KARBALA JOURNAL OF MEDICINE

Research article

Assessment of the Satisfaction of Pregnant Women with Antenatal Care Services in Primary Health Care Centers in Karbala Province

Mena Muneer ALTuma[1], Basheer Aqeel Al-Ali[1], Fareed Abass Hussien[2]

[1]*Department of family and community medicine, College of Medicine, University of Kerbala, Karbala, Iraq*
[2]*Karbala Health Directorate, Karbala, Iraq*

Article information:
Received: 2024-07-14
Accepted: 2024-08-13
Correspondence: Mena Muneer ALTuma
Email: mina.m@s.uokerbala.edu.iq

https://doi.org/10.70863/karbalajm.v17i2.2113

Abstract

Background: Antenatal care (ANC) is the care that the pregnant woman receives from health professionals during the pregnancy. This care was given while pregnancy occurred to make sure the pregnant and her baby were in good health. Patients' use of health care is affected by the quality of care. Pregnant who are not satisfied with their providers may be less likely to continue with treatment. The study aimed to assess the satisfaction of pregnant women with ANC services in Primary Health Care Centers (PHCC) in Karbala province.
Methods: A descriptive study was conducted from January to October 2023 to assess the satisfaction of pregnant women with ANC services in Karbala province. The sample consisted of 400 women randomly selected from four (PHCCs) that provide antenatal daily care services.
Results: The results showed that 87.25% of the pregnant women were satisfied, whereas 12.75% were unsatisfied. The results concluded that there was a significant difference in satisfaction levels between the four PHCCs ($p<0.001$). Regarding education, pregnant women with college and higher education satisfaction levels to other educational levels ($p=0.008$). Also, pregnant women in rural residences had a higher satisfaction level in comparison to urban or slum areas ($p<0.001$).
Conclusion: Most of the pregnant women were satisfied with the ANC services in Karbala province.
Keywords: Primary health care centers, Antenatal care, pregnant women.

Introduction

Antenatal care (ANC) is the care that the pregnant receives from health professionals during the pregnancy. This care was given while the woman visited the healthcare center to make sure that the pregnant and her baby were in good health. The doctor providing antenatal care checks the health of the pregnant and her baby, gives useful information to help the pregnant to have a healthy pregnancy, including advice about healthy eating, exercise, and birth plan [1], and answers any questions that the pregnant have [2].

The antenatal care history back to the 18th century when obstetrics and gynecology started to develop and focus on it [2-4]. It was expected that multiple visits were important in the care of pregnant as a result, frequent visits were the standard, and according to these visits, pregnant women were classified as high or low-risk women, then it shifted to a new model of ANC [2]. While the old version of antenatal care visits needs frequent visits reaching about 10 visits or more [5-6]. The focused ANC has decreased the number of visits, in which the pregnant women should receive four antenatal routine visits, the 1st visit before 4 months (16 weeks), the 2nd visit at 6 months (24-28 weeks), the 3rd visit at 8 months (30-32 weeks), and the 4th visit at 9 months (36-38 weeks) [7]. More frequent visits are needed in cases of Hypertension and severe anemia [8-9]. The World Health Organization (WHO) has updated its recommendations from a minimum of four antenatal care contacts to a minimum of eight contacts to reduce perinatal mortality and to improve women's experience of care. However, data reporting at the global, regional, and country levels is currently only available for a minimum of four visits, aligned with the previous recommendation [10-11].

The satisfaction of pregnant women is an important factor that aims to assess and raise the level of the services of PHCC health care. So, in most countries in ANC improvement programs the opinions of pregnant women are considered as an essential element. This step is important to ensure that the pregnant have continuous follow-ups and ensures a good relationship between the pregnant woman and the doctor [12].

Many maternal deaths and prenatal deaths occur in women with little use of antenatal care (ANC). Worldwide, no antenatal care services have been received by 70% of pregnant women [13], while in developed countries, more than 95% of pregnant women receive ANC [14]. Worldwide, maternal death numbers between 1990 and 2015 decreased annually by 44%, from 385 to 216 deaths per 100,000 live births which is still very high. [15-17]. In AL-Amara city in Iraq, a study published in 2021 showed that the satisfaction level regarding prenatal care services was (85.7%) [16].

Several research studies were conducted worldwide about the satisfaction of pregnant women with antenatal care services. According to a study done in cluster one in Riyadh, Saudi Arabia in 2022, 93.7%, 87.8%, 71.8%, and 53.9% respectively were the overall satisfaction with initial triage evaluation, services provided, consultation, and examination [18-19]. A study conducted in Sweden showed that 82% of the total study participants were satisfied with antenatal care services. Another study at primary healthcare facilities in Pakistan showed that 46% of the participants of pregnant women were satisfied with antenatal care services [16]. A maternal satisfaction survey was conducted at different times in different countries for instance, in 2012 and 2018 in Egypt [20] and Nigeria [21], the level of maternal satisfaction with ANC was around 90%, while in Ethiopia, the levels of maternal satisfaction with antenatal care in 2008, 2013, 2014, 2018, and 2019 were 35%, 47.7%, 60.4%, 90%, and 90.8%, respectively [22]. A study carried out in Malaysia revealed that 75.4% of mothers were satisfied with the antenatal care services provided [23]. In Myanmar, the satisfaction was 48% [24], and in Ghana, 92.7% of pregnant women were satisfied with the provided antenatal care service [25]. Pregnant women attending ANC services regularly during pregnancy are more likely to use postnatal healthcare services [26-28].

This study aims to evaluate the satisfaction of pregnant women with ANC services in PHCC in Karbala province.

Materials and methods

Subjects

Four PHCCs were chosen by random sampling technique in Karbala province. Two of them were chosen, AL-Mulhaq PHCC and AL-Nasir, in the center of Karbala province. The other two PHCCs were AL-Taf PHCC in AL-Hussania and AL-Zahraa PHCC in AL-Hussania, the rural area of Karbala province. The study was conducted from January to October 2023. Pregnant women who could not communicate and those who were seriously ill were excluded from the study. The calculation of the sample size by using the Raosoft sample size for estimating the required sample size through the following equation [16]:

$n = [(Z*0.95)^2 \times p \times (1 - p)]/ (0.05)^2$

Where n is the sample size, Z is the Z value (1.96 for 95% CI), and p is the proportion or prevalence that met our criteria

p was set as 0.5, because the proportion was not known.

The calculated sample size was 400 to achieve a confidence level of 95% and a precision of ± 0.05. However, because cluster and stratified sampling were employed, we used 1.5 as a design effect.

Study methods

Based on a multistage stratified random sampling method, we select 100 pregnant for each center. Data was collected by face-to-face interviews. The data relevant to the study's purpose was obtained through a specially structured validated questionnaire. The items of the questionnaires were either formulated or identified and extracted from published questionnaires or scientific literature [16-19]. The final version designed for the study was reviewed by 3 specialists from the Colleges of Medicine at Kerbala University. The questionnaire consists of three main sections:

Section I: Information regarding socio-demographic variables for mother and father such as age, residency, level of education, occupation, and income.

Section II: information regarding obstetric state for pregnant women.

Section III: information regarding the services in the PHCC for pregnant women.

Coding the variables, before the beginning of a collection of data, and each variable was given a specific code, the coding instructions were printed on the data collecting form, completeness checking for any missing data or inaccurate or imprecise data, editing the data. The questionnaire was coded as the following: strongly not satisfied (1), not satisfied (2), not sure (3), satisfied (4), and strongly

satisfied (5).

The 5-point Likert-type scale of the 13 satisfaction questionnaire items was scored for each item (from 1-5). Then the sum of the scores was obtained and divided by 13 to develop the mean satisfaction score. The overall satisfaction level was developed by categorizing the mean scores into two scales: Satisfied (≥75% of mean score), and not satisfied score (<75% of mean score).

Statistical Analysis

Data entry using the Statistical Package for Social Sciences (SPSS) IBM, US; version 23, for analysis and database management software (Microsoft Excel). Daily making of backup copy of data and store in another place. Descriptive statistics were used in terms of frequency percentage and mean. A possible association between the two groups was made through the Chi-square test. The significance level was considered when $p < 0.05$.

Ethical considerations:

The study was approved by the research ethical committee in the College of Medicine at the University of Karbala (No 23-4 on 3 January 2023) and by the research ethical committee in Karbala Health Directorate. The official verbal consent was taken from each pregnant woman during the filling of the questionnaire.

Results

The results of the current study showed that about one-half of the pregnant women aged between 20 to 29 years. Less than one-third of the study participants completed secondary or higher education. The majority of the study women (92.7%) were housewives. More than three-quarters of the study women reported medium monthly income as described in Table 1.

Regarding the obstetric and reproductive health profiles of pregnant women, the results revealed that about one-half of the pregnant women were Gravida 3 and above. First ANC visits accounted for 42% of the women and 72.5% of these visits were during the first trimester. Regarding the gestation of the current pregnancy, one-half of the study participants were in the second trimester. Unplanned pregnancy was reported by 43.25% of the study participants, whereas a positive history of miscarriage was reported by about 3 quarters of the study participants as shown in Table 2.

Table 1. Socio-demographic characteristics of pregnant women attending antenatal care at Primary Health Care Centers in Karbala City

Characteristics	Categories	Frequency	%
Age (years)	**Below 20**	76	19
	20 - 29	204	51
	30 - 39	116	29
	≥40	4	1
	Mean ±SD	25.93±6.44	
Education	**Illiterate**	47	11.8
	Primary school	240	60
	Secondary school	69	17.2
	College and higher	44	11
Occupation	**Housewife**	371	92.7
	Employed	10	2.5
	Free work	19	4.8
Residence	**Urban**	160	40
	Rural	209	52.25
	Slum area	31	7.75
Monthly income	**Poor**	86	21.5
	Medium	307	76.7
	Good	7	1.8

Table 2. Obstetric and reproductive health profiles of pregnant women attending antenatal care at Primary Health Care Centers in Karbala City.

Characteristics	Categories	Frequency	%
Gravidity of Current pregnancy	**G1**	67	16.8
	G2	136	34
	G3	114	28.4
	G4 and above	83	20.8
Number of ANC visit	**First**	168	42
	Repeated visit	232	58
Time of the first visit	**First trimester**	290	72.5
	Second trimester	93	23.25
	Third trimester	17	4.25
Gestation of current pregnancy	**First trimester**	116	29
	Second trimester	203	50.75
	Third trimester	81	20.25
Type of pregnancy	**Planned pregnancy**	227	56.75
	Unplanned pregnancy	173	43.25
History of miscarriage	**No**	105	26.25
	Yes	295	73.75

Regarding the health service characteristics of pregnant women, 93% of the study participants reported that the travel time to PHCC was 30 minutes or less. Most of the ANC provider was female 87.5%. Adequate examination done by the doctor was reported by 84.7% of the pregnant women. The waiting time to get health services was reported to be less than 30 minutes by 99.2% of the study women as shown in Table 3.

Regarding the overall satisfaction level of pregnant women, the mean of the 13 questionnaire items used to measure the overall ANC services satisfaction of pregnant women was described in Table 4. According to the overall satisfaction level, the results revealed that 87.25. of the pregnant women were satisfied whereas 12.75% were not satisfied (Figure 1). Regarding the association of the overall satisfaction level with the socio-demographic characteristics of pregnant women, the results concluded that there was a highly significant difference in satisfaction level between the four PHCCs ($p<0.001$), i.e., the satisfaction level in the Al Taf center was 58%. Regarding education, pregnant women with college and higher education the satisfaction levels with other educational levels ($p=0.008$). Also, pregnant women with rural residences have a satisfaction level in relation to urban or slum areas ($p<0.001$) as revealed in Table 5.

Table 3. Health Service Characteristics of Pregnant Women attending antenatal care at Primary Health Care Centers in Karbala City

Characteristics	Categories	Frequency	%
Time to PHCC	10-15 mint	176	44
	15-30 mint	196	49
	More than 30 mint	28	7
Sex of ANC provider	Female	350	87.5
	Male	50	12.5
Adequate Examination done by the doctor	No	61	15.3
	Yes	339	84.7
Waiting time to get service	< 30 min	397	99.2
	≥ 30 min	3	0.8

Table 4. Means and standard deviations of items used to measure the overall satisfaction of pregnant women at Primary Health Care Centers in Karbala City

Variables	Mean score	SD
Building	3.92	0.88
Facilities in the waiting area	3.91	0.82
Privacy at the examination	4.02	0.32
Communication with the doctor	4.04	0.32
Doctor attitude	4.04	0.33
Response to inquiry	4.04	0.34
Treatment of existing condition	4.03	0.34
Time spends to each patient	4.02	0.30
Health and diet education by the doctor	4.01	0.38
Nurse attitude and communication	3.92	0.53
Type of service give	3.99	0.40
Cost of service	4.05	0.24
Medication & Supplement Found	3.81	0.67

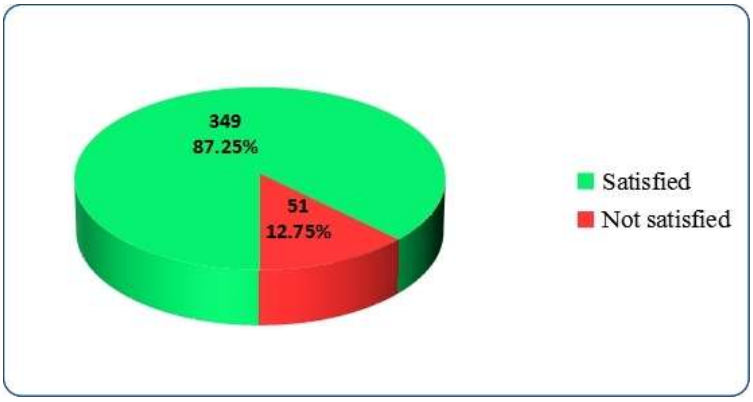

Figure 1. Overall Satisfaction Level among the study participant

Regarding to association of the overall satisfaction level with obstetric and reproductive health profiles of pregnant women, pregnant women with gestation of current pregnancy in second trimesters, the satisfaction level concerning other trimesters was (p=0.047). Pregnant women with unplanned pregnancies had satisfaction levels (p=0.002) compared with planned pregnancies as shown in Table 6. There were no significant statistical associations of Health service characteristics of pregnant women with the overall satisfaction level as shown in Table 7.

Table 5. Association of health centers and socio-demographic characteristics of pregnant women with the overall satisfaction level

Characteristics		Satisfaction level		P value
		Satisfied	Not satisfied	
PHC	Al Mulhaq	99 (1%)	1 (1%)	<0.001*
	Al Nasir	100 (100%)	0	
	Al Taf	58 (58%)	42 (42%)	
	Al Zahraa	92 (92%)	8 (8%)	
Age	Below 20	69 (90.8%)	7 (9.2%)	0.056
	20-29	170 (83.3%)	34 (16.7%)	
	30 and above	110 (91.7%)	10 (8.3%)	
Education	Illiterate/ Primary school	257 (89.5%)	30 (10.5%)	0.008*
	Secondary school	60 (87%)	9 (13%)	
	college and higher	32 (72.7%)	12 (27.3%)	
Occupation	Housewife	324 (87.3%)	47 (12.7%)	0.756
	employed	8 (80%)	2 (20%)	
	Free work	17 (89.5%)	2 (10.5%)	
Residence	Urban	156 (97.5%)	4 (2.5%)	<0.001*
	Rural	163 (78%)	46 (22%)	
	Slum area	30 (96.8%)	1 (3.2%)	
Monthly income	Poor	78 (90.7%)	8 (9.3%)	0.273
	medium	266 (86.6%)	41 (13.4%)	
	Good	5 (71.4%)	2 (28.6%)	

***Chi-square test was used with a significant P value of less than 0.05**

Table 6. Association of Obstetric and reproductive health profiles of pregnant women with the overall satisfaction level

Characteristics		Satisfaction level		P value
		Satisfied	Not satisfied	
Parity of Current pregnancy	G1	59 (88.1%)	8 (11.9%)	0.849
	G2	116 (85.3%)	20 (14.7%)	
	G3	100 (87.7%)	14 (12.3%)	
	G4 and above	74 (89.2%)	9 (10.8%)	
Number of ANC visit	First	151 (89.9%)	17 (10.1%)	0.179
	Repeated visit	198 (85.3%)	34 (14.7%)	
Time of the first visit	First trimester	256 (88.3%)	34 (11.7%)	0.537
	Second trimester	78 (83.9%)	15 (16.1%)	
	Third trimester	15 (88.2%)	2 (11.7%)	
Gestation of current pregnancy	First trimester	107 (92.2%)	9 (7.8%)	0.047*
	Second trimester	169 (83.3%)	34 (16.7%)	
	Third trimester	73 (90.1%)	8 (9.9%)	
Type of pregnancy	Planned pregnancy	188 (82.8%)	39 (17.2%)	0.002*
	Unplanned pregnancy	161 (93.1%)	12 (6.9%)	
History of miscarriage	No	87 (82.9%)	18 (17.1%)	0.116
	Yes	262 (88.8%)	33 (11.2%)	

*Chi-square test was used with a significant P value of less than 0.05.

Table 7. Association of Health Service Characteristics of Pregnant Women with the overall satisfaction level

Characteristics		Satisfaction level		P value
		Satisfied	Not satisfied	
Travel time to PHCC	10-15 mint	158 (89.8%)	18 (10.2%)	0.180
	More than 15 mint	191 (85.3%)	33 (14.7%)	
Sex of ANC provider	Female	304 (86.9%)	46 (13.1%)	0.533
	Male	45 (90%)	5 (10%)	
Adequate Examination done by the doctor	No	54 (88.5%)	7 (11.5%)	0.746
	Yes	295 (87%)	44 (13%)	
Waiting time to get service	< 30 min	346 (87.2%)	51 (12.8%)	-
	≥ 30 min	3 (100%)	0	

*Chi-square test was used with a significant P value of less than 0.05

Discussions

Regarding the overall satisfaction level, the study revealed that 87.25% of the pregnant women were satisfied whereas 12.75% were not satisfied. That means the PHCCs services introduced to pregnant women were good, and Kerbala Health Department put good plans and Programs for ANC services in PHCCs. This result is similar to a study done in Riyadh, Saudi Arabia in 2022 which showed the average satisfaction level with ANC at the PHCCs was 76.8% [19]. Other studies revealed different results from the present study as in Oman (60%) [30], southern Ethiopia (32%) [31], Pakistan (46%) [32], and Uganda (40%) [33].

The current study showed that about one-half of the pregnant women aged between 20 to 29 years. This study along with a study done in AL-Amara city in Iraq in 2021 that revealed the majority of pregnant participants (60.7%) in the study were between the ages of 20 and 29 years [16]. The similarities in the results are due to the fact that the early age of marriage for most women is according to the predominant social customs and traditions.

Less than one-third of the study participants completed secondary or higher education 28.2%. Regarding education, pregnant women with college and higher education had a satisfaction level in relation to other educational levels (p=0.008). Similar to the result of the study done in AL-Amara city which showed that secondary or higher education was 28.7% [16]. A high percentage of pregnant women (71.8%) had a low education level and low awareness about the services that should be introduced to them so they were satisfied with the less amount of the service. This result may explain the causes of the high level of satisfaction with the services of PHCCs. A study done in Oman showed that about (60%) of participants had excellent satisfaction, regarding the education level of the literate were 79.5 % of participants [34]. While in a study done in Saudi Arabia revealed the literate were (78.5%). Regarding the satisfaction level in Saudi Arabia, the least satisfaction was among pregnant with the lowest educational category. Those findings suggest there is a different point of view among people with higher education regarding antenatal services [19].

The majority of the women included in the study (92.7%) were housewives. Similar studies done in Iraq and Arab countries did not discuss the job of the women attending the PHCCs for antenatal visits while a study in the Hariri region, Eastern Ethiopia revealed a 66.7% of the women were housewives [2]. In the Lemi Kura sub-city in Ethiopia, the housewife was 6.3%, this discrepancy was due to the fact that most of the women work as farmers or merchants. The housewives were likely to be satisfied 5 times more with the given antenatal care services compared with pregnant women who were merchants [34]. Regarding income, more than three-quarters of the women included in the study reported medium monthly income. These results are similar to the AL-Amara study in Iraq that showed most of the pregnant women (76.1%) have medium income reflecting the same approach in the two cities (Karbala and AL-Amara provinces). These results may explain why the satisfaction level was high because most of the pregnant women have low income and they prefer to visit the PHCCs and they satisfied with the service. So, they prefer the PHCCs to the Hospital or Private Clinic due to the cost as most of them were housewives and from medium-income families. Also, the education level may play a role as most of them had low education levels which means those with higher income and higher education prefer to go to hospitals or private clinics.

Multiple visits to PHCCs by pregnant women may indicate a higher satisfaction rate with the provided services. By repeated visits women develop an awareness of its importance, increasing patient needs, and effective response to this need by the healthcare professional, and this is considered a positive association [35]. Rural residences accounted for more than one-half of the total 52.25%, slum residences accounted for 7.75%, and urban residences accounted for 40% of the participants.

A finding in this study showed a significant factor for women's satisfaction with ANC service that was the frequency of ANC visits. Many pregnant women who had only their first ANC visit were satisfied, while a higher number of women were satisfied with ANC services than those who had several visits. This was in agreement with a study in Riyadh, Saudi Arabia [35], Nigeria [36], and Ethiopia [37-38]. Regarding the health service characteristics, 93% of the study participants reported that the travel time to PHCC was 30 minutes or less. In Lemi Kura Sub-City, Addis Ababa, Ethiopia, (66.2%) of the women take more than 30 minutes to reach PHCC [12]. Pregnant women in Lemi Kura were twice as likely to be satisfied with the antenatal care services they received if their home was far from the health center as if it was close (AOR: 1.72; 95% CI = 1.08–2.74). In contrast to this study, a study conducted in Hosanna, Ethiopia reported that

pregnant women were more likely to be satisfied if traveled less than thirty minutes [34]. In Iraq there is a PHCC for every 10,000 people (according to Iraqi Ministry of Health guidelines), so every woman finds a PHCC near to her, and takes less than 30 minutes to reach it. Pregnant women's first visit with gestation of current pregnancy in the second trimester revealed the satisfaction level in relation to other trimesters. Like study done in the Hariri region, Eastern Ethiopia [26] showed pregnant women's satisfaction was 1.74 times higher for women who started their ANC in the first trimester of pregnancy compared with those who had started their ANC after the first trimester of their pregnancy. This result was in agreement with previous studies in Malawi [39], Uganda [40], and Ethiopia [31-41]. This might be because early initiation of ANC leads to an increase in pregnant women's chance of having a repeated visit, which influences pregnant women's perceptions and expectations. Pregnant women with unplanned (43.25%) pregnancy had significantly higher satisfaction than that of planned pregnancy (56.75%) ($p=0.002$). Gelaw et al 2023 showed that the prevalence of unplanned pregnancy among women in low- and middle-income countries was 44.68% [42]. In Sweden [43] a study showed that 31% of the pregnancies were unplanned, whereas most of the women (69%) reported their pregnancy to be planned. Those women with unplanned pregnancies show a high level of satisfaction because they are either young age or low-income so they are not aware of the service of PHCCs and are satisfied with the simple service they receive. First ANC visits accounted for 42% and 72.5% of these visits were during the first trimester. In comparison with AL-Amara city, 34% of pregnant have their first visit in the first trimester [16].

Regarding the gestation of current pregnancy, the first trimester is considered an important period during the pregnancy because it is the time when the fetus begins to develop, as a result, some of them attend health centers for the purpose of monitoring the health status; nutrition; measuring blood sugar; knowing blood pressure and hemoglobin level and other investigations. Regarding the association of the overall satisfaction level with the socio-demographic characteristics of pregnant women, the results showed a difference in satisfaction level between the four PHCCs ($p<0.001$), higher satisfaction level in PHCC in the center of Karbala province, while the satisfaction level was in Al Taf center (58%). The building of AL-Taf PHCC was very old and small and lacked investigation, and other facilities in comparison with AL-Zahraa PHCC which was near to it (5 km). Most of the ANC providers were female (87.5%). The higher percentage of females is due to the organization of the PHCC that prefers females (doctors, staff) in maternal and child health programs, and also the client prefers female care providers for easy communication between pregnant women and the care provider. Similar to the Hariri region, in Eastern Ethiopia 76.7% of care providers were female [2].

Conclusions

The study showed that the majority of pregnant women were satisfied with the general services they receive, the study showed that the majority of the socio-demographics and obstetric characteristics of pregnant women were significantly influencing the satisfaction with ANC services. There was a significant difference in satisfaction levels between the four PHCCs. Pregnant women with college and higher education significantly had the lowest satisfaction level in relation to other educational levels. Pregnant women with gestation of current pregnancy in the second trimester had significantly low satisfaction levels in relation to other trimesters. Pregnant women with unplanned pregnancies had significantly higher satisfaction than those with planned pregnancies.

Funding: No funding has been received for this study.

Conflicts of interest: No Conflicts of interest are to be declared.

Patient consent: The study was performed after verbal consent was taken from each participant.

Author contributions: Conceptualization: M.M.S, Methodology:M.M.S and B.A.A., Formal analysis and investigation:M.M.S, Writing:M.M.S., Resources:M.M.S., Supervision: M.M.S and B.A.A and F.A.H.

References

1. Hayman M, Reaburn P, Alley S, Cannon S, Short C. What exercise advice are women receiving from their healthcare practitioners during pregnancy?. Women and Birth. 2020 ;33(4):e357-62.
2. Birhanu S, Demena M, Baye Y, Desalew A, Dawud B, Egata G. Pregnant women's satisfaction with antenatal care services and its associated factors at public health facilities in the Harari region, Eastern Ethiopia. SAGE Open Medicine. 2020 ;8: 2050312120973480.
3. Abadía-Barrero CE, Bugbee M. Primary health care for universal health coverage? Contributions for a critical anthropological agenda. Medical Anthropology. 2019 ;38(5):427-435..
4. Say L, Raine R. A systematic review of inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. Bulletin of the World Health Organization. 2007;85(10):812-819.
5. Suleman Hassen S, Mulatu Teshale B, Abate Adulo L. Identifying factors associated with barriers in the number

of antenatal care service visits among pregnant women in rural parts of Ethiopia. The Scientific World Journal. 2021;2021(1):7146452.
6. Ayalew MM, Nebeb GT, Bizuneh MM, Dagne AH. Women's satisfaction and its associated factors with antenatal care services at public health facilities: a cross-sectional study. International Journal of Women's Health. 2021:279-286.
7. .Woldeamanuel BT, Belachew TA. Timing of first antenatal care visits and number of items of antenatal care contents received and associated factors in Ethiopia: multilevel mixed effects analysis. Reproductive health. 2021;18
8. Simkhada B, Teijlingen ER, 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):244-260.
9. Iqbal S, Ali I, Ekmekcioglu C, Kundi M. Increasing frequency of antenatal care visits may improve tetanus toxoid vaccination coverage in pregnant women in Pakistan. Human Vaccines & Immunotherapeutics. 2020 ;16(7):1529-1532.
10. World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. World Health Organization; 2016.
11. Habte A, Tamene A, Melis T. Compliance towards WHO recommendations on antenatal care for a positive pregnancy experience: Timeliness and adequacy of antenatal care visit in Sub-Saharan African countries: Evidence from the most recent standard Demographic Health Survey data. PLoS One. 2024;19(1):e0294981.
12. Kebede DB, Belachew YB, Selbana DW, Gizaw AB. Maternal satisfaction with antenatal care and associated factors among pregnant women in Hossana town. International journal of reproductive medicine. 2020(1):2156347.
13. Ruas CA, Quadros JF, Rocha JF, Rocha FC, Andrade GR, Piris ÁP, Rios BR, Pereira SG, Ribeiro CD, Leão GM. Profile and spatial distribution on maternal mortality. Revista Brasileira de Saúde Materno Infantil. 2020;20(2):385-96.
14. Lawrence ER, Klein TJ, Beyuo TK. Maternal mortality in low and middle-income countries. Obstetrics and Gynecology Clinics. 2022 ;49(4):713-33.
15. Chemir F, Alemseged F, Workneh D. Satisfaction with focused antenatal care service and associated factors among pregnant women attending focused antenatal care at health centers in Jimma town, Jimma zone, South West Ethiopia; a facility based cross-sectional study triangulated with qualitative study. BMC Research Notes. 2014 ;7:1-8.
16. Al-Abedi GA. Identification of pregnant women's satisfaction among antenatal health care services in primary health care centers at Al-Amara city/Iraq. Bahrain Medical Bulletin. 2021;43(2):492-3.
17. Montasser NA, Helal RM, Megahed WM, Amin SK, Saad AM, Ibrahim TR, Abd Elmoneem HM. Egyptian women's satisfaction and perception of antenatal care. Int J Trop Dis Health. 2012 ;2(2):145-56.
18. Aldebasi Y, Ahmed MI. Patients' satisfaction with medical services in the Qassim Area. Journal of Clinical and Diagnostic Research. 2011;5(4):813-7.
19. Alhaqbani SM, Bawazir AA. Assessment of pregnant women's satisfaction with model of care initiative: antenatal care service at primary health care in cluster one in Riyadh, Saudi Arabia. InHealthcare 2022;10 (1):151.
20. H Hussein Y, S Said H. Antenatal Health Care Services and Degree of Clients' Satisfaction in Sharkia Governorate, Egypt. The Egyptian Family Medicine Journal. 2020 ;4(1):77-94.
21. Ademuyiwa IY, Opeke RO, Farotimi AA, Ejidokun A, Olowe AO, Ojo EA. Awareness and satisfaction with antenatal care services among pregnant women in Lagos state, Nigeria. Calabar J Health Science. 2021; 5(1): 21-27.
22. Gelaw KA, Gebeyehu NA. Maternal satisfaction and associated factors among pregnant women attended at antenatal care service in Bedessa Health Center, Wolaita zone, Ethiopia, 2018. Science Research. 2020;8(2):39-44.
23. Rahman MM, Ngadan DP, Arif MT. Factors affecting satisfaction on antenatal care services in Sarawak, Malaysia: evidence from a cross sectional study. Springerplus. 2016;5:1-6.
24. Hsai NM, Matsui M, Ng CF, Khaing CT, Imoto A, Sayed AM, Huy NT, Kamiya Y, Moji K. Satisfaction of pregnant women with antenatal care services at women and children hospital in south okkalapa, Myanmar: a facility-based cross-sectional study triangulated with qualitative study. Patient Preference and Adherence. 2020 :2489-99.
25. Asafo AJ, Adoma DB. Determinants of women's perceived satisfaction on Antenatal care in urban Ghana: A cross-sectional study. Clinical Journal of Obstetrics and Gynecology. 2019 ;2(2):038-53.
26. Selgado MB, Dukele YH, Amamo DD. Determinants of focused antenatal care service satisfaction in public health facilities in Ethiopia 2018: a mixed study design. Journal of Public Health and Epidemiology. 2019 0;11(8):158-69.
27. Sahoo KC, Negi S, Patel K, Mishra BK, Palo SK, Pati S. Challenges in maternal and child health services delivery and access during pandemics or public health disasters in low-and middle-income countries: a systematic review. InHealthcare 2021; 9 (7): 828.
28. Geremew AB, Boke MM, Yismaw AE. The Effect of Antenatal Care Service Utilization on Postnatal Care Service Utilization: A Systematic Review and Meta-analysis Study. Journal of pregnancy. 2020(1):7363242.
29. Geltore TE, Anore DL. The impact of antenatal care in maternal and perinatal health. Empowering Midwives and Obstetric Nurses. 2021 Jul 16;107.
30. Ghobashi M, Khandekar R. Satisfaction among expectant mothers with antenatal care services in the Musandam Region of Oman. Sultan Qaboos University Medical Journal. 2008;8(3):325.
31. Tesfaye T, Mekonnen H, Negesa L. Maternal antenatal care service satisfaction and factors associated with rural health centers, Bursa District, Sidama Zone, Southern Ethiopia: a cross-sectional study. Journal of Women's Health Care. 2017;6(363):4-20.
32. Majrooh MA, Hasnain S, Akram J, Siddiqui A, Memon ZA. Coverage and quality of antenatal care provided at primary health care facilities in the 'Punjab'province of 'Pakistan'. PLoS One. 2014;9(11):e113390.
33. Emiru AA, Alene GD, Debelew GT. Women's satisfaction with the quality of antenatal care services rendered at public health facilities in Northwest Ethiopia: the application of partial proportional odds model. BMJ open. 2020;10(9):e037085.
34. Asres AK, Amogne Y. Satisfaction with antenatal care

services and its associated factors among pregnant women at public health centers of Lemi Kura Sub-City, Addis Ababa, Ethiopia, 2022. https://www.intechopen.com/online-first/87449.
35. Kamil A, Khorshid E. Maternal perceptions of antenatal care provision at a tertiary level hospital, Riyadh. Oman Medical Journal. 2013 ;28(1):33.
36. Nwaeze IL, Enabor OO, Oluwasola TA, Aimakhu CO. Perception and satisfaction with quality of antenatal care services among pregnant women at the university college hospital, Ibadan, Nigeria. Annals of Ibadan Postgraduate Medicine. 2013;11(1):22-8.
37. Ejigu T, Woldie M, Kifle Y. Quality of antenatal care services at public health facilities of Bahir-Dar special zone, Northwest Ethiopia. BMC Health Services Research. 2013;13:1-8.
38. Lakew S, Ankala A, Jemal F. Determinants of client satisfaction to skilled antenatal care services at Southwest of Ethiopia: a cross-sectional facility based survey. BMC Pregnancy and Childbirth. 2018c;18:1-3.
39. Lungu F, Malata A, Chirwa E, Mbendera I. Quality assessment of focused antenatal care services in Malawi. African Journal of Midwifery and Women's Health. 2011;5(4):169-75.
40. Tetui M, Ekirapa EK, Bua J, Mutebi A. Quality of Antenatal care services in eastern Uganda: implications for interventions. Pan African Medical Journal. 2012;13(1).
41. Kassaw A, Debie A, Geberu DM. Quality of prenatal care and associated factors among pregnant women at public health facilities of Wogera District, Northwest Ethiopia. Journal of pregnancy. 2020;9592124.
42. Gelaw KA, Atalay YA, Gebeyehu NA. Unintended pregnancy and contraceptive use among women in low- and middle-income countries: systematic review and meta-analysis. Contraception and Reproductive Medicine. 2023;8(1):55.
43. Carlander A, Hultstrand JN, Reuterwall I, Jonsson M, Tydén T, Kullinger M. Unplanned pregnancy and the association with maternal health and pregnancy outcomes: A Swedish cohort study. PLoS One. 2023;18(5):e0286052.