Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

IJHSM

Indonesian Journal on Health Science and Medicine

UNIVERSITAS MUHAMMADIYAH SIDOARJO

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

Table Of Contents

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

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

Indonesian Journal on Health Science and Medicine
Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

EDITORIAL TEAM

Editor in Chief

Section Editor

Complete list of editorial team (link)

Complete list of indexing services for this journal (link)

How to submit to this journal (link)

Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

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

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

The Association between Maternal Risk Factors and Preterm Birth Outcomes in Mosul Maternity Hospitals: A Cross-Sectional Study: Hubungan antara Faktor Risiko Ibu dan Hasil Kelahiran Prematur di Rumah Sakit Bersalin Mosul: Studi Potong Lintang

Abdulrahman Mazin Hashim, aboodmazinl991@uomosul.edu.iq (*)

Clinical Science Nursing Department, College of Nursing, University of Mosul, Iraq

(*) Corresponding author

Abstract

General Background: Preterm birth remains a major global obstetric concern and a leading contributor to neonatal morbidity and mortality, particularly in low- and middle-income countries. **Specific Background:** In Mosul maternity hospitals, maternal health conditions and obstetric characteristics may contribute to variations in gestational age and neonatal birth weight. **Knowledge Gap:** Limited local evidence exists regarding the association between maternal risk factors and neonatal outcomes among women delivering preterm in Mosul city hospitals. **Aims:** This study aimed to describe maternal characteristics, identify risk factors of preterm birth, and determine the relationship between these factors, gestational age at birth, and neonatal birth weight. **Results:** In a cross-sectional sample of 234 women, the mean gestational age was 31.42 weeks and the mean interpregnancy interval was 17.88 months. Excessive uterine activity (82.1%), vaginal infection (65.0%), and urinary and genital tract infections (59.0%) were the most prevalent conditions. Statistical analysis demonstrated highly significant associations between maternal risk factors and both gestational age and birth weight ($p<0.05$). Short interpregnancy intervals were significantly related to lower gestational age categories and increased proportions of low, very low, and extremely low birth weight neonates. **Novelty:** This study provides hospital-based empirical evidence from Mosul linking specific maternal conditions and birth spacing patterns with prematurity outcomes. **Implications:** Routine infection screening, management of uterine activity, and counseling on appropriate birth spacing are essential strategies to reduce adverse neonatal outcomes in maternity care settings.

Keywords: Preterm Birth, Maternal Risk Factors, Interpregnancy Interval, Neonatal Outcomes, Birth Weight

Key Findings Highlights:

1. Excessive contractions and reproductive tract infections were highly prevalent among participants.
2. Significant statistical relationships were identified between maternal conditions and newborn measurements.
3. Short birth spacing corresponded with higher proportions of very early delivery and reduced neonatal mass.

Published date: 2026-02-20

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine
Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

Background:

Preterm birth is still one of the most significant issues in obstetrics globally and is a major source of newborn illness, mortality, and childhood impairment (Rao et al., 2018).

Preterm birth (PTB) is the term used to describe any birth that occurs before 37 full weeks of gestation. Ten percent of these are considered iatrogenic, or initiated by the clinician (early induction or cesarean section for reasons related to the mother or fetus) (Fernandez Turienzo et al., 2020).

Preterm birth can be further divided into four categories: very preterm (less than 32 weeks), moderately preterm (32 to 34 full weeks), and extremely preterm (less than 28 weeks gestation). The terms "low birth weight less than 2500 g," "very low birth weight 1500 g," and "extremely low birth weight less than 1000 g" can also be used to characterize PTB (Baidaa A. Abdul-Rahman et al., 2018)

Almost 15 million of the approximately 130 million babies born each year are preterm, accounting for more than one in every ten births worldwide. Nevertheless, more than a million of these premature babies pass away in their first few days of life. Globally, preterm birth rates vary greatly; developing nations with low to middling incomes have the highest rates, whereas Northern Europe and Japan have the lowest rates (Omar et al., 2022)

While preterm birth accounts for 7–11 percent of pregnancies, it is the primary cause of 85 percent of newborn fatalities in infants with normal development and no congenital defects. Roughly 15 million preterm births occur out of the 130 million babies born worldwide each year. Preterm infants (less than 37 weeks) and extremely preterm infants (less than 32 weeks) have mortality rates that are 15 times and 75 times greater, respectively, than those of term neonates (Sifer et al., 2019)

The neonatal stage accounts for two thirds of all deaths that transpire within the first year of life. More than half take place in the first 24 hours following delivery, demonstrating how dangerous this period is for a newborn (Hockenberry et al., 2019).

Currently, mortality in the first four weeks of life accounts for 24–56 percent of all deaths in children under five, with the first week accounting for 75 percent of these deaths. Preterm birth accounts for around 35% of the 4 million newborn fatalities that occur annually, making prematurity the primary direct cause of neonatal mortality. These deaths occur primarily in low-income nations. Compared to newborns born at term, prematurely born children who survive the first few months of life have longer childhoods and experience delays in both growth and development (Juul et al., 2022)

Approximately 75% of preterm births occur spontaneously and have a complex aetiology. More than half of spontaneous preterm births (SPBs) have no known cause, although the risk factors for these births appear to vary depending on gestational age as well as social and environmental factors. Prematurity is most strongly predicted by a prior SPB. Further factors that have been linked to an increased risk of preterm births include the occurrence of infections during pregnancy, structural abnormalities of the uterus, particularly cervical insufficiency, a number of lifestyle conditions and habits (stress, strenuous work, standing work, alcohol and illicit drug consumption), young or advanced maternal age, short interpregnancy interval and low body mass index, and uterine over-distention with multiple pregnancies (Cobo et al., 2020)

Nurses assess a mother's health and labor indicators, collect specimens, measure contractions, and examine the fetus's size, maturity, and discomfort. They take action to control or prevent premature labor, provide medication, and monitor for adverse effects. They offer mental and physical assistance, ensure adequate water, and educate clients and their families (Perry et al., 2022)

The Importance of the study

Pregnant women should consult their healthcare practitioner about potential risks of premature birth, which can be reduced through early and consistent prenatal care. Premature babies are at higher risk for long-term health issues, developmental delays, and cerebral palsy, with severity varying based on gestational age (Hoskote et al., 2022)

Premature birth rates vary globally, with developing countries having a higher prevalence (12%) compared to developed countries (9%). About 15 million babies are born preterm each year, with 81.1% occurring in Asia and sub-Saharan Africa (Adugna, 2022). Premature birth mortality and morbidity rates vary by region, and understanding risk factors is crucial for finding solutions. This study aims to identify these factors and reduce prematurity mortality and morbidity in Mosul city hospitals.

Objective of the study:

1. To describe the demographic characteristics of study sample.
2. To identify risk factors and neonatal outcomes of preterm birth.
3. To find-out of relationship between the associated factor of premature with study results.

Methodology

Administration Arrangements:

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

The Nineveh Health Directorate and the nursing college's clinical science of nursing section provided formal administrative approval for the project before any data were collected. A thorough research design, a description of the suggested technique and data collecting, and gaining the required ethical approvals were all required steps in the approval procedure. Data collection started following the approved protocol as soon as administrative approval was given.

Design of the study:

To accomplish the current study's objective, a quantitative technique using a descriptive, cross-sectional study design was used during the (from the 17th of November, 2022 to the 30th of March, 2023).

Sample and sampling:

The study's sample was drawn from the Mosul hospitals using a straightforward random sampling technique. A total of (234) people were chosen, with (123) coming from the Al-Batool Teaching Hospital, (59) from the Al-Salam Teaching Hospital, and (52) from the Al-Khansa Teaching Hospital.

Setting of the study:

The information was gathered from the obstetric units of three hospitals in Mosul, which is located in the northwest of the country in the core of the Nineveh Governorate, the second-largest city in Iraq (Al-Batool Teaching Hospital, Al-Khansa Teaching Hospital, and Al-Salam Teaching Hospital).

Data collection tools:

The data was collected using the structured interviewing questionnaire that was composed of four parts. In the first part, the researcher posed questions concerning the demographics of the study participants such as age, marital status, level of education, their place of residence, job occupation, relationship between spouses, their height and weight, smoking habits, and whether they use any supplements. The second section included nine questions that concerned obstetrics history by the pregnant women. Part three contained 22 questions regarding the maternal risk factors of preterm birth. The fourth section was concerned with the categorization of the prematurity and delivery outcomes. The data collection tool was translated into Arabic to be used in the collection of data using the English language version.

Validity of the study:

To ensure that the study tool is valid, ten specialists in different fields of nursing were chosen to evaluate it. Their ideas, opinions, and recommendations were included in the final version of the tool of the study.

Reliability of the study:

To establish the reliability of the instrument, Cronbach Alpha on a set of respondents was used to test the instrument. The outcomes of the test were also analyzed with the help of appropriate statistical methods to test the consistency and reliability of the tool. Cronbachs Alpha reliability score was 0.82 which means that the instrument is very reliable and consistent.

Statistical analysis:

To explain and analyze the study's findings, SPSS version 27 was used to analyze the data. Many statistical tests, both inferential and descriptive, were used to assess the statistical data. The data was interpreted and conclusions were drawn from using the test findings.

Results:

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine
Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

Variables	Minimum	Maximum	Mean	Std. Deviation
Age	15	42	26.35	6.341
Age at marriage	13	35	19.73	4.668
Height in cm	130	178	161.40	6.256
Weight in kg	46	128	69.78	13.148
Current gestation age (weeks)	21	37	31.42	4.156
Interpregnancy interval (months)	0	132	17.88	24.071
The number of multigravidas	0	15	2.67	2.947
The number of previous abortions	0	3	0.43	0.811
Variables			Frequency	Percentage
Address	Rural		126	53.8
	Urban		108	46.2
Educational level	illiterate		44	18.8
	Primary		90	38.5
	Secondary school		76	32.5
	Institute and above		24	10.3
Occupation	Housewife		186	79.5
	Student		36	15.4
	Employed		12	5.1
Kinship between spouses	Relative		98	41.9
	Not relative		136	58.1
Smoking	Nonsmoker		140	59.8
	Passive smoker		86	36.8
	Active smoker		8	3.4
Antenatal care visits	No		94	40.2
	Yes		140	59.8
Gravidity	Primigravida		88	37.6
	Multigravida		146	62.4
Parity	Primiparous		88	37.6
	Multiparous		146	62.4
Mode of delivery	Cesarean section		42	17.9
	Normal vaginal delivery		192	82.1
Previous premature birth	No		202	86.3
	Yes		32	13.7
Previous Abortion	No		170	72.6
	Yes		64	27.4

Figure 1. *Table 1: Description of Maternal characteristics*

this table shows that the mean age of study participants was 26.35 years, with a mean age at marriage of 19.73 years. they gave birth at a gestational age of 31.42 weeks and had an interpregnancy interval of 17.88 months. The majority of the individuals were multiparous and had undergone a normal vaginal delivery. Additionally, a significant proportion of the sample had no history of previous preterm birth.

No.	Items	Frequency		Percentage	
		No	Yes	No	Yes
1.	Physically strenuous work.	114	120	48.7	51.3
2.	Short stature.	218	16	93.2	6.8
3.	Neonatal anomalies.	206	28	88.0	12.0
4.	Infections of the urinary and genital tracts.	96	138	41.0	59.0
5.	Polyhydramnios.	206	28	88.0	12.0
6.	Oligohydramnios.	204	30	87.2	12.8
7.	Shortened cervix (< 25 mm before 28 weeks gestation).	160	74	68.4	31.6
8.	Cervical anomaly.	224	10	95.7	4.3
9.	Cervical injury.	226	8	96.6	3.4
10.	Uterine anomaly.	218	16	93.2	6.8
11.	Uterine fibroid.	228	6	97.4	2.6
12.	Excessive uterine activity (contractions).	42	192	17.9	82.1
13.	Preterm premature rupture of the membranes.	122	112	52.1	47.9
14.	Thyroid disease.	224	10	95.7	4.3
15.	Diabetes mellitus.	220	14	94.0	6.0
16.	Hypertension.	192	42	82.1	17.9
17.	Anemia.	130	104	55.6	44.4
18.	Vaginal infection.	82	152	35.0	65.0
19.	Elevated D-dimer.	224	10	95.7	4.3
20.	Another medical disorder.	232	2	99.1	0.9

Figure 2. *Table 2: Description of risk factors associated with prematurity*

This table shows that 120 mothers reported having physically strenuous work (51.3%), while 138 reported having infections of the urinary and genital tracts (59.0%). Moreover, 192 mothers had excessive uterine activity (82.1%), and 152 individuals had a vaginal infection (65.0%).

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

Indonesian Journal on Health Science and Medicine
Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

Variables		Sum of Squares	df	Mean Square	F	Sig.
Gestational Age at birth	Between Groups	29.064	11	2.642	3.870	0.000*
	Within Groups	151.552	222	0.683		
	Total	180.615	233			
Birth weight of Neonate	Between Groups	43.759	11	3.978	2.596	0.004*
	Within Groups	340.241	222	1.533		
	Total	384.000	233			

Figure 3. *Table 3: Risk factors with Gestational Age at birth & Birth weight of Neonate*

This table shows a highly statistically significance between the Risk factors with gestational age at birth & birth weight of neonates.

Variables	Interpregnancy interval (months)	0-11 months		12-23 months		24-35 months		≥ 36 months		P-valve
	Description	F	%	F	%	F	%	F	%	
Gestational Age at birth	LPT	66	55.9	22	47.8	12	42.9	28	6.7	0.012*
	VPT	14	11.9	6	13.0	10	35.7	8	19.0	
	EPT	38	32.2	18	39.1	6	21.4	6	14.3	
Birth weight of Neonate	LBW	42	35.6	24	52.2	12	42.9	18	42.9	0.000*
	VLBW	28	23.7	4	8.7	2	7.1	0	0.0	
	ELBW	14	11.9	6	13.0	10	35.7	4	9.5	
	Normal weight	34	28.8	12	26.1	4	14.3	20	47.6	
Total		234	100	234	100	234	100	234	100	

Figure 4. *Table 4 : Interpregnancy interval with Gestational Age at birth & Birth weight of Neonate*

** Note: represents that significance at the level of p-vale <0.05. LPT: between 34 weeks and 36week+6days, VPT: ≤32 weeks, EPT: ≤28 weeks, LBW:<2,500g, VLBW:<1,500g, ELBW:<1,000g.*

This table shows a highly statistically significance between the interpregnancy interval with gestational age at birth & birth weight of neonate.

Discussion

Premature birth has significant consequences for infant health, including respiratory distress, brain damage, and developmental delays. Identifying risk factors for premature birth is crucial to reduce its incidence and improving maternal and child health outcomes. The study's focus on maternity hospitals in Mosul city limits the generalizability of its findings to other populations and settings.

In terms of sociodemographic, the majority of mothers (53.8%) reside in rural areas, while the remaining (46.2%) reside in urban areas. Of the mothers, 18.8% are illiterate, 38.5% have completed primary education, 32.5% have completed secondary school, and 10.3% have completed institute and above. The majority of mothers (79.5%) are housewives, while 15.4% are students and 5.1% are employed. Additionally, 41.9% of the mothers are related to their spouses, while the remaining 58.1% are not. Furthermore, 59.8% of the mothers are nonsmokers, while 36.8% are passive smokers, and 3.4% are active smokers.

Regarding obstetric history and antenatal care, 40.2% of the mothers did not receive antenatal care, while the remaining 59.8% did. Of the mothers, 37.6% are primigravida and 62.4% are multigravida. In terms of parity, 37.6% are primiparous and 62.4% are multiparous. Among the mothers, 17.9% gave birth by cesarean section and 82.1% gave birth by normal vaginal delivery. Moreover, 13.7% of the mothers had a previous premature birth, while 86.3% did not. Lastly, 27.4% of the mothers had a previous abortion, while 72.6% did not.

Our findings highlight the various risk factors associated with prematurity and their prevalence in the study population. The most common risk factors in this sample are excessive uterine activity (82.1%), vaginal infection (65.0%), and infections of the urinary and genital tracts (59.0%).

Similarly to these findings, a study by (Baer et al., 2021) reported that women with a UTI during pregnancy were at elevated risk of a birth <32 weeks, 32 to 36 weeks, and 37 to 38 weeks, and (Dahman, 2020) mentioned that a statistically significant association of vaginal infections with premature birth (p = 0.013, OR 1.76), this highlights the importance of monitoring and treating infections in the urinary and genital tracts during pregnancy to reduce the risk of preterm birth, as well as several studies, agreed with the evidence of excessive uterine activity is a significant risk factor for preterm birth (Berger et al.,

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

2019; Hosny et al., 2020; Lin et al., 2020).

In our study, other factors such as cervical anomalies, uterine fibroid, thyroid disease, and elevated D-dimer were also present in a small percentage of individuals who gave birth prematurely, However, the finding in this study is significantly lower than other studies conducted elsewhere (Baer et al., 2021; Devi & Singh, 2020; Fekri et al., 2021).

The possible explanation for this variation could be due to the difference in the study time, location, sample size, quality of health services, and socio-demographic characteristics.

A recent study has shown that shorter intervals (0-11 months) have a higher percentage of LPT and VPT delivery, as compared to longer intervals (24-35 months and 36 months). The p-value indicates that there are statistically significant differences in the groups. In addition, LBW, VLBW, and ELBW are more prevalent in newborns when the mother had a short interpregnancy interval compared to those who gave birth to newborns with a long interpregnancy interval. The p-value demonstrates that the group differences are statistically significant. This particular conclusion has been supported and concurred upon by numerous academic studies, including the ones conducted by (Ahrens et al., 2019; Jena et al., 2022; Kannaujiya et al., 2020).

All of these data suggest that the shortness of interpregnancy periods is strongly associated with the presence of preterm infants and the low birth weight of infants. These findings emphasize the importance of proper birth spacing and preconception care in reducing the risk of adverse newborn outcomes.

Conclusion:

Research results show that there are several risk factors that are highly correlated to the birth weight and gestational age of the neonate. The physical demanding nature of jobs, genital and urinary tract infections, over-activity of the uterus, and vaginal infections are risk factors that can affect the outcomes of newborns. It has also been shown that interpregnancy gap is a great predictor of the birth weight and the gestational age at which the neonate was born. There are many recommendations on improving newborn outcomes, which could be provided based on the findings of the study.

Recommendations:

Considering the outcomes of the research, it is possible to make a number of recommendations to enhance the neonatal outcomes. To improve the outcomes of the newborns, medical personnel ought to screen pregnant women against physically demanding jobs and undertake precautions like checking on infections and treatment, controlling excessive activity of the uterine early and offer counsel on the proper intervals between pregnancies.

References

1. [1] D. G. Adugna, “Prevalence and Associated Risk Factors of Preterm Birth among Neonates in Referral Hospitals of Amhara Region, Ethiopia,” PLOS ONE, vol. 17, no. 10, e0276793, 2022.
2. [2] D. G. Adugna, “Prevalence and Associated Risk Factors of Preterm Birth among Neonates in Referral Hospitals of Amhara Region, Ethiopia,” PLOS ONE, vol. 17, no. 10, e0276793, 2022.
3. [3] K. A. Ahrens, H. Nelson, R. L. Stidd, S. Moskosky, and J. A. Hutcheon, “Short Interpregnancy Intervals and Adverse Perinatal Outcomes in High-Resource Settings: An Updated Systematic Review,” Paediatric and Perinatal Epidemiology, vol. 33, no. 1, pp. O25–O47, 2019.
4. [4] R. J. Baer et al., “Risk of Early Birth among Women with a Urinary Tract Infection: A Retrospective Cohort Study,” American Journal of Perinatology Reports, vol. 11, no. 1, pp. e5–e14, 2021.
5. [5] B. A. Abdul-Rahman et al., “Risk Factors and Neonatal Outcome among Preterm Birth at Basrah Central Hospitals,” The Medical Journal of Basrah University, vol. 36, no. 2, pp. 87–96, 2018.
6. [6] R. Berger et al., “Reducing the Risk of Preterm Birth by Ambulatory Risk Factor Management,” Deutsches Arzteblatt International, vol. 116, no. 50, p. 858, 2019.
7. [7] T. Cobo, M. Kacerovsky, and B. Jacobsson, “Risk Factors for Spontaneous Preterm Delivery,” International Journal of Gynecology and Obstetrics, vol. 150, no. 1, pp. 17–23, 2020.
8. [8] H. A. Bin Dahman, “Risk Factors Associated with Preterm Birth: A Retrospective Study in Mukalla Maternity and Childhood Hospital, Hadhramout Coast/Yemen,” Sudanese Journal of Paediatrics, vol. 20, no. 2, p. 99, 2020.
9. [9] R. Detels, M. Gulliford, and Q. A. Karim, Oxford Textbook of Global Public Health, 2nd ed. Oxford, U.K.: Oxford University Press, 2017.
10. [10] T. Devi and H. Singh, “Prevalence and Risk Factors Associated with Preterm Birth in India: Systematic Review and Meta-Analysis,” Authorea Preprints, 2020.
11. [11] Y. Fekri et al., “Retinopathy of Prematurity in Ardabil, North West of Iran: Prevalence and Risk Factors,” European Journal of Translational Myology, vol. 31, no. 4, 2021.
12. [12] C. Fernandez Turienzo et al., “Midwifery Continuity of Care versus Standard Maternity Care for Women at Increased Risk of Preterm Birth: A Hybrid Implementation Randomised Controlled Pilot Trial in the UK,” PLOS Medicine, vol. 17, no. 10, e1003350, 2020.
13. [13] M. J. Hockenberry, D. Wilson, and C. C. Rodgers, Wong’s Nursing Care of Infants and Children, 11th ed. St. Louis, MO, USA: Elsevier, 2019.
14. [14] A. Hoskote, M. Hunfeld, M. O’Callaghan, and H. IJsselstijn, “Neonatal ECMO Survivors: The Late Emergence of Hidden Morbidities – An Unmet Need for Long-Term Follow-Up,” Seminars in Fetal and Neonatal Medicine, vol. 27,

Vol. 3 No. 1 (2026): July
DOI: 10.21070/ijhsm.v3i1.395

no. 6, p. 101409, 2022.
15. [15] A. E.-D. M. S. Hosny et al., “Risk Factors Associated with Preterm Labor, with Special Emphasis on Preterm Premature Rupture of Membranes and Severe Preterm Labor,” Journal of the Chinese Medical Association, vol. 83, no. 3, pp. 280–287, 2020.
16. [16] B. H. Jena et al., “Effects of Inter-Pregnancy Intervals on Preterm Birth, Low Birth Weight and Perinatal Deaths in Urban South Ethiopia: A Prospective Cohort Study,” Maternal Health, Neonatology and Perinatology, vol. 8, no. 1, p. 3, 2022.
17. [17] S. E. Juul et al., “Deaths in a Modern Cohort of Extremely Preterm Infants from the Preterm Erythropoietin Neuroprotection Trial,” JAMA Network Open, vol. 5, no. 2, e2146404, 2022.
18. [18] A. K. Kannaujiya et al., “Short Interpregnancy Interval and Low Birth Weight Births in India: Evidence from National Family Health Survey 2015–16,” SSM Population Health, vol. 12, p. 100700, 2020.
19. [19] L. C. Kenny and J. E. Myers, Obstetrics by Ten Teachers. Boca Raton, FL, USA: CRC Press, 2017.
20. [20] J.-H. Lin, Y.-H. Hsu, and P.-H. Wang, “Risks for Preterm Premature Labor: Many of Them Are Preventable,” Journal of the Chinese Medical Association, vol. 83, no. 5, pp. 421–422, 2020.
21. [21] Mosby’s Medical Dictionary. St. Louis, MO, USA: Elsevier Health Sciences, 2021.
22. [22] A. I. Omar et al., “Maternal Risk Factors Associated with Preterm Births among Pregnant Women in Mogadishu, Somalia,” Children, vol. 9, no. 10, p. 1518, 2022.
23. [23] S. E. Perry et al., Maternal Child Nursing Care. St. Louis, MO, USA: Elsevier Health Sciences, 2022.
24. [24] C. R. Rao et al., “Assessment of Risk Factors and Predictors for Spontaneous Pre-Term Birth in a South Indian Antenatal Cohort,” Clinical Epidemiology and Global Health, vol. 6, no. 1, pp. 10–16, 2018.
25. [25] I. A. Sheikh et al., “Spontaneous Preterm Birth and Single Nucleotide Gene Polymorphisms: A Recent Update,” BMC Genomics, vol. 17, Suppl. 9, 2016.
26. [26] S. Sifer et al., “Determinants of Preterm Birth in Neonatal Intensive Care Units at Public Hospitals in Sidama Zone, South East Ethiopia: Case Control Study,” Journal of Pediatrics and Neonatal Care, vol. 9, no. 6, pp. 180–186, 2019.

ISSN 3063-8186 (online), https://ijhsm.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo