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Evaluation of prenatal care quality of pregnant women: a cross-sectional sample from the south-east Türkiye

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Abstract

The aim of this study was to evaluate the quality of prenatal care among pregnant women in Mardin Artuklu. Study data were collected in August and September 2022. A total of 335 pregnant women participated in this descriptive research. The socio-demographic information form and Prenatal Care Quality Scale were used as data collection tools. The mean total score of the Prenatal Care Quality Questionnaire was 168.66 ± 30.69 . Results showed that prenatal visits more than 4 times, giving care from health centers, mothers educational level more than 12 years old, having health insurance are predisposing factors of quality of prenatal care ($p < 0.05$). Although quality prenatal care is the right of every woman, there are still women who do not receive this care sufficiently and who are not aware of the care they receive. The role of midwives is important in raising awareness in women about the quality of prenatal care. (*Afr J Reprod Health* 2024; 28 [11]: 160-169).

Keywords: Midwifery, pregnancy, prenatal care, health care quality

Résumé

L'objectif de cette étude était d'évaluer la qualité des soins prénataux chez les femmes enceintes à Mardin Artuklu. Les données de l'étude ont été collectées en août et septembre 2022. Au total, 335 femmes enceintes ont participé à cette recherche descriptive. Le formulaire d'information sociodémographique et l'échelle de qualité des soins prénataux ont été utilisés comme outils de collecte de données. Le score total moyen du questionnaire sur la qualité des soins prénataux était de $168,66 \pm 30,69$. Les résultats ont montré que les visites prénatales plus de 4 fois, les soins dispensés dans les centres de santé, le niveau d'éducation des mères de plus de 12 ans, le fait d'avoir une assurance maladie sont des facteurs prédisposant à la qualité des soins prénataux ($p < 0,05$). Bien que des soins prénataux de qualité soient le droit de chaque femme, il y a encore des femmes qui ne reçoivent pas suffisamment de soins et qui ne sont pas conscientes des soins qu'elles reçoivent. Le rôle des sages-femmes est important pour sensibiliser les femmes à la qualité des soins prénataux... (*Afr J Reprod Health* 2024; 28 [11]: 160-169).

Mots-clés: Sage-femme, grossesse, soins prénataux, qualité des soins de santé

Introduction

Prenatal care (PNC) is the process of care provided to pregnant women by health professionals to protect and maintain the optimal health of women during pregnancy, labour and puerperium¹. The main objective of PNC is to protect and improve maternal and child health. Thanks to PNC, health problems that arise during pregnancy are recognised and treated at an early stage². Worldwide, pregnancy, labour and postpartum complications are considered to be the leading causes of mortality and morbidity among women of reproductive age^{3,4}. Practices such as blood pressure, weight and oedema monitoring

and ultrasound examination during pregnancy are important for early identification of risky conditions such as pre-eclampsia and polyhydramnios⁵. When the risk situations encountered by the mother during pregnancy are not taken under control in the early period, both the mother and the newborn's lives are at risk. Risks that significantly affect the health of the mother and newborn can be prevented with PNC⁶. Between 2000 and 2020, the maternal mortality rate fell by about 34 per cent worldwide. In 2020, approximately 800 women died every day worldwide due to preventable causes related to pregnancy and childbirth. This means that almost one mother dies every 2 minutes^{5,7}. Almost 95 per

cent of these deaths occur in low and middle-income countries. Most maternal deaths can be prevented with quality health care during pregnancy and childbirth. However, only 64 per cent of women worldwide receive PNC four or more times during pregnancy. Globally, 87 per cent of pregnant women receive PNC at least once from experienced health personnel⁸. In Türkiye, "Prenatal Care Management Guide (PNC-MG)" was prepared by the Ministry of Health for the standardisation of PNC services. The procedures to be applied in each follow-up are explained in detail in the guide. According to this guideline, PNC consists of at least four follow-ups, the first of which should be performed before 14 weeks of gestation. The other follow-ups should be performed between 18-24 weeks, 28-32 weeks and 36-38 weeks of gestation¹. The World Health Organisation (WHO) published a guideline on 'Prenatal Care' recommendations in 2016. With this guideline, the number of pregnancy follow-ups increased from four to eight. According to WHO, eight or more follow-ups can reduce perinatal mortality by up to 8 per 1000 births compared to four follow-ups⁹. According to the Türkiye Demographic and Health Surveys 2018 data, 90% of women in Türkiye stated that they received prenatal care at least four times during pregnancy¹⁰. While the quality of health care is always vital, the quality of PNC is important to increase the utilisation of maternal health services¹¹⁻¹⁴. Quality of care is an important but often neglected issue in safe motherhood programmes¹⁵. Good quality PNC is very important in terms of preventing and identifying potential causes of obstetric complications and preventing neonatal deaths and stillbirths^{16,17}. In addition to its direct impact on health, quality PNC also increases the likelihood of a pregnant woman giving birth in a health facility. This can further improve health outcomes for the mother and newborn¹⁸⁻²⁰. Maternal mortality can be reduced if women have access to quality medical care during pregnancy, labour and postnatal period²¹. Among the Sustainable Development Goals, it is aimed to reduce global maternal mortality to below 70 per 100,000 live births by 2030²². It has been found that appropriate quality PNC can save lives and reduce maternal mortality by

up to 20%^{5,23,24}. High-quality prenatal care influences women's health-seeking behaviour towards choosing qualified care at delivery and helps them to prepare to access this service²⁵. The aim of this study was to evaluate the quality of prenatal care among pregnant women in Mardin Artuklu. In line with this objective, efforts were made to find an answer to the question, "Is the quality of prenatal care high among pregnant women in Artuklu district of Mardin province?"

Methods

Study design

The study is a cross sectional research.

Population and sample

Purposeful sampling method was used in the study, and all pregnant women between 36-40 weeks gestation who met the inclusion criteria and agreed to participate in the research during the period of August to September 2022, and presented to the Primary Health Care Centers in Artuklu, Mardin were included as the sample of the study. Written and verbal informed consent was obtained from the eligible mothers after providing them with information about the research. Approval for the study was obtained from the Mardin Provincial Health Directorate, the Non-Interventional Ethics Committee of Mardin Artuklu University (date: August 1, 2022, no: 61136), and McMaster University Research and Innovation for the scale used in the research²⁶. The study was conducted in compliance with the principles outlined in the Declaration of Helsinki.

Inclusion criteria

The inclusion criteria of this study was: gestational age between 36-40 weeks, having no reading and writing problems, knowing and understanding Turkish and willing to participate in the study.

Data collection tools

In the study, a questionnaire consisting of two sections was used. The first section was developed

by the researchers to assess the participants' socio-demographic information and consisted of 36 questions related to socio-demographic characteristics^{4,27-29}. The second section utilized the Prenatal Care Quality Scale. The Prenatal Care Quality Scale consists of 46 items divided into 6 factors. The items are rated on a 5-point scale ranging from 1=strongly disagree to 5=strongly agree. Items 8, 15, 23, 28, and 40 are reverse-scored (1=5, 2=4, 3=3, 4=2, 5=1). The research data were collected through face-to-face administration of the questionnaire developed by the researchers within the scope of the literature²⁶.

The pregnant women who met the inclusion criteria were provided with information about the study and their written and verbal consent was obtained. A total of 335 pregnant women were included in the study.

Data analysis

The data obtained from the research were analyzed using SPSS (Statistical Package for Social Science) version 20. Participants demographic and midwifery characteristics expressed with using frequency tables. Normality of data assessed with using Kolmogorov Smirnov test. Because data had normal distribution, the score of quality of prenatal care was shown by mean (SD). Predisposing factors of quality of care was assessed by linear regression model. Firstly, we assessed relation of demographic and midwifery characteristics using bivariate tests including t-test, one way ANOVA and Chi square. In case of p value less than 0.2 we entered the variable in the regression model and analysis using backward strategy.

Results

Table 1 presents the frequency and percentage distribution of participants' sociodemographic characteristics. According to the table, 59.7% of the participants were in the age group of 25-34, 45.1% had less than 9 years of education, 85.7% were not employed, 73.4% had a nuclear family structure,

54.6% had a moderate income level, 64.9% had social security coverage, 64.2% lived in urban areas, 66.9% had at least 2 pregnancies, 90.7% did not have any chronic illnesses, 81.2% had planned pregnancies, 50.7% had female babies, all of the participants received prenatal care, 78.8% were in the gestational weeks range of 37-38, 59.4% had made 4 or more prenatal visits.

Table 2 shows the aquaired score of QPCQ

Results from binary analysis shows that age, education, employment status, having medical insurance, stay in the urban area and number of prenatal visits have relation with QPCQ score (Table 3). Table 4 shows predisposing factors of percived quality of prenatal care. Results showed that prenatal visits more than 4 times, giving care from health centers, mothers educational level more than 12 years old, Having health insurance are predisposing factors of quality of prenatal care.

Discussion

Prenatal care (PNC) is a preventive healthcare service that encompasses highly important approaches for maternal and fetal health³⁰. There are studies on the quality of prenatal care conducted in countries such as Ethiopia, Pakistan, and Nepal^{3,4,31,32}. However, there still appears to be a research limitation regarding the quality of prenatal care. Therefore, the studies used in the discussion of our findings are also limited.

It is stated that the quality of prenatal care can be measured by criteria such as service content, types of education and counseling for pregnant women, frequency of care, maternal satisfaction, and qualifications of healthcare providers³². It is mentioned that the percentage of women receiving acceptable quality prenatal care worldwide ranges from 4.6% to 47.1%, but it is not appropriate to make generalizations due to insufficient research.⁴ In our study, the mean total score of the Prenatal Care Quality Questionnaire (QPCQ) indicating that the level of total score and sub domains quality falls within normal ranges.

Table 1: Characteristics of the participants

Characteristics		Number	Percentage (%)
Age group (years)	18-24	101	30.2
	25-34	200	59.7
	≥35	34	10.1
Formal Education (Years)	Illiterate	31	9.3
	Less than 9 years	151	45.1
	9-12 years	103	30.7
	More than 12 years	50	14.9
Employment status	Employed	48	14.3
	Not employed	287	85.7
Family type	Nuclear	246	73.4
	Extended	89	26.6
Income status	Good	22	6.6
	Average	183	54.6
Having health insurance	Bad	130	38.8
		234	64.9
Area of residence	Rural	120	35.8
	Urban	215	64.2
Gravida	1	111	33.1
	≥2	224	66.9
Have you any systemic (chronic) disease?	Yes	31	9.3
	No	304	90.7
Is this pregnancy planned?	Yes	272	81.2
	No	63	18.8
Sex of fetus	Female	170	50.7
	Male	165	49.3
Have you ever received prenatal care in this pregnancy?	Yes	335	100
Gestational age (weeks)	37-38	264	78.8
	39-40	71	21.2
Number of prenatal visits	<4 visits	136	40.6
	≥4 visits	199	59.4
Who gave prenatal care	Nurse/ Midwife	227	67.8
	Doctor/Obstetrician	108	32.2
	Home visit	16	4.8
	Health center	115	34.3
Where was the place of prenatal care?	Public hospital	174	51.9
	Private hospital	30	9.0
Total		335	100

Table 2: Score of prenatal quality care score

Factor Name	Mean (SD)	Score range	Acquired range
Information Sharing	31.46(6.23)	9-45	12-40
Anticipatory Guidance	35.75(8.84)	11-55	13-55
Sufficient Time	18.65(3.99)	5-25	5-25
Approachability	15.65(3.61)	4-20	4-20
Availability	16.55(4.96)	5-25	5-25
Support and Respect	46.88(9.17)	12-60	18-60
Total QPCQ Score	168.66(30.69)	46-230	71-230

Table 3: Relation between PCQC and socio demographic characters

Characteristics		PQCQ Mean (SD)	p value
Age group (years)	18-24	162.4±30.7	0.045
	25-34	171.7±30.2	
	≥35	169.3±31.3	
Formal Education (Years)	Illiterate	158.3±29.3	0.001
	Less than 9 years	163.5±28.0	
	9-12 years	169.6±33.3	
Employment status	More than 12 years	188.6±24.4	0.001
	Employed	187.1±26.6	
	Not employed	165.5±30.2	
Family type	Nuclear	170.2±31.9	0.114
	Extended	164.2±26.6	
Income status	Good	174.4±31.6	0.404
	Average	169.7±30.2	
Having health insurance	Bad	166.2±31.6	0.001
	Yes	179.2±30.0	
Area of residence	No	158.6±29.9	0.001
	Rural	177.4±28.1	
Gravida	Urban	163.7±31.0	0.341
	1	170.9±31.4	
Have you any systemic (chronic) disease?	≥2	167.5±30.3	0.780
	Yes	167.1±30.6	
Is this pregnancy planned?	No	168.8±30.7	0.055
	Yes	170.2±30.2	
Sex of fetus	No	161.9±31.2	0.098
	Female	171.4±30.3	
Gestational age (weeks)	Male	165.8±30.9	0.107
	37-38	166.0±28.9	
Number of prenatal visits	39-40	171.4±32.3	0.001
	<4 visits	179.6±27.4	
Who gave prenatal care	≥4 visits	161.6±30.6	0.481
	Nurse/ Midwife	169.4±30.3	
	Doctor/Obstetrician	166.9±31.4	
Where was the place of prenatal care?	Home visit	161.8±26.1	0.001
	Health center	176.8±29.0	
	Public hospital	162.7±28.9	
	Private hospital	175.1±30.6	
Total		335	100

Table 4: predisposing factors of perceived prenatal care

Variable		B	95%CI	p
Number of visits	>4 visits	6.22	5.02 to 7.43	0.001
	≤4 visits (referent)	-		
Where was the place of prenatal care?	Public hospital	-	-	0.001
	Health centers (referent)	9.66	8.0 to 10.33	
Educational level	More than 12 years	5.9	4.6 to 6.9	0.001
	Illiterate (referent)			
Having health insurance	Not having health insurance (referent)	-	5.4 to 8.6	0.026
	Having health insurance	7.9		

In a study conducted by Abebe *et al.* (2017) in Ethiopia to assess the quality of prenatal care services, it was found that the overall quality of prenatal care services was weak, indicating a need for education among providers, and reported a shortage of medical supplies and equipment in facilities³¹.

Ashraf *et al.* (2017) in Pakistan examined the quality of focused prenatal care services, They found that prenatal care services can vary, but overall they were in line with recommended quality standards and provided higher quality services focused on counseling and high-risk situations³. In another study conducted by Bastola *et al.* (2018) in Nepal to evaluate the quality of prenatal care services, it was found that more than half of the participants did not receive quality prenatal care services³². Another study conducted to examine the quality of prenatal care and associated factors in Ethiopia found that the overall quality of prenatal care was low. In this study, which is similar to our study in terms of measuring prenatal care quality, it was found that the factors related to support, respect, allocating sufficient time for consultations with pregnant women were in good range score, while the factors related to information sharing and future guidance were weak in terms of care quality⁴. There are also studies conducted in different cities in Türkiye that provide results regarding the quality of prenatal care services. In a study conducted to determine the qualitative and quantitative adequacy of prenatal screenings, it was found that there were quantitative sufficiency but qualitative deficiencies³³. Similarly, in a study conducted by Çatak *et al.* (2014) evaluating prenatal care follow-

ups, it was found that the follow-ups were sufficient in terms of quantity but of low quality³⁰. In a study conducted by Yılmaz *et al.* (2018) in Şanlıurfa to examine the quality of prenatal care services and the factors influencing it, it was reported that 80.6% of women received quality prenatal care³⁴. The different results regarding the quality of prenatal care in the studies are attributed to the subjective nature of the subject and the fact that the quality level is not measured with standard scales³². It is also believed that the quality of care can be influenced by certain sociodemographic or individual characteristics, and that differences in the level of care quality may be related to factors such as countries, cultures, level of development, and health-related policies.

There are several factors that negatively affect pregnant women's access to prenatal care. Factors such as low education level, lack of knowledge about services, inability to access healthcare, and unintended pregnancies can lead to inadequate prenatal care³⁴. In our study, statistically significant differences were found in terms of age, education, income status, health insurance, region of residence, number of prenatal visits, and place of receiving prenatal care in the average scores of prenatal care quality. In the study, it was determined that the scores of prenatal care quality were significantly higher in the age group of 25-34, those with more than 12 years of education, employed individuals, and those living in rural areas. Bastola *et al.* (2018) did not find a relationship between age, place of residence, education level, and prenatal care quality in their study³². Kassaw *et al.* (2020) stated in their study that women with higher education and

income levels have a higher likelihood of receiving quality prenatal care⁴.

Although we obtained the same result in terms of education in this study, we did not have any differences in terms of income status. However, in our study, it was found that working mothers with health insurance had higher quality of care. The employment status of the pregnant woman is known to have an impact on accessing prenatal care services, and it is stated that working individuals and those with social security have a higher number of prenatal care visits³⁵. It is expected that women with higher education levels would have higher quality of prenatal care. It can help them better understand the necessity and importance of prenatal care by influencing their knowledge, perception, and perspective. The parallel increase in care scores with educational level indicates this. It can reflect their full utilization of support and services, leading to an increase in the quality of care. It is stated that prenatal care services are more utilized in urban areas³. In our study, the majority of participants (64.2%) were mothers living in urban areas, but it is observed that mothers living in rural areas had higher scores of prenatal care quality. This may be due to reasons such as limited options and higher health needs, leading them to seek more comprehensive care or be more receptive to all services.

In our study, the places where prenatal care was received were primarily public hospitals, followed by primary healthcare centers and private hospitals. The majority of care providers were mostly midwives/nurses (67.8%). It was found that those who received prenatal care at primary healthcare centers and those who received care from four or fewer providers had higher scores of prenatal care quality. Providing quality care in prenatal care services, which aim to identify and prevent conditions that may pose risks to maternal and child health, is a public responsibility. In terms of its scope, the most suitable place for prenatal care is primary healthcare services. However, it is stated that due to some shortcomings in the family medicine system implemented in our country, pregnant women tend to seek care from secondary or tertiary healthcare services³³. The WHO

recommends midwife-led care for prenatal care and emphasizes that this model is a system to be utilized in improving the quality of prenatal care³⁶. Especially, any intervention, education, and counseling approaches carried out by midwives/nurses in primary healthcare institutions can be extremely important for the protection of maternal and infant health³⁷. A relationship based on close communication and continuity can be an important opportunity to provide quality care. In the study conducted by Yurtsal and Eroğlu (2020), where they examined the implementation of the WHO guidelines in pregnant women, it was found that 78.8% of pregnant women preferred to receive care through a midwife-led care model³⁸.

According to the Turkish Demographic and Health Survey (TDHS, 2018), the frequency of receiving prenatal care has increased over the years^{33,36}. In 1993, 36% received antenatal care at least four times, while this rate increased to 90% in 2018⁹. While this is a positive development, the level of care quality is crucial. In this regard, it is essential to implement the recommended steps in the monitoring content outlined in the Ministry of Health guidelines and other evidence-based guidelines for ensuring care quality^{33,36}. The finding in our study that participants who had fewer than four prenatal care visits had higher scores of prenatal care quality was an unexpected result. In a similar study by Kassaw *et al.* (2020), which we found in the literature and is methodologically and content-wise similar to ours, different results were obtained regarding the relationship between the number of prenatal care visits and quality. Their research found that those who received four or more visits were more likely to receive better quality care compared to those who received care only once⁴. However, studies conducted in our country also indicated that although the number of prenatal care visits is sufficient, the quality of care is low, and there are deficiencies in both examination and counseling procedures^{30,33}. In their study on the quality of prenatal care, Valente *et al.* (2013) emphasised that quality prenatal care is very important in reducing morbidity and maternal and perinatal mortality, that there is an interaction between the early onset of prenatal care and the level of education, and that

investments to improve the quality of care should not only be limited to health but also to education³⁹. It is noted that prenatal care quality and associated factors can vary for different pregnant women⁴. Therefore, the relationship we found between the number of prenatal care visits and care quality may have been influenced by other factors. On the other hand, it was determined in our study that the number of those who received antenatal care at home was quite low. Home visits are of great importance in women's adaptation to pregnancy, in determining risk factors for mother and baby more easily, in preventing complications and in ensuring that antenatal care is more effective. Home visits by midwives have been reported to reduce hospitalisations, increase maternal-fetus health, prevent fetal losses and increase vaginal deliveries. It is also reported that pregnant women are satisfied with home visits for prenatal care⁴⁰. Satisfaction is an important indicator of quality. The widespread preference of home visits in antenatal care services may play a role in improving the quality of care. Many models are used within the scope of antenatal care carried out with home visits. These can be home visits by health professionals (midwife, nurse, physician), remote home monitoring devices, telephone or web-based applications. The implementation of antenatal care in these ways is also important in terms of environment, use of resources and sustainability. Because observation of the pregnant woman in her own environment can facilitate risk detection and prevention of complications. It may reduce the frequency of visits to health institutions. It has been reported that prenatal and postnatal home visits have many positive effects as well as improving pregnancy outcomes. These are; reducing the workload of the health worker; preparing for the parenting role; reducing smoking, pregnancy-related hypertension, preterm birth and infant mortality rates; increasing breastfeeding rates⁴¹. It may also be possible to protect the pregnant woman from unnecessary medical interventions. Fetal Doppler monitoring at home may also prevent excessive use of USG. As a result, individual and family-oriented antenatal care services can be provided by providing more contact with the pregnant woman. These results are

important in terms of sustainability. In line with all this information, it is thought that it is important to carry out home visits led by midwives for prenatal care and to conduct research on the results of these visits.

In conclusion, our study yielded both consistent and inconsistent results compared to the literature. Further research is needed to clarify the factors that affect prenatal care quality.

Conclusion

In our study, it was concluded that age group, educational status, employment status, presence of health insurance, place of residence, number of prenatal visits, and place of prenatal care affected the quality of prenatal care, whereas family type, income status, number of pregnancies, presence of systemic disease, planned pregnancy status, fetal sex, gestational week, and prenatal caregiver did not affect the quality of prenatal care. It is thought that supporting women's education, facilitating their participation in the workforce, and promoting sustainable midwifery care will yield significant outcomes. Although quality prenatal care is the right of every woman, there are still women who do not receive enough prenatal care and are not aware of the care they receive. The role of midwives in raising awareness in women about the quality of prenatal care is important. Midwives should be adequately supported in this regard.

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Conflict of interest

There is no conflict of interest between researchers. The article has been read and approved by all authors. The authors meet the authorship

requirements and confirm that the article has been worked honestly.

Contribution of authors

SI constructed the hypothesis or idea of research and/or article; SI, SÇ and AK planned the methodology to reach the conclusions; SI, SÇ and AK organized the course of progress and took responsibility for the research/study; SI, SÇ and AK took responsibility for patient follow-up; data management and reporting; SI and SÇ took responsibility for logical interpretation and conclusion of the results; SI, SÇ and AK took responsibility for the necessary literature review for the study; SI, SÇ and AK took responsibility for the writing of the whole or important parts of the study; and SI reviewed the article scientifically, in addition to spelling and grammar. All authors mentioned in the article approved the manuscript.

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