

Table Of Content

Journal Cover	2
Author[s] Statement	3
Editorial Team	4
Article information	5
Check this article update (crossmark)	5
Check this article impact	5
Cite this article	5
Title page	6
Article Title	6
Author information	6
Abstract	6
Article content	8

Academia Open



By Universitas Muhammadiyah Sidoarjo

Originality Statement

The author[s] declare that this article is their own work and to the best of their knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the published of any other published materials, except where due acknowledgement is made in the article. Any contribution made to the research by others, with whom author[s] have work, is explicitly acknowledged in the article.

Conflict of Interest Statement

The author[s] declare that this article was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright Statement

Copyright © Author(s). This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Academia Open

Vol 10 No 2 (2025): December (in progress)

DOI: 10.21070/acopen.10.2025.11557 . Article type: (Medicine)

EDITORIAL TEAM

Editor in Chief

Mochammad Tanzil Multazam, Universitas Muhammadiyah Sidoarjo, Indonesia

Managing Editor

Bobur Sobirov, Samarkand Institute of Economics and Service, Uzbekistan

Editors

Fika Megawati, Universitas Muhammadiyah Sidoarjo, Indonesia

Mahardika Darmawan Kusuma Wardana, Universitas Muhammadiyah Sidoarjo, Indonesia

Wiwit Wahyu Wijayanti, Universitas Muhammadiyah Sidoarjo, Indonesia

Farkhod Abdurakhmonov, Silk Road International Tourism University, Uzbekistan

Dr. Hindarto, Universitas Muhammadiyah Sidoarjo, Indonesia

Evi Rinata, Universitas Muhammadiyah Sidoarjo, Indonesia

M Faisal Amir, Universitas Muhammadiyah Sidoarjo, Indonesia

Dr. Hana Catur Wahyuni, Universitas Muhammadiyah Sidoarjo, Indonesia

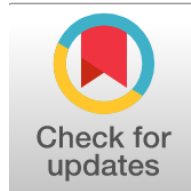
Complete list of editorial team ([link](#))

Complete list of indexing services for this journal ([link](#))

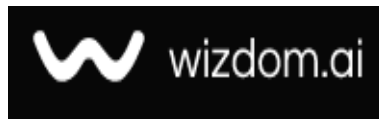
How to submit to this journal ([link](#))

Article information

Check this article update (crossmark)



Check this article impact (*)



Save this article to Mendeley



(*) Time for indexing process is various, depends on indexing database platform

Risk Factors of Preterm Labour Thi Qar Governorate Iraq

Izdihar Nsaif Ali, ezdehar.n.ali@utq.edu.iq, (1)

Department of Obstetrics and Gynecology, College of Medicine, University of Thi Qar, Iraq

Sara Salih Abdullah, ezdehar.n.ali@utq.edu.iq, (0)

Medical, University of Thi-Qar, Iraq

Saja Kareem Kamil, ezdehar.n.ali@utq.edu.iq, (0)

Medical, University of Thi-Qar, Iraq

Khadija Khalid Abdulhassan, ezdehar.n.ali@utq.edu.iq, (0)

Medical, University of Thi-Qar, Iraq

Zahraa Shakir Waja'an, ezdehar.n.ali@utq.edu.iq, (0)

Medical, University of Thi-Qar, Iraq

Mujtaba Khaleel, ezdehar.n.ali@utq.edu.iq, (0)

Medical, University of Thi-Qar, Iraq

⁽¹⁾ Corresponding author

Abstract

Background: Preterm birth, defined as delivery between 24 and 37 weeks of gestation, remains a leading cause of neonatal morbidity and mortality. **Specific Background:** It can occur spontaneously or due to medical indications, with risk factors ranging from maternal age and infections to obstetric history. **Knowledge Gap:** Despite global recognition of these risks, limited data exist on the specific contributing factors in localized hospital settings within developing regions. **Aims:** This study aimed to identify the predominant factors associated with preterm birth among pregnant women at Bint Huda Hospital. **Results:** Among 80 women who experienced preterm birth, the majority were aged 20–30 years (66.3%), had primary education (70%), and lived in urban areas (55%). Urinary tract infection emerged as the most significant risk factor (82.5%), followed by premature membrane rupture (27.5%), preeclampsia (25%), and a history of previous preterm birth (25%). Most participants were multiparous (63.8%) and had received good antenatal care (85%). Cesarean section was the dominant mode of delivery (60%). **Novelty:** This study highlights the prominence of infections, especially urinary tract infections, over traditionally emphasized factors like maternal age or multiple gestations. **Implications:** The findings underscore the importance of targeted infection prevention and antenatal surveillance to reduce preterm birth rates in similar populations.

Highlights:

- Urinary tract infection is the most prevalent risk factor.
- Most preterm births occurred in women with good antenatal care.

- Cesarean section was the leading mode of delivery.

Keywords: Preterm Birth, Risk Factors, Urinary Tract Infection, Antenatal Care, Cesarean Delivery

Published date: 2025-07-09 00:00:00

Introduction

Preterm labor is considered to be labor that occurs on the sixth day of the month between the 24th and 36th weeks of gestation. On a global scale, every year, 15 million babies are born early. Additionally, 1.1 million babies are killed by complications[1]. In 2020 alone, an estimated 13.4 million babies were born prior to the appointed time, this represents approximately one in 10 births. Additionally, around 900,000 children died due to the complications of preterm labor in 2019 [2]. Spontaneous preterm labor is triggered by the natural progression of labor or the premature failure of membranes (PPROM). Conversely, indicated PTL is caused by medical procedures, such as the induction of labor or planned cesarean section, for reasons related to the mother or baby, or for reasons that are not medical[3]. From 40% to 45% of all preterm births, which are spontaneously occurring, are medically documented. Conversely, preterm labor (PPROM) represents 25%-30% of instances[4]. Preterm labor is the process of activating the uterine muscles, this can lead to changes in the cervix and ultimately early birth. Symptoms include the frequent occurrence of uterine contractions, pressure in the pelvis, back pain, and alterations in vaginal composition. Early detection and intervention are essential to improving the maternal and newborn outcomes [5].

1. Risk Factors for Preterm Birth

Identifying high-risk pregnancies is essential in addressing preterm labour. Key risk factors include:

History of reproduction: previous spontaneous postpartum illness, antepartum hemorrhage, and premature membrane rupture. Cervical/uterine factors: Cervical deficiency, uterine malformations, uterine fibrosis, trachelectomy for cervical intraepithelial neoplasia. Fetal factors: multiple gestation, fetal abnormalities, and polyhydramnios. Infections: chorioamnionitis, bacteriuria, periodontitis, and bacterial vaginosis. Demographic factors: low socio-economic status, low education, ethnicity, age over 35, and gender. Lifestyle factors: smoking, addiction to drugs, stress, and physical violence. Other: insufficient pre-pregnancy care or a low weight at or during the time of pregnancy[6], [7].

2. Obstetric and Gynaecological Factors

The woman's obstetric history is significant in the prediction of preterm birth in subsequent pregnancies. Obstetric factors that increase the risk of preterm birth include first-time birth, short birth interval, lack of prenatal care, multiple pregnancies, previous preterm birth, previous miscarriages, stillbirth, and abortion.[8]. A history of preterm birth increases the probability of recurrence by three to four times.[9] [10]. Other factors associated with the gynecological area, such as infection in the uterus, urinary issues, sexual transmitted diseases, malformations in the uterus, and adhesions to the uterus, all increase the risk.[11].

3. Demographic Factors

Other maternal characteristics have an effect on the probability of preterm birth, including age, educational attainment, socioeconomic status, poor nutrition, substance abuse, insufficient prenatal care, and stress.[12] Studies have consistently demonstrated that older mothers (> 35 years) have a higher probability of having preterm children. This association may be caused by the age-related deterioration of reproductive health and increased instances of pregnancy complications.[13], [14], [15], [16], [17], [18] Additionally, smoking during the first trimester of pregnancy increases the probability of preterm birth by 20% and increases the likelihood of preterm birth.[19]

4. Complications Related to Current Pregnancy

Women who are over 35 are more likely to have complications during pregnancies. For instance, approximately 3% of older women have preeclampsia, in comparison, 2% of younger women do so, a 1.5-fold increase in prevalence is observed [20]. Women who are over 35 are more likely to have gestational

diabetes than women who are younger. This is 11% versus 5% [21]. Other abnormalities associated with the placenta, such as placenta previa, placenta accreta, and abruption, are more common in older women, the odds of which are between 2 and 7 per 1,000 births in younger women, compared to a risk of 2 to 7 per 1,000 in older women[22].

5. Additional Risk Factors include

Premature membrane failure: The probability of having premature membrane failure in the first trimester is twice as great as it is in the first trimester, and the probability of having premature failure of membranes in the third trimester is 10 times greater than it is in the first trimester. Multiple pregnancies: Of all twin pregnancies, 14.5% have a mild preterm birth, 49.8% have a late preterm birth, and 35.5% are full term. The frequency of preterm birth prior to 32 weeks of gestation is 5% for dichorionic twins and 10% for monozygotic twins. Infection of the mother: Systemic infection, bacterial vaginosis, and inflammation within the amniotic sac can all lead to preterm birth. It's crucial to recognize that many women who have preterm births that occur spontaneously have no known risk factors [23].

6. Aim of Study

The identification of factors that predispose preterm birth among pregnant women in the Thi Qar Province.

Method

A. Patients and Methods

This study is intended to explore the causes of preterm birth in 80 pregnant women who attend Bint Al-Huda Hospital in Thi -Qar Province. The data will be gathered over the course of 10 months from October of 2024 to the end of March of 2025. Data were gathered via a self- administered questionnaire. Information included the following: Sociological data (age, educational level, and residence). Medical history (urinary tract infection, history of fever, history of blood transfusion, and any other chronic condition). Obstetric history and factors associated with pregnancies: (parity, antenatal care, history of multiple pregnancies, preterm birth, cervical cerclage, preterm birth at delivery). Neonatal and newborn-related factors: (the gestational age at birth, the mode of delivery, the delivery outcome, and the reasons for having a cesarean section). The questionnaire was completed on paper, then the entire data set was transferred to Microsoft Excel 2021 for analysis..

B. Statistical Analysis

Descriptive statistics, including the frequency of a particular characteristic, was employed to describe the sociodemographic and clinical attributes. All statistical evaluations were conducted with IBM SPSS version 29.

Results and Discussion

A. Results

Characteristics		No. (%)
Maternal Age		
	less than 20	10 (12.5)
	20-30	53 (66.3)
	≥ 31	17 (21.3)
Educational status		
	Primary	56 (70)

	Secondary	24 (30)
Residence		
	Rural	36 (45)
	Urban	44 (55)

Table 1. Sociodemographic characteristics of participants (n=80)

Characteristics		No. (%)
Urinary tract infection		
	Yes	66 (82.5)
	No	14 (17.5)
Premature rupture of membrane		
	Yes	22 (27.5)
	No	58 (72.5)
Preeclampsia		
	Yes	20 (25)
	No	60 (75)
Previous preterm labor		
	Yes	20(25)
	No	60(75)
Cervical weakness		
	Yes	18 (22.5)
	No	62 (77.5)
Antepartum hemorrhage		
	Yes	18 (22.5)
	No	62 (77.5)
Blood transfusion		
	Yes	10 (12.5)
	No	70 (87.5)
Multiple gestations		
	Yes	10 (12.5)
	No	70 (87.5)

Table 2. Risk factors associated with preterm labor

Characteristics		N (%)
Parity		
	Multipara	51 (63.8)
	Primigravida	29 (36.3)
Antenatal care		

	Good	68 (85)
	Poor	12 (15)
Neonate age at birth		
	< 28 weeks	4 (5)
	≥ 28 weeks	76 (95)
Mode of delivery		
	Caesarean section	48 (60)
	Vaginal	32 (40)

Table 3. Obstetric history among the participants(n=80)

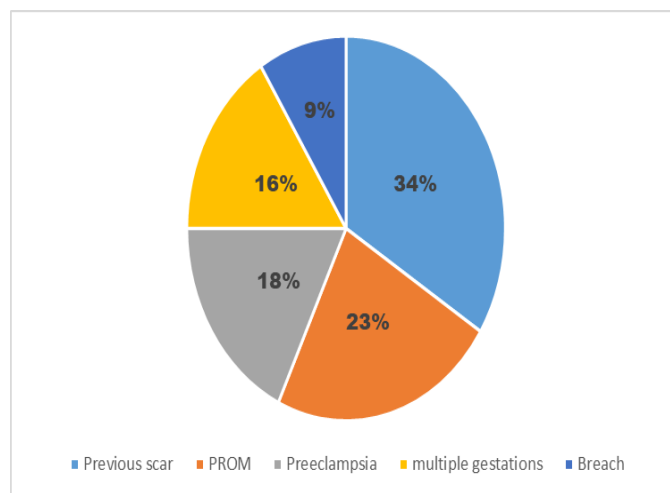


Figure 1. Causes of Caesarean section

Characteristics		No. (%)
Anemia		
	Yes	37 (46.25)
	No	43 (53.75)
Hypertension		
	Yes	10 (12.5)
	No	70 (87.5)
Diabetes		
	Yes	4 (5)
	No	76 (95)

Table 4. Medical disorders among the participants

B. Discussion

In the current study, most of the participants were in the age group of 20-30 years, followed by those above 30 years, while a lesser proportion was below 20 years. These findings go in line with studies conducted in Baghdad [24], the University of Duhok [25], and Wasit [19]. In contrast though to a study from Salaheddin

governorate [26], which reported greater prevalence of preterm labor among women under 20 years. Lowering levels of education had mostly primary educated participants as well as secondary completed participants. This observation is similar to that noted in the Salaheddin study [26] but differs in studies held in Baghdad [24] and Wasit [19]. About residence, slightly more number of participants has been living in urban areas than rural; this matches with findings from Duhok study [25]. This would mean a contradiction with the findings of the Salaheddin study [26], which reported relatively higher prevalence preterm labor about rural dwellers. A very substantial proportion of the participants had a previous history of UTI, signifying strong association hence making it the most common contributing factor. Similar results were recorded in studies conducted in Baghdad [24], Wasit [19], and India [27]. The Duhok study [25] revealed that women with PROM had their risk for preterm delivery raised about 4.7 times. Preeclampsia was found in 25% of the patients, thus reaffirming its role as a significant pregnancy complication linked with prematurity. This has also been noted in study conducted in Wasit [19]. Only 25% have a history of preterm labor. This has been noted in works from Wasit [19] and Salaheddin [26]. Of cases, cervical weakness was seen in 22.5%, showing it to be an infrequent factor. The Wasit study reported that out of 62 patients who presented with preterm labor, only 10 were found to have cervical incompetence. Multiplet gestations was seen in 12.5% of the cases. The other two studies, one done in Baghdad and the other one in Wasit, showed that only a few women who had preterm labor were found to have multiple gestations. Most of the patients were multiparous which has also been highlighted in studies conducted in Baghdad, India, and Duhok. With regard to antenatal care, most of the women had good prenatal care while a small percentage had poor follow-up. The other studies conducted in Duhok, Salaheddin, and Wasit demonstrated that inadequate antenatal care is mostly seen among women with preterm labor. In terms of neonatal age at birth, 95% of infants were delivered after 28 weeks gestation and 5% were born before this date; similar results as those presented above were found in the Duhok study. The cesarean section was the commonest type of delivery and accounted for 60% of cases; vaginal delivery constituted 40%. This observation agrees with the Wasit study [19] but differs from that of Duhok study [25]. Anemia was the most common maternal condition and noted in 46.25% of cases. It has been found to relate well with results from Duhok [25] and Salaheddin [26] studies where a significant association between anemia and preterm labor was noted; nearly half the women who were anemic.

Conclusion

The majority of participants were aged 20-30 years, with a high proportion having primary education and residing in urban areas. Urinary tract infections were the most prevalent risk factor, affecting 82.5% of participants. Other significant risk factors included premature rupture of membrane (27.5%), and preeclampsia (25%). Additionally, the study found that most participants had received good antenatal care and the majority delivered via cesarean section.

Acknowledgments

The authors appreciate all of the participants and associated personnel for their help.

References

- [1] T. L. Callahan and A. B. Caughey, *Blueprints Obstetrics & Gynecology*, 7th ed. Philadelphia, PA: Wolters Kluwer, 2018.
- [2] E. Ohuma, A.-B. Moller, E. Bradley, et al., "National, Regional, and Worldwide Estimates of Preterm Birth in 2020, with Trends from 2010: A Systematic Analysis," *The Lancet*, vol. 402, no. 10409, pp. 1261–1271, 2023, doi: 10.1016/S0140-6736(23)00878-4.

- [3] F. A. Mahapula, K. Kumpuni, J. P. Mlay, and T. F. Mrema, "Risk Factors Associated with Preterm Birth in Dar es Salaam, Tanzania: A Case-Control Study," *Tanzania Journal of Health Research*, vol. 18, no. 1, pp. 1–9, 2016.
- [4] N. El Beltagy and M. Rocca, "Risk Factors for Preterm Labor Among Women Attending El Shatby Maternity University Hospital, Alexandria, Egypt," *Archives of Nursing Practice and Care*, vol. 2, no. 1, pp. 45–49, 2016, doi: 10.17352/anpc.13.045.
- [5] S. Beck, D. Wojdyla, H. Carrillo, D. Palmer, and N. Taffa, "Global and Regional Estimates of Preterm Birth Rates in 2010: A Systematic Review," *Reproductive Health*, vol. 6, no. 2, pp. 105–114, 2019.
- [6] K. Lim, K. Butt, J. M. Crane, et al., "Ultrasonographic Cervical Length Assessment in Predicting Preterm Birth in Singleton Pregnancies," *Journal of Obstetrics and Gynaecology Canada*, vol. 33, pp. 486–499, 2011.
- [7] R. Arisoy and Y. M. Yayla, "Transvaginal Sonographic Evaluation of the Cervix in Asymptomatic Singleton Pregnancy and Management Options in Short Cervix," *Journal of Pregnancy*, 2012.
- [8] C. F. Turienzo, J. Sandall, and J. L. Peacock, "Models of Antenatal Care to Reduce and Prevent Preterm Birth: A Systematic Review and Meta-Analysis," *BMJ Open*, vol. 6, p. e009044, 2016.
- [9] R. J. Baer, J. Yang, V. Berghella, C. D. Chambers, T. R. Coker, M. Kuppermann, et al., "Risk of Preterm Birth by Maternal Age at First and Second Pregnancy and Race/Ethnicity," *Journal of Perinatal Medicine*, vol. 46, no. 5, pp. 539–546, 2018, doi: 10.1515/jpm-2017-0014.
- [10] C. Phillips, Z. Velji, C. Hanly, and A. Metcalfe, "Risk of Recurrent Spontaneous Preterm Birth: A Systematic Review and Meta-Analysis," *BMJ Open*, vol. 7, no. 6, p. e015402, 2017, doi: 10.1136/bmjopen-2016-015402.
- [11] G. Mulualem, A. Wondim, and A. Woretaw, "The Effect of Pregnancy-Induced Hypertension and Multiple Pregnancies on Preterm Birth in Ethiopia: A Systematic Review and Meta-Analysis," *BMC Research Notes*, vol. 12, p. 91, 2019.
- [12] P. Uwambaye, C. Munyanshongore, S. Rulisa, H. Shiau, A. Nuhu, and M. S. Kerr, "Assessing the Association Between Periodontitis and Premature Birth: A Case-Control Study," *BMC Pregnancy and Childbirth*, vol. 21, p. 204, 2021.
- [13] F. Fuchs, B. Monet, T. Ducruet, N. Chaillet, and F. Audibert, "Effect of Maternal Age on the Risk of Preterm Birth: A Large Cohort Study," *PLoS ONE*, vol. 13, p. e0191002, 2018.
- [14] P. Uwambaye, C. Munyanshongore, S. Rulisa, H. Shiau, A. Nuhu, and M. S. Kerr, "Assessing the Association Between Periodontitis and Premature Birth: A Case-Control Study," *BMC Pregnancy and Childbirth*, vol. 21, p. 204, 2021. (Duplicate of [12])
- [15] A. P. Londero, E. Rossetti, C. Pittini, A. Cagnacci, and L. Driul, "Maternal Age and the Risk of Adverse Pregnancy Outcomes: A Retrospective Cohort Study," *BMC Pregnancy and Childbirth*, vol. 19, p. 261, 2019.
- [16] M. Soltani, H. R. Tabatabaee, S. Saeidinejat, M. Eslahi, H. Yaghoobi, E. Mazloumi, et al., "Assessing the Risk Factors Before Pregnancy of Preterm Births in Iran: A Population-Based Case-Control Study," *BMC Pregnancy and Childbirth*, vol. 19, p. 57, 2019.
- [17] M.-A. Mehari, H. Maeruf, C. C. Robles, S. Woldemariam, T. Adhena, M. Mulugeta, et al., "Advanced Maternal Age Pregnancy and Its Adverse Obstetrical and Perinatal Outcomes in Ayder Comprehensive Specialized Hospital, Northern Ethiopia, 2017: A Comparative Cross-Sectional Study," *BMC Pregnancy and Childbirth*, vol. 20, p. 60, 2020.
- [18] E. Rutayisire, M. Mochama, C. K. Ntihaabose, et al., "Maternal, Obstetric and Gynecological Factors Associated with Preterm Birth in Rwanda: Findings from a National Longitudinal Study," *BMC Pregnancy and Childbirth*, vol. 23, p. 365, 2023, doi: 10.1186/s12884-023-05653-y.

- [19] A. H. Maslat, "Potential Dangers of Factors Associated with Preterm Delivery in Wasit Governorate," *International Journal of Gynaecology and Obstetrics Science*, vol. 6, no. 1, pp. 53–59, 2024, doi: 10.33545/26649004.2024.v6.i1a.31.
- [20] A. Khalil, A. Syngelaki, N. Maiz, Y. Zinevich, and K. H. Nicolaides, "Maternal Age and Adverse Pregnancy Outcome: A Cohort Study," *Ultrasound in Obstetrics & Gynecology*, vol. 42, no. 6, pp. 634–643, 2013.
- [21] F. Y. Lai, J. A. Johnson, D. Dover, and P. Kaul, "Outcomes of Singleton and Twin Pregnancies Complicated by Pre-Existing Diabetes and Gestational Diabetes: A Population-Based Study in Alberta, Canada, 2005–11," *Journal of Diabetes*, vol. 8, no. 1, pp. 45–55, 2016.
- [22] S. Vahanian, J. Lavery, C. Ananth, and A. Vintzileos, "Placental Implantation Abnormalities and Risk of Preterm Delivery: A Systematic Review and Meta-Analysis," *American Journal of Obstetrics and Gynecology*, vol. 213, no. 4 Suppl, pp. S78–S90, 2015.
- [23] E. R. Norwitz, C. M. Zelop, D. A. Miller, and D. L. Keefe, *Evidence-Based Obstetrics and Gynaecology*. Hoboken, NJ: Wiley-Blackwell, 2019.
- [24] M. Zeidan, "Risk Factors for Preterm Labour in Diyala Governorate: Case-Control Study," *Diyala Journal of Medicine*, vol. 17, pp. 41–53, 2019, doi: 10.26505/DJM.17024610421.
- [25] A. H. Shekoo and M. A. Yalda, "Preterm Delivery: Associated Risk Factors and Neonatal Outcomes in Duhok Hospital for Obstetric and Gynecology," *Journal of Duhok University*, vol. 25, no. 2, pp. 97–104, Nov. 2022. [Online]. Available: <https://journal.uod.ac/index.php/uodjournal/article/view/1906>.
- [26] K. J. Mohamed, N. Kamel, and K. J. Mohamed, "Maternal Iron Deficiency Anemia as a Risk Factor for Preterm Labor in Salaheddin Governorate, Iraq, 2022," *NeuroQuantology*, vol. 20, pp. 1024–1031, 2022, doi: 10.14704/NQ.2022.20.11.NQ66097.
- [27] R. Naik, A. Das, A. Sethy, M. Hembram, and M. Nayak, "Analysis of Preterm Labour and Associated Risk Factors," *International Journal of Pharmacological and Clinical Research*, vol. 15, no. 5, Art. no. 16, 2025. [Online]. Available: <http://impactfactor.org/PDF/IJPCR/15/IJPCR,Vol15,Issue5,Article16.pdf>