



Experience of women in labor with premature rupture of membranes: Scoping review

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ABSTRACT

The study of Premature Rupture of Membranes (PROM) in the classic mid-trimester preterm pregnancy is characterized as the breaking of the fetal layers before 28 weeks of incubation (BB) with oligo/anhydramnios. This complicates around 0.4-0.7% of all pregnancies and is related with very high neonatal mortality and morbidity rates. Concurring to the World Health Organization (WHO), the frequency of PROM globally was evaluated to be 50-60% in 2014 (WHO, 2015). In Indonesia, the rate of PROM ranges from 4.4-7.6% of all pregnancies. The rate of PROM in preterm pregnancy ranges from 3-18%, while in term pregnancies, it is estimated to be around 8-10%. In 2018, the rate of PROM in Indonesia was estimated to be 4.5% -6% of all pregnancies. Another study conducted in Indonesia found that 5-10% of all pregnancies experience PROM, and a third of deliveries that occur within less than a month are affected by PROM. 60% of PROM cases occur during full-term pregnancy, with most cases being discovered during this stage. The objective of this literature review is to survey the prove related to the experiences of mothers giving birth with PROM. This research was conducted by selecting journals concurring to consideration and prohibition criteria and using the Prisma Literature Review Flow Diagram. The experiences of mothers giving birth with PROM are described in two aspects: the characteristics of mothers giving birth with PROM (such as age, parity, work activity, gestational age) and factors related to PROM (sexual patterns, maternal and fetal genetic variations, infections, exposure to PM.25 ambient, and history of PROM).

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ABSTRAK

Ketuban Pecah dini (KPD) klasik mid-trimester preterm dideskripsikan sebagai hancurnya selaput ketuban janin sebelum usia masa hamil 28 minggu (BB) dengan oligo/anhidramnion; itu mempersulit sekitar 0,4-0,7% dari semua masa hamil dan berhubungan dengan kematian dan morbiditas neonatal yang sangat tinggi. Menurut Organisasi Kesehatan Dunia (WHO) angka terjadinya Ketuban Pecah dini (KPD) di dunia tahun 2014 sebanyak 50-60% (WHO, 2015). KPD di Indonesia berkisar 4,4 -7,6% dari keseluruhan masa hamil. Angka terjadinya KPD berada diantara 3-18% yang terjadi pada masa hamil preterm, sedangkan pada masa hamil aterm sekitar 8-10%. Insiden KPD di Indonesia berada diantara 4,5%-6% dari seluruh masa hamil tahun 2018. Hasil pengkajian lain di Indonesia bahwa dari seluruh masa hamil, 5-10% mengalami KPD. Pada persalinan kurang bulan, sepertiga diantaranya mengalami KPD. 60% KPD di antaranya terjadi pada masa hamil cukup bulan. Pada masa hamil dengan KPD, sebagian besar kasus ditemukan. Tujuan: Literatur review ini bertujuan untuk Untuk mereview evidence terkait dengan Pengalaman Ibu melahirkan dengan Ketuban Pecah dini. Method pengkajian: Method penelitian ini dilakukan dengan cara menyeleksi jurnal sesuai dengan kriteria inklusi dan eksklusi dan dilakukan dengan menggunakan Diagram Flow Literature Review PRISMA. Pengalaman ibu melahirkan dengan KPD digambarkan dalam dua aspek yakni sifat ibu

melahirkan dengan Ketuban Pecah dini (usia, paritas, aktifitas kerja, umur masa hamil) dan faktor yang berhubungan dengan kpd (pola seksual, variasi genetik ibu dan janin, infeksi, paparan PM.25 ambien, dan riwayat KPD).

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INTRODUCTION

The premature rupture of membranes (PROM), commonly referred to as classic mid-trimester preterm, is characterized as the crack of the fetal layers earlier to 7 months of development and is accompanied by oligo/anhydramnios. This condition complicates around 0.4-0.7% of all pregnancies and is related with a exceptionally high neonatal mortality and dismalness rate. Antibiotic treatment has been shown to have constrained success in preventing bacterial growth, chorioamnionitis, and fetal irritation. Additionally, repeated amnioinfusion has proven ineffective in extending the PROM interval to delivery. However, the use of continuous amnioinfusion via a transabdominal port framework or catheter in patients with old PROM has appeared guarantee in flushing out microbes and fiery parts from the amniotic depth, supplanting the amniotic fluid and thus potentially amplifying the PROM interim to conveyance. (Michael, 2022)

The premature rupture of membranes (PROM) is a prevalent occurrence in both created and creating nations, and can have genuine results for both the mom and fetus if not appropriately managed. In Western Uganda, a consider was conducted to decide the predominance and predictors of PROM in pregnant women. The cross-sectional assessment was carried out from September 2019 to November 2019 and involved 334 pregnant women with a gestational age of 7 months or more who were confessed to the KIU-TH maternity ward. Data was collected utilizing questionnaires administered by interviewers and analyzed utilizing STATA 14.2. The results showed that the prevalence of PROM was 13.8%. Independent predictors found to be associated with a lower likelihood of PROM included the absence of a history of urinary tract contamination within the month earlier to enrollment (aOR = 0.5, 95% CI: 0.22-0.69, p = 0.038) and a gestational age of 37 weeks or more (aOR = 0.3, 95% CI: 0.14-0.71, p = 0.01). Then afgain, a history of three or more miscarriages was found to be related with a higher probability of PROM (aOR = 13.1, 95% CI: 1.12-153.62, p = 0.05). These findings highlight the need for persistent screening and fitting treatment for urinary tract diseases in pregnant women, particularly those with a history of three or more miscarriage at less than 34 weeks of development. (Emmanuel, 2020).

The World Health Organization (WHO) reported that the worldwide rate of untimely rupture of membranes (PROM) in 2014 was as high as 50-60% (WHO, 2015). In Indonesia, the rate of PROM ranges from 4.4-7.6% of all pregnancies. Among preterm pregnancies, the rate of PROM ranges from 3-18%, while in term pregnancies it ranges from 8-10%.

Table 1
PEOS System

P (Population)	E (Exposure)	O (Outcomes)	S (Study)
Parturition	Premature rupture of membranes	Experiences	All assessment/assessment designs are related to the experience of childbirth with premature rupture of membranes.

The leading causes of maternal mortality in Indonesia, as well as in other countries, are bleeding, infection, and eclampsia, with a percentage of 60-70% for bleeding, 10-20% for preeclampsia and eclampsia, and 10-20% for infection (Saifudin, 2017).

Maternal mortality rate (MMR) is closely associated with the various complications that occur during pregnancy, childbirth, and postpartum. Bleeding, preeclampsia, and infections account for a third of all maternal deaths. It is estimated that around 20% of pregnant women experience complications, with PROM being one of the most common (RI, 2017). The frequency of PROM in Indonesia was detailed to be 4.5% -6% of all pregnancies in 2018. Another study in Indonesia found that 5-10% of all pregnancies experienced PROM, with a third of these occurrences happening within a month of childbirth. 60% of PROM cases occurred during full-term pregnancy. In pregnancies complicated by PROM, the majority of cases involved an immature cervix, and 30-40% required induction of labor and ultimately surgery. Others experienced difficulties in labor progression, increasing the risk of disease for both the mother and fetus. The incidence of amnionitis was reported to be 15-23% among pregnant patients with PROM (Purba, 2015).

METHODS

The methodology employed in this study is a scoping audit, which is a systematic exploration technique that aims to outline the existing writing on a given point. The choice of scoping review as the method of investigation is driven by its ability to be prepared an outline of the level, extent, and nature of existing evidence in relation to the research question. This method follows the Arksey and O'Malley framework, which consists of several phases, including the identification of review questions, sourcing relevant literature, selecting studies, charting data, and compiling, summarizing, and announcing the discoveries (Arksey & O'Malley, 2005). The scoping review technique, as depicted by Munn et al. (2018), offers a comprehensive and structured approach to synthesizing the available evidence base and guiding further studies.

Step 1: Identify the review question or review focus

The author employs the PEOS framework in formulating the review questions. This framework is utilized as a means of recognizing the key concepts inherent in the question, to be developed and governed (Pham et al., 2016).

Step 2: Identify Relevant studies

In the process of identifying relevant articles, the author has established specific consideration and prohibition

criteria. The parameters for consideration and avoidance are point by point:

Table 2
Criteria of Scoping Review Inclusion and Exclusion

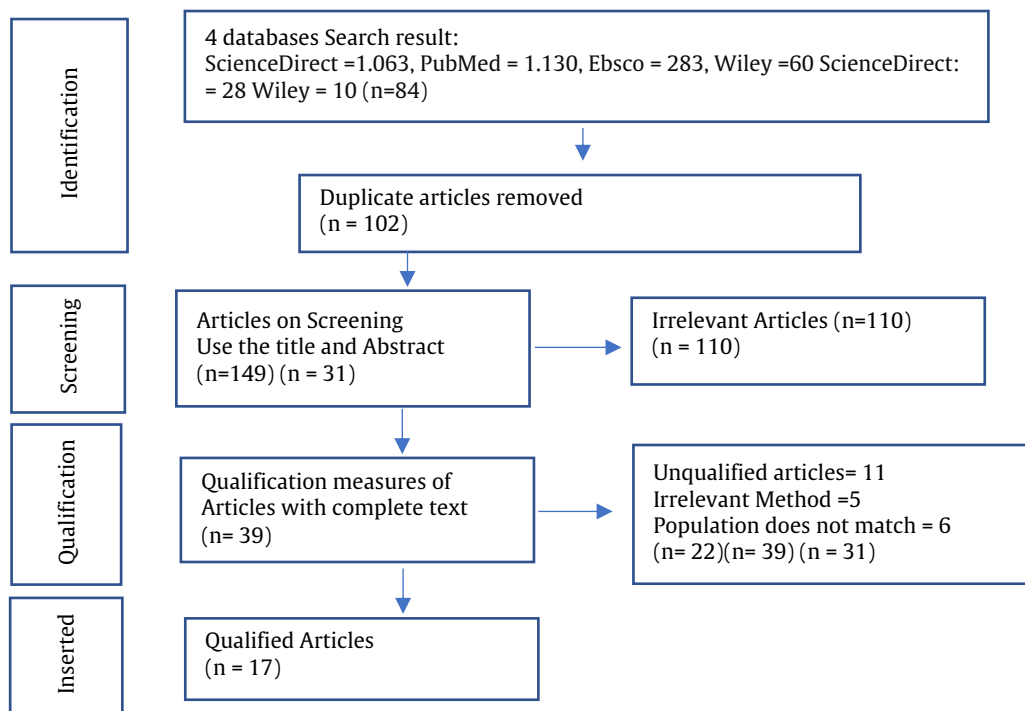
Inclusion Criteria	Exclusion Criteria
a. Published in either Indonesian or English	a. Opinion articles
b. Published between the years 2018 to 2022	b. Review articles
c. original research article	c. Certain policy documents, reports, or guidelines from formal organizations such as the World Health Organization (WHO)
	d. Books, dissertations, and theses.

To locate relevant literature, the author utilized several databases like PubMed, Wiley Online Library, Science Direct, and Google EBSCO. The look was conducted utilizing a match of Boolean operators, Medical Subject Heading (MESH) terms, and truncation, with keywords such as "Childbirth," "Delivery," "Give birth," "Premature Rupture of Membranes (PROM)," "Experience," "Opinion," "Maternity Mother," "View," and "Premature Rupture of Membranes and Maternity Mother." The search was further refined by limiting the results to articles published between 2018 and 2022 and to open-access original research articles. The articles retrieved from the search were then saved for later reference.

Step 3: Selection of Study Results

A comprehensive look was performed over four databases, yielding a total of 1,130 articles from PubMed, 1,063 articles from Science Direct, 283 articles from EBSCO, and 60 articles from Wiley. Of these, 251 articles were selected for further analysis. Duplicate articles, numbering 102, were removed, and further screening using the name and unique of the articles resulted in 39 articles being retained. An additional 22 articles were deemed irrelevant and removed, based on exclusion criteria for review articles. Upon full-text reading of the remaining 22 articles, 11 were deemed unsuitable due to not meeting the purpose, 5 were deemed unsuitable due to methodology, and 6 were deemed unsuitable due to the population. Ultimately, 17 articles were considered suitable for use in this scoping review. The results of the search are documented in the PRISMA flowchart. The transparent selection process can be seen in PRISMA Flowchart as follows:

After the articles were retrieved, a basic examination was conducted utilizing the Joanna Briggs Institute (JBI) basic examination apparatus to survey the quality of prove for different study sorts and review articles. The data was then chosen based on predefined consideration and avoidance criteria.



Step 4: Perform Data Mapping

The combination of article data was accomplished through the utilization of the charting data technique established by the Joanna Briggs Institute, which includes the

author's name, title of the article, year of publication, country of origin, method of data collection, type of evaluation, sample size, and results of the assessment (Aromataris, 2020). The data mapping process was conducted through a collaborative effort with the secondary main author.

Table 3
Data Charting

NO	Title / Author / Year	Nation of Origin	Objective	Types Of Assessment	Method	Result
1	A Retrospective Study on the Chance of Respiratory Trouble Syndrome in Singleton Pregnancies with Preterm Untimely Rupture of Layers between 24+0 and 36+6 Weeks, Utilizing Regression Examination for Different Components/ (Anna NiesBuchowska-Hoxha at al, 2018)	Hindawi	This study points to explore the cause of RDS in neonates of singleton pregnancy with pPROM between 24+0 and 36+6 weeks, utilizing relapse examination for different components, and thus give a valuable reference to firesee it	<i>Case Control</i>	This examination is a retrospective study from January 2011 to December 2014 sum of 175 singleton pregnancies with pPROM were hospitalized. Enlistment was continuously utilized in this study.	Logistic regression examination showed that the taking after components were closely connected with RDS: female sex (OR=0.72; 57%CI: 0.28-0.56), antenatal steroid utilize (OR=0,h4; 57% CI:0.3 j-0.4 j), UA Pi and MCA Pi irregular (OR=2.54; 57% CI: 1, h3-4.12) (OR=2.07; 57% CI: 1.06-3.57), fetal troble (OR=2.33; 57%CI: 1.14-h, 61), maternal HGB (OR=0.45; 57%CI: 0.7-0.54), and neonatal red blood cells, HGB (OR=0.32; 57%) CI: 0.15-0.77) (OR=0.67; 57% CI: 0.47-0.88) conclusion the most hazard variables for RDS in untimely neonates are sex, fetoplacental abnormalities movement, and fetal trouble. Laboratory limitations such as a lower number of RBC and HGB are observed in newborn with RDS.
2	The Association between Characteristics of Childbearing Mothers and Early Rupture of Membranes in Martha Friska Hospital/(Ivansri Marsaulina Panjaitan at al, 2018)	Indonesia	The goal was to decide the correlation between the characteristics of childbirth with premature rupture of membranes at Martha Friska Hospital in 2017	<i>cross sectional approach</i>	descriptive is to know and describe each variable studied, with correlation approach and to decide the correlation of autonomous factors with subordinate factors. Descriptive correlation assessment was used to determine and describe the connection of untimely rupture of membranes (independent variable) with the frequency of asphyxia in newborns (dependent variable).	The results of the study, taken from a sample of 45 pregnant women, indicated a significant correlation between the age of the mothers (within the range of 20-35 years) and premature rupture of membranes (PROM), with 86.7% (39 individuals) showing an Asymp.Sig value of p = 0.011. Additionally, a significant relationship was found between parity (multigravide) and PROM, with 71.1% (32 individuals) exhibiting an Asymp.Sig value of p = 0.031. The status of work activities of housewives was also found to have a significant relationship with PROM, with 73.3% (33 individuals) displaying an Asymp.Sig value of p = 0.014. The conclusion drawn from this study is that there is a relationship between the age, equality, and work exercises of the mothers and PROM at home.
3	Factors related with the incident of untimely rupture of membranes at Sinar Kasih Tentena Hospital (Hatijar et al., 2020).	Indonesia	This study aims to decide the components related with the occurrence of premature rupture of membranes	<i>cross sectional</i>	Analytical descriptive design with cross sectional approach.	there is a correlation between age and knowledge with the event of untimely rupture of layers.
4	Analysis of Factors Contributing to	Indonesia	This study focus to decide the	<i>cross sectional</i>	Analysis with cross sectional appraisal	The comes of the Chi-square test show

<p>Incidents of Premature Rupture of Layers at Siti Fatimah Territorial Common Hospital in South Sumatra Territory in the Year 2020 / (Ernawati, 2020).</p>	<p>correlation between equality, maternal age, anemia status and the status of work exercises with PROM</p>	<p>plan taken with total sampling technique utilizing auxiliary data. This study was examined by chi-square test and calculated relapse</p>	<p>that there's a correlation between maternal equality (p=0.000; OR=3.301), age (p=0.000; OR=0.074), anemia status (p=0.000; OR=3.817), and work movement status (p=0.000; OR=3.916) and the event of untimely rupture of membranes. The logistic regression test uncovered that the status of work activities has the highest odds ratio, which is 3,916. The study concludes that the frequency of untimely rupture of membranes in 2020 is related with maternal equality, age, anemia status, and work movement status, with work activity status having the most significant affect on the charge of premature rupture of layers.</p>		
<p>5 An economic evaluation of the impact of quick birth for women between 34 and 37 weeks of incubation with delayed preterm pre-labor rupture of layers and discovery of vaginal or urine class B streptococcus/(Jeremy Dietz et al, 2022)</p>	<p>London</p>	<p>The cost, benefits, and risks of quick birth collated to pregnancy management in women with delayed premature rupture of membranes (PPROM) between the ages of 34 weeks +0 to 36 weeks +6 of pregnancy and detection of class B streptococcus (GBS) in the vagina or urine.</p>	<p><i>cross sectional</i></p>	<p>The Model estimates lifetime fetched and quality-of-life balanced years (QALYs) utilizing demonstrate from randomised trials, NHS The Model estimates lifetime cost and quality-of-life adjusted years (QALYs) utilizing prove from randomised trials, NHS England data sources, and empower observational considers B The Model estimates lifetime cost and quality-of-life adjusted years (QALYs) utilizing prove from randomised trials, NHS England information sources, and encourage observational studies ritaininformation sources, and encourage observational studies. Reenacted occasions included neonatal diseases, morbidity related with premature birth and the results of cesarean conveyance. Deterministic and probabilistic sensitivity analysis (PSA) was performed.</p>	<p>In this populace, immediate birth overwhelms expectative management: it is more successful (normal lifetime QALY, 24,705 vs 24,371) and lower (normal lifetime fetched, £14,372 versus £19,311). In a one-way affectability analysis, the comes were vigorous for all but the Chances proportion evaluating the impact relative to the frequency of disease. The edge investigation appears that the likelihood of disease only needs to be >1.5% with expectative management to avoid disease is more vital than recent birth loss. In PSA, recent birth is the favored alternative at >80% of reenactments.</p>
<p>6 Indicators of The threshold analysis shows that the probability Untimely Rupture of The threshold analysis shows that the probability Layers among Pregnant Women in Rustic Uganda: A Cross-Sectional Study at a Tertiary Instructing Hospital /(Simon Byonanuwe at al, 2020)</p>	<p>Hindawi</p>	<p>This study aims to delineate PROM predictors in this region to empower prior reconnaissance for at-risk mothers amid antenatal protection so as to diminish problems and/or related occasions.</p>	<p>cross sectional</p>	<p>This study uses a cross-sectional design and includes all pregnant women, both adult and minors, who are admitted to the maternity ward and have a gestational age of 7 months or more. Members must also grant their consent to participate within the appraisal. Women with mental sickness and those who are oblivious at the time of affirmation are prohibited as they cannot be met. The test measure was calculated utilizing Daniel's formula.</p>	<p>Of the 334 enlisted gravid women, the predominance of PROM was found to be 13.8%. Important independent predictor related with beneath probability of PROM no history of urinary tract infection (UTI) within the month earlier to enrollment into the study (aOR= 0: 5, 95% CI: 0.22-0.69, p =0: 038) and gestational age 37 weeks or more (aOR= 0:3, 95% CI: 0.14-0.71, p =0:01) whereas the history of miscarriage 3 times or more (aOR= 13: 1, 95% CI: 1.12-153.62, p</p>

=0: 05) is related with a bigger probability of PROM.

7	Treatment of Old Mid-Trimester Preterm Untimely Rupture of Membranes (PPROM) with Oligo/Anhydramnion between 22 and 26 Weeks of Incubation by Implies of Non-stop Amnioinfusion: Convention of a Randomized Multicentric Planned Controlled TRIAL and Survey of the Writing/(Michael Bergner at al, 2022)	German	This multi-center case points to check the affect of nonstop amnioinfusion on neonatal endurance without normal crucial morbidities, such as extreme bronchopulmonary dysplasia, intraventricular hemorrhage, Cystic periventricular leukomalacia and necrotizing enterocolitis a year after carriage.	<i>cross sectional</i>	The overall foundation of the Coordination Center for Clinical Trials (KKS) Martin Luther-University Halle Wittenberg will be included in the management and taking care of data in agreement with the ICH-GCP (International Discussion on harmonization of technical conditions for registration of pharmaceuticals for Human Use-Good Clinical Practice) , randomization, security management and checking of appraisals.	Randomization will be done between 22/0 and 26/0 SSW. Control accumulate: PPROM patients between 20/0 and 26/0 WG to be cared with anti-microbials and corticosteroids (from 22/0 SSW) concurring to the rules of the German Society of Obstetrics and Gynecology (standard PPROM treatment). Within the intercession bunch, Grade PPROM treatment will be supplemented by the technique of Amnion Flush, with amnioinfusion of amnion Flush course through an intra-amnial catheter (up to 100 mL/hour, 2400 mL/day). Subject: the insider will consolidate 68 patients with old PPROM between 20/0 and 26/0 WG. Trial enlistment: ClinicalTrials.gov ID: NCT04696003. German Standard Hospital trial registration: DRKS00024503, January 2021.
8	Vitamin D-binding protein in cervicovaginal fluid as a non-invasive pointer of intraamniotic inflammation and approaching preterm carriage in women with preterm labor or preterm untimely rupture of layers/(Song Yi Kook at al, 2017)	United States	the purpose of this assessment was to decide whether the class of VDB in CVF tests freely anticipated intra-amniotic inflammation and SPTD within 48 hours in women with PTL or PPROM.	Review cohort	This is a single-center review cohort study. CVF tests for VDB examination were secured together with serum C-reactive protein (CRP) Levels quickly after amniocentesis in sequential women with PTL (n = 148) or PPROM (n = 103) between 23.0 and 34.0 weeks of incubation. The level of VDB in CVF is decided by an enzyme-linked immunosorbent test pack. The most outcome measures were intra-amniotic contamination [expounded as positive amniotic membrane fluid culture (AF)] and SPTD within 48 hours of assessing.	In a multivariate analysis, a significant increase in VDBP levels in CVF tests from women with imminent preterm labor (PTL) was related with intra-amniotic contamination and inescapable preterm birth, indeed after altering for possible confounders (e.g., gestational age at test collection, equality, and serum CRP). However, this correlation was absent in women with preterm untimely rupture of membranes (PPROM). The zone under the receiver operating characteristic bend for the guess of intra-amniotic contamination and imminent preterm birth utilizing VDBP classes in CVF for women with PTL was 0.66 and 0.71, with cut-off values of 1.76 µg/mL (sensitivity 64.3% and specificity 78.4%) and 1.37 µg/mL (sensitivity 65.4% and specificity 72.6%), respectively. VDBP classes were bigger in women with PPROM compared to women with PTL.
9	The connection of sexual designs of pregnant women with the frequency of premature rupture of membranes(PROM) at	Indonesia	Investigating the correlation between the sexual behavior of pregnant women and the occurrence of PROM in	<i>Case Control</i>	The study employed a retrospective case-control plan. The populace comprised of all moms who gave birth at KEPAHANG hospital in May 2019, totaling 75	Of the 40 individuals in the sample, there were 20 individuals with premature rupture of membranes (PROM) and 20 individuals without PROM. Out of the 40

	KEPAHIANG hospital in 2019/ (Elza Wulandari at al, 2019)		KEPAHIANG hospital.		individuals, with 20 individuals experiencing PROM. A sample of 40 individuals, including 20 cases of PROM and 20 controls without PROM, was chosen utilizing sum inspectng for the case gather and efficient irregular inspectng for the control bunch. Both secondary and primary data were collected for analysis, and univariate and bivariate techniques were employed. The possibility coefficient (C) test was utilized to asses the correlation between variables.	individuals, 24 engaged in inappropriate sexual activity and 16 engaged in appropriate sexual activity. There is a correlation between sexual activity in pregnant women and the incidence of PROM at KEPAHIANG hospital, with an odds ratio (OR) of 6.00, indicating that those who engage in inappropriate sexual activity have a 6 times higher risk of experiencing PROM. This relationship is considered to be strong.
10	Prevalence and associated chance variables of preterm birth among neonates in referral hospitals of Amhara Local, Ethiopia/(Dagnew Getnet at al, 2022)	South Africa	To evaluate the predominance and variables related with premature birth among newborns conveyed at the Referral Hospital in the Amhara Region, Northern Ethiopia.	<i>Cross Sectional</i>	A cross-sectional hospital-based consider was conducted from February to April 2020. Orderly inspectng strategy was utilized to choose 482 mom-newborn pairs. Data was composed by questioning the moms and surveying their graph employing a organized questionnaire which was pre-tested. The result variable was premature birth. Data was entered utilizing Epidata type 4.6 and at that point analyzed utilizing STATA computer program (type 14). Bivariate and multivariable calculated relapse analysis were performed to decide the chance components related with early birth.	The predominance of early birth was 11.41% (95% CI: 8.9, 14.6%). In the multivariate calculated realpse model; maternal age less than 20 years (Balanced chances proportion (AOR)=7.8: 95% CI 2.3–26), pre-eclampsia (AOR= 5: 95% CI 2.3–11), untimely rupture of membranes (AOR= 3.9: 95% CI 1.6–9.0), constant medical conditions (AOR= 4.6:95% CI2.1–10), and record of stillbirth (AOR= 2.7: 95% CI 1.1–7.3) were altogether related with early birth
11	Affect mode of conveyance on pregnancy outcome in women with untimely rupture of layers after 28 weeks of gestation in a short-resource setting: A imminent cohort Study/(Herbert Kayiga at al, 2018)	United States	A planned cohort study was conducted at Mulago Hospital to compare the maternal and perinatal comes of vaginal conveyance with cesarean section among women with untimely rupture of membranes (PROM) after 28 weeks of pregnancy.	planned cohort	From November 2015 to May 2016, a imminent cohort of 1455 women with PROM after 7 months of pregnancy and their recently born babies were taken after from discharge at Mulago Hospital. The essential result was perinatal death. Secondary neonatal outcomes included sepsis and admission to the Uncommon Care Unit. Maternal comes about included maternal passing and problems. Results were compared between women who conveyed through vaginal conveyance versus caesarean section utilizing multivariable calculated realpse. All measurable tests were two-sided with a factual centrality class set at $p < 0.05$.	The frequency of PROM was 12.1%. The perinatal death rate after PROM was 65 per 1000 live births. Out of 1425 women with PROM, 991 (69.5%) conveyed vaginally and 434 (30.5%) experienced a cesarean operation. There was no factual contrast in total perinatal mortality concurring to mode of conveyance (vaginal vs. cesarean) in PROM ($p = 0.12$). Chance factors for perinatal death included chorioamnionitis, failure to manage corticosteroids in premature PROM, pregnancy age (28 ± 33 weeks), term of fluid drainage (24 ± 48 hours), and maternal problems. Cesarean conveyance was related with expanded risk of postpartum maternal disease, admission to a neonatal intensive care unit, and maternal passing.
12	Pre-labor Burst of Membrane in Aminu Kano Teaching	Nigeria	The objective of this study is to assess the maternal	Retrospective	This is a retrospective examination of all cases overseen for PROM between	During the study period, 6,658 conveyances were recorded. There were

	Hospital: A 2-year Review/(Natalia Adamou at al, 2019)		characteristics and pregnancy results at diverse gestational ages in patients with PROM at the Aminu Kano Educating Hospital between August 2015 and August 2017.		August 1, 2015 and July 31, 2017 within dividion. Data was extracted by investigating all case records of patients overseen for PROM amid this period within division. All patients conceded with PROM were included. Data extracted included statistic and obstetric factors of the mother, lenght of tradisionalist administration, mode of conveyance, birth weight, and Apgar score. Data was collected and examined utilizing SPSS type 22. Descriptive factors are displayed in the frame of tables, and impotance tests were performed utilizing the Chi-square test.	109 samples of Untimely Rupture of Membranes (PROM), of which 60 (0.9%) were samples of preterm PROM and 49 (0.7%) were samples of term PROM. Thus, the predominance of PROM amid the study time was 1.6%. The term of PROM was found to have a significant factual relationship with neonatal results, with patients who presented within 24 hours of PROM having way greater comes.
13	Maternal exposure to surrounding fine particulate matter and chance of untimely rupture of layers in Wuhan, Central China: a cohort study/(Kun Wang, at al, 2019)	China	To investigate the relationship between encompassing PM2.5 exposure amid pregnancy and the rate of PROM and PPRM in Wuhan, central China.	Cohort	A cohort study including all single births at a clinic found in Central China from January 2015 to December 2017 was carried out. Multivariable calculated relapse, stratified analysis, common added substance demonstrate, and two-part straight relapse models were performed to assess how encompassing PM2.5 exposure amid pregnancy was related with the chance of PROM and PPRM.	A sum of 4364 members were contained in the last analysis, in which 11.71% and 2.34% of the births were complex by PROM and PPRM, separately. The PM levels appeared regular varieties and their average attentiveness were 63.7, 59.3, 55.8, and 61.8 µg/m3 for the 1st trimester, 2nd trimester, 3rd trimester, and the complete gravidity term, properly. After alteration for possible bewilders, PROM was firmly related with ambient PM submission (per 10 µg/m3) [Odds Ratio (OR) = 1.14, 95% Confidence Interval (CI), 1.02–1.26 for the 1st trimester; OR = 1.09, 95% CI, 1.00–1.18 for the 2nd trimester; OR = 1.13, 95% CI, 1.03–1.24 for the 3rd trimester; OR = 1.35, 95% CI, 1.12–1.63 for the entire pregnancy]. PPRM was also positively associated with ambient PM submission (per 10 µg/m3) (OR= 1.17, 95% CI, 0.94–1.45 for the 1st trimester; OR = 1.11, 95% CI, 0.92–1.33 for the 2nd trimester; OR = 1.19, 95% CI, 0.99–1.44 for the 3rd trimester; OR = 1.53, 95% CI, 1.03–2.27 for the entire pregnancy). A certain trend between the intense submission window (normal focus of PM in the weeks and last day of pregnancy) and the chance of PROM and PPRM was also observed.
14	Maternal and Perinatal Result in Untimely Rupture of Layers at	India	Maternal and perinatal evaluation results in the case	Prospective Study	A prospective study was conducted on 75 cases of unconstrained preterm	Outcomes: A record of post-term PROM was observed in 15% of patients, a record

	Term Pregnancy/(Jalli Padmaja, at al, 2018)		of term PROM		premature rupture of membranes (PPROM) after 37 weeks of gestation that were conceded to the Obstetrics and Gynecology Department at Osmania Medical College, Hyderabad.	of miscarriage was observed in 12% of patients, and a record of pre-term PROM was observed in 7% of patients. When chance variables and PROM were compared, anemia was 20%, beneath genital tract disease was 10%, cervical laceration was 2%, malpresentation was 4%, hydramnios was 4%, and there was no chance factor in 27% of patients. A favorable Bishop score was noticed in 30 patients who experienced vaginal conveyance, 10 in LSCS, and an unfavorable Bishop score was noticed in 20 patients who underwent vaginal delivery, 9 in LSCS. The highest maternal morbidity cases were observed after 24 hours, which was 26.7%, the highest perinatal morbidity cases were observed between 12-24 hours which was 30%, and perinatal mortality was 5% between 12-24 hours and after 24 hours of PROM.
15	Maternal human telomerase reverse transcriptase variants are associated with preterm labor and preterm untimely rupture of layers/(Caroline Marrs at al, 2018)	Australia	Determine whether the genetic variation between the mother and hTERT gene associated with PTL or pPROM	Case-control genetic association study	A genetic association study of the case-control (PTL or pPROM) (term birth) was regulated on 654 non-Hispanic white moms (438 term births, 162 PTLs, 54 pPROMs) and 502 non-Hispanic white newborns (346 term births, 116 PTBs, 40 pPROMs). Mom and fetal DNA cases were genotyped for 23 single nucleotide polymorphisms (SNPs) within the hTERT gene. Allele frequencies were compared between samples and controls, grouped based on PTL and pPROM. Mom and fetal data were analyzed independently.	A difference in allele within a hTERT SNP (rs2853690) was significantly associated with both PTL (adjusted OR 2.24, 95% CI 1.64±3.06, p = 2.32e-05) and pPROM (adjusted OR 7.54, 95%CI 3.96±14.33, p = 2.39e-07) in maternal DNA. No significant affiliation was found between the analyzed hTERT SNP and either PTL or pPROM in the fetal sample.
16	Intense Histologic Chorioamnionitis Is a Chance Component for Adverse Neonatal Result in Late Preterm Birth after Preterm Untimely Rupture of Membranes/(Seung Mi Lee, at al, 2013)	Korea	Decide whether intense histological chorioamnionitis is related with adverse neonatal results in late preterm newborn after preterm PROM	<i>Cross sectional</i>	Methodology/Key Discoveries: The correlation between the existance of serious histologic chorioamnionitis and antagonistic neonatal comes was inspected in patients with preterm prelabor burst of membranes who conveyed single preterm neonates between gestational ages of 34 weeks and 36 6/7 weeks. Nonparametric statistics were utilized for data analysis.	The presence of intense histological chorioamnionitis related with adverse neonatal outcomes in late preterm newborn to moms with preterm PROM.
17	Efficacy and Security Analysis of Phloroglucinol in Combination with Oxytocin for	Hindawi	Deciding the efficacy and security of phloroglucinol in combination with oxytocin	<i>Case control</i>	The data of 100 women who experienced preterm premature rupture of membranes (PPROM) between December	Patients in the monitoring group had essentially higher Bishop scores after administration compared to the

the Acceptance of Labor in
Women with Term Untimely
Rupture of Membranes (PROM)/(
Jiazheng Yu at al,

for acceptance of labor in
women with Preterm
Untimely Rupture of
Membranes (PPROM)

2020 and December 2021 were
retrospectively evaluated in this
assessment

authority group ($P<0.05$), although there
was no distinction between the two
groups prior to administration.
Compared to the authority group, the
perception group had essentially bigger
efficacy rates for drug management
($P<0.05$), crucially beneath rate of the
primary stage of labor ($P<0.05$), bigger
rates of unconstrained vaginal
conveyance, and effective induction of
labor ($P<0.05$), and essentially beneath
rates of adverse pregnancy results and
issues ($P<0.05$).

Assessing the quality of articles with the Critical Appraisal Tool

In this checking survey, the authors carried out a quality appraisal of articles utilizing the Joanna Briggs Institute's (JBI) basic evaluation apparatus, with the following assessment category:

- 2: questions are responded complete and clarified in detail
- 1: questions are responded but not clarified in detail
- 0: questions are not responded and/or not clarified in the essay

The quality of essays was divided into four categories, namely:

- A: last score 16-20
- B: last score 11-15
- C: last score 6-10
- D: last score 0-5

After conducting data charting, the authors evaluated the quality of the journals with a critical assessment, in the systematic review involving the assessment of the potential for methodological bias or systematic errors in the included studies so that the review can consider findings based on bias (Stanhope & Weinstein, 2022). Seventeen articles above were evaluated using JBI, which is a tool for a freely available critical appraisal instrument for reviewers and systematic researchers examining the limitations of study methodology in primary reviews (Barker et al., 2022).

Based on the assessment, each review method has a different Critical Appraisal checklist. The results showed that the selected articles were of good quality, with 11 articles receiving grade A and 6 articles receiving grade B.

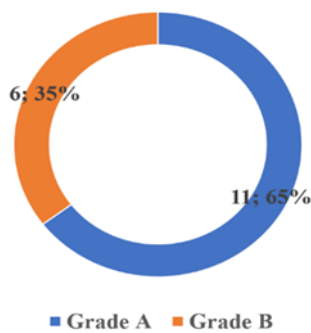


Figure 1
Analysis By Article Grade

RESULTS AND DISCUSSION

Results are based on the search results from four databases using the PEOS framework keyword. Further screening was conducted using Mendeley. And in the next stage, the screening of articles was presented in the form of a Prisma Flowchart, which resulted in 17 articles that were considered to meet the incorporation and prohibition criteria and qualified for assessment by conducting a Basic Examination utilizing The Joanna Briggs Institute (JBI).

Characteristics Of the Article

The articles utilized in this scoping survey display a few characteristics among the 17 selected articles, including a country-based analysis and study type analysis.

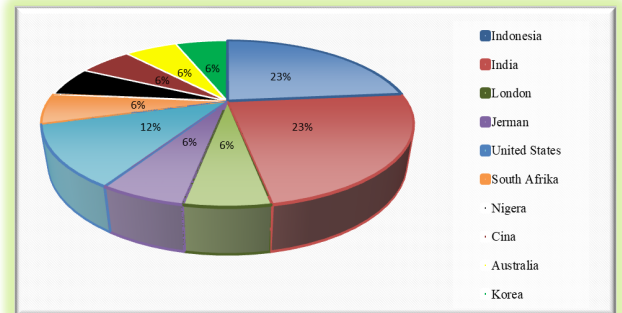


Figure 2
Country-based Analysis

As indicated in the diagram above, the articles were obtained from several developing countries, including four articles from India, four articles from Indonesia, one article from London, one article from Nigeria, one article from Germany, two articles from the United States, one article from South Africa, one article from China, one article from Australia, and one article from Korea.

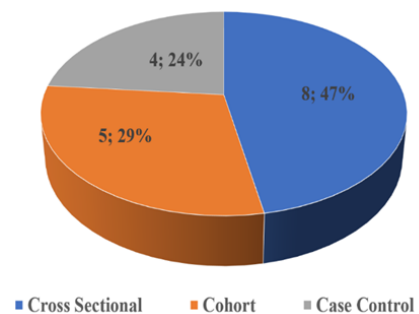


Figure 3: Study Type Analysis

As indicated in the diagram above, the 17 selected articles utilize a quantitative approach with a cross-sectional plan in eight articles, five cohort studies, and four case-control studies.

Mapping/Scoping

1. Geographical Characteristics

The systematic search resulted in the identification of seventeen articles published between 2017-2022. The articles were found to be from developing countries including India, London, Nigeria, Germany, United States, South Africa, China, Australia, and Korea.

2. Thematic Findings

The review findings revealed several themes consistent with the focus of the review as follows:

No	Theme	Sub Theme	Assessment Articles
1	Characteristics of mothers giving birth with PROM	Age	A2
		Parity	A2, A3
		Work Activities	A2, A4
		Age of Pregnancy	A5, A12
2	Factors related to PROM	Sexual patterns	A9
		Genetic variation of mother and fetus	A15
		Infection	A1, A7, A16
		PM display.25 Ambien	A13
		History of PROM	A11

DISCUSSION

This Review explores the experiences of mothers who gave birth with untimely rupture of membranes:

A. Characteristics of childbirth with untimely rupture of membranes

1. Age

Age refers to the length of time an individual has lived or exists (since birth or inception). Maternal death from reproductive factors includes maternal age. Within the healthy reproductive age range, it is known that the secure age range for pregnancy and childbirth is 20-30 years old. Maternal death in pregnant women giving birth at an age underneath 20 years old is 2 to 5 times higher compared to maternal death happening in women between the ages of 20 to 29. Maternal death increments once more after the age of 30 to 35.

Based on the findings of Ivansri's 2018 study, it was found that the majority of untimely rupture of membranes cases occurred in women between the ages of 20 to 35, with 39 people (86.7%) being in this age range, while 6 people (13.3%) were over 35 years old. This study does not support the theory that women under the age of 20, including those who are too young, have a uterus that is not mature enough for childbirth, making them more prone to untimely rupture of membranes. On the other hand, women over 35 years old are considered too old to give birth, particularly first-time moms, and are at high risk of untimely rupture of membranes. This finding is supported by Suliyati's study on the relationship between maternal characteristics and the event of untimely rupture of membranes in Haji Hospital Medan in 2014, where 50 of the respondents were women between the ages of 20 to 35.

2. Parity

A primipara is a woman who has given birth once to a fetus that has reached viability, regardless of whether the fetus was alive or dead at birth. Some authors consider the term primipara to include women who are in the process of giving birth to their first child. A multipara is someone who has experienced two or more pregnancies that ended with a fetus that has reached viability. The definition of parity refers to the number of previous pregnancies that have reached viability and been delivered, regardless of the number of children, with three sets of twins only counted as one parity.

Factors influencing the number of parities in a family are: (1) education, the higher the level of education, the easier it is to obtain information, thus the mother's ability to think more rationally. Mothers with higher education will think

more rationally that the ideal number of children is 2; (2) work activities, many assumptions that people with high work status can have many children because they can meet their daily needs; (3) economic status, a high family economic status encourages mothers to have more children because the family feels capable of meeting their needs; (4) cultural background, the assumption that the more children there are, the more blessings (20).

The results of a study conducted by Ivansri in 2018 showed that mothers with multigravida parity are more susceptible to premature rupture of membranes (PROM) with 32 cases (71.1%), while primigravida mothers have 13 cases (28.9%). This result is in line with the study conducted by Olinviana that the characteristics of mothers who experience PROM based on parity are mostly multipara with 38 cases (50.7%). This result shows that mothers have given birth more than twice. The study is supported by the study conducted by Eka Purwanti on factors related to the occurrence of PROM, it was found that the most common parity of mothers giving birth was multipara with 17 cases (35.4%), this occurs because of the awareness of most mothers to carry out a family planning program (FP) to minimize the number of children, maternal death also depends on the mother's own condition and is one of the criteria 4 too, too many children/parities, too close birth spacing <2 years, too old, too young.

Based on the findings of Ernawati's 2020 assessment, parity has an impact on the occurrence of Preterm Rupture of Membranes (PROM). The majority of primiparous women are at a higher risk of experiencing PROM, with 107 women (60.2%) compared to multiparous women, who are 71 women (39.9%). Health education or information regarding pregnancy and danger signs is highly emphasized in providing prenatal care, especially for first-time mothers. During the first pregnancy, it is a new experience that can become a factor that causes stress for the mother, with some stress being predictable and some being unpredictable or unanticipated, leading to complications during delivery such as PROM. Cortisol hormone is a hormone that affects stress, producing Corticotropin Releasing Hormone (CRH), which in turn causes uterine contractions that can result in the rupture of the membranes

3. Work Activities

Work activities refer to the primary tasks performed by humans in a narrow sense. The term "work activities" is used to describe a task or work activity that generates income for an individual. In everyday conversation, work activities are often considered to be a profession, but during pregnancy, one is often asked to avoid working, especially during the second and third trimesters. There are some jobs that one should avoid while pregnant, such as farming and laboratory work, and even office work as a secretary, which poses risks if one has to sit in front of a computer for long hours. Furthermore, stress is dangerous during pregnancy as it can weaken physical condition and affect fetal development.

In today's economy, many pregnant women work. As long as they are not too tired and their growing stomach does not interfere with their work activities, and the industrial conditions at the office, factory, or place of work do not affect the health of the mother or fetus. Common sense dictates that any work activity that causes a pregnant woman to face severe physical stress should be avoided. A pregnant woman may perform daily work activities as long as they do not cause discomfort. For working women, they may continue to work until near the time of delivery. Work

activities should not be forced, and enough rest for approximately 8 hours a day should be ensured. A pregnant woman may perform daily work activities as long as they do not cause discomfort. In human life, various activities are always taking place, one of which is manifested in movements referred to as work. Working means carrying out a task that ends with a product that can be enjoyed by the concerned human.

A crucial driving factor causing humans to work is the need to meet their needs. Work activities contain elements of social activities, producing something, and ultimately aim to meet needs. However, behind these indirect goals, people work to obtain remuneration in the form of a salary or wage from the results of their work. So, in essence, people work not only to sustain their lives but also to achieve a better standard of living.

According to the comes of a study conducted by the researcher, it was found that mothers who work as housewives are more susceptible to experiencing premature rupture of membranes (PROM), with 33 cases (39.2%) reported, compared to mothers who work as entrepreneurs or civil servants. The results of Suriani Tahir's study showed that the majority of mothers who accomplished PROM were housewives and entrepreneurs, accounting for 73.2% and 20.5%, respectively. This work is supported by the educational background of the mothers, who mostly completed only junior high school, limiting their employment options to being housewives or entrepreneurs. However, working as a housewife can be physically demanding, as the pregnant mother has to work all day without rest to provide for the happiness of her husband and children. This finding is in queue with the study by Olinviana, which announced that the majority of mothers who gave birth with PROM were housewives, with 35 cases (46.7%) identified. Work is a means to earn an income, and the work environment can provide direct and indirect experiences and knowledge. However, excessive work can have negative impacts on a mother's reproductive health, leading to PROM.

According to the researcher's assumption, mothers who have domestic duties as their primary job activity are more prone to experiencing premature rupture of membranes (PROM). The researcher states that the pattern of maternal work activity during pregnancy influences the energy demands of the mother. Physical work that is too strenuous and lasts more than three hours a day during pregnancy can lead to fatigue. Fatigue in work can weaken the chorion-amnion membrane, leading to PROM. The results obtained indicate that domestic duties can deplete energy, as a pregnant mother must work all day without rest, for the happiness of her husband and children.

4. Pregnancy Age

The length of pregnancy, from ovulation to delivery, is around 280 days (40 weeks). The 40-week pregnancy is referred to as term pregnancy. A pregnancy that exceeds 42 weeks is referred to as post-term pregnancy. A pregnancy between 28 and 36 weeks is referred to as untimely pregnancy. This latter stage of pregnancy will influence the practicality (survival) of the baby being born. As babies that are too young have a destitute forecast. If untimely rupture of membranes (PROM) occurs between 28 and 36 weeks of pregnancy, there is a potential for asphyxia due to the untimely formation of the baby's organs, which are not yet complete and are more susceptible to hypoxia, hypoglycemia, jaundice, infection, and respiratory distress or

asphyxia. In pregnancies over 40 weeks post-term, there is a decrease in the amniotic membrane and nutrients and oxygen to the fetus, which can cause asphyxia and death at any moment. The results of a study conducted by Ertiana (2016) at the Kediri District General Hospital showed that the majority of respondents who experienced PROM had a pregnancy age of over 36 weeks, with a percentage of 85.6%.

B. Factors related with premature crack of membranes

1. Sexual Pattern Based

On the cross-tabulation of sexual pattern and untimely Rupture of Membranes (PROM) at the RSUD Kepahiang of 20 people who experienced PROM, there were 16 individuals with improper sexual pattern due to frequency, position, and penetration errors, and 4 individuals with proper sexual pattern but due to other factors such as anomalous fetal position, history of PROM, while of the 20 individuals who did not experience PROM, there were 8 individuals who had improper sexual pattern due to fear and decrease in libido, thus not engaging in regular sexual activity within the third trimester of pregnancy, and 12 individuals who had proper sexual pattern.

The inadequacy of sexual pattern was indicated by errors in frequency, position, and penetration. This study also found that most of the respondents who experienced PROM had sexual intercourse more than 3 times a week, with the mother in a position below during intercourse, and performing too deep penetration.

This is in line with the theory that coitus frequency in the 3rd trimester of pregnancy, more than 3 times a week, is believed to play a role in the occurrence of PROM. This is related to the orgasm condition that triggers uterine contractions due to exposure to prostaglandin hormones in semen or sperm fluid (Winkjosastro, 2014). A good position in sexual activity during pregnancy is one that does not press on the mother's stomach (Retno, 2017).

2. Genetic variation of mother and fetus

Based on literature, variations in the genetic material of both the mother and fetus can result in the occurrence of polyhydramnios. Babies with large amounts of amniotic fluid are more prone to genetic abnormalities such as Down syndrome. Polyhydramnios refers to the condition where there is an excessive amount of amniotic fluid, which is defined as greater than two liters (Caroline Marrs, 2017). The presence of excessive amniotic fluid may cause the uterus to rapidly distend within a few days, leading to an increase in uterine tension and potentially resulting in premature rupture of the membranes (PROM). This assumption is supported by the researcher's hypothesis that the excessive fluid puts additional strain on the uterus, causing it to stretch and potentially leading to PROM.

3. Infection

Infection is one of the causes of preterm premature rupture of membranes (PPROM) that must be anticipated from the beginning of pregnancy. The easily ruptured amniotic membranes can be caused by infections in the vagina and cervix. Such infections can be caused by poor hygiene, resulting in ascending infections, due to the growth of pathogenic bacteria or changes in the normal flora in the vagina and cervix. Bacteria that infect the genital tract can produce phospholipases, collagenases, and proteases. The

presence of these infections will cause a decrease in the function of the amniotic membrane, causing the strength of the membrane and amniotic membranes to decrease, thus the amniotic membranes are unable to retain the fetus inside the uterus. The results of the study conducted by Susilawati (2015) showed that there is a significant relationship between genital infections and the occurrence of PPRM with a p-value of 0.000. Similarly, the study conducted by Andriyani et al., (2021) with a p-value of Fisher's exact test of $0.042 < \alpha$ had a significant relationship between infection factors and the occurrence of PPRM. This result is not in line with the results obtained by Wulandari, Irsam, and Kartika (2016), which showed no significant difference in infections in pregnant women experiencing PPRM compared to those who did not experience PPRM with a result of $p=0.195$. The difference in results between these studies is due to the differences in sample size and assessment methods, which will have a significant impact on the number of risk factors.

4. Exposure to ambient PM 25

The relationship between surrounding PM2.5 exposure amid pregnancy and the risk of premature Rupture of Membranes (PROM) and Preterm Premature Rupture of Membranes (PPROM) is still questionable. A cohort study counting all single births at a hospital found in Central China from January 2015 to December 2017 was conducted. Multivariable calculated relapse models, stratified examination, common additive models, and two-part straight relapse were performed to assess the affiliation between encompassing PM2.5 exposure amid pregnancy and the chance of PROM and PPRM.

Results: A total of 4364 participants were included within the last analysis, where 11.71% and 2.34% of the births were complicated by PROM and PPRM, individually. PM2.5 levels appeared regular varieties, with middle concentrations of 63.7, 59.3, 55.8, and 61.8 $\mu\text{g}/\text{m}^3$ for the first trimester, second trimester, third trimester, and the complete pregnancy term, separately. After alteration for potential confounders, PROM was positively associated with ambient PM2.5 exposure (per 10 $\mu\text{g}/\text{m}^3$) [Odds Ratio (OR) = 1.14, 95% Confidence Interval (CI), 1.02-1.26 for the first trimester; OR = 1.09, 95% CI, 1.00-1.18 for the second trimester; OR = 1.13, 95% CI, 1.03-1.24 for the third trimester; OR = 1.35, 95% CI, 1.12-1.63 for the entire pregnancy]. PPRM had a positive relationship with ambient PM2.5 exposure (per 10 $\mu\text{g}/\text{m}^3$) (OR = 1.17, 95% CI, 0.94-1.45 for the first trimester; OR = 1.11, 95% CI, 0.92-1.33 for the second trimester; OR = 1.19, 95% CI, 0.99-1.44 for the third trimester; OR = 1.53, 95% CI, 1.03-2.27 for the entire pregnancy). A positive trend between acute exposure windows (mean PM2.5 concentration in the week and the last day of pregnancy) and the risk of PROM and PPRM was also observed. The results of the assessment concluded that ambient PM2.5 exposure during pregnancy is associated with an increased risk of PROM.

5. PROM Medical Record

The previous history of Preterm Premature Rupture of Membrane (PPROM) has a risk of 2-4 times of recurrent PPRM occurrence. The brief explanation of the pathogenesis of PPRM is due to the decrease in the content of membrane collagen, which ultimately triggers the occurrence of both at-term and pre-term PPRM, especially in high-risk patients. Women who experience PPRM during pregnancy or near delivery will have a 3-4 times higher risk

of recurrent PPRM in subsequent pregnancies compared to women who did not experience PPRM before, due to the increasingly fragile composition of the membrane and the decreasing collagen content during subsequent pregnancies. According to Utomo's (2017) assessment, "A history of PPRM occurrence indicates that women who have given birth several times and experienced PPRM in previous pregnancies are believed to be at higher risk of PPRM in subsequent pregnancies." Any conditions that may affect the health of the mother and fetus in utero can increase the risk of early PPRM. Preeclampsia or eclampsia in pregnant women directly affects the quality and condition of the fetus because of the decrease in blood flow to the placenta, resulting in fetal deficiencies (Mourtada et al., 2017).

LIMITATION

The limitations of this assessment are that the data collection was not carried out directly as it involved analyzing other research articles. The researchers in this scoping review were focused only on answering the research objectives and analyzing the experiences of mothers who delivered with PROM.

CONCLUSION AND SUGGESTION

Based on the review of 17 articles, where most of the articles used qualitative assessments, it was found that the experience of mothers who gave birth with PPRM was described in two aspects: the characteristics of mothers giving birth with PPRM (parity, age, work activity, gestational age), and factors related to PPRM (genetic variations of mother and fetus, sexual pattern, infection, exposure to ambient PM2.5, and history of PPRM). There may be some other factors that strongly cause PPRM. Therefore, further assessments and article analysis are still needed to find the main factor causing PPRM by using qualitative methods that explore the phenomena causing PPRM. Preventive efforts carried out on pregnant women include routine prenatal care to detect possible complications during pregnancy and childbirth and to provide information about signs of danger during pregnancy and childbirth.

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ETHICAL CONSIDERATION

Financial Disclaimer

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Conflict of Interest Statement

In writing this scoping review, the authors do not have any conflicts of interest and will be responsible for the content and writing of the paper.

REFERENCES

- Adamou N, Muhammad ID, Umar UA. *Pre-labor rupture of membrane in Aminu Kano teaching hospital: A 2-year review*. Niger J Basic Clin Sci 2019;16:99-102
- Niesiuchowska-Hoxha A, Cnota W, Czuba B, Ruci A, Ciaciura-Jarno M, Jagielska A, Wójtowicz D, Kierach R, Dąbrowski K, Sidorowicz M, Skrzypulec-Plinta W, Wloch A, Borowski D, Węgrzyn P. *A Retrospective Study on the Risk of Respiratory Distress Syndrome in Singleton Pregnancies with Preterm Premature Rupture of Membranes between 24+0 and 36+6 Weeks, Using Regression Analysis for Various Factors*. Biomed Res Int. 2018 Oct 4;2018:7162478. doi: 10.1155/2018/7162478. PMID: 30402491; PMCID: PMC6193337.
- Byonanuwe, Nzabandora, Nyongozi, Pius, Ayebare, & Atuheire. (2020). *Predictors of Premature Rupture of Membranes Among Pregnant Women in Rural Uganda : A Cross-Sectional Study at a Tertiary Teaching Hospital*. International Journal of Reproductive Medicine.
- Dietz J, Plumb J, Banfield P, Soe A, Chehadah F, Chang-Douglass S, Rogers G. *Immediate birth for women between 34 and 37 weeks of gestation with prolonged preterm prelabour rupture of membranes and detection of vaginal or urine group B streptococcus: an economic evaluation*. BJOG. 2022 Sep;129(10):1779-1789. doi: 10.1111/1471-0528.17119. Epub 2022 Mar 8. PMID: 35137528; PMCID: PMC9543209.
- Irwan, H., Agusalim, & Yusuf, H. (2019). *Hubungan Antara Aktifitas kerja dan Usia Masa hamil Dengan Kejadian Selaput ketuban Pecah Dini Di Rumah Sakit Umum Bahagia Makassar 2019*. Jurnal Kesehatan Delima Pelamonia, 3(2)
- Jalli Padmaja, Kuthadi Swarupa. *Maternal and Perinatal Outcome in Premature Rupture of Membranes at Term Pregnancy*. IAIM, 2018; 5(4): 87-91
- Kayiga H, Lester F, Amuge PM, Byamugisha J, Autry AM (2018) *Impact of mode of delivery on pregnancy outcomes in women with premature rupture of membranes after 28 weeks of gestation in a low-resource setting: A prospective cohort study*. PLoS ONE 13(1): e0190388. <https://doi.org/10.1371/journal.pone.0190388>
- Krawanty, A. W., Febrianti, M., & Octaviani, A. (2019). *Faktor yang Berhubungan Terhadap Kejadian Selaput ketuban Pecah Dini (KPD) di RSIA Sitti Khadijah I Makassar Tahun 2019*. Jurnal Kesehatan Delima Pelamonia, 3(1).
- Mi Lee, Seoung., et al., *Acute Histologic Chorioamnionitis Is a Risk Factor for Adverse Neonatal Outcome in Late Preterm Birth after Preterm Premature Rupture of Membranes*. 2013.
- Mourtada, R., Schlecht, J., DeJong, J. 2017. *Aqualitative study exploring child marriage practices among Syrian conflict-affected populations in Lebanon*. Confl. Health 11, 27. doi: 10.1186/s13031-017-0131-z
- Munn, Zachary, Micah D. J. Peters, Cindy Stern, Catalin Tufanaru, Alexa McArthur, and Edoardo Aromataris. 2018. "Systematic Review or Scoping Review? Guidance for Authors When Choosing between a Systematic or Scoping Review Approach." BMC Medical Research Methodology 18(1):143. doi: 10.1186/s12874-018-0611-x.
- Panjaitan, I. M., & Tarigan, A. M. (2018). *Hubungan Karakteristik Ibu Melahirkan Dengan Selaput ketuban Pecah Dini Di Rumah Sakit Martha Friska*. Jurnal Bidan Komunitas, 1(2).
- Pham. JC et al. (2016). *Risk Assessment and Event Analysis. A Tool for the Concise Analysis of Patient Safety Incident*. Joint Commission Journal on Quality and Patient Safety, 42(1), 26-33, AP1-AP3. [https://doi.org/10.1016/S1553-7250\(16\)42003-9](https://doi.org/10.1016/S1553-7250(16)42003-9)
- Sari Oy, Maryanti M, Winarningrum I. *Karakteristik Ibu Melahirkan Dengan Selaput ketuban Pecah Dini Di Rsud Pandan Arang Boyolali*. J Ilmu Kesehat Stikes Duta Gama Klaten. 2016;8(2).
- Tchirikov, Michael., et al. *Treatment of Classic Mid-Trimester Preterm Premature Rupture of Membranes (PPROM) with Oligo/Anhydramnion between 22 and 26 Weeks of Gestation by Means of Continuous Amnioinfusion: Protocol of a Randomized Multicentric Prospective Controlled TRIAL and Review of the Literature*. 2022. 12(9), 1351; <https://doi.org/10.3390/life12091351>
- Wagura, P., Wasunna, A., Laving, A. Prevalence and factors associated with preterm birth at kenyatta national hospital. *BMC Pregnancy Childbirth* 18, 107 (2018). <https://doi.org/10.1186/s12884-018-1740-2>
- Wang, K., Tian, Y., Zheng, H. et al. Maternal exposure to ambient fine particulate matter and risk of premature rupture of membranes in Wuhan, Central China: a cohort study. *Environ Health* 18, 96 (2019). <https://doi.org/10.1186/s12940-019-0534-y>
- Wulandari, E., Ramadhaniati, Y., Eliagita, C., & Rahayu, N. (2020). *Hubungan pola seksual ibu hamil dengan kejadian selaput ketuban pecah dini (kpd) di rsud kepahiang tahun 2019*. Midwifery health journal, 5(2). doi:10.52524/jurnalkebidananjambi.v5i2.100
- Kook SY, Park KH, Jang JA, Kim YM, Park H, Jeon SJ. *Vitamin D-binding protein in cervicovaginal fluid as a non-invasive predictor of intraamniotic infection and impending preterm delivery in women with preterm labor or preterm premature rupture of membranes*, 2018. 13(6)
- Yu, Jiazheng., Lili Chen., Xia Wang., Xiangzhi Li (2022) *Efficacy and Safety Analysis of Phloroglucinol in Combination with Oxytocin for the Induction of Labor in Women with Term Premature Rupture of Membranes (PROM)*.

