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Original Research

Differences of Maternal Sociodemographic Characteristics with Term and Preterm Birth Among 17 Hospitals in South Sulawesi

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Abstract
Background: Maternal sociodemographic characteristics play a crucial role in identifying preterm labor, enabling early intervention to prevent its occurrence and recurrence. Understanding these characteristics can support the development of preventive strategies and improve maternal and neonatal health outcomes.
Objective: This study aims to determine whether there are significant differences in the sociodemographic characteristics of mothers experiencing term and preterm labor across hospitals in Makassar City.
Method: This study employed an observational analytical design involving 257 mothers who had undergone term and preterm labor in 17 hospitals. Data were collected using the Health Card for Preterm Pregnant Women (KASIHKU) instrument and analyzed through an independent samples t-test to compare means between the two groups.
Results: Significant differences were observed in the sociodemographic characteristics between term and preterm labor groups across 11 variables, with five variables showing a p-value < 0.05: Body Mass Index (BMI) (CI95%: 0.44–0.66, p < 0.000), history of preterm labor (CI95%: 0.08–0.23, p < 0.000), presence of flour albus (CI95%: 0.32–0.54, p < 0.000), HIV/AIDS status (CI95%: 0.07–0.00, p < 0.039), and Edinburgh Postnatal Depression Scale (EPDS) score (CI95%: 0.02–0.18, p < 0.009).
Conclusion: Maternal sociodemographic characteristics, specifically BMI, history of preterm labor, presence of flour albus, HIV/AIDS status, and EPDS score, show significant differences between term and preterm labor groups. These findings provide a foundation for future research and the development of targeted interventions to prevent preterm labor based on maternal sociodemographic factors.
Keywords: Preterm labor; Sociodemographic characteristics; hospital

Background

Preterm labor remains a global health concern, with more than one million babies dying from preterm birth annually equivalent to one baby dying every 30 seconds, as reported by Berghella (Apuzzio et al., 2017). According to the World Health Organization (2023), an estimated 13.4 million babies were born prematurely in 2020 (before 37 weeks of gestation). Complications arising from preterm labor are the leading cause of death among children under five years of age, contributing to approximately 900.000 deaths in 2019. In 2020, the global preterm birth rate ranged between 4% and 16% of live births across different countries. In Indonesia, the prevalence of preterm labor was the fifth highest out of 184 countries in 2010 (Herman & Joewono, 2020). By 2014, Indonesia ranked fifth among the ten countries with the highest preterm birth rates, with an estimated 527.672 preterm births, accounting for 10.4% of total live births. In 2016, Indonesia ranked seventh for the highest under-five mortality rate due to complications from preterm birth (Hastono et al., 2023).

Kota et al. (2013) divides the risk factors for preterm labor into four factors, namely maternal and fetal factors, infectious factors, ischemic factors, and uterine distension factors, while Robinson and Nortwitz (2017) specify more risk factors based on sociodemographics that have a significant effect on the incidence of preterm labor from several theories, including the absence of a partner, low socioeconomics, anxiety and stress, depression (life problems such as divorce, separation, death), having surgery during pregnancy, workplace problems, multiple pregnancies, polyhydramnios, uterine abnormalities, PROM, history of second trimester abortion, history of cervical surgery, short cervical length, STIs, infectious diseases, bacteriuria, periodontal disease, placenta previa, placenta abruption, vaginal bleeding, previous history of preterm labor, drug abuse, smoking, maternal age, African-American race, nutrition with low BMI, inadequate prenatal care, anemia, excessive uterine contractions, low education level, fetal anomalies, fetal growth disorders, environmental factors (e.g. heat and air pollution), fetal death, and positive fibronectin.

Preterm labor can result in low birth weight, growth retardation, or both, and can occur in either preterm or term newborns. LBW newborns have a significantly higher risk of perinatal mortality than normal-weight newborns, in addition to higher morbidity resulting in increased risk of infection, growth retardation, neurological problems, cognitive delays, and learning disabilities. There are also many studies linking preterm delivery and LBW to problems such as cerebral palsy, a developmental disability that causes deficits in physical, cognitive, and behavioral functions, in addition to speech impairment. It is estimated that between 15% - 20% of all births in the world are LBW births, so the WHO goal is to achieve a 30% reduction in the number of babies born weighing less than 2500g by 2025 (Hidalgo-Lopezosa et al. 2019; Hulu, V. T et al. 2024).

According to the Makassar City Health Office Profile in 2021, based on the 2017 Indonesian Demographic and Health Survey (IDHS), the incidence of LBW in Indonesia reached 6.2% with Central Sulawesi Province ranked first in the incidence of LBW at 8.9%, while the province with the lowest percentage of LBW incidence was Jambi Province (2.6%), while the percentage of LBW cases in Makassar City in 2021 was 2.7% when compared to the percentage of LBW cases from 2018-2021, there was a decrease in cases even though it was not significant. This is clear evidence of the commitment that the Makassar City government continues to make efforts to improve health services in reducing the number of LBW cases, starting from preventing labor disorders, one of which is preterm labor (Dinkes Kota Makassar, 2021).

Methods

Study design

The type of research used is observational analysis with a cross-sectional study design because the measurement of risk factors on the KASIHKU card is measured simultaneously at one time in the research sample (Sastroasmoro and Ismail, 2014), starting with identifying postpartum mothers at term and preterm with a-retrospective approach.

Sample

Case sample: all mothers after preterm labor (28-<37 weeks) and control sample: some mothers after term labor (>37 weeks) and who were recorded in medical records in 17 hospitals in Makassar City, namely Fatimah Hospital for Mothers and Children, Paramount Hospital for Mothers and Children, Makassar City Regional Public Hospital, Kartini Hospital for Mothers and Children, Cahaya Medika Hospital for Mothers and Children, Hermina Hospital, Haji Makassar Hospital, Pelamonia Hospital, Tadjudin Chalid Hospital, Stella Maris Hospital, Ananda Hospital for Mothers and Children, Bhayangkara Hospital, Labuan Baji Hospital, Islam Faisal Hospital, Ibnu Sina Hospital, Pertiwi Hospital for Mothers and Children, and Akademis Jauri Hospital.

Criteria of sample

a) Inclusion criteria: postpartum women 6 hours - 3 days after delivery, spontaneous singleton pregnancy, without complications, able-bodied, can communicate well, willing to participate in the study, and have an MCH health record book.
b) Exclusion criteria: all deliveries with complications or abnormalities such as IUVD, abortion, hypertension in pregnancy, pregnancy with Diabetes Mellitus, multiple pregnancies, hydramnios, antepartum bleeding, anatomical abnormalities of the uterus, pregnancy with tumors, congenital abnormalities of the fetus, and not willing to participate in the study.

Instrument

The instrument used in this study is Health Card for Preterm Pregnant Women (KASIHKU), an early detection model in the field of obstetrics and gynecological diseases in the form of an Android version application that can be downloaded through the Play Store application and is also available in the form of a manual score card sheet, the first new model in Indonesia specifically in detecting early (screening) the risk of preterm labor. This card simplifies the process of scoring and analyzing mothers at low risk of preterm labor and high risk of preterm labor. This card already has Intellectual Property Rights (IPR) with registration number EC00202037193 as of October 2, 2020, which has

been tested in districts/cities in East Java and South Sulawesi Provinces, this card can contribute to government prevention efforts at the primary care level to reduce perinatal morbidity and mortality due to preterm birth (Herman and Joewono 2020).

Analysis

Statistical analysis using the compare means independent samples T-test, SPSS vs 25, the aim was to compare the mean risk factors of the term and preterm labor groups and determine if there was a statistically significant difference between the two groups.

Ethical consideration

This research has gone through an ethical clearance test issued by the Ethics Commission Team from Hasanuddin University Number 545/UN4.6.4.5.31/ PP36/2024, so that all research samples are given an explanation before obtaining consent (information for consent) followed by willingness to become a sample (informed consent). Research samples are free to resign at any time if harmed without any sanctions and without coercion, and personal sample data is kept completely confidential (anonymous).

Results

A total of 257 respondents participated in this study, consisting of 152 (58.9%) term labor cases and 106 (41.1%) preterm labor cases. These cases were collected from 17 hospitals across Makassar, including Fatimah Hospital for Mothers and Children (13; 5.1%), Paramount Hospital for Mothers and Children (19; 7.4%), Makassar City Regional Public Hospital (22; 8.6%), Kartini Hospital for Mothers and Children (34; 13.2%), Cahaya Medika Hospital for Mothers and Children (14; 4.7%), Hermina Hospital (17; 6.6%), Haji Makassar Hospital (15; 5.8%), Pelamonia Hospital (16; 6.2%), Tadjudin Chalid Hospital (15; 5.8%), Stella Maris Hospital (12; 4.7%), Ananda Hospital for Mothers and Children (18; 7.0%), Bhayangkara Hospital (13; 5.1%), Labuan Baji Hospital (21; 8.2%), Islam Faisal Hospital (6; 2.3%), Ibnu Sina Hospital (7; 2.7%), Pertiwi Hospital for Mothers and Children (13; 5.1%), and Akademis Jauri Hospital (4; 1.5%). The distribution of cases varied across these hospitals, reflecting differences in patient referrals, medical resources, and healthcare accessibility. Tables 1 and 2 present a detailed breakdown of the sociodemographic characteristics of labor cases, including maternal age, parity, education level, employment status, and other factors influencing labor outcomes. These characteristics are essential for understanding the risk factors associated with term and preterm labor, as well as identifying potential interventions to improve maternal and neonatal health outcomes.

Table 1 Percentage of sociodemographic characteristics of term and preterm labor among hospitals

Sociodemographic characteristics	H 1	H 2	H 3	H 4	H 5	H 6	H 7	H 8	H 9	H 10
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Gestational Age										
>37 Weeks	7 (2.7)	9 (3.5)	13 (5.0)	17 (6.6)	2 (0.8)	16 (6.2)	12 (4.7)	7 (2.7)	12 (4.7)	0 (3.9)
<37 Weeks	6 (2.3)	10 (3.9)	9 (3.5)	17 (6.6)	10 (3.9)	2 (0.8)	3 (1.2)	9 (3.5)	3 (1.2)	2 (0.8)
Economic Status										
<IDR 3.500.000	8 (3.1)	1 (0.4)	15 (5.8)	20 (7.8)	6 (2.3)	10 (3.9)	10 (3.9)	9 (3.5)	8 (3.1)	1 (0.4)
>IDR 3.500.000	5 (1.9)	18 (7.0)	7 (2.7)	14 (5.4)	6 (2.3)	8 (3.1)	5 (1.9)	7 (2.7)	7 (2.7)	11(4.3)
BMI										
<18.5 Kg/m	0 (0.0)	0 (0.0)	3 (1.2)	0 (0.0)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)	3 (1.2)	0 (0.0)
18.5-25.0 Kg/m	6 (2.3)	13 (5.0)	13 (5.0)	22 (8.5)	12 (4.7)	9 (3.5)	6 (2.3)	13 (5.0)	10 (3.9)	8 (3.1)
>25 Kg/m	7 (2.7)	6 (2.3)	6 (2.3)	12 (4.7)	0 (0,0)	8 (3.1)	9 (3.5)	3 (1.2)	2 (0.8)	4 (1.6)
Number of Children										
First Child	3 (1.2)	11 (4.3)	8 (3.1)	15 (5.8)	6 (2.3)	7 (2.7)	7 (2.7)	9 (3.5)	9 (3.5)	2 (0.8)
Children >1	10 (3.9)	8 (3.1)	14 (5.4)	19 (7.4)	6 (2.3)	11 (4.3)	8 (3.1)	7 (2.7)	6 (2.3)	10 (3.9)
Workload										
<5 hours	4 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.4)	5 (1.9)	3 (1.2)	0 (0.0)	1 (0.4)
>5 hours	9 (3.5)	19 (7.4)	22 (8.5)	34 (13.2)	12 (4.7)	17 (6.6)	10 (3.9)	13 (5.0)	15 (5.8)	11(4.3)
History of Prematurity										
Yes	1 (0.4)	0 (0.0)	1 (0.4)	1 (0.4)	1 (0.4)	1 (0.4)	0 (0.0)	5 (1.9)	1 (0.4)	2 (0.8)
No	12 (4.7)	19 (7.4)	21 (8.2)	33 (12.8)	11 (4.3)	16 (6.2)	15 (5.8)	11 (4.3)	14 (5.4)	10 (3.)
Flour Albus										
Positive	5 (1.9)	9 (3.5)	9 (3.5)	12 (4.7)	6 (2.3)	4 (1.6)	4 (1.6)	12 (4.7)	0 (0.0)	2 (0.8)
Negative	8 (3.1)	10 (3.9)	13 (5.1)	21 (8.2)	6 (2.3)	14 (5.4)	11 (4.3)	4 (1.6)	15 (5.8)	10 (3.9)
HBsAg										
Positive	0 (0.0)	0 (0.0)	0 (0.0)	1(0.4)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negative	13 (5.0)	19 (7.4)	22 (8.5)	33 (12.8)	12 (4.7)	17 (6.6)	15 (5.8)	16 (6.2)	15 (5.8)	12 (4.7)
Syphilis										
Positive	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negative	13 (5.0)	19 (7.4)	22 (8.5)	33 (12.8)	12 (4.7)	18 (7.0)	15 (5.8)	16 (6.2)	15 (5.8)	12 (4.7)

Sociodemographic characteristics	H 1	H 2	H 3	H 4	H 5	H 6	H 7	H 8	H 9	H 10
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
HIV/AIDS										
Positive	2 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negative	11 (4.3)	19 (7.4)	22 (8.5)	34 (13.2)	12 (4.7)	16 (6.2)	15 (5.8)	16 (6.2)	15 (5.8)	12 (4.7)
EPDS										
Mild	5 (1.9)	19 (7.4)	22 (8.5)	34 (13.2)	10 (3.9)	13 (5.0)	12 (4.7)	13 (5.0)	15 (5.8)	12 (4.7)
Severe	8 (3.1)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.8)	5 (1.9)	3 (1.2)	3 (1.2)	0 (0.0)	0 (0.0)

Description: Hospital 1: Fatimah Hospital for Mothers and Children, Hospital 2: Paramount Hospital for Mothers and Children, Hospital 3: Makassar City Regional Public Hospital, Hospital 4: Kartini Hospital for Mothers and Children, Hospital 5: Cahaya Medika Hospital for Mothers and Children, Hospital 6: Hermina Hospital, Hospital 7: Haji Makassar Hospital, Hospital 8: Pelamonia Hospital, Hospital 9: Tadjudin Chalid Hospital, Hospital 10: Stella Maris Hospital.

Table 2 Percentage of sociodemographic characteristics of term and preterm labor among hospitals

Sociodemographic characteristics	H 11	H 12	H 13	H 14	H 15	H 16	H_17
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Gestational Age							
>37 Weeks	11 (4.3)	8 (3.1)	12 (4.7)	1 (0.4)	5 (1.9)	9 (3.5)	1 (0.4)
<37 Weeks	7 (2.7)	5 (1.9)	9 (3.5)	5 (1.9)	2 (0.8)	4 (1.6)	3 (1.2)
Economic Status							
<IDR 3.500000	5 (1.9)	5 (1.9)	11 (4.3)	4 (1.6)	2 (0.8)	7 (2.7)	2 (0.8)
>IDR 3500.000	13 (5.0)	8 (3.1)	10 (3.9)	2 (0.8)	5 (1.9)	6 (2.3)	2 (0.8)
BMI							
<18.5 Kg/m	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18.5-25.0 Kg/m	10 (3.9)	4 (1.6)	20 (7.8)	5 (1.9)	2 (0.8)	12 (4.7)	3 (1.2)
>25 Kg/m	8 (3.1)	8 (3.1)	1 (0.4)	1 (0.4)	5 (1.9)	1 (0.4)	1 (0.4)
Number of Children							
First Child	13 (5.0)	4 (1.6)	10 (3.9)	0 (0.0)	2 (0.8)	3 (1.2)	0 (0.0)
Children >1	5 (1.9)	9 (3.5)	11 (4.3)	6 (2.3)	5 (1.9)	10 (3.9)	4 (1.6)
Workload							
<5 hours	0 (0.0)	8 (3.1)	6 (2.3)	0 (0.0)	0 (0.0)	3 (1.2)	0 (0.0)
>5 hours	18 (7.0)	5 (1.9)	15 (5.8)	6 (2.3)	7 (2.7)	10 (3.9)	4 (1.6)
History of Prematurity							
Yes	1 (0.4)	2 (0.8)	7 (2.7)	0 (0.0)	1 (0.4)	0 (0.0)	3 (1.2)
No	17 (6.6)	11 (4.3)	14 (5.4)	6 (2.3)	6 (2.3)	13 (5.1)	1 (0.4)
Flour Albus							
Positive	8 (3.1)	8 (3.1)	6 (2.3)	6 (2.3)	4 (1.6)	6 (2.3)	0 (0.0)
Negative	10 (3.9)	5 (1.9)	15 (5.8)	0 (0.0)	3 (1.2)	7 (2.7)	4 (1.6)
HBsAg							
Positive	0 (0.0)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negative	18 (7.0)	13 (5.0)	20 (7.8)	6 (2.3)	7 (2.7)	13 (5.0)	4 (1.6)
Syphilis							
Positive	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Negative	18 (7.0)	13 (5.0)	21 (8.1)	6 (2.3)	7 (2.7)	13 (5.0)	4 (1.6)
HIV/AIDS							
Positive	0 (0.0)	0 (0.0)	1 (0.4)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)
Negative	18 (7.0)	13 (5.0)	20 (7.8)	6 (2.3)	6 (2.3)	13 (5.0)	4 (1.6)
EPDS							
Mild	17 (6.6)	11 (4.3)	15 (5.8)	5 (1.9)	7 (2.7)	13 (5.0)	4 (1.6)
Severe	1 (0.4)	2 (0.8)	6 (2.3)	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)

Description: Hospital 11: Ananda Hospital for Mothers and Children, Hospital 12: Bhayangkara Hospital, Hospital 13: Labuan Baji Hospital, Hospital 14: Islam Faisal Hospital, Hospital 15: Ibnu Sina Hospital, Hospital 16: Pertiwi Hospital for Mothers and Children, Hospital 17: Akademis Jauri Hospital.

The analysis of differences in the sociodemographic characteristics of mothers experiencing preterm labor across hospitals in Makassar City, as presented in Tables 1 and 2, revealed significant variations. Among the 11 examined variables, five were found to be statistically significant with a p-value of <0.05. These variables include body mass index (BMI) (p = 0.000), history of preterm labor (p = 0.000), presence of fluor albus (p = 0.000), HIV/AIDS status (p = 0.039), and Edinburgh Postnatal Depression Scale (EPDS) score (p = 0.009). These findings indicate that maternal BMI, previous preterm births, vaginal infections, HIV/AIDS status, and maternal mental health are important factors associated with preterm labor. Identifying these significant variables provides valuable insight into the potential risk factors contributing to preterm birth. Further investigation and targeted interventions are necessary to mitigate these risks and improve maternal and neonatal health outcomes in Makassar City hospitals. The complete statistical results and detailed characteristics of the study population are provided in Tables 1 and 2.

Table 3 Analysis of differences in sociodemographic characteristics of term and preterm labor among hospitals

Sociodemographic Characteristics	Mean Difference		95% CI of the Difference		T	*P Value**
	Group 1 Term	Group 2 Preterm	Lower	Upper		
Gestational Age	1.00	2.00	-0.029	0.213	-2.594	0.321
Economic Status	1.54	1.49	-0.076	0.174	0.771	0.441
BMI	2.5132	1.9623	0.44096	0.66083	9.868	0.000
Parity	1.62	1.52	-0.023	0.223	1.594	0.112
Workload	1.88	1.89	-0.093	0.070	-0.286	0.775
History of Prematurity	1.96	1.80	0.084	0.233	4.198	0.000
Flour Albus	1.78	1.35	0.320	0.541	7.677	0.000
HBsAg	1.99	1.98	-0.014	0.039	0.904	0.367
Syphilis	1.99	2.00	-0.022	0.009	-0.835	0.405
HIV/AIDS	1.96	2.00	-0.077	-0.002	-2.079	0.039
EPDS	1.16	1.06	0.028	0.188	2.647	0.009

Discussion

BMI analysis (CI95%: 0.44-0.66, p<0.000) indicate a significant difference in maternal BMI between term and preterm labor across hospitals in Makassar City. Yuniwiyati et al. (2023) demonstrated a correlation between mid-upper arm circumference (OR = 2.605, CI: 1.200-5.656) and weight gain during pregnancy (OR = 10.384, CI: 4.524-23.833) with preterm labor. Similarly, Mustika and Minata (2021) found a significant relationship between maternal BMI and weight gain during pregnancy (p=0.001) among 202 mothers who experienced preterm labor. Maratush (2017) reported that among 390 preterm labor cases, 79% were spontaneous and 21% were iatrogenic; of these, 191 cases (45.9%) involved mothers with a BMI > 25 kg/m2, indicating that nearly half of these mothers had a BMI placing them at risk for preterm labor. Furthermore, research by Wijayanti and Pangestu (2020) found a significant association between BMI and low birth weight (LBW) (p=0.025; OR = 2.524), suggesting that mothers with normal BMI had a 2.524 times higher risk of experiencing LBW compared to those with non-normal BMI, which is one of the risks associated with preterm labor.

The history of preterm labor (CI95%: 0.08-0.23, p<0.000) showed a significant difference between term and preterm labor across hospitals in Makassar City. Among mothers with term labor, only 6 (2.3%) had a history of preterm labor, whereas in preterm labor, 21 mothers (8.2%) had a similar history. Chang et al. (2025) analyzed 130,362 live births in Taiwan from 2004 to 2013, showing an increase in preterm births from 3.33% in 2004 to 5.11% in 2013, with maternal illness and preterm birth history being significant risk factors (p<0.05). Yuniwiyati et al. (2023) also identified a strong correlation between prior preterm labor (OR = 9.750, CI: 2.790-34.071) and subsequent preterm deliveries. Maratush (2017) similarly reported that 47.9% of 390 preterm labor cases involved mothers with a history of preterm labor. These findings underscore the importance of previous preterm labor as a major risk factor for future preterm deliveries.

The analysis of flour albus laboratory results (CI95%: 0.32-0.54, p<0.000) demonstrated a significant difference between term and preterm labor across hospitals in Makassar City. Pathological flour albus, characterized by excessive, non-bloody vaginal discharge with high bacterial content, is a notable risk factor. Hosny et al. (2017) found that pregnant women under 20 in Egypt with vaginal infections, such as T. vaginalis, M. hominis, coryneform, and gram-negative bacteria, had higher risks of preterm labor, supported by vaginal pH>5, positive whiff tests, and heavy vaginal bleeding. Robinson and Norwitz (2019) reported that bacterial vaginosis (BV) increases preterm labor risk sevenfold, particularly when detected before 16 weeks of gestation. Manongga et al. (2022) used Nugent's score on vaginal swabs from 18 preterm pregnancies with premature rupture of membranes, identifying BV in 7 samples (38.8%), intermediate flora in 2 samples (11.1%), and normal flora in 9 samples (50%). These findings highlight the impact of disrupted vaginal flora on preterm labor risk.

The analysis based on HIV/AIDS factors (CI95%: 0.07-0.00, p=0.039) indicated that among 257 mothers, only 6 (2.3%) were HIV-positive, and all were in the term labor group. No HIV-positive cases were found among preterm labor mothers, suggesting that other factors, such as prior preterm labor history and positive flour albus results, played more dominant roles. Term labor cases with HIV/AIDS were reported in four hospitals: RSIA Fatimah (2 mothers, 0.8%), Hermina Hospital (2 mothers, 0.8%), Labuan Baji Hospital (1 mother, 0.4%), and Ibnu Sina Hospital (1 mother, 0.4%). Shodikin et al. (2022) reported different findings in Jember, where 19 preterm and 33 term labor cases were recorded among HIV-positive pregnant women. Yuliana (2020) noted that HIV transmission during pregnancy, childbirth, and breastfeeding increases the risk of perinatal HIV infection. Gondo (2022) emphasized the importance of Prevention of Mother to Child HIV Transmission (PMTCT) programs, which can reduce transmission

risk from 25%-45% to <2% through interventions like viral load suppression, minimizing fetal exposure to maternal fluids, and ensuring maternal health optimization.

The Edinburgh Postnatal Depression Scale (EPDS) screens for maternal psychological distress during pregnancy and the postnatal period. Scores of 0-9 indicate mild distress, >10 require reassessment within two weeks, and >12 necessitate further clinical evaluation (Herman and Joewono, 2020). Analysis of EPDS scores (CI95%: 0.02-0.18, p=0.009) showed significant differences between term and preterm labor across hospitals in Makassar City. A total of 31 mothers (12.0%) had EPDS scores >9 (moderate to severe categories), while 227 mothers (88.0%) had mild scores <9. Sarach and Rosyidah (2021) reported that preterm birth often leads to maternal psychological disorders, including anxiety, stress, and depression, exacerbated by biopsychosocial and economic factors in developing countries. Putri and Eryando (2021) analyzed data from Vietnam, Pakistan, Malaysia, the United States, and Australia, showing antenatal depression's negative impact on birth outcomes. Sukyati (2021) highlighted the importance of nurse and family support in mitigating psychological distress and preventing postpartum complications among mothers who experience preterm labor.

Conclusions

Significant differences in the sociodemographic characteristics of mothers with term and preterm labor were observed across hospitals, based on 11 variables. Among these, five variables showed significant associations with preterm labor ($p<0.05$): maternal BMI, history of preterm labor, presence of flour albus, HIV/AIDS status, and EPDS score. These findings underscore the importance of identifying and managing these risk factors to prevent adverse pregnancy outcomes and improve maternal and neonatal health. Further research is needed to explore the underlying mechanisms and develop targeted interventions for high-risk populations.

Conflict of interests
The authors declare that there are no conflicts of interest.

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Author Contributions
SH, SS, and JF designed the research. AL and MM performed the research, analyzed the data, and wrote the manuscript. RK and AD contributed to statistical analysis, EK and RL contributed to research administration. All authors read and approved the final manuscript.

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