Time And Number of Antenatal Visits in Low Socio-Economic Population: Outcomes And Related Factors

Düşük Sosyoekonomik Bölgedeki Toplumda Antenatal Visit Sayısı ve Zamanı: Sonuçlar ve İlişkili Faktörler

Antenatal Care

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Özet

Amaç: Bu çalışmada düşük sosyoekonomik bölgede, antenatal visit saysısı ile erken başvurunun maternal ve perinatal sonuçlarla ilişkisinin yanısıra visit sayı ya da erken başvuruyu etkileyen faktörler araştırılmaktadır. Gereç ve Yöntem: Kesitsel çalışma 479 gebe kadın üzerinde yapıldı. Gebelerin antenatal kayıtlarına ulaşıldı. Antenatal ilk başvuru zamanı, visit saysına ve anemi olup olmamasına göre olgular iki gruba ayrıldı. Gruplar arasında demografik özellikler, eğitim düzeyi, ekonomik durum, sistemik hastalıklar, demir alımı ve sonuçları karşılaştırmak için Mann Whitney ve Chi Square test kullanıldı. Visit sayısı, zamanı ve anemiyi etkileyen faktörler multipl regresyon analizi ile araştırıldı. İstatistiksel olarak p değerinim 0.05 altında olması anlamlı kabul edildi. Bulgular: Geç başvuranlarda ve 4 ün altında başvuranlarda economic durumları data düşük iken ($p<0.05$), maternal ve perinatal sonuçlar benzerdi ($p>0.05$). Ekonomik geliri az olan, demir aloımı düzensiz ya da olmayan ve sistemik hastalığı daha fazla olanlarda anemi daha fazla idi ($p<0.05$). Kötü ekonomik koşullar daha az başvuru ve geç başvuru ile ilişkili iken, sistemik hastalıklar ve kötü ekonomik koşullar anemi olasılığını artırmaktaydı ($p<0.05$). Tartışma: Düşük sosyoekonomik toplumlarda visit sayısı ve zamanı maternal ya da perinatal sonuçlar üzerinde etkili görünmektedir. Olumsuz ekonomik koşullar daha az başvuru ve geç başvuruya neden olmaktadır.

Anahtar Kelimeler

Anemi; Gebe Kadınlar; Sosyoekonomik Durum

Abstract

Aim: The aim of this study is to evaluate the effects of the number and timing of antenatal visits on the maternal-perinatal outcomes and related factors in a relatively low socio-economic population. Material and Method: A cross-sectional examination was made of 479 pregnant women. The antenatal records were examined. Pregnant women were divided into two groups according to first time of visit (whether in the first trimester or not), into two groups based on the number of visits (<4 or >4), and into two groups, based on the presence or absence of anemia. The socio-economic status, demographic features, educational level, systemic disease, iron intake, and outcomes were compared using Mann Whitney and Chi Square tests. Multiple regression analysis was applied in the investigation of the factors affecting the number and time of visits and anemia. A value of $p<0.05$ was accepted as statistically significant. Results: While the mean economic income of patients who presented late and made few visits was found to be low ($p<0.05$), the maternal and perinatal results were similar ($p>0.05$). In the anemic group, a poor economic status was correlated with more systemic diseases and iron intake was irregular or lacking ($p<0.05$). A correlation was determined between poor economic status and fewer visits and late presentation, while systemic diseases and poor economic status were related to anemia ($p<0.05$). Discussion: In a population with poor socio-economic conditions, the number of antenatal visits and early admission are not correlated with maternal and perinatal outcomes.

Keywords

Anemia; Pregnant Women; Socioeconomic Status

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Introduction

Antenatal care protects health throughout pregnancy. It prevents complications and, by allowing the opportunity for treatment, provides good maternal and perinatal outcomes [1,2]. Good quality antenatal care can reduce maternal and neonatal morbidity and mortality [3]. The basis of antenatal care quality includes the 3 parameters, the time of the first visit, the number of visits, and the care recommendations made [3]. According to the recommendations of the World Health Organization (WHO), there should be at least 4 antenatal visits, the first of which should be in the first trimester [4,5].

Several factors can affect the full benefit received from antenatal care. In addition to the existence of an antenatal clinic, these factors can include the quality of the service, the accessibility of the service, and patient-related socio-economic status, demographic factors, personal knowledge of antenatal care, level of education, and beliefs [6]. In studies conducted in low-income countries, a positive but weak relationship has been seen between the number of antenatal visits and maternal and perinatal outcomes. Thus, antenatal visits have been recommended to reduce maternal and perinatal morbidity and mortality [7]. According to well-documented data, pregnant patients with poor socio-economic conditions, a poor level of education, and those living in rural areas have a lower likelihood of presenting for antenatal services [8].

This study investigated the relationship between the number and time of antenatal visits and maternal and perinatal outcomes in pregnant patients living in a province of southwest Turkey with relatively low socio-economic conditions.

Material and Method

This cross-sectional study was conducted at xxxxx Maternity and Pediatric Diseases Hospital between August 2014 and May 2015. The study design was approved by the local ethics committee. In this clinic, pregnant patients presenting at the clinic in the first trimester were examined for systemic diseases using blood count, blood group, and full urine tests, and the examination of kidney, thyroid, and liver functions with ultrasonography. For presentation in the second and third trimester, blood count and ultrasonography examination were applied to the majority of patients. If it was the first presentation of pregnancy, detailed laboratory tests were applied. In the second trimester, a detailed fetal ultrasonographic anatomic examination was made and a tetanus vaccination was administered in the 20th week. The data of patients arriving at the maternity clinic for delivery were examined.

After obtaining patients' consent, the following data were recorded: the time of presenting at the hospital for antenatal monitoring and the number of visits made; income; level of education; whether or not iron supplementation was taken throughout pregnancy; whether or not preconceptional guidance had been followed; maternal diseases; gravidity; and body mass index (BMI). In addition, the haemoglobin and haematocrit levels were recorded. Following the birth, neonatal complications, APGAR scores, neonatal weight and anomalies were recorded.

Comparisons were made between those who had <4 or >4 antenatal examinations; those who presented early in the pregnancy (within the first trimester) and those who did not; and those with and without anemia. The relationship between perinatal outcomes and the factors affecting the time and number of antenatal visits was evaluated. For the mothers with anemia, the effect of the anemia on the maternal and perinatal outcomes was also evaluated [9]. Perinatal outcomes were evaluated as premature birth, low birth weight [3], whether or not there were any anomalies, APGAR scores, and conditions requiring neonatal intensive care, such as respiratory maladaptation, neonatal transient tachypnea, or respiratory distress syndrome [10]. The study investigated the relationship between the number of antenatal visits and economic condition, level of education, height, weight, systemic diseases, and parity.

Statistical evaluation of the study data was performed with SPSS for Windows version 11.5 (Chicago, SPSS Inc.) software. The comparisons between the groups (as defined by time and number of visits and anemia) of demographic characteristics, level of education, economic status, systemic diseases, anemia, pre-conceptional consultation, and perinatal outcomes anemia, were made using the Chi Square test, Mann Whitney U-test, and t-test. Multiple regression analysis was applied in the examination of the factors related to the number and time of visits and anemia. A value of $p<0.05$ was evaluated as statistically significant.

Results

The data for all the patients related to demographic characteristics, level of education, economic status, systemic diseases and use of iron during pregnancy are shown in Table 1. The mean number of visits was 4.78, and 287 (59.9%) patients had more than 4 examinations. The number of patients presenting in the first trimester was determined as 264 (55.1%). Pre-conceptional consultation had been administered to only 35 (7.3%) patients (Table 1).

The pregnant patients with fewer than 4 examinations were determined to have a lower mean family income ($p=0.001$) with a higher number of husbands earning minimum wage ($p=0.001$) (Table 2). The rates of premature birth, mean birth weight, APGAR scores, rates of maternal anemia, requirement for neonatal intensive care, and rates of anomalies were similar between the two groups ($p>0.05$) (Table 2). In the multivariate analysis, it was determined that with an increase in income, the number of visits increased ($p=0.001$). In patients with a spouse earning minimum wage the number of visits was lower by 4.9 fold ($p=0.001$). Despite the negative correlation of number of visits with increase in parity, this was not determined to be statistically significant ($p=0.614$) (Table 3). When cases were analyzed according to the time of the first visit, the mean income of those who presented early was greater ($p=0.001$); those with income below the minimum wage were more likely to present at a later time ($p=0.001$) (Table 4).

In the multivariate analysis, early presentation was more likely for those with higher income and less likely for those earning minimum wage ($p=0.001$) (Table 5). Patients with anemia were seen to have more systemic diseases ($p=0.001$). The rates were higher in the anemic group for those who did not take iron medication or took it irregularly. The anemic patients who took iron medication regularly had higher rates than the patient without

Table 1. Demographic character, educational status, and systemic disease of pregnant women

		N (%)
Income (TL) Mean±SD (median)		707,56±466,27(700,0)
Age (Mean±SD)		28,40±6,49
Kilo (Mean±SD)		72,59±9,41
BMI (Mean±SD)		24,45±3,81
Parity median(min.-max.)		3 (1-13)
Number of antenatal visits	Mean±SD (median)	4,78±3,01(4,0)
Educational statusn (%)	Absent	272(%56,8)
	Primary school	129(26,9)
	Middle school	49(%10,2)
	High school	27(%5,6)
	University	2(%0,4)
Minimum Wage n (%)	Yes	313 (%65,3)
	No	166(%34,7)
Systemic diseasen (%)	Absent	445(%92,9)
	Thyroid disease	13(%2,7)
	Diabetes Mellitus	6(%1,3)
	Hypertension	6(%1,3)
	Talasemia minör	5(%1,0)
	Asthma bronchiale	4(%0,8)
Iron intake n(%)	Absent	201(%42,0)
	Irregulary	43(%9,0)
	Regulary	235(%49,1)
Anemia n(%)	Absent	332(%69,3)
	Present	147(%30,7)
Number of visits > 4 n(%)	Yes	287(%59,9)
	No	192(%40,1)
Early attendance n(%)	No	215(%44,9)
	Yes	264(%55,1)
Pre-conceptional counculing n(%)	No	445(%92,9)
	Yes	34(%7,1)

BMI: Body mass index

anemia (p=0.011) (Table 6). When factors related to anemia were examined, anemia was seen to decrease with an increase in income (p=0.021) and an increase in systemic diseases was seen to increase anemia approximately 3 fold (p=0.002) (Table 7).

Discussion

According to the results of this study, 192 (40.1%) of the pregnant patients who presented at the hospital maternity unit for delivery had seen a doctor fewer than 4 times during the pregnancy. This was seen to be due to economic factors. In addition, anemia was seen in 147 (30.7%) patients, which was determined to be related to systemic diseases and economic factors. Good quality antenatal care, starting early in the pregnancy and with a sufficient number of visits, can reduce maternal and perinatal mortality. While early diagnosis and treatment of diseases related to pregnancy directly reduce mortality, early diagnosis and treatment of systemic diseases can indirectly reduce mortality. Antenatal care provides good planning and preparation for the birth and can thereby prevent morbidity and mortality which may occur during delivery [3,7]. Because of all these potential benefits, it is highly recommended, especially in populations with a low socio-economic level [7].

Of the pregnant patients included in this study, 59.9% made more than 4 visits during the pregnancy, which is close to previously reported data [3,6]. However, the current study included a cross-section of both urban and rural pregnant patients, all of whom received healthcare under the basic national insurance scheme. Therefore, the majority of the study population showed a similarity to those living in rural areas.

Despite relatively low economic levels, in the pregnant patients living in urban areas, a relationship was found between a high level of education and more than 4 visits with early presentation [3,6,11]. Participation in antenatal care was lower in those with a low level of education, even though healthcare was provided and accessible. Higher participation in antenatal care has been observed in groups with a relatively better socio-cultural and educational level in under-developed populations [8,12,13]. The association of level of education with the number of visits and early presentation can be explained by various factors, including greater overall health awareness, earlier realization of pregnancy, and use of related resources [14,15]. In addition, an increase in level of education is positively associated with an increase in economic level, which provides the possibility of obtaining more and better quality benefit from healthcare services [14,15]. In the current study, no relationship was seen between the level of education and the number of visits and early presentation. However, when the level of education was examined, only 0.4% of the cases were university graduates. Furthermore, study participants with a high school education, which could be considered as high level in this study, only comprised 6%. The sample was not sufficient to evaluate the direct relationship of education with antenatal care in this population. Therefore, there is a need for further studies of similar populations with a greater number of cases.

Socio-economic status is a good indicator of the benefit received from healthcare services in societies with a low income [13]. In previous studies in populations with a low income, socio-economic status has been shown to be a strong factor in whether the mother seeks healthcare. In some low-income populations, even if education and cultural levels are sufficient, presentations have been reported to be low because of the economic conditions [13]. Various economic conditions can have a negative effect on access to antenatal care. The most important problem is the lack of social security.

Poor economic conditions may also create problems in traveling to clinics and purchasing medication. Transport costs in particular may prevent those living in rural areas from reaching healthcare units [8]. This study was conducted in the city centre. Generally speaking, it is thought that more than half of those living in surrounding rural areas benefit from healthcare services with 'green card' national insurance. Approximately half of the population served by the state hospital where this study was conducted had 'green card' national insurance. Transport to the city centre from neighborhoods of the city and surrounding villages and towns could be a significant problem for this low-income population. Despite the free provision of healthcare services with a green card, other economic conditions, primarily transport, negatively affect participation in antenatal care. Pathak et al. [16] reported that although there has been an in-

Table 2. Compared two groups according to number of visits

		Number of visits		p
		>4	<4	
Income (TL) Mean±SD (median)		872,9±467, 8(800,0	412,4±337, 6(500,0)	0,001c
Age Mean±SD		28,09±6,53	28,86±6,41	0,202b
Kilo (Mean±SD)		73,04±9,31	71,91±9,54	0,196 b
BMI (Mean±SD)		24,52±3,84	24,35±3,78	0,615 b
Parity median(min.-max.)		3(1-13)	3(1-12)	0,388 ξ
Neonatal weight Mean±SD		3323,3±461,6	3343,7±1468,8	0,637 b
Gestational age Mean±SD		38,59±2,34	38,51±2,37	0,680 b
Apgar 1' median (min.-max.)		8(3-9)	8(2-9)	0,571c
Apgar 5' median (min.-max.)		10(5-10)	10(2-10)	0,010 c
Minimum Wage n(%)	Yes	151(52.6)	162(84.4)	0,001 a
	No	136(47.4)	30(15.6)	
Educational status n(%)	Absent	155(54.0)	117(60.9)	0,225a
	Primary school	84(29.3)	45(23.4)	
	Middle school	33(11.5)	16(8.3)	
	High school + University	15(5.2)	14(7.3)	
Systemicdisease n(%)	Absent	266(92.7)	179(93.2)	0,098 a
	Thyroid disease	11(3.8)	2(1.0)	
	Diabetes Mellitus	5(1.7)	1(0.5)	
	Hypertension	2(0.7)	42.1)	
	Talasemia minör	2(0.7)	3(1.6)	
	Asthma bronchiale	1(0.3)	3(1.6)	
Iron intake n(%)	Absent	115(40.1)	86(44.8)	0,281a
	Irregulary	23(8.0)	20(10.4)	
	Regulary	149(51.9)	86(44.8)	
Preconceptional counculing n(%)	No	266(92.7)	179(93.2)	0,820 a
	Yes	21(7.3)	13(6.8)	
Anemia n(%)	Absent	206(71.8)	126(65.6)	0,153 a
	Present	81(28.2)	66(34.4)	
Small gestational age n(%)	No	276(96.2)	185(96.4)	0,916 a
	Yes	11(3.8)	7(3.6)	
Premature infant n(%)	No	203(70.7)	132(68.8)	0,643 a
	Yes	84(29.3)	60(31.2)	
Anomaly n(%)	Absent	280(97.6)	186(96.9)	0,300 a
	Hypospdias	3(1.0)	0(0.0)	
	Spina bifida	2(0.7)	3(1.6)	
	Other	2(0.7)	3(1.6)	
NICU n(%)	No	261(90.9)	183(95.3)	0,072 a
	Yes	26(9.1)	9(4.7)	

a:Chi-Square test, b: t test for independent samples , c: Mann-Whitney U test
NICU: Need for neonatal intensive care unit, BMI: Body mass index

crease in the quality of healthcare services and the insurance system, more and better quality antenatal care is provided

Table 3. Factors affecting fewer than four visits

		OR	95% for CI	p
Income (TL)		0,997	0,996-0,997	0,001
Minimum Wage		4,864	3,091-7,653	0,001
BMI (kg/boy2)		0,988	0,941-1,036	0,615
Educational status	Absent			
	Primary school	0,710	0,460-1,096	0,122
	Middle school	0,642	0,338-1,222	0,178
	High school + University	1,236	0,574-2,662	0,587
Parity		1,019	0,947-1,097	0,614
Systemic disease		0,920	0,449-1,885	0,820
Pre-conceptional counculing		1,087	0,531-2,227	0,820

BMI: Body mass index

Table 5. Factors associated with early admission

		OR	95% for CI	p
Income (TL)		1,003	1,003-1,004	0,001
Minimum Wage				
BMI (kg/boy2)		5,895	3,772-9,211	0,001
Educational status	Absent	1,003	0,957-1,052	0,899
	Primary school	1,380	0,901-2,112	0,138
	Middle school	1,554	0,829-2,910	1,554
	High school + University	0,637	0,293-1,384	0,255
Parity		1,003	0,932-1,079	0,937
Systemic disease		1,034	0,512-2,087	0,926
Pre-conceptional counculing		1,099	0,546-2,210	0,792

BMI: Body mass index

by private hospitals. The main reason for this difference was transport and other costs. It was reported that despite improvements in state hospitals, another negative factor was that the quality of antenatal care was not given sufficient importance [16]. Finally, the results of the present study showed that the monthly income of those who presented more than 4 times throughout the pregnancy was greater than that of those who attended antenatal care services fewer than 4 times and who presented later (p=0.001).

Pregnant patients with multi-parity or high parity have a tendency to present later and less frequently. Those who have previous experience of birth and have not had any complications tend to make fewer antenatal visits [8]. Some only present at clinics for delivery. Anxiety or any complaint in the first pregnancy has been related to early and more frequent presentations [10,17]. In the current study, although a negative correlation was seen between increased parity and the number of visits, it was not found to be statistically significant (p=0.614). In the current study population this may have been due to other factors, primarily economic conditions.

Patients with iron deficiency during pregnancy may fail to maintain the health of the fetus. A tendency to infections due to reduced immune response in pregnancy, reduced placental weight, and increased incidence of premature or low birth-weight infants are directly related to iron deficiency [18]. In those regularly taking iron supplements during pregnancy, there is a low rate of premature and low birth-weight infants [19]. Recently published data have shown that increased use of iron

Table 4. Compared two groups according to time of visit

		Early Visit		
		No	Yes	p
Income (TL) Mean±SD (median)		487±323 (500)	887±488 (850)	0,001c
Age Mean±SD		28,50±6,56	28,31±6,44	0,748b
Kilo Mean±SD		71,79±9,39	73,23±9,40	0,097 b
BMI Mean±SD		24,42±3,85	24,47±3,79	0,899 b
Parity median(min.-max.)		3 (1-12)	3(1-13)	0,920 b
Neonatal weight Mean±SD		3307±463	3350±465	0,310 b
Gestational age Mean±SD		38,36±2,49	38,72±2,22	0,095 b
Apgar 1' median (min.-max.)		8(2-9)	8(3-9)	0,638c
Apgar 5' median (min.-max.)		10(2-10)	10(5-10)	0,651c
Minimum Wage n(%)	Yes	183(85.1)	130(49.2	0,001a
	No	32(14.9)	134(50.8)	
Educational status n(%)	Absent	129(60.0)	143(54.2)	0,125 a
	Primary school	51(23.7)	78(29.5)	
	Middle school	18(8.4)	31(11.7)	
	High school + University	17(7.9)	12(4.5)	
Iron intake n(%)	Absent	93(43.3)	108(40.9)	0,339a
	Irregulary	23(10.7)	20(7.6)	
	Regulary	99(46.0)	136(51.5)	
Systemic disease n(%)	Absent	200(93.0)	245(92.8)	0,221 a
	Thyroid disease	4(1.9)	9(3.4)	
	Diabetes Mellitus	1(0.5)	5(1.9)	
	Hypertension	3(1.4)	3(1.1)	
	Talasemia minör	4(1.9)	1(0.4)	
	Asthma bronchiale	3(1.4)	1(0.4)	
Pre-conceptional counculing n(%)	No	147(68.4)	185(70.1)	0,668 a
	Yes	68(31.6)	79(29.9)	
Anemia n(%)	Absent	199(92.6)	246(93.2)	0,791 a
	Present	16(7.4)	18(6.8)	
Small gestational age n(%)	No	208(96.7)	253(95.8)	0,602 a
	Yes	7(3.3)	11(4.2)	
Premature infant n(%)	No	145(67.4)	190(72.0)	0,282 a
	Yes	70(32.6)	74(28.0)	
Anomaly n(%)	Absent	210(97.7)	256(97.7)	0,398 a
	Hypospdias	0(0.0)	3(1.1)	
	Spina bifida	3(1.4)	2(0.8)	
	Other	2(0.9)	3(1.1(	
NICU n(%)	No	201(93.5)	243(92.0)	0,546 a
	Yes	14(6.5)	21(8.0)	

a: Chi-Square test , b: t test for independent samples , c: Mann-Whitney U test NICU: Need for neonatal intensive care unit, BMI: Body mass index

Table 6. Compared anemic and non anemic groups

		Anemia		p
		No	Yes	
Income (TL) Mean±SD (median)		740,3±493,5 (750,0)	633,7±389,5 (700,0)	0,084c
Age Mean±SD		28,09±6,53	28,86±6,41	0,202b
Kilo Mean±SD		73,04±9,31	71,91±9,54	0,196 b
BMI Mean±SD		24,52±3,84	24,35±3,78	0,615 b
Parity median (min.-max.)		3(1-13)	3(1-11)	0,547 b
Neonatal weight Mean±SD		3310,5±470,8	3378,9±446,6	0,137 b
Gestational age Mean±SD		38,54±2,35	38,58±2,35	0,874 b
Apgar 1' median (min.-max.)		8(2-9)	8(4-9)	0,450c
Apgar 5' median (min.-max.)		10(2-10)	10(7-10)	0,746 c
Minimum Wage n(%)	Yes	213(64.2)	100(68.0)	0,412a
	No	119(35.8)	47(32.0)	
Educational status n(%)	Absent	183(55.1)	89(60.5)	0,408 a
	Primary school	94(28.3)	35(23.8)	
	Middle school	37(11.1)	12(8.2)	
	High school + University	18(5.4)	11(7.5)	
Systemic disease n(%)	Absent	317(95.5)	128(87.1)	0,001 a
	Thyroid disease	5(1.5)	8(5.4)	
	Diabetes Mellitus	3(0.9)	3(2.0)	
	Hypertension	5(1.5)	1(0.7)	
	Talasemia minör	0(0.0)	5(3.4)	
	Asthmabronchiale	2(0.6)	2(1.4)	
Iron intake n(%)	Absent	126(38.0)	75(51.0)	0,011a
	Irregulary	28(8.4)	15(10.2)	
	Regulary	178(53.6)	57(38.8)	
Visit sayısı n(%)	Visit sayısı			0,153 a
	>4	206(62.0)	81(55.1)	
	<4	126(38.0)	66(44.9)	
Pre-conceptional counculing n(%)	No	308(92.8)	137(93.2)	0,867 a
	Yes	24(7.2)	10(6.8)	
Small gestational age n(%)	No	318(95.8)	143(97.3)	0,427 a
	Yes	14(4.2)	4(2.7)	
Premature infant n(%)	No			0,797 a
	Yes	231(69.6)	104(70.7)	
Anomaly n(%)	Absent	101(30.4)	43(29.3)	0,469 a
	Hypospdias	321(96.7)	145(98.6)	
	Spina bifida	2(0.6)	1(0.7)	
	Other	4(1.2)	1(0.7)	
NICU n(%)	No	5(1.5)	0(0.0)	0,507 a
	Yes	306(92.2)	138(93.9)	

a : Chi-Square test , b: t test for independent samples , c: Mann-Whitney U test, NICU: Need for neonatal intensive care unit

and reduced anemia are directly proportional to good quality antenatal care, with 6 or more visits starting early in the pregnancy [12,20]. However, in the current study, no relationship was seen between anemia rates and the number of antenatal care visits or the time of presentation (p>0.05). In the current study, anemia was negatively correlated with income and positively correlated with systemic diseases (OR:0.999 p=0.021 and OR:3.137 p=0.002). Just as the number and time of visits had no effect on the use of iron, no relationship was seen with anemia rates. On the other hand, the anemia rate of 30.7% was similar to that of populations such as in sub-Saharan African countries where there are serious socio-economic problems [21]. It is thought that economic conditions in particular are more of a factor than the number and times of visits in patients affected by the use of iron.

It is believed that timely and correct antenatal care prevents premature birth. In a study conducted in France, more premature births were reported in mothers who had not been examined in the first 3 months of pregnancy and who had had fewer

Table 7. Factors associated with anemia

		OR	95% for CI	p
Income (TL)		0,999	0,999-1,000	0,021
Minimum Wage		1,189	0,787-1,796	0,412
BMI (kg/boy2)		1,001	0,951-1,053	0,973
Educational status	Absent			
	Primary school	0,766	0,482-1,217	0,259
	Middle school	0,667	0,332-1,341	0,256
	High school + University	1,257	0,569-2,773	0,572
Parity		1,249	0,842-1,855	0,269
Systemic disease		1,009	0,933-1,091	0,817
Pre-conceptional counculing		3,137	1,546-6,364	0,002
Income (TL)		1,068	0,497-2,293	0,867

BMI: Body mass index

than 4 antenatal care visits. However, there are also reports that have found no relationship between the number of antenatal care visits and the number of premature births [22]. In the current study, the rates of premature birth were similar between those who had fewer than or more than 4 visits and those who presented early or late (p=0.643). The rate of prematurity was found to be 30.06%, which is close to the rates of populations with poor socio-economic conditions rather than those of developed or developing populations [23,24]. Prematurity continues to be a significant cause of perinatal morbidity in populations with low socio-economic conditions. In such populations, economic conditions may be more predictive of prematurity than the number and time of antenatal care visits. Prematurity is affected by regular iron supplementation throughout pregnancy, treatment of systemic diseases, adequate nutrition, and economic status. However, it has been reported that in populations with low socio-economic conditions, while the number of visits does not affect prematurity, it does reduce perinatal mortality [25].

In conclusion, in this study which was conducted in a low socio-economic region, it was seen that a greater number of antenatal visits did not make any positive contribution to maternal or perinatal morbidity. Similarly, early first presentation in the first trimester was not seen to have any effect on perinatal and maternal morbidity. This is due to the greater impact of economic insufficiency on perinatal and maternal morbidity, and its direct effect on antenatal care, in populations with poor socio-economic conditions.

Competing interests

The authors declare that they have no competing interests.

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