PERINATAL JOURNAL

Research Article
Perinatal Journal 2012;20(2):126-134

Evaluation of prenatal care in Istanbul: a population based study

Binali Çatak[1], Hatice İkiışık[2], Savaş Başar Kartal[3], Can Öner[4], Handan Hazal Uluç[5], Özgür Seğmen[4]

[1]*Ministry of Health, Üsküdar Public Health Center, Istanbul, Turkey*
[2]*Ministry of Health, Ümraniye Public Health Center, Istanbul, Turkey*
[3]*Ministry of Health, Istanbul Public Health Department, Istanbul, Turkey*
[4]*Ministry of Health, Pendik Public Health Center, Istanbul, Turkey*
[5]*Ministry of Health, Kartal Public Health Center, Istanbul, Turkey*

Abstract

Objective: Prenatal care (PC) is one of the most important factors having effects on both maternal and infant health. The aim of this study is to evaluate the prenatal care that is provided by both family physicians and obstetricians.

Methods: The study population of this cross sectional study composed of 99,254 women whose pregnancies was recorded by their family physicians (FP) on November 27th, 2011 in Istanbul. 1454 of these pregnant women were randomly selected and included in the study. All data were collected by means of a questionnaire. 94.0% of the study population was reached. Values of percentage, frequency, mean, and median were used for data analysis.

Results: Evaluation of delivered women showed that 12.3% got prenatal care from a FP, 3.5% from an obstetrician and 1.3% did not get any PC. Among delivered women who had made four or more visits for PC, 53.3% of them received this service from a FP and 89.0% of them from an obstetrician. 74% of pregnant women get PC service from FP and %94 of them from obstetrician within first 14 weeks. Among pregnants who received PC from FP, blood pressure was measured in 96% of them, weight gain was measured in 92.5% of them, and 25.1% of them was auscultated for cardiac sounds. On the other hand, among pregnants who received PC from obstetrician, blood pressure was measured in 95.4% of them, weight gain was measured in 91.8% of them, ultrasonography examination was performed in 98.2% of them, blood analysis was done in 90% of them, and family planning consultancy was provided to 31.5% of them.

Conclusion: It is shown that although the amount of PC provided in Istanbul was adequate, the quality was unsatisfactory. Therefore, regular and frequent on-the-job training for health personnel should be organized and the PC program of the Ministry of Health should actively be provided.

Key words: Prenatal care, family physician, obstetrician, Istanbul.

İstanbul'da doğum öncesi bakım hizmetlerinin değerlendirilmesi: Toplum tabanlı bir araştırma

Amaç: Doğum öncesi bakım (DÖB) gebe ve bebek sağlığı açısından önemli unsurlardan birisidir. Araştırmada İstanbul il düzeyinde aile hekimleri ve kadın doğum uzmanlarınca verilen DÖB hizmetlerinin değerlendirilmesi amaçlanmıştır.

Yöntem: Kesitsel tipte yapılan araştırmanın evrenini İstanbul'da 27 Kasım 2011 tarihinde aile hekimlerine kayıtlı 99.254 gebe oluşturmuştur. Örnekleme alınacak gebe sayısı 1454 olarak hesaplanmış ve alınacak gebeler randomizasyonla belirlenmiştir. Veriler, hazırlanan soru formu ile toplanmıştır. Örneklemin %94'üne ulaşılmıştır. Verilerin analizinde yüzde, frekans, ortalama ve ortanca kullanılmıştır.

Bulgular: Doğum yapmış gebelerin %12.3'ü aile hekiminden, %3.5'i kadın doğum uzmanından ve %1.3'ü ise hiçbir sağlık personelinden DÖB almamıştır. 4 ve daha fazla DÖB alan doğum yapmış kadınların %53.3'ü bu hizmeti aile hekimlerinden, %89.0'u kadın doğum uzmanlarından almıştır. Gebelerin %74.0`ü aile hekiminden, %94'ü kadın doğum uzmanından 14 hafta içinde ilk DÖB'ını almıştır. Aile hekiminden DÖB alan doğum yapmış gebelerin %96'sının kan basıncı, %92.5'inin ağırlık ölçümü, %25.1'inin kalp oskültasyonu yapılmıştır. Kadın doğum uzmanından DÖB alan doğum yapmış gebelerin %95.4'ünün kan basıncı, %91.8'inin ağırlık ölçümü, %98.2'sinin ultrasonu, %90'ının kan tetkiki yapılmış; %31.5'ine aile planlaması danışmanlık hizmetleri verilmiştir.

Sonuç: İstanbul'da gebelere sayısal olarak yeterli, ancak düşük kalitede DÖB verilmiştir. Bu bağlamda; DÖB veren sağlık personeline düzenli aralıklarla hizmet içi eğitimler verilmeli ve Sağlık Bakanlığı izlem rehberinin daha aktif kullanımı sağlanmalıdır.

Anahtar sözcükler: Doğum öncesi bakım, aile hekimi, kadın doğum uzmanı, İstanbul

Correspondence: Binali Çatak, MD.
Üsküdar Toplum Sağlığı Merkezi, Istanbul, Turkey.
e-mail: bb.catak@hotmail.com

Received: July 26, 2012; **Accepted:** December 29, 2012

Available online at:
www.perinataljournal.com/20120203003
doi:10.2399/prn.12.0203003
QR (Quick Response) Code:

deomed

Introduction

Prenatal care (PC) is the follow-up of mother and fetus regularly during entire pregnancy by well-educated health personnel through required examinations and recommendations. PC generally aims to make mothers to have a healthy pregnancy, to deliver healthy babies and to protect health during pregnancy. Special purposes of PC are to detect diseases already existing in mother before pregnancy, to provide early diagnosis and treatment of diseases that may appear as a pregnancy complication and to provide dispatch if needed, to determine risky pregnancy, to conduct intrauterine follow-up of fetus, to make mother immune against tetanus, to decide where, how and by who will delivery be done, to inform mother about breast-feeding, gestational hygiene, delivery, postnatal care, baby care and family planning methods after delivery.

The earlier prenatal care is initiated and performed regularly with high quality, the more maternal and fetal/infant deaths are decreased.[1] It was shown in the National Maternal Death Study performed in 2005 that the death reasons of 61.6% of mothers who died were preventable. It was pointed out in the same study that PC is very essential since more than half of the mothers who died were late to define the problem, almost half of them were late to apply for health care, one fourth of mothers did not receive PC, one fourth of mothers who received PC got low quality service, also preeclampsia and/or eclampsia was the second frequent reason for maternal death.[2] In this context, Health Ministry prepared and declared "Prenatal Care Management Guide" in order to provide high quality PC and standardization in examinations of pregnants. In the guide, examination, measurement, test, and consultancy services which are required to be done and followed up 4 times between weeks 18-24, 30-32 and 36-38 within 14 weeks of each pregnancy were defined.[3]

In this study, it was aimed to evaluate PC services given by family physicians at primary care level and by obstetricians at secondary and tertiary care levels in Istanbul in terms of quantity and quality.

Method

Approximately 14 million of people live in Istanbul which is the biggest city of Turkey. It is the mosaic of Turkey where all people migrating from every regions of Anatolia live together. The city which is the economical artery of Turkey has 39 districts. In 2009, the city had 54.4% of exportation and 55.9% of importation of the whole country. In 2008, 43.1% of tax income of Turkey was from Istanbul. While Gini coefficient of the city was 0.35, 8.3% of the city population was within first 20% zone and 43.5% was within the last (fifth) 20% zone in terms of income level.[4]

During the period that the study was conducted, there were 3539 family physicians in Istanbul and there were only 28 empty family physician positions. According to the Family Physician Information System (FPIS) (the population registered to FPIS was 13,031,726), the average population per family physician was 3682 at the same period while it was 3850 based on Turkish Statistical Institute (TURKSTAT) (Istanbul population is 13,624,240 according to TURKSTAT).[5]

The study population of this cross sectional study composed of 99.254 women whose pregnancies was recorded by their family physicians (FP) on November 27th, 2011 in Istanbul. According to Turkish Population Health Research, 4.3% of pregnants in Istanbul did not receive prenatal care. Accordingly, the size of population representing the study in Epi Info program was calculated as 1454, where prevalence was 4%, margin of error was 1%, type 1 error level was 5% and confidence interval was 95%.

The population was arranged according to pregnant numbers of districts and it was decided how many pregnants would be taken from each district. It was planned to choose each pregnant from a different family physician. Since total family physicians in Istanbul are more than the pregnants in the sample population, family physicians were chosen randomly first, and then the pregnants of those family physicians were chosen randomly from FPIS.

The data of the study were collected by questionnaire based on Prenatal Care Management Guide and Turkish Population and Health Research (TPHR).[3,6] The questionnaire had questions including sociodemographic and biodemographic data of women and services that should be given before prenatal care such as examination, measurement, information and consultancy. After required permissions are received, data were collected in between January 2nd and 16th, 2012 via face-to-face interviews by obstetricians and nurses working in public health centers (PHC) in Istanbul after receiving verbal informed consent from pregnants. Before collecting data, obstetricians and nurses who will participate into these interviews were trained

for 4 hours about the purpose of the study and the aims of each question in order to provide standardization in collecting data. The preliminary test of questionnaire was done on 13 pregnants who were not included into the study and required modifications were done in the questionnaire. One obstetrician or nurse from each PHC was assigned for completing missed areas of collected questionnaire and to get an appointment and to make the interview with pregnants who were working. Questionnaire forms of 53 pregnants were answered by phone interview.

Among 1454 pregnants chosen for the study, 94% of them (1368 pregnants) were reached. Among those who could not be reached, 63 of them could not be found in the given address and 24 of them refused to participate to the study. Data were analyzed by SPSS 10.5 software. Frequency, percentage, central cluster criteria (mean and median) and central prevalence criteria (standard deviation, maximum and minimum values) were used in the analyses as definitive criteria.

Results

Some sociodemographic data of pregnants are summarized in **Table 1.** While 32.9% of pregnants were born in Marmara Region, 35.2% of pregnants' fathers were born in the Black Sea Region. While 9.5% of women were uneducated, only 2.9% of their spouses were une-

Table 1. Sociodemographic data of the pregnants (Istanbul, 2011).

Sociodemographic Data	n (%)	Sociodemographic Data	n (%)
Birth place of woman*		**Family type†**	
Marmara Region	449 (32.9)	Extended family	359 (26.2)
Black Sea Region	321 (23.5)	Nuclear family	1007 (73.8)
Eastern Anatolia Region	229 (16.8)	**Household size‖**	
Central Anatolia Region	142 (10.4)	4 and below	1034 (75.8)
Southeastern Anatolia Region	119 (8.7)	5 and above	330 (24.2)
Mediterranean Region	46 (3.4)	**Marriage method‖**	
Aegean Region	35 (2.6)	Arranged	602 (44.1)
Abroad	24 (1.8)	Companionate	762 (55.9)
Birth place of woman's father†		**Kinship to spouse‡**	
Marmara Region	124 (9.1)	Available	236 (17.3)
Black Sea Region	481 (35.2)	N/A	1129 (87.2)
Eastern Anatolia Region	315 (23.1)	**Civil marriage‖**	
Southeastern Anatolia Region	149 (10.4)	Available	1329 (97.4)
Central Anatolia Region	202 (14.8)	N/A	35 (2.6)
Mediterranean Region	39 (2.9)	**Health coverage***	
Aegean Region	29 (2.1)	N/A	116 (8.5)
Abroad	27 (2.0)	Green health card	34 (2.5)
Educational background of woman‡		Social security institution	1215 (89.0)
Uneducated	130 (9.5)	**Employment of woman***	
Primary School	454 (33.2)	Unemployed	1077 (78.7)
Secondary School	230 (16.8)	Wage-earning employment	288 (21.3)
High School	315 (23.0)	**Employment of spouse¶**	
University	233 (17.0)	Unemployed / temporary jobs	181 (13.2)
Educational background of spouse§		Public sector	105 (7.7)
Uneducated	39 (2.9)	Private sector	810 (59.2)
Primary School	440 (32.2)	Self-employed	163 (19.2)
Secondary School	247 (18.1)	**Total income of family‡**	
High School	339 (24.8)	Sufficient subsistence	386 (28.4)
University	296 (21.6)	Barely subsistence	708 (52.0)
Total	**1368 (100.0)**	Not sufficient	267 (19.6)
		Total	**1368 (100.0)**

*Missing data of 3 people, †missing data of 2 people, ‡missing data of 6 people, §missing data of 7 people, ‖missing data of 4 people, ¶spouses who were doing their military services were excluded.

ducated; 26.2% of them were living in extended families and 24.2% of them were living in a family consisting of 5 or more people. More than half of the pregnants (55.9%) were married through an arranged marriage, 17.3% of them were relative to their spouses; while 2.6% of them had no civil marriage, 8.5% of them had no health insurance. Totally 78.7% of women were not working in a wage-earning job and 13.2% of their spouses were either unemployed or working in a temporary job. It was stated by 19.6% of women that total income of family was not sufficient. In the study, the ages of 3.1% of women were 19 or below while 10.5% of them were 35 and above. The pregnancy was not desired by 3.5% of women and 2.9% of their spouses. Current pregnancy was the first pregnancy of 34.6% of women. The percentage of women who had four or more pregnancies was 16.6%. Among those who had at least one pregnancy except the current pregnancy, 28.9% of women had spontaneous abortion, 10.9% of them had intentional abortion and 4.5% of them had stillbirth. The rate of child death below 5 y/o was 3%. Almost the half of women (49.3%) had one living child. While 52.9% of women had their previous deliveries at a private hospital, only 4.6% of them delivered at home (**Table 2**).

The rate of smoking is 16.0% for pregnants and 49.2% for their spouses, and 29.7% of pregnants are passive smokers. It was found that 82.5% of the pregnants were using iron preparations (not given in the table). The distribution of PC from family physicians and obstetricians received by pregnants according to gestational week can be seen in **Table 3.** During the period when the study was conducted, 10.9% of pregnants who were within 14 gestational weeks and 12.3% of pregnants who previously delivered did not receive PC from their family physicians. When PC service received from obstetrician is evaluated according to gestational week, 1.3% of pregnants who were within 14

Table 2. Biodemographic data of the pregnants (İstanbul, 2011).

Biodemographic data	n (%)	Biodemographic data	n (%)
Age of woman*		*In pregnants who delivered at least once;*	
19 and below	43 (3.1)	Spontaneous abortion	
20–24	311 (22.8)	Yes	259 (28.9)
25–29	500 (36.6)	No	636 (71.1)
30–34	369 (27.0)	Intentionally abortion	
35 and above	144 (10.5)	Yes	98 (10.9)
Desiring pregnancy by woman†		No	797 (89.1)
Desired	1159 (85.0)	Stillbirth	
Desired later	157 (11.5)	Yes	40 (4.5)
Never desired	48 (3.5)	No	855 (95.5)
Desiring pregnancy by spouse‡		Child death below 5 y/o	
Desired	1201 (88.2)	Yes	27 (3.0)
Desired later	122 (8.9)	No	868 (97.0)
Never desired	40 (2.9)	Living children	
Total pregnancy		0	90 (10.1)
1st pregnancy	473 (34.6)	1	441 (49.3)
2nd pregnancy	383 (28.0)	2	267 (29.8)
3rd pregnancy	285 (20.8)	3 and more	97 (10.8)
4th and more	227 (16.6)	Where previous pregnancy was ended	
Total	1368 (100.0)	Private hospital	467 (52.9)
		Public hospital	348 (39.4)
		University	15 (1.7)
		Home birth	41 (4.6)
		Delivery on the way	12 (1.4)
		Total	895 (100.0)

*Missing data of 1 person, †missing data of 3 people, ‡missing data of 5 people

gestational weeks and 3.5% of pregnants who previously delivered did not receive PC from their obstetricians.

In **Table 4**, the distribution of the services of examination, measurement and consultancy according to gestational weeks during PC have been summarized. During the period when the study was conducted, all of the pregnants who were within 14 gestational weeks got their first gestational examination by their family physicians. First gestational examination of 57.1% of pregnants who delivered previously was done within 14 weeks. Weights of 92.5% and blood pressure of 96.0% of pregnants delivered previously were measured, and blood analysis of 61.3% of these women and urine analysis of 47.2% of these women were carried out.

In **Table 5**, PC services received from obstetricians by pregnants have been summarized. While all the pregnants below 14 gestational weeks received PC at or before 14 weeks, 90.9% of women who delivered received their first PC service at or before 14 weeks. Height measurement of 36.5%, blood pressure measurement of 95.4%, and ultrasonography of 98.2% women who delivered were carried out and 37.1% of them were informed about breast-feeding.

Discussion

It is hard to say that field studies regarding PC services have been sufficiently performed during the last five years especially in Istanbul. Therefore, it is considered essential to carry out this study in Istanbul in terms of establishing a reference point for field studies to be performed in the future.

In this study, it was aimed to evaluate PC services given by family physicians at primary care level and by obstetricians at secondary and tertiary care levels in Istanbul in terms of quantity and quality. Family Practice Regulation obliges all family physicians to provide PC service during pregnancy for every pregnant registered to regarding family physician.[7] Prenatal Care Management Guide has defined PC to be given by family physician in terms of quality and quantity. According to the guide, family physicians are required to provide PC at least once for all pregnants below 25 weeks, at least twice for all pregnants below 33 weeks, and at least four times for all women who delivered their babies.[3]

According to the study, 6% of pregnants below 25 weeks received no PC while 33.5% of them received

Table 3. Distribution of prenatal care (PC) from family physicians and obstetricians received by pregnants according to gestational week (Istanbul, 2011).

	Gestational weeks				
PC number	14< n (%)*	15–24 n (%)*	25–32 n (%)*	33≥ n (%)*	Delivered n (%)*
Family physician					
0	26 (10.9)	21 (6.0)	24 (7.1)	9 (3.5)	28 (12.3)
1	110 (57.0)	117 (33.5)	44 (13.1)	21 (8.1)	17 (7.5)
2	34 (17.6)	112 (32.1)	93 (27.7)	35 (13.6)	26 (11,5)
3	16 (8.3)	58 (16.6)	72 (21.4)	61 (23.6)	35 (15.4)
4>	12 (6.2)	41 (11.7)	103 (30.7)	132 (51.2)	121 (53,3)
Mean	1.5 (±1.5)	2.0 (±1.4)	3.0 (±2.0)	3.9 (±2.2)	3.9 (±2.9)
Median	1 (0–11)	2 (0-10)	3 (0-13)	4 (0-15)	4 (0-20)
Obstetrician†					
0	3 (1.5)	6 (1.7)	4 (1.2)	2 (0.8)	8 (3.5)
1	43 (21.7)	19 (5.4)	10 (3.0)	4 (1.6)	3 (1.3)
2	37 (18.7)	29 (8.3)	15 (4.5)	7 (2.7)	7 (3.1)
3	47 (23.7)	50 (14.3)	29 (8.6)	13 (5.0)	7 (3.1)
4>	68 (34.3)	245 (70.2)	277 (82.4)	232 (89.9)	202 (89.0)
Mean	3.3 (±2.3)	5.0 (±3.2)	6.4 (±3.2)	7.8 (±3.5)	8.3 (±4.1)
Median	3 (0-15)	4 (0-30)	6 (0-20)	8 (0-20)	9 (0-20)
Total	**198 (100.0)**	**349 (100.0)**	**336 (100.0)**	**258 (100.0)**	**227 (100.0)**

*Column percentage, †missing data of 3 people

Table 4. Distribution of examination, measurement and consultancy services according to gestational week received during PC from family physicians by pregnants (Istanbul, 2011).

Parameter	Gestational weeks				
	14< n (%)*	15–24 n (%)*	25–32 n (%)*	33≥ n (%)*	Delivered n (%)*
First PC time					
At 14 weeks and below	172 (100.0)	278 (85.0)	199 (64.2)	153 (62.2)	113 (57.1)
At 15 weeks and above	-	49 (15.0)	111 (35.8)	93 (37.8)	85 (42.9)
Height measurement					
Measured	71 (41.3)	112 (34.1)	121 (38.8)	87 (34.9)	78 (39.2)
Not measured	101 (58.7)	216 (65.9)	191 (61.2)	162 (65.1)	121 (60.8)
Weight measurement					
Measured	148 (86.0)	229 (91.2)	288 (92.3)	238 (95.6)	184 (92.5)
Not measured	24 (14.0)	29 (8.8)	24 (7.7)	11 (4.4)	15 (7.5)
Blood pressure measurement					
Measured	150 (87.2)	302 (92.1)	299 (95.8)	241 (96.8)	191 (96.0)
Not measured	22 (12.8)	26 (7.9)	13 (4.2)	8 (3.2)	8 (4.0)
Heart auscultation					
Done	40 (23.3)	66 (20.1)	91 (29.2)	68 (27.3)	50 (25.1)
Not done	132 (76.7)	262 (79.9)	221 (70.8)	181 (72.7)	149 (74.9)
Children heart beat					
Listened	26 (15.1)	132 (40.2)	226 (72.4)	205 (82.3)	162 (81.4)
Not listened	146 (84.9)	196 (59.8)	86 (27.6)	44 (17.7)	37 (18.6)
Blood analysis					
Done	116 (67.4)	173 (52.7)	203 (65.1)	158 (63.5)	122 (61.3)
Not done	56 (32.6)	155 (47.3)	109 (34.9)	91 (36.5)	77 (38.7)
Urine analysis					
Done	59 (34.3)	123 (7.5)	136 (43.6)	118 (47.4)	94 (47.2)
Not done	113 (65.7)	205 (62.5)	176 (56.4)	131 (52.6)	105 (52.8)
Breast-feeding information					
Given	25 (14.5)	43 (13.1)	70 (22.4)	88 (35.3)	97 (48.7)
Not given	147 (85.5)	285 (86.9)	242 (77.6)	161 (64.7)	102 (51.3)
Family planning information					
Given	25 (14.5)	43 (13.1)	52 (16.7)	64 (25.7)	71 (35.7)
Not given	147 (85.5)	285 (86.9)	260 (83.3)	185 (74.3)	128 (64.3)
Information about complaints that may be seen during pregnancy					
Given	71 (41.3)	134 (40.9)	138 (44.2)	112 (45.0)	100 (50.3)
Not given	101 (58.7)	194 (59.1)	174 (55.8)	137 (55.0)	99 (49.7)
Planning delivery location					
Done	41 (23.8)	65 (19.8)	94 (30.1)	107 (43.0)	102 (51.3)
Not done	131 (76.2)	263 (80.2)	218 (69.9)	142 (57.0)	97 (48.7)
Total	**172 (100.0)**	**328 (100.0)**	**312 (100.0)**	**249 (100.0)**	**199 (100.0)**

*Column percentage

once; 47.9% of pregnants below 33 weeks received PC twice or less and 46.7% of women who delivered their babies received PC less than four times. In a field study conducted in Karabük city center, 23.7% of pregnants below 25 weeks received PC once, 14% of pregnants below 33 weeks received PC twice or less and 33.3% of women who delivered their babies received PC less than four times from their family physicians.[8]

Table 5. Distribution of examination, measurement and consultancy services according to gestational week received during PC from obstetricians by pregnants (Istanbul, 2011).

Parameter	Gestational weeks				
	14< n (%)*	15–24 n (%)*	25–32 n (%)*	33≥ n (%)*	Delivered n (%)*
First PC time					
14 hafta ve altıAt 14 weeks and below	195 (100.0)	329 (95.9)	308 (92.8)	233 (91.0)	199 (90.9)
At 15 weeks and above	-	14 (4.1)	24 (7.2)	23 (9.0)	20 (9.1)
Height measurement					
Measured	54 (27.7)	93 (27.1)	100 (30.1)	66 (25.8)	80 (36.5)
Not measured	141 (72.3)	250 (72.9)	232 (69.9)	190 (74.2)	139 (63.5)
Weight measurement					
Measured	134 (68.7)	285 (83.1)	282 (84.9)	224 (87.5)	201 (91.8)
Not measured	61 (31.3)	58 (16.9)	50 (15.1)	32 (12.5)	18 (8.2)
Blood pressure measurement					
Measured	124 (63.6)	279 (81.3)	289 (87.0)	232 (90.6)	209 (95.4)
Not measured	71 (36.4)	64 (18.7)	43 (13.0)	24 (9.4)	10 (4.6)
Heart auscultation					
Done	55 (28.2)	102 (29.7)	109 (32.8)	87 (34.0)	91 (41.6)
Not done	140 (71.8)	241 (70.3)	223 (67.2)	169 (66.0)	128 (58.4)
Ultrasonography					
Done	184 (94.4)	336 (98.0)	325 (97.9)	250 (97.7)	215 (98.2)
Not done	11 (5.6)	7 (2.0)	7 (2.1)	6 (2.3)	4 (1.8)
Blood analysis					
Done	142 (72.8)	277 (80.8)	293 (88.3)	228 (89.1)	197 (90.0)
Not done	53 (27.2)	66 (19.2)	39 (11.7)	28 (10.9)	22 (10.0)
Urine analysis					
Done	131 (67.2)	256 (74.6)	281 (84.6)	218 (85.2)	193 (88.1)
Not done	64 (32.8)	87 (25.4)	51 (15.4)	38 (14.8)	26 (11.9)
Breast-feeding information					
Given	14 (7.2)	38 (11.1)	44 (13.3)	37 (14.5)	83 (37.9)
Not given	181 (92.8)	305 (88.9)	288 (86.7)	219 (85.5)	136 (62.1)
Family planning information					
Given	11 (5.6)	26 (7.6)	32 (9.6)	29 (11.3)	69 (31.5)
Not given	184 (94.4)	317 (92.4)	300 (90.4)	227 (88.7)	150 (68.5)
Information about complaints that may be seen during pregnancy					
Given	107 (54.9)	201 (58.6)	210 (63.3)	159 (62.1)	152 (69.4)
Not given	88 (45.1)	142 (41.4)	122 (36.7)	97 (37.9)	67 (30.6)
Planning delivery location					
Done	67 (34.4)	120 (35.0)	163 (49.1)	144 (56.3)	131 (59.8)
Not done	128 (65.6)	223 (65.0)	169 (50.9)	112 (43.8)	88 (40.2)
Total	**195 (100.0)**	**343 (100.0)**	**332 (100.0)**	**256 (100.0)**	**219 (100.0)**

*Column percentage

In the study, mean follow-up number per pregnant who delivered is 3.9. In brief, PC service provided by family physicians in Istanbul according to gestational week is below the desired level in quantity. However, when it is considered that mean follow-up number per pregnant at primary care level in Istanbul is 2 according to 2010 Health Statistics Annual,[9] it can be said that there is almost 100% increase in the number of

follow-up per pregnant in 2011. The possible reason for this increase is the increasing number of physicians in Istanbul when family medicine was put into practice in Istanbul in 2011. According to the data of Istanbul Health Administration, while there were 2007 physicians working in health centers on October 31st, 2010, there were 3539 family physicians during the period when the study was carried out.

All of the women except 1.7% of them got examined by an obstetrician in the study. While 89% of women who delivered received PC for four or more times, mean PC per pregnant was found as 8.3. Data regarding PC in Turkish Population and Health Research (TPHR) was evaluated according to the most qualified health personnel giving this service. When it is considered that pregnancy ultrasonography is performed by obstetricians, 96.2% of pregnants receiving PC were examined ultrasonographically; in other words, 96.2% of pregnants receiving PC were examined by an obstetrician and 73.4% of them received PC for four or more times.[6] In a study performed in Adıyaman, 93.4% of pregnants were examined by an obstetrician at least once, and mean examination per pregnant was reported as 4.4%.[10]

Both in this study, and TPHR and other studies show that pregnants received sufficient number of PC from obstetricians. In PC Management Guide, it is stated that pregnancy should be detected until 14 weeks at the latest, and first PC should be given within this period.[3] In the study, approximately 5 of each 15 pregnants who delivered their babies received their first PC within 14 weeks. In the study performed in Karabük city center, 7 of each 10 pregnants who delivered their babies received their first PC within first 14 weeks.[8] In TPHR 2008, approximately 7 of each 10 pregnants received their first PC within 3 months.[6] Consequently, when considered according to gestational week, determining pregnancy within 14 weeks by family physicians in Istanbul is below the desired level. This is probably caused by two reasons. The first reason is that health personnel working at primary care level in Istanbul are not aware of the significance of providing PC early and the second reason is that dispatch system is not applied properly. As a result, pregnants prefer obstetricians for pregnancy examinations rather than family physician. This preference is clearly understood that more than 90% of pregnants who delivered received their PC within 14 weeks from an obstetrician.

Physical examination, test and consultancy services that should be given to pregnants have been defined in the PC Management Guide. Except height measurement, the Guide requires all parameters asked in the questionnaire to be done in each PC.[3] In the study, the level of providing parameters defined in the **Table 4** to pregnants by family physicians and family health personnel increases as gestational week increases. While measurements of weight and tension of pregnant among these parameters are above 90%, other parameters are at quite low level. Similar findings were obtained in field studies carried out in Karabük and Adıyaman[8,10] The findings are same for the same parameters in terms of obstetricians. On the other hand, when compared to TPHR 2008 data where blood pressure, weight measurement, blood and urine analyses and USG are evaluated, the level of providing these services in Istanbul is above the country average.[6]

In brief, it is hard to say that PC provided in Istanbul by family physicians and obstetricians is in sufficient quality. The possible reasons are that family physicians and obstetricians do not have sufficient level of knowledge about the content of PC Management Guide and that both physician groups do not aware the significance of PC even they have sufficient level of knowledge about PC.

Conclusion

Consequently, PC provided by family physicians and obstetricians are not at a sufficient level in terms of gestational week and performing first examination within 14 weeks, although PC service per pregnant at primary care level in Istanbul is increased almost 100% compared to year 2010. On the other hand, pregnants received sufficient level of PC at secondary and tertiary care levels. When PC provided both in primary and secondary care levels are evaluated together, 99.6% of pregnants received PC. Within this context, it can be said that the target of providing PC at least once to 98% of all pregnants in the country.[11] in terms of "2005-2015 National Strategic Action Plan Sexual and Reproductive Health" has been achieved. However, PC provided to pregnants in primary, secondary and tertiary care levels are not in sufficient quality. While health personnel providing PC gave priority to physical examination and laboratory analyses, consultancy and information services were insufficient.

Within this context;

1. Studies evaluating knowledge, attitude and behaviors of health personnel about PC Management Guide providing PC service at every level should be conducted.
2. In accordance with the conclusions of these studies, required trainings should be provided periodically.
3. Studies determining the effects of trainings given to health personnel of public health centers should be conducted; conclusions should be evaluated and if required, current PC policy should be revised locally.

The study was carried out over pregnants registered to family physicians. The possibility of the existence of pregnants not registered to family physicians is the most essential limitation of the study.

Conflicts of Interest: No conflicts declared.

References

1. Akın A. Türkiye'de ana sağlığı, aile planlaması hizmetleri ve isteyerek düşükler. In: Akın A, editor. 1998 Türkiye Nüfus ve Sağlık Araştırması İleri Analiz Sonuçları. Ankara: Hacettepe Üniversitesi Hastaneleri Basımevi; 2002. p. 151-82.
2. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, ICON-INSTITUT Public Sector Gmbh ve BNB Danışmanlık Sağlık Bakanlığı Ana Çocuk Sağlığı ve Aile Planlaması Genel Müdürlüğü ve Avrupa Komisyonu Türkiye Delegasyonu. Türkiye Ulusal Anne Ölümleri Çalışması. Ankara: Hacettepe Üniversitesi; 2005. p. 51-88.
3. Sağlık Bakanlığı Ana Çocuk Sağlığı Aile Planlaması Genel Müdürlüğü. Doğum öncesi bakım yönetim rehberi. Ankara: Sağlık Bakanlığı; 2009.
4. Türkiye İstatistik Kurumu. Türkiye istatistik yıllığı. Ankara: Türkiye İstatistik Kurumu; 2011.
5. Türkiye İstatistik Kurumu. Göç İstatistikleri. www.tuik.gov.tr/VeriBilgi.do?tb_id=38&ust_id=1102 Nisan 2002.
6. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Sağlık Bakanlığı Ana Çocuk Sağlığı ve Aile Planlaması Genel Müdürlüğü, Başbakanlık Devlet Planlama Teşkilatı Müsteşarlığı ve TÜBİTAK. Türkiye Nüfus ve Sağlık Araştırması, 2008. Ankara: Hacettepe Üniversitesi; 2009. p. 149-69.
7. Sağlık Bakanlığı. Aile Hekimliği Uygulama Yönetmeliği. http://www.saglik.gov.tr/TR/belge/1-0376/aile-hekimligi-uygulama-yonetmeligi.html17 Ocak 2011
8. Çatak B, Davas A, Zencir M. Karabük Toplum Sağlığı Merkezi bölgesinde doğum öncesi bakım hizmetlerinin nicelik ve niteliği. TAF Preventive Medicine Bulletin 2012;11:153-62.
9. Sağlık Bakanlığı. Sağlık istatistikleri yıllığı 2010. Ankara: Sağlık Bakanlığı; 2011. p. 49-50.
10. Çatak B. Adıyaman 2 No'lu Toplum Sağlığı Merkezi Bölgesinde 2007 yılında canlı doğum yapan kadınların doğum öncesi, doğum ve doğum sonrası izlemleri.12. Ulusal Halk Sağlığı Kongresi Özet Kitabı, Ankara, 21-25 Ekim 2008.
11. Sağlık Bakanlığı. Sağlık sektörü için Ulusal Stratejik Eylem Planı. http://sbu.saglik.gov.tr/tusp/turkce/yayinlar/pdf_dokumanlar/01_USEP.pdf