised deliveries in Nigeria. *Health Place*. 2011;17(2):480–9.
- [19] Babalola S, Fatusi A. Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC Pregnancy Childbirth*. 2009;9(1):1–13.
- [20] Ali AAA, Osman MM, Abbaker AO, Adam I. Use of antenatal care services in Kassala, eastern Sudan. *BMC Pregnancy Childbirth*. 2010;10(1):1–4.
- [21] Dhahir AA, Zangana JM. Determinants of utilization of antenatal care services in Erbil city. *Zanco Journal of Medical Sciences*. 2015;19(2):984–90.
- [22] Acharya D, Khanal V, Singh JK, Adhikari M, Gautam S. Impact of mass media on the utilization of antenatal care services among women of rural community in Nepal. *BMC Research Notes*. 2015;8(1):1–6.
- [23] Celik Y, Hotchkiss DR. The socio-economic determinants of maternal health care utilization in Turkey. *Social Science & Medicine*. 2000;50(12):1797–806.
- [24] Simkhada B, Teijlingen ER van, Porter M, Simkhada P. Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature. *Journal of Advanced Nursing*. 2008;61(3):244–60.
- [25] Alam AY, Qureshi AA, Adil MM, Ali H. Factors affecting utilization of antenatal care among women in urban slum areas of Islamabad. *Rawal Medical Journal*. 2004;29(2):71–5.
- [26] Banke-Thomas OE, Banke-Thomas AO, Ameh CA. Factors influencing utilisation of maternal health services by adolescent mothers in Low-and middle-income countries: a systematic review. *BMC Pregnancy Childbirth*. 2017;17(1):1–14.
- [27] Pell C, Meñaca A, Were F, Afrah NA, Chatio S, Manda-Taylor L, et al. Factors affecting antenatal care attendance: results from qualitative studies in Ghana, Kenya and Malawi. *PLOS One*. 2013;8(1):e53747.
- [28] Erbaydar T. Utilization of prenatal care in poorer and wealthier urban neighbourhoods in Turkey. *The European Journal of Public Health*. 2003 Dec 1;13(4):320–6.