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Pattern of prenatal care utilization in Tehran: A population based longitudinal study

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ABSTRACT

Aim: To assess the pattern of prenatal care utilization in Tehran in 2015.
Methods: A total of 2005 pregnant women who lived in the catchment area of the study participated. Participants were followed from the sixth week of pregnancy until birth. Data were collected either through interviews or from written medical records.
Findings: More than 95% of mothers completed all eight prenatal care visits. Some 99% of mothers completed at least four visits. The prenatal care utilization was equal among all different socio-economic regions in Tehran. Gynecologists were the main healthcare providers in prenatal care visits. In addition, 75% of mothers went to gynecologists at their office or in hospitals for ordering first-trimester screening tests.
Conclusions: Prenatal care utilization complied with both national guidelines and recommendations of World Health Organization regarding the number of conducted visits. Equal accessibility and availability of prenatal care service despite the socio-economical differences of families is suggestive of equity and social justice in terms of providing health services in both public and private sectors. Among healthcare providers, gynecologists were the main healthcare provider for prenatal care visits.

Statement of significance

Problem or issue

No studies were found to investigate the prenatal utilization among the five different socio-economic regions in Tehran.

What is already known

Although most procedures of prenatal care do not necessarily need a provider with academic degree and could be delivered by a trained person, the completion rate of four prenatal care visits is less than 60% worldwide. The number of prenatal care visits may vary according to guidelines in different countries. The number of prenatal care visits for non-complicated pregnancies in Iran is eight.

What this paper adds

Prenatal care utilization complied with both national guidelines and recommendations of the World Health Organization regarding the number of conducted visits. Despite considerable socio-economic differences among the five socio-economic regions of Tehran, mothers benefited almost equally from prenatal care service, which could be suggestive of the equity and social justice in terms of providing health services in both public and private sectors.

1. Introduction

Prenatal care (PNC) is essential in identifying and preventing complications, and decreasing the incidence of maternal and perinatal mortality. Maternal mortality is mostly due to

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preventable causes including hypertensive diseases, infections, obstructed labor, and complications subsequent to abortion, as well as postpartum hemorrhage.[1] Therefore, Countdown to 2015 for Maternal, Newborn and Child Survival was launched as a multinational initiative to reduce maternal and prenatal mortality as its main objective. The implementation of the Countdown has resulted in a reduction in worldwide maternal mortality from 523,000 a year to 289,000.[2] Moreover, the target has been set for 70 maternal deaths or less per 100,000 live births by 2030.[3] Quality of PNC depends on the time of initiation, number of visits, and components of care.[4] Late initiation of PNC could have negative impacts on both mother and child.[5] PNC for normal pregnancies should be at least four visits.[6] The completion rate of four PNC-visits (PNCVs) is less than 60% worldwide, although most procedures of PNC could be delivered by a trained person without an academic degree.[7] The number of PNCVs may vary according to guidelines in different countries. The number of PNCVs for non-complicated pregnancies according to the guideline of the Ministry of Health and Medical Education of Iran is eight.[8]

Although there have been two studies which report utilization of PNC in Iran,[9,10] no studies have been found to investigate PNC utilization based on the five different socio-economic regions in Tehran.

The objectives of this population-based longitudinal study were to determine the PNC utilization, number of PNCVs, care providers, and mothers' out-of-pocket costs for PNCVs among a representative defined population in Tehran in 2015.

2. Materials and methods

This study was approved by Ethical Committee of Shahid Beheshti University of Medical Sciences. The study did not require that participants reveal their identity and all responses remained confidential. The interview sessions were held by female midwives. All participants provided an informed consent prior to taking part in the study. They were able to leave the study at any stage.

2.1. Design

This population-based longitudinal study was performed in the period of October 2014 until November 2015 in the catchment area of the Research Network of Tehran Defined Population. This research network includes 10 Urban Health Centers (UHC) in 10 municipality districts of the total 22 districts in Tehran. These 10 districts include two districts from each of the five socio-economic regions of the city. These regions of Tehran include north, east, center, west, and south, according to the Tehran Urban Health Equity Assessment and Response Tool study (Urban HEART).[11,12] The UHCs monitor all the health-related variables of the 40,000 individuals under their coverage, who form a defined population representative of Tehran.[13]

2.2. Participants

Among 2312 mothers who met the study criteria, 2051 (88.7%) accepted to participate in the study. The inclusion criteria were becoming pregnant during six months from the starting day of the study, living in the catchment area, and consenting to participate in the study. Participants who were lost due to reasons like moving out of the catchment area of the Research Network of Tehran Defined Population, had major health conditions which needed further medical follow-up, whose pregnancy was terminated before 36 weeks were excluded from the study.

2.3. Prenatal care organization in Iran

2.3.1. Prenatal care in the public sector

PNC in Tehran like all other cities of Iran is available in the public sector for all mothers in UHCs for free of charge. This service in the UHCs is provided by midwifery graduates with cooperation of general practitioners. Ultrasound examination is not included in UHCs services; however, they are under insurance coverage.

2.3.2. Prenatal care in the private sector

Mothers could receive PNC service from the private sector at the office of gynecologists or midwives, and the gynecology and obstetrics clinics of the hospitals, for which they will be charged. The out-of-pocket costs vary based on the type of medical insurance.

2.3.3. Components and schedule of prenatal care

The main components of PNC in Iran include history taking; the first-trimester screening tests; clinical examination; immunization; health education; advice and counselling on routine and follow-up visits, nutrition and self-care, labor signs, and warning signs; iron, folic-acid, and vitamin supplements. Screening tests should be carried out during the sixth to tenth weeks of pregnancy, and include complete blood count, Rh test, fasting blood sugar, BUN, creatinine, Venereal Disease Research Laboratory (VDRL), urine analysis and culture, and voluntary HIV screening test. Ultrasound examinations should be performed in 16–18 and 31–34 weeks of pregnancy.[8] The PNCVs for normal pregnancies in Iran should be conducted eight times in weeks 6–10; 11–15; 16–20; 21–25; 26–30; 31–34; 35–37; and 38 until birth time. Both private and public sectors adhere to the national guidelines. The national protocol of Iran is consistent with recommendations of World Health Organization (WHO), except for the ultrasound examinations.[14]

2.4. Measurements

Variables included the socio-demographic status of mothers and their husbands, age at the time of marriage, the number of alive children, time and place of PNCVs, care providers in PNCVs, out-of-pocket costs for PNCVs, and type of birth. The data collection approach differed based on whether mothers conducted their PNCVs in UHCs or not. For mothers who conducted their PNCVs in UHCs, data were collected from written medical records. For mothers who did not conducted their PNCVs in UHCs, data were collected from interviews by trained midwives. A structured interview approach was followed to make sure that all questions were answered completely and the extracted information from interview sessions were the same as the information obtained from medical records. For the first interview session, mothers were invited to the UHCs. Phone calls were made for follow-up sessions. For mothers who could not allocate time to come to UHCs or could not be reached by phone, the interviewer would go to the front door of their houses. The first interview session would take up to 10 min to gather socio-demographic data, and the follow-up sessions would take less than 2 min to ask participants about their PNCVs.

2.5. Data analysis

Data were analyzed based on both recommendations of WHO and national guidelines of Iran. Frequency, mean, and standard deviation, were used to describe the data. We used chi-Square test for categorized variables. T-test and one-way analysis of variance (ANOVA) test were used to analyze the differences among means of two groups and three groups or more, respectively. Statistical

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