ECRONICON OPEN ACCESS

EC NURSING AND HEALTHCARE
Research Article

# Prevalence of Preterm Birth and Effective Risk Factors in Women Referring to Ostad Motahari Hospital in Jahrom

**Samira Katebi[1] and Mehri Rezaie[2]***

[1]*B.S of Midwifery, Jahrom University of Medical Sciences, Jahrom, Iran*

[2]*MSc in Midwifery, Department of Midwifery - Nursing, Saveh University of Medical Sciences, Saveh, Iran*

***Corresponding Author:** Mehri Rezaie, MSc in Midwifery, Department of Midwifery - Nursing, Saveh University of Medical Sciences, Saveh, Iran.

**Received:** March 31, 2022; **Published:** May 23, 2022

## Abstract

**Background**: Preterm labor is the most common cause of neonate mortality that identifying the factors involved can be effective in reducing preterm labor. Therefore, the present research studied the prevalence of preterm labor and effective risk factors, in women referring to Ostad Motahari Hospital in Jahrom.

**Method**: This research was a retrospective descriptive-cross sectional study. First, all deliveries of 2019 were reviewed for preterm and term birth and equal to the number of preterm labor, term pregnancy as a control group was selected by systematic random sampling from the file number. Data were collected according to the questionnaire. If the file was not completed, by the contact with mothers, the records were completed. Data were analyzed by SPSS 18 software and descriptive and analytical statistics.

**Results:** The prevalence of preterm delivery was 9.5%. The mean age in the preterm birth group was 25.8 ± 4.8 years and in the term delivery group was 28.43 ± 3.2 years. In this study, there was a significant difference between preterm delivery and term birth in terms of rupture of membrane (p = 0.001), multiple pregnancy (p = 0.005), preeclampsia (p = 0.004), the history of urinary tract infections during pregnancy (p = 0.001), vaginal bleeding during first trimester (p = 0.001), the history of surgery during the first trimester of pregnancy (p = 0.002) and also the history of smoking in the spouse (p = 0.015). There was no significant difference between maternal substance abuse between the two groups.

**Conclusion**: According to previous studies and the results of this study, some factors are effective in preterm birth. Identifying risk factors and involving pregnant mothers and raising their awareness can reduce the rate of preterm birth.

***Keywords:*** *Preterm Delivery; Neonates; Childbirth*

## Introduction

Premature delivery refers to the birth before 37 weeks of gestational age of pregnancy and may be due to the onset of regular uterine contractions [1]. Unfortunately, despite recent advances in obstetric and neonatal care, the prevalence of preterm birth is increasing. Over the past two decades, the rate of preterm births has increased by 20 percent, with most occurring between 34 to 36 weeks of pregnancy

[5,6]. The rate of preterm birth is present in 8% of pregnancies and 50% of all preterm birth occur after starting preterm contractions of uterus, but preterm delivery may occur due to rupture of the membrane or other medical problems. The prevalence of preterm delivery in pregnant women with preeclampsia is 54.4% [2]. About 500,000 preterm births occur annually in the United States, accounting for 13% of all births [3,4]. The causes of premature birth are unknown. Premature delivery is responsible for 75% of neonatal mortality and 50% of neurological disorders. The risk of problems related to nervous system development and debilitating diseases in children with a history of preterm birth is much higher than term delivery [7]. Gestational age is inversely related to the risk of neonatal mortality. Neonatal mortality is significantly higher in neonates who born before 32 weeks of pregnancy. Treatments related to infertility, multiple births, and elective cesarean section are associated with increased preterm labor and for these reasons, the prevalence of preterm labor is increasing 20% to 25% [8]. Numerous demographic factors are involved in the occurrence of preterm delivery. Threatened abortion increases the risk of premature labor after 24 weeks. A combination of genetic and environmental factors, such as non-white race, consecutive pregnancies, maternal physical or mental stress, and low maternal weight, may be involved in preterm delivery. Factors such as bacterial vaginosis, intrauterine infections, abdominal surgery, maternal endocrine disorders, multiple pregnancies, cervical length less than 3 cm, smoking, uterine abnormalities and placenta previa affect the onset of the preterm birth. Lifestyle factors such as smoking, the drug abuse, inadequate maternal weight gain during pregnancy can play an important role in preterm delivery [9]. The risk of preterm birth is about 7 times higher in women with periodontitis. But it is yet unknown whether diagnosing or treating women with periodontal disease in mid-pregnancy can help prevent preterm labor or not [10,11].

It is clear that preterm delivery plays a very important role in neonatal mortality and morbidity. Investigating the prevalence of preterm delivery and determining its underlying factors can play an important role in health system planning to reduce neonatal mortality. Therefore, the researcher decided to conduct a study to evaluate the prevalence of preterm birth and Effective risk factors, in women referring to Ostad Motahari Hospital in Jahrom.

## Methods

This research was a retrospective descriptive cross-sectional study. After obtaining the necessary Written consent from Jahrom University of Medical Sciences and presenting the study to the hospital officials and obtaining permission to conduct research, the researcher referred to the hospital and all deliveries in 2019 were checked for preterm and term deliveries. The criterion for being preterm was according to the mother's last menstruation or the first trimester sonography. The equal premature deliveries (512), semester term deliveries as a control group were systematically entered into the study by the file number. Thus, the files were listed based on the file number through the computer system and one out of every 10 files was selected and finally 512 samples of the control group were selected. Inclusion criteria were the availability of maternal and infant records in the hospital. Exclusion criteria included incomplete files and files without phone number and contact information. The data collection tool was a self-made questionnaire and, if it was necessary, a telephone interview. The questionnaire was prepared according to the objectives of the study and using texts, articles and valid scientific sources, and then its scientific validity was confirmed by consulting the faculty members and applying the necessary corrections. Regarding the reliability of the questionnaire, the simultaneous evaluation method was used. Thus, the researcher recorded the results in the study units (22 women) and then asked two midwives to record their studies and using the statistical tests of the reliability. Coefficient of the questionnaire was estimated 86%. Finally, the information was extracted based on the questionnaire. The information included demographic characteristics (age, residence status, education, occupation, etc.) and delivery information (gestational age at delivery, history of preterm delivery, history of high-risk cases in pregnancy, etc.). If the file was not completed and if the contact number was entered in the file, the mother was contacted and the information was completed through an interview. In order to observe ethical considerations, each case was given a code and the registration and surname of the subjects were refused. The obtained data were analyzed by SPSS 18 software and descriptive (mean and frequency distribution) and analytical (Chi-square) tests and $P < 0.05$ was considered statistically significant.

## Results

The total number of births (normal vaginal delivery and cesarean section) was 5325 and the number of preterm delivery was 512 and the prevalence of preterm delivery was 9.7%. The mean age was 25.8 ± 4.5 years in the preterm delivery group and 28.43 ± 3.2 years in the term delivery group. Table 1 shows the frequency distribution of demographic characteristics.

| Variable | | Preterm delivery % (N) | Term delivery % (N) | Chi-square | P-value |
|---|---|---|---|---|---|
| Occupation | Housewife | 89.06 (456) | 86.52 (443) | 0.069 | 0.794 |
| | Employed | 10.94 (56) | 13.48 (69) | | |
| Education | High school | 43.95 (225) | 41.99(215) | 0.830 | 0.367 |
| | university degree | 56.05 (287) | 58.01 (297) | | |
| Resident | Urban | 52.74 (270) | 58.79 (301) | 0.561 | 0.249 |
| | Rural | 47.26 (242) | 41.21 (211) | | |
| Maternal weight (kg) | 50- 70 | 57.03 (292) | 59/96 (307) | 0.435 | 0.278 |
| | > 70 | 42.97 (220) | 40.04 (205) | | |

***Table 1:*** *Frequency distribution of demographic characteristics in the two groups studied.*

The most common gestational age in preterm delivery was 34 - 36 weeks 57.62%(295) and 25 - 33 weeks 42.38%(217), respectively. The most common factors associated with preterm delivery in order of prevalence were, premature rupture of membrane, preeclampsia, history of urinary tract infection, small fetus, multiple pregnancy and history of hospitalization. There was a significant difference between preterm and term birth in terms of premature rupture of membrane, multiple pregnancies, preeclampsia, history of urinary tract infection, vaginal bleeding and the surgery during pregnancy (Table 2).

| Variable | Preterm delivery % (N) | Term delivery % (N) | Chi-square | 2.89(15) |
|---|---|---|---|---|
| Preterm rupture of membrane | 23.20 (119) | 21.61 (75) | 11.021 | 0.001 |
| Multiple pregnancy | 5.90(30) | 4.03(14) | 7.714 | 0.005 |
| Preeclampsia | 70.22(116) | 23.05(80) | 8.333 | 0.004 |
| Small of gestational age | 8.80(45) | 13.83(48) | 0.419 | 0.518 |
| Fetal distress | 6.81(35) | 13.26(46) | 1.025 | 0.311 |
| History of urinary tract infection in pregnancy | 13.77(71) | 8.94(31) | 13.005 | 0.001 |
| History of infertility | 2.89(15) | 3.75(13) | 0.143 | 0.705 |
| History of Hospitalization in the first trimester of pregnancy | 5.92(30) | 5.77(20) | 3.000 | 0.083 |
| History of vaginal bleeding in the first trimester of pregnancy | 5.29(27) | 2.88(10) | 10.314 | 0.001 |
| History of surgery during pregnancy | 3.31(17) | 1.44(5) | 9.800 | 0.002 |
| History of substance abuse and smoking by the mother | 1.41(7) | 1.44(5) | 0.250 | 0.617 |

***Table 2:*** *Frequency distribution of factors associated with preterm delivery.*

There was also a significant difference between the two groups in terms of the history of smoking in the spouse (p = 0.015). There were no cases of vaginitis, gastrointestinal and respiratory infections, the history of preterm labor in previous pregnancies, history of preterm

labor in the couple's family and the history of physical abuse in both groups. Out of 512 cases in the term delivery group, no evidence of the studied variables was observed in 152 cases.

## Discussion

The results showed that the prevalence of preterm delivery in 2019 in Jahrom University of Medical Sciences was 9.7%. Afrakhteh reported that the prevalence of preterm delivery was 7.2% [12] and Mokhtari Bayat stated (6.1%) [11]. Ajami in Shahroud reported the prevalence of 8% [13] Ali Jahani in Ardabil 5.1% [14], Khalajinia in Qom 5.6% [1] and Lotf Alizadeh 16.4% [15].

In this study the factors associated with preterm delivery included premature rupture of membrane, preeclampsia, multiple pregnancy, urinary tract infection, the history of vaginal bleeding in the first trimester, history of surgery during pregnancy and substance abuse in the partner. Ajami In his study, reported the association between preeclampsia, premature rupture of membrane, and multiple pregnancy with preterm delivery [13], which is consistent with our study. Afrakhteh reported that the most common factor associated with preterm delivery were premature rupture of membrane, preeclampsia and urinary tract infections respectably [12], which is consistent with our study. Beigi has mentioned that premature rupture of membrane in multiple pregnancy and high blood pressure were as risk factors for preterm delivery which is somewhat consistent with present research [17]. Mokhtari Bayat reported that vaginitis and history of abortion were as risk factors preterm birth, but in our study, no association was found between vaginitis and abortion with preterm delivery [11]. Khalajineia reported a significant difference between preterm labor with predisposing factors and stress, prenatal care, history of surgery during pregnancy, history of vaginal bleeding during the first trimester of pregnancy, history of preterm labor, diabetes, infectious diseases, oral diseases and anemia [1], which is inconsistent with our study in some factors.

In this study, as mentioned, a significant difference was observed between the history of urinary tract infection with preterm delivery, which is consistent with the Chiabi [8] and the Pajohesh Shoja studies [18]. In the current study, there was a relationship between smoking by the spouse and preterm delivery. Namkin [19] and Davari [16] in their studies did not report any relationship between the two that is inconsistent with the present study.

## Conclusion

According to previous studies and the results of this study, some factors are effective in preterm birth. Identifying risk factors and involving pregnant mothers and raising their awareness can reduce the rate of preterm birth.

## Limitations and Recommendations

One of the limitations of our study was the lack of complete information in the file. For this reason, we had to restrict the questionnaire items. Another limitation was our lack of access to the mothers, so we had to have a telephone interview to complete the information.

Due to the result of our study, substance abuse by the mother was not different in the two groups, so further studies in this field and its role in preterm delivery are recommended.

## Bibliography

1. Khalaji Nia Z and Sadeghi Moghaddam P. "Prevalence and Maternal Risk factors of Preterm Laboring in Qom". *Qom University of Medical Sciences Journal* 5.1 (2011): 30-36.

2. Cunningham., *et al*. Williams Obstetrics 2014, Translated by Voladan M, Razzaghi S, Ghorbani MH, volume 1. Arjmand Press (2014): 420-442.

3. Aalijahan R., *et al*. "Prevalence and risk factors associated with preterm birth in Ardabil, Iran". *Iranian Journal of Reproductive Medicine* 12.1 (2014): 47-56.

4. WHO. The Partnership for Maternal, Newborn & Child Health. Born too soon: the global action report on preterm birth (2012).

5. Goldenberg RL., *et al*. "Epidemiology and causes of preterm birth". *Lancet* 371.9606 (2008): 75-84.

6. World Health Organisation. Preterm birth (2012).

7. Negahban T., *et al*. "The Relation between Primary Dysmenorrhea and Spontaneous Preterm Labor in Primiparous Women in Rafsanjan". *Iranian Journal of Obstetrics, Gynecology and Infertility* 14.7 (2012): 37-43.

8. Chiabi A., *et al*. "Risk Factors for Premature Births: A Cross-Sectional Analysis of Hospital Records in a Cameroonian Health Facility". *African Journal of Reproductive Health* 17.4 (2013): 77-83.

9. Heaman M., *et al*. "Risk factors for preterm birth and small-for-gestational-age births among Canadian women". *Paediatric and Perinatal Epidemiology* 27.1 (2013): 54-61.

10. Ganji T., *et al*. "The Relationship of Pre-Term Delivery and Stressful Life Events during Pregnancy". *Iran Journal of Nursing* 22.57 (2009): 77-86.

11. Mokhtari Bayat and Tabrizian N. "Maternal risk factors in causing of preterm delivery". *Journal of Medical Sciences, Mashhad Islamic Azad University* 3.19 (2010): 140-145.

12. Afrakhteh M., *et al*. "The prevalence of preterm labor and related factors in patients referred to Shohada Tajrish Hospital from 1374 to 1378". *Pajoohandeh (Shahid Beheshti University of Medical Sciences)* 7.4 (2008): 341-343.

13. Ajami MS., *et al*. "The prevalence of preterm labor and related factors in Shahrood". *Faslnameh Tandorsti. Faculty of Medical Sciences, Islamic Azad University, Sari Branch* 3.2 (2013): 43-48.

14. Alijahan R., *et al*. "Prevalence and risk factors associated with preterm birth in the city of Ardabil, Iran". *Iranian Journal of Reproductive Medicine* 1.12 (2014): 47-56.

15. Lotf Alizadeh M., *et al*. "Prevalence and risk factors of preterm labor in Imam Reza Hospital 2003-2004". *Iranian Journal of Women Midwifery Infertil* 8.2 (2005): 93-100.

16. Davari Tanha F., *et al*. "Risk factor for recurrent preterm delivery in three university hospital". *Tehran University of Medical Sciences Journal* 65.2 (2007): 24-29.

17. Beigi A., *et al*. "The prevalence of very preterm deliveries, risk factors, and neonatal complications in Arash women hospital: a brief report". *TUMJI (Tehran University Medical Journal)* 71.3 (2013): 194-198.

18. Shoja M., *et al*. "Prevalence and affecting factors on preterm birth in pregnant women Referred to Bentolhoda hospital-Bojnurd". *Journal of North Khorasan University of Medical Sciences* 7.4 (2015): 855-863.

19. Namakin K., *et al*. "To Identify the Risk Factors in Prematurity Birth in Birjand, Iran: A Case Control Study". *Iranian Journal of Epidemiology* 7.3 (2011): 1-5.

**Volume 4 Issue 6 June 2022**