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ORIGINAL ARTICLE

Assessment of the Quality of Preventive and Clinical Care among Women in the Early Months of Pregnancy in A Maternal and Child Health Center, Zagazig City

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ABSTRACT

Background: Antenatal care (ANC) aims to prevent complications for expectant moms, newborns, and women by early detection, alleviation, and/or treatment of health issues that affect expectant mothers and babies. It also helps women become ready for birth and parenthood. The aim of this study is to assess the quality of ANC services provided for women in early months of pregnancy the (first trimester) in a randomly selected MCH center in Zagazig city. **Subjects and Methods:** This study is a cross-sectional study conducted in a randomly selected MCH center in Zagazig city from March 2021 to January 2022. Two hundred and ninety-nine pregnant women in the first trimester were interviewed and asked to complete a questionnaire which was composed of: First part; sociodemographic data, second part; obstetric and gynecological history, and third part; factors related to the perceived quality of ANC. **Results:** The women's ages ranged from 16 to 45 years at the time of their previous child's birth, with a median age of 32.34 years. There was statistically significant difference between the 2 groups who received vs who did not receive adequate ANC as regards pregnancy related illnesses (P = 0.021). Adequate ANC was statistically higher if the pregnancy was wanted and planned (P = 0.001). Significant difference was found between the two groups as regards the physical examination variable, the medical staff treated patients with dignity and respect. Providers' explanations were easily to understand and consultation time (p=0.001). **Conclusion:** Adequate ANC in the form of at least 4 visits starting from the first trimester improves the outcome of pregnancy and helps in prevention of negative outcome.

Keywords: Antenatal care, MCH, Quality of services, World Health Organization.

INTRODUCTION

Antenatal care (ANC) is thought to be crucial for averting unfavorable outcomes during pregnancy, labour, and the puerperium [1]. The main goals of ANC are to prepare women for childbearing and parenthood and to avoid issues for expectant mothers, and babies, via early identification, treatment, and management of health issues that impact expectant mothers and newborns [2]. According to the World Health Organization (WHO), ANC offers a platform for a number of health-related activities, such as disease prevention and promotion, screening, and diagnosis using the most relevant evidence-based approaches [3].

More women are getting ANC worldwide, 83% of women globally received at least one ANC consultation between 2007 and 2014, and 64% received at least four visits [4]. Even though the WHO ANC model is in place and used globally as a guide, many nations have their own programs that have different recommendations for the quantity, frequency, and kind of consultations. As a result, there is limited result comparability and interpretation due to the assessment of the quantity and quality of ANC utilization using different definitions, indicators/indices, national standards, and international guidelines [5].

Even while, more people are becoming aware of ANC, this does not ensure that ANC programs will be successful on their own. The biggest influence on women's access to ANC services will come from providing high-quality of ANC services, in addition to expanding the programs' reach. A pregnant woman must fulfill the minimal needs and receive the ANC's essential components; simply visiting an ANC clinic is insufficient. Despite the fact that opinions regarding the markers of ANC treatment quality are divided**,** it may entail getting started early, attending four or more ANC visits, and being covered for important interventions offered by ANC programs [3]. The quality of ANC services can be significantly impacted by ANC providers' skill, staff motivation, financial resources, integration with other health initiatives, and accessibility to basic supplies including consumables and medications [6**].** While several researches have identified the variables influencing the use of ANCs, relatively few have taken advantage of the high caliber of care provided at different prenatal clinics. The aim of this study is to assess the quality of ANC services provided for women in early months of pregnancy in a randomly selected MCH center in Zagazig city.

METHODS

A cross-sectional study was conducted in a randomly selected MCH center in Zagazig city on 299 women from March 2021 to January 2022.

Sampling technique*:*

Systematic random sampling technique was used. The researcher visited the MCH center twice per week. Participants were selected every 3rd person.

Sample size:

Assuming that total number of women in the first trimester attending to MCH center in Zagazig city in 6 months is 1344 women, percentage of pregnant women receiving good quality ANC is 50% and confidence level 95%, total sample size is 299 women calculated by open epi.

Inclusion criteria:

Pregnant women aged 15–49 years old in the first trimester of pregnancy.

Exclusion criteria:

A new registry, receiving ANC from several facilities, or lacking at least one ANC visit since the last pregnancy was started.

Data was gathered using a face-to-face interview and a pre-tested, structured questionnaire **[7].** The questionnaire was composed of three parts:

First part; Socio-demographic characteristics of study participants included; age, education, employment, place of residence, and health insurance status. proximity to an MCH center, and travel time to the closest center. The family socioeconomic status (SES) scale for health research in Egypt is a previously validated, structured measure with an internal consistency of 0.66 (Cronbach's alpha coefficient) that was used to measure socioeconomic status.

Second part; Parity, intention to become pregnant, pre-eclampsia, abnormal vaginal discharge, respiratory distress, diabetes, anemia, hypertension, joint issues, urinary tract infection, and an obstetric and gynecological history were among the pregnancy-related complications that the participating women were asked to self-report.

Third part; There were elements pertaining to how well-regarded ANC was thought to be; providers were ready to discuss health problems with women, privacy was maintained during consultation, comprehension, physical examination was performed, vaccines were available.

The consultation time was considered to be short if less than 20 minutes and considered to be enough if more than 20 minutes [3].

We considered provider's explanation to be easily to understand as rare if less than 50% of women couldn't get the full data, and enough if more than 50% of women could get full data [7].

Outcome:

Reviews of the respondents' medical records were carried out in order to gather more precise data regarding the fundamental ANC components they received (such as the frequency and timing of prenatal visits) and to evaluate the overall appropriateness of ANC. If a woman with a typical pregnancy received at least four prenatal appointments, and more if there were issues, then the antenatal care was considered acceptable; if not, it was considered inadequate.

Operational design:

Preparatory phase; in order to create methods for data collection, a review of the theoretical knowledge and current and historical literature covering the main study components was conducted utilizing books, papers, and the internet.

Pilot study; was carried out on 10% of the sample (were not included in main the study) to determine the organization and administrative procedures, test the questionnaire form and estimate the time needed to collect the data.

Time table of the study:

1st step	Reviewing the literature and selection of participants according to inclusion and exclusion criteria	3 months
2nd step	Practical field work	6 months
3rd step	Statistical analysis for collected data	2 months
4th step	Writing the founded data fulfilling the thesis	1 month

Ethical and administrative considerations: Approval from the Faculty of Medicine, Zagazig University Institutional Review Board (ZU-IRB# 6443/11-10/2020) was obtained. Written informed consent was obtained from all the participants after explaining the details and confidentiality of information. The study followed the Helsinki Declaration (1975), which is the World Medical Association's guideline of ethics for research involving human subjects.

STATISTICAL ANALYSIS

With the use of IBM Statistical Analysis Packages (SPSS), all data were gathered, collected, and statistically analyzed. Number and percentage were used to describe qualitative data, whereas the mean ± SD and median (range) were utilized to convey quantitative data. The t-test was used to compare the quantitative data of two groups of normally distributed variables. The percentage of categorical variables was compared using the Chi-square test when appropriate. A statistically significant P-value was defined as less than 0.05, whereas a statistically insignificant p-value was defined as larger than 0.05. Logistic regression was used to explain data and the relationship between different variables and the outcome.

RESULTS

The studied women's average age was 32.34 $\pm$ 8.1 years old, and about sixty-nine percent of them had insurance through the public sector (Table 1).

It was found that 45.7% of patients had no health problems, 20.7% of the studied population were found suffering from one to two health problems (urinary tract infection, joint problems, and anemia). Concerning Self-perceived health status; 48.5% had average self-perceived health status (Table 2).

ANC attendance and each of the different characteristics were all statistically substantially associated (Table 3). There are statistically significant differences between the two groups as regards pregnancy-related illnesses (Table 4).

Table 5 shows that there were significant differences in relation to the physical examination variable between the two groups of interest, healthcare practitioners provided dignified and courteous care, their explanations were easily understood, and they provided consultation time.

Table 6 shows that there is association between women in urban area and seeking for Antenatal care.

Our findings also showed that the likelihood of reporting an appropriate usage of ANC decreased by a factor of 0.42 (95% CI = 0.26–0.69) with increasing travel time to the closest center. The likelihood of women reporting appropriate use of ANC was 2.73 times higher (95% CI = 1.85–4.03) if they resided in a neighborhood receiving MCH services.

In terms of health needs characteristics, women who had experienced three or more prenatal illnesses were 2.14 times more likely to attend ANC correctly than women who had had a normal pregnancy (95% CI = 1.47–3.13).
According to the table, women who received sufficient information about ANC and counseling were 7.34 times more likely to attend the recommended targeted treatment than women who received insufficient information (95% CI = 4.26–12.66). Women who believed the information provided by the provider on pregnancy-related subjects were clearer than those who thought they were less clear had a 1.97-fold increase in the chances of reporting appropriate use of ANC (95% CI = 1.12–3.46).
Some noteworthy findings were obtained from an analysis of variables related to service continuity.
The likelihood that a woman would report using ANC appropriately was elevated by 3.03 (95% CI = 1.46–6.29) and 6.05 (95% CI = 3.51–10.43) were the scores for women who made follow-up appointments with medical experts on a rare and frequent basis, respectively. ANC use was 2.42 times higher among women who received frequent encouragement to return than among those who received infrequent encouragement (95% CI = 1.53-3.83).
In contrast, no statistically significant connections were discovered in the second model between the outcome variable, technical management parameters, and the adequacy of the service constellation.

Table (1): Frequency distribution of the studied pregnant women regarding sociodemographic characteristics.

Sociodemographic characteristics	The studied women (n =299) N (%)
Age (years)	
▪ **Mean ± SD**	32.34± 8.1
Education level	
▪ **Illiterate**	25 (8.3%)
▪ **Primary school**	86 (28.9%)
▪ **Secondary school**	155 (51.7%)
▪ **University education**	33 (11.1%)
Residence	
▪ **Rural**	211 (70.6%)
▪ **Urban**	88 (29.4%)
Employment status	
▪ **Unemployed**	255 (85.4%)
▪ **Employed**	44 (14.6%)
Health insurance	
▪ **Uninsured**	90 (30.2%)
▪ **Insured**	209 (69.8%)

Table (2): Obstetrics and Gynecological data.

Obstetrics and gynecological data.	The studied women (n =299) N (%)
Health problems	
▪ **No health problems**	137 (45.7%)
▪ **1–2 health problems**	62 (20.7%)
▪ **≥ 3 health problems**	100 (33.6%)
Self-perceived health status	
▪ **Poor**	75 (25.0%)
▪ **Average**	145 (48.5%)
▪ **Excellent**	79 (26.5%)
Parity	
Mean ± SD	3.21 ± 2.10

Table (3): Comparison between the studied pregnant women with adequate utilization of ANC and those with inadequate utilization of ANC regarding factors related to the quality of service delivery.

Predisposing characteristics	The studied pregnant women (n = 299)		Test of significance	P-value
	Inadequate utilization of MCH n=105 (35%) n (%)	Adequate utilization of MCH n = 194 (65%) n (%)		
Age in years (Mean; SD)	(31.43 ± 6.56)	(31.34 ± 7.58)	t = 5.1	0.35
Parity (Mean ± SD)	(4.02 ± 2.1)	(3.12 ± 2.3)	t = 5.01	0.12
Desire for the pregnancy ▪ Unwanted (n=155) ▪ Wanted(n=144)	 47 (30.3) 58 (40.2)	 108 (69.7) 86 (59.8)	X^2 =11.87	0.001
Employment status ▪ Unemployed(n=255) ▪ Employed(n=44)	 82 (32.2) 23 (52.2)	 173 (67.8) 21 (47.8)	X^2 = 0.43	0.547
Enabling Resources Health insurance ▪ Uninsured ▪ Insured	 40 (38.09) 65 (61.90)	 50 (25.77) 144 (74.22)	X^2 = 20.7	<0.001
Time taken to get to the nearest MCH center in minutes ▪ < 15 min (n=97) ▪ 15 -30 (n=96) ▪ >30 (n=106)	 33 (34.1) 38 (39.5) 34 (32.1)	 64 (65.9) 58 (60.5) 72 (67.9)	X^2 = 23.98	<0.001
Availability of ANC services ▪ Underserved (n=137) ▪ Served (n=162)	 51 (37.3) 54 (51.4)	 86 (62.7) 108 (66.7)	X^2 = 31.83	<0.001

Table (4): Comparison between the studied pregnant women with adequate utilization of ANC and those with inadequate utilization of ANC regarding pregnancy-related illnesses and self-perceived health status.

	Inadequate n=105(35%) n (%)	Adequate n = 194 (65%) n (%)	Chi X^2 test	P
Total number of pregnancy-related illnesses				
• **No health problems(n=137)** • **1-2 health problems(n=62)** • **≥ 3 health problems(n=100)**	22 (16.1%) 40 (64.5%) 43 (43.0%)	115 (83.9%) 22 (35.5%) 57 (57.0%)	9.48	0.021
Self-perceived health status				
▪ **Poor(n=75)** ▪ **Average(n=145)** ▪ **Excellent(n=79)**	44 (58.66%) 46 (31.72%) 15 (18.98%)	31 (41.43%) 99 (68.33%) 64 (81.10%)	0.65	0.781

Table (5): Comparison between the studied pregnant women with adequate utilization of ANC and those with inadequate utilization of ANC regarding factors related to the interpersonal relations.

Interpersonal relations	inadequate N=105	Adequate N= 194	X^2 test	P value
Dignified and respectful care was offered by healthcare providers:				
▪ **Rarely(n=58)** ▪ **Sometimes(n=93)** ▪ **Often(n=148)**	**56(96.3)** **33 (35.4)** **16 (10.8)**	2 (3.5) 60 (64.6) 132 (89.2)	140.41	<0.001
Providers were ready to discuss health problems/concerns with women:				
▪ **Rarely(n=59)**	**52 (88.2)**	7 (11.8)	106.77	<0.001
▪ **Sometimes(n=122)**	**35 (28.6)**	87 (71.4)		
▪ **Often(n=118)**	**18 (15.2)**	100 (84.8)		
Privacy was maintained during consultations:				
▪ **Rarely(n=3)**	**2 (66.6)**	1 (33.4)	0.96	0.769
▪ **Sometimes(n=2)**	**1 (50.0)**	1 (50.0)		
▪ **Often(n=294)**	**102 (34.6)**	192 (65.4)		
Technical management Comprehensive physical exams were performed:				
▪ **Rarely(n=53)**	**23 (43.39)**	30 (56.60)	70.13	<0.001
▪ **Sometimes(n=88)**	**49 (55.68)**	39 (44.41)		
▪ **Often(n=158)**	**33 (20.88)**	125 (79.2)		
Vaccines/supplements were available at the facility:				
▪ **Rarely(n=117)**	**42 (35.89)**	75 (64.2)	2.01	0.364
▪ **Sometimes(n=115)**	**35 (30.43)**	80 (69.6)		
▪ **Often(n=67)**	**28 (41.79)**	39 (58.30)		
Clinical tests were routinely conducted:				
▪ **No(n=84)**	**31 (36.90)**	53 (63.1)	0.07	0.750
▪ **Yes(n=215)**	**74 (34.41)**	141 (65.6)		
Information exchange Information received on ANC was:				
▪ **Little(n=52)**	**41 (78.84)**	11 (21.2)	163.31	<0.001
▪ **Enough(n=247)**	**64 (25.91)**	183 (74.1)		
Provider explanations were easily to understand				
▪ **Rarely(n=141)**	**63 (44.68)**	78 (55.4)	76.79	<0.001
▪ **Often(n=158)**	**42 (26.58)**	116 (73.5)		
Consultation time:				
▪ **Short(n=145)**	**71 (48.96)**	74 (51.1)	98.78	<0.001
▪ **Enough(n=154)**	**34 (22.1)**	120 (77.92)		

Table (6): Multivariate regression analysis predicting the utilization of ANC among women in highly disadvantaged communities.

Variables	Quality of service delivery Adjusted OR (95% CI)	P value
Age in years **≤ 24 years** **>24years**	 0.98 (0.95-1.01) 0.93(0.94-1.11)	0.764
Parity **≤ 3** **>3**	 0.94 (0.84-1.05) 0.95(0.72-1.02)	0.412

Variables	Quality of service delivery Adjusted OR (95% CI)	P value
Region:		
▪ **Rural**	0.92 (0.57-1.51)	0.762
▪ **Urban**	0.48* (0.29-0.77)	0.023*
Employment status:		
▪ **Unemployed**	1.08 (0.61-1.93)	0.540
▪ **Employed**	0.80 (0.51-1.26)	0.670
Enabling recourses		
Health insurance		
▪ **Insured**	0.81(0.50-1.32)	0.528
Time taken to get to the nearest MCH center in minutes: (< 15 min)		
▪ **15-30**	0.92 (0.66-1.29)	0.835
▪ **≥30**	0.42* (0.26-0.69)	0.04*
Availability of ANC services:		
Served	2.73** (1.85-4.03)	<0.001**
Total number of pregnancy-related illnesses: (no health problems):		
▪ **1-2 health problems**	1.01 (0.67-1.50)	0.515
▪ **≥ 3 health problems**	2.14** (1.47-3.13)	<0.001**
Self-perceived health status: (poor)		
▪ **Average**	1.03 (0.70-1.51)	0.356
▪ **Excellent**	0.94 (0.61-1.44)	0.784
Patient-provider relations		
Dignified and respectful care was offered by healthcare providers: (rarely)		
▪ **Sometimes**	2.09 (0.61-7.08)	0.674
▪ **Often**	5.54** (2.60-11.81	<0.001**
Providers were ready to discuss health problems/concerns with women: (rarely)		
▪ **Sometimes**	2.37* (1.41-3.97)	0.017
▪ **Often**	5.38** (3.28-8.82)	<0.001**
Privacy was maintained during consultation: (rarely)		
▪ **Sometimes**	0.56 (0.12-2.63)	0.573
▪ **Often**	0.70 (0.21-2.25)	0.823
Comprehensive physical exams were performed: (rarely)		
▪ **Sometimes**	1.08 (0.61-1.93	0.580
▪ **Often**	1.45 (0.82-2.54)	0.623
Vaccines/supplements were available at the facility: (rarely)		
▪ **Sometimes**	1.86 (0.41-8.43)	0.541
▪ **Often**	1.87 (0.58-5.99)	0.387
Clinical tests were regularly conducted:		
▪ **Yes**	1.29 (0.84-1.97)	0.815
Information exchange		
Information received on ANC was: (little)		
▪ **Fair**	1.11 (0.56-2.22)	0.878
▪ **Enough**	7.34** (4.26-12.66)	<0.001**
Consultation time was :(short)		
▪ **Average**	1.04 (0.29-3.69)	0.287
▪ **Enough**	0.65 (0.29-1.46)	0.128
Provider explanations were easily to understand: (rarely)		
▪ **Sometimes**	1.02 (0.53-1.96)	0.435

▪ Variables	Quality of service delivery Adjusted OR (95% CI)	P value
▪ **Often**	1.97* (1.12-3.46)	0.025*
Continuity and follow-up		
Follow-up appointments were regularly scheduled by providers: (rarely)		
▪ **Sometimes** ▪ **Often**	3.03* (1.46-6.29) 6.05** (3.51-10.43)	0.034* <0.001**
A return visit was encouraged by healthcare providers: (rarely)		
▪ **Sometimes** ▪ **Often**	1.90 (0.89-4.07) 2.42** (1.53-3.83)	0.345 <0.001**
Appropriate constellation of services		
Time had to wait was: (short)		
▪ **Average** ▪ **Long**	0.86 (0.39-1.94) 0.68 (0.31-1.50)	0.653 0.547
Hours of service were: (inconvenient)		
▪ **Convenient**	0.94 (0.59-1.51)	0.436

*Statistically Significant
** Highly Statistically Significant

DISCUSSION

Antenatal Care (ANC), the care received by the pregnant woman during pregnancy seriously affects the outcome of pregnancy. ANC includes education, screening, counseling, monitoring, treatment and promoting the wellbeing of the mother and the fetus is quite essential for the safety of the mother and the fetus. Nowadays, the ANC is a back bone of any health care delivery system, whereas the pregnant woman can be educated about the principles of the general health and the delivery process, any of the health problems, whether related to pregnancy or not can be diagnosed and treated, other well being pregnant women van be meticulously followed until they experience a safe labor [8]. The World Health Organization (WHO) established the process id adequate ANC as at least 4 separate visits of the pregnant woman to the facility, and more visits as needed if there is any maternal or fetal problem [3]. The aim of our study is to assess the quality of ANC services provided to the pregnant women starting from the first trimester at Maternal and Child Care (MCH) centers in Zagazig City, and the relationship between ANC and the outcome in a trial to improve the reproductive health services and decreasing mortality and morbidity among pregnant women and kids.

Regarding the sociodemographic data of the studied group (Table 1), the mean age of the studied women is 32.24 +/- 8.1 years. Eighty-four percent of the respondents were housewives, and sixty-nine percent of them had insurance through the public sector. More than 70% came from rural areas, and less than 30% from urban areas, probably more women from urban areas follow their pregnancy in the private sector. Asamoah *et al*. [9] revealed the demographic details and the use of maternal health care by 15- to 24-year-old Ghanaian women who had given birth at least once in the five years before to the surveys. In 2003, 2008, and 2014, the participants' average age was twenty-one. 64.2% of people in 2003, 63.4% in 2008, and 60.6% in 2014 reported living in rural regions. While the percentage of women who were married fell from 78.7% in 2003 to 73.7 The proportion of women with secondary or higher education increased from 45.8% in 2003 to 58.1% in 2014, or between 2008 and 2014 in 62.6%. Roughly one-third of the study participants came from wealthy households, whereas nearly half came from impoverished households. Between 2003 and 2008, there was a steady improvement in the time of the use of SBA during labor, the initial ANC visit, and the frequency of ANC visits. Between 2003 and 2014, the percentage of people who had at least four ANC visits rose from 70.0% to 73.6% and 83.3%, respectively. In a similar vein, 72.6% of women in 2014, 53.7% in 2008, and 47.6% of women in the 15–24 age group delivered their babies with the help of a trained delivery attendant in 2003. That was the first time that most of the respondents had experienced giving birth.

Moore *et al*. [10], who reported on this topic, concur with our findings that a woman's low level of education is associated with occasional or nonexistent ANC and a delay in seeking medical attention. Women with greater education are more likely to be autonomous and capable of making their own decisions, as well as to recognize the advantages of ANC for their own health and the health of their children. Longer educational

backgrounds may also help women feel more comfortable approaching medical professionals with queries and to talk about any potential health issues. Rahman et al. [11] the most recent two Bangladesh Demographic and Health Surveys (BDHS) (2011 and 2014) reported on four or more ANC visits; the goal was to document the trend of four or more ANC visits during the preceding 22 years and explore the variables and inequalities associated with four or more ANC visits. Two thirds of the mother age group could be attributed to those between the ages of 20 and 29, and in both studies, over one-third of the study population had completed secondary education. The proportion of women with no education fell by 4% (20.3% in 2011 and 16.4% in 2014), whereas the proportion of women with higher education rose by roughly 2.5% (7% in 2011 and 9.3% in 2014). This year saw a notable increase in the percentage of multiparous women who passed away.

Regarding the pregnancy related illnesses among the studied group (Table 2), less than half of the women had no health problems (45.7%), whereas 20.7 % had 1-2 health problems and 33.6% had more than 3 health problems. The self-perceived health status was average in about half of the women (48.5%) while it was excellent in 26.5% and poor in 25%. In our study, the percentage of women who received adequate ANC was statistically significant when the pregnancy was wanted and planned more than when the pregnancy was unwanted (Table 3), and that Muhwava *et al*. [12] supported this finding, demonstrating that, in comparison to undesired pregnancy, wanted pregnancy was linked to higher likelihood of adolescent initiation and ANC attendance. Their goal was to investigate the relationship between psychological variables and the timely beginning of ANC and the appropriate frequency of ANC clinic visit among South African women living in both urban and rural areas. Birmeta *et al*. [13] showed that ANC attendance was 67% lower for women who said their pregnancy was unplanned than for those who indicated it was planned. Researchers argue that the most likely reason for unwanted pregnancies is a lack of access to family planning information during prenatal appointments.

Table 4 shows that there was a statistically significant higher health problems in women who didn't receive adequate ANC versus those who received adequate ANC. WHO [14] emphasized the importance of the pregnant lady and her healthcare practitioner being in regular contact in order to obtain services that are essential to their health and the health of their unborn child and the need of having four ANC visits at least to achieve that goal. Only half of all pregnant women, according to estimates from around the world, receive the recommended level of care. Regarding the interpersonal relations and its relationship with the adequacy of the ANC services utilization (Table 5), all other things being equal, there is no statistically significant difference between the two interest groups, according to our analysis. The highest rate of adequate ANC attendees was reported by women who stated that a thorough physical examination was frequently conducted at the center. However, the facility's vaccination and supplement inventory as well as the performance of clinical tests during the antenatal period were not discovered to be statistically significant ($p = 0.750$ and 0.364, correspondingly).

Consistent with our research, Hijazi *et al*. [7] discovered a correlation between the women-provider interaction and the use of prenatal care facilities. Additionally, they showed that giving expectant mothers the chance to converse and receive health education during visits was crucial to boosting their desire to attend ANC appointments on time. Magoma *et al.* [15] discovered that the scant knowledge women obtained during their visit to a medical facility constitutes a (lost chance) to educate them about the potential risks associated with pregnancy. Pell *et al*. [16] additionally mentioned that women might be urged to start early and have at least four ANC visits. if they get the chance to voice their worries to the medical personnel. Sharan *et al*. [17] showed that women who felt comfortable asking inquiries and discussing their reproductive issues and problems with health professionals may feel more supported to do so. Birmeta *et al*. [13] noted that ANC attendance may be adversely affected by receiving subpar care as a result of a provider's poor communication skills or hostile demeanor.

There's also a correlation between women seeking ANC in urban areas. Most women needed at least thirty minutes. Our findings showed that the likelihood of reporting an appropriate usage of ANC decreased by a ratio of 0.42 (95 % CI = 0.26-0.69) with increasing travel time to the closest center (Table 6). Women who additionally resided in an area where MCH services were provided had a 2.73-fold higher likelihood of reporting appropriate usage of ANC (95% CI = 1.85 – 4.03). Compared to women who had a normal pregnancy (95% CI = 1.47 – 3.13), women who had three or more pregnancy-related disorders were 2.14 times more likely to attend ANC properly in reference to health need features.

Recommendations:

Increase awareness about the provided ANC services. Pregnancy planning for the best use of the services. Training of the staff about both the medical services and communication skills with the females.

Declaration of interest:

The authors report no conflicts of interest.

Funding information:

This study was not supported by any source of finding.

CONCLUSION

ANC has an important role in preventing pregnancy related hazards. It can be used more if the health care providers managed women with patience and respect.

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