



Impact of Pre-pregnancy Body Mass Index and The Incidence of Preeclampsia: Systematic Literature Review

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Abstract

The incidence of preeclampsia is a leading cause of maternal morbidity and mortality worldwide, where the pre-pregnancy body mass index (BMI) is suspected to be one of the significant risk factors but requires a comprehensive synthesis of evidence. This study aims to analyze and synthesize scientific evidence regarding the influence of pre-pregnancy BMI on the incidence of preeclampsia. The method used is a systematic literature review with article searches in the Google Scholar, PubMed, Proquest, and ScienceDirect databases published in the last 5 years. The review results show that out of the 11 analyzed articles, all studies reported a significant relationship between increased pre-pregnancy BMI and the incident risk of preeclampsia. Woman who are underweight before pregnancy have a lower risk of preeclampsia, while those who are overweight or obese have higher incidence of preeclampsia. Regardless of adjustments for confounding factors, this study present that a high pre-pregnancy BMI is an risk factor for the occurrence of preeclampsia, making weight management before pregnancy very important as an effective primary prevention strategy.

Keywords: Preeclampsia, Body Mass Index, Overweight, Obesity.

INTRODUCTION

Preeclampsia is hypertension diagnosed based on an increase in blood pressure $>140/90$ mmHg at a gestational age > 20 weeks and proteinuria $>1+$ on dipstick examination or 0.3 g protein/24 hours excretion. An increase in blood pressure to $>160/110$ mmHg at a gestational age > 20 weeks without considering proteinuria is also one of the diagnoses of pre-eclampsia (Cunningham, F.G *et al.*, 2022). Pre-eclampsia is also a contributor to the increased morbidity and mortality rates in mothers and babies. If preeclampsia is not promptly managed, this condition will progress into a spectrum of more severe diseases with progressive multisystem involvement. The initial pathophysiology begins with abnormal placental implantation, leading to placental ischemia due to the failure of maternal spiral artery remodeling (ABIM, 2024). The hypoxic placenta then releases various factors such as sFlt-1 (soluble fms-like tyrosine kinase-1) excessively into the maternal circulation. This factor causes massive systemic endothelial dysfunction, characterized by vasospasm, increased capillary permeability, and coagulation activation (Gladstone *et al.*, 2025). Without intervention, progressive endothelial dysfunction will trigger the leakage of proteins and fluids into various organs,

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causing cerebral edema, pulmonary edema, as well as liver and kidney dysfunction. At its peak, this condition can develop into eclampsia (grand mal seizures) due to cortical cerebral irritation, as well as HELLP syndrome (hemolysis, elevated liver enzymes, low platelet count) which indicates life-threatening multi-organ failure. In the fetus, chronic vasoconstriction in the uteroplacental circulation causes severe placental insufficiency, resulting in intrauterine growth restriction (IUGR), fetal distress, and even intrauterine fetal death (Dulay, 2024).

The success of the maternal health program can be assessed thru the primary indicator of the Maternal Mortality Rate (MMR). Preeclampsia (PE) affects 1% of pregnancy overall and 1,5% of pregnant woman. PE is responsible for 76,000 maternal fatalities annually in underdeveloped nations of all maternal death (Antwi et al., 2020). The number of maternal deaths collected from family health program records in Indonesia shows an increase each year from 2018 to 2021. The 2021 health profile shows maternal deaths in 2021 amounting to 7,389. This indicates a significant increase compared to 2020, which was 4,627. The causes of maternal death based on the 2021 Health Profile related to COVID-19 were 2,982 cases, bleeding 1,330 cases, and hypertension in pregnancy 1,077 cases. Based on that data, preeclampsia still ranks third as a cause of maternal mortality (Kemenkes, 2021).

Weight (kg) divided by height squared (m²) yields the body mass index (BMI), an antropometric measure used to evaluate a person's nutritional condition. Because BMI is strongly associated with a number of maternal and neonatal outcomes, it become a crucial metric for evaluating nutritional status in pregnant women both before and throughout pregnancy (Mao et al., 2025). Preeclampsia is significantly more likely to occur in people with high BMIs (overweight and obesity). According to research, pregnant woman with BMI of 25 kg/ m² or more are more likely to develop hypertension (Meilinda, 2024).

Based on evidence from previous studies, this systematic literature review aims to explore the relationship between BMI and the incident of preeclampsia. Critical assessment allows researchers to identify research gaps that previous studies have not been able to answer. In addition, this method allows researchers to synthesize the pathophysiological mechanisms of excess adipose tissue and observe the global trend of increasing obesity.

METHOD

This study used a Systematic Literature Review approach following PRISMA (Preferred Reporting Items for Systematic Review and Meta-analysis) guidelines. A systematic literature review is a strategy for collecting, evaluating, integrating and presenting data from various studies on a specific problem (Page *et al.*, 2021). This SLR research will evaluate impact of body mass index (BMI) and the incident of preeclampsia. Article were searched through major scientific database including Google Scholar, Pubmed, Proquest, and Scient Direct. The keywords used were: “Body Mass Index” AND “Preeclampsia,” “Overweight” AND “Preeclampsia,” “Obese” AND “Preeclampsia”. The inclusion criteria consisted of original research articles, open-access journals written in English, published between 2020-2025, human pregnant population, and aligned with PICOS components (Population, Intervention, Comparison, Outcome, Study Design). The exclusion criteria consisted abstracts without full text, studies did not address preeclampsia, pre-pregnancy BMI, overweight, or obesity.

Table 1. PICOS

Komponen	Keterangan
Unit of analysis (participat/ problem)	Who is being researched? <ul style="list-style-type: none"> • Pregnant woman • Gestational aged > 20 weeks • SBP/DBP = \geq 140/90 mmHg • Proteinuria \geq 0,3 g/24 h What problem and diseases in this research? To know the impact of body mass index and incidence of pre-eclampsia
Intervention or interest	What is the respondent expected condition? Pre-pregnancy BMI (categorized as underweight, normal weight, overweight, obese class I, II, III).
Comparison	How the comparison incidence of preeclampsia between normal pre-pregnancy BMI (18,5-24,9 kg/m ²), underweight (<18,5), overweight (23,0-24,9) and obese (>25,0).
Outcome	What the expected outcome? Woman with pre-pregnancy BMI overweight or obese has higher risk of pre-eclampsia than underweight woman.
Study Design	Methodology research: <ul style="list-style-type: none"> • Case control • Cohort

Using two-stage process, two reviewers independently screened the retrieved records. Disagreements were resolved by discussion or consultation with a third reviewer. Stage 1 (Title and abstract screening): all unique records were screened for relevance based on the eligibillity criteria. Stage 2 (full-text secreening): full texts of potentially eligible articles were retrieved and assessed againts the inclusion or exclusion criteria.

A standardized data extraction form was developed in Microsoft Excel. For each included study, the following was extracted: 1) Study characteristics: first author, year, country, and study design, 2) Population characteristics: sampel size, maternal age, parity, gestational age, and BMI measurement, 3) Exposure definition: pre-pregnancy BMI categories and cutoffs used, 4) Outcome definition: preeclmapsia diagnostic criteria, severity, and timing, 5) Effect measure: adjusted odds ratios or relative risk with 95% CI and covariates adjusted for.

The methodological quality of include studies was assesses using the Newcastle-Ottawa scale (NOS) for cohort and case-control studies. Due to anticipated heterogeneity in study designs, BMI categorization methods, preeclampsia definition and adjustment covariates, a narrative synthesis was performed. The methodological quality of included studies was assessed using the Newcastle-Ottawa Scale (NOS) adapted for cohort and case-control studies. The NOS evaluates studies across three domains: selection of study groups (4 stars), comparability of groups (2 star) and ascertainment of outcome (3 star), for maximum total of 9 stars (Norris et al., 2021). The following modifications were made for the unique circumstance of pre-pregnancy BMI and preeclapmsia. Pre-pregnancy BMI ascertainment was deemed high quality if measured from medical prior to 14 weeks gestation, preeclampsia diagnosis was deemed high quality if based on ACOG criteria with medical record validation, and comparability scoring required adjustment for

maternal age (1 star) and least one additional confounder (parity, chronic hypertension, gestational diabetes, smoking or socioeconomic status) (second star). High quality studies received seven-nine stars, moderate quality studies received five to six stars, and low quality studies had less than four stars.

The initial search produced 149 articles, which were narrowed down to 99 articles. After removing duplicates, systematic review article, and based on full-text accessibility leaving 10 eligible articles. Data identification and extraction followed the PRISMA flow diagram such as the following figure 1.

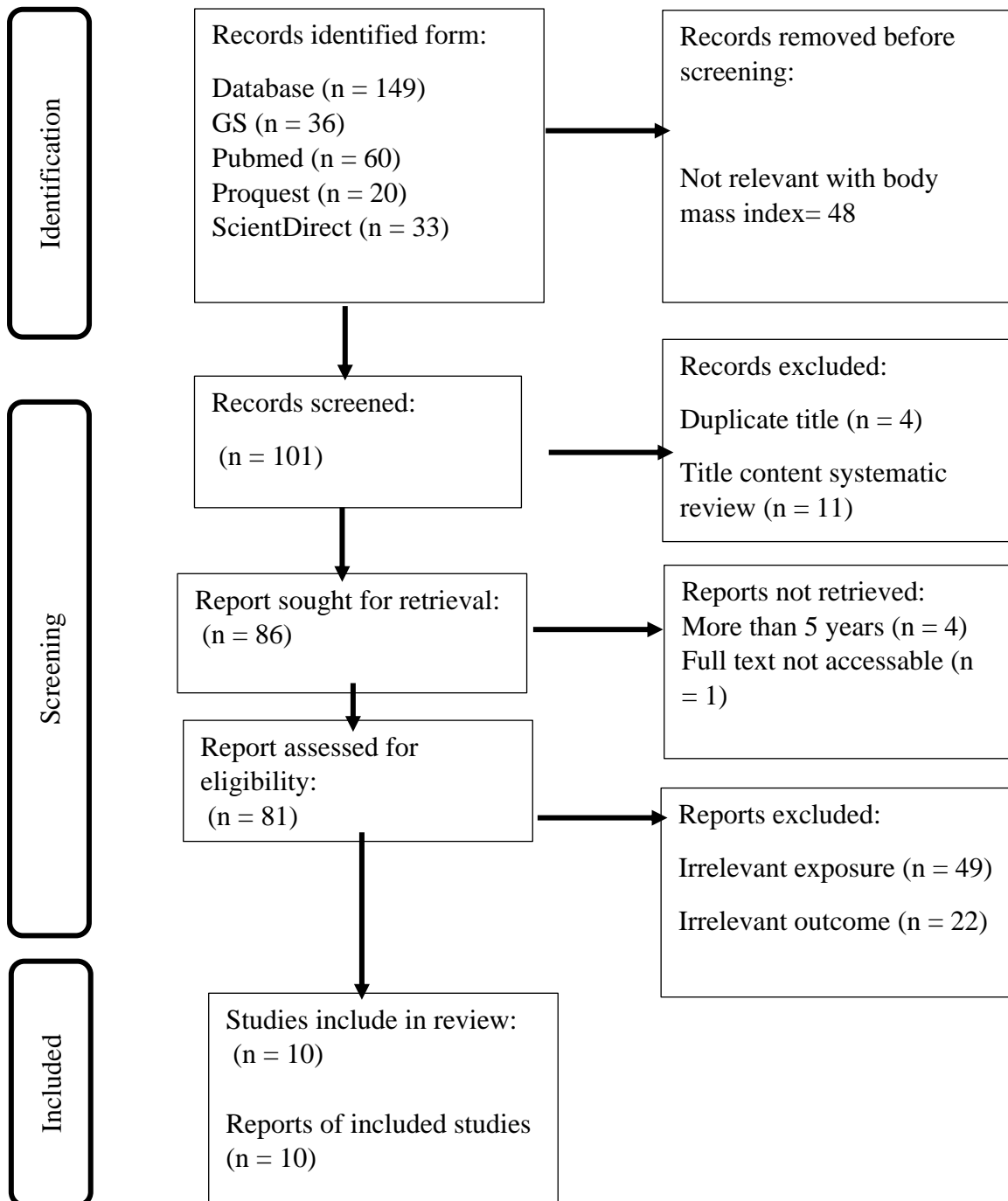


Figure 1. PRISMA Systematic Literature Review The Impact of Pre-pregnancy BMI and Incident of Preeclampsia

Figure Source: PRISMA 2020 Flow Diagram Template for Systematic Review

RESULT

After going through the process of searching, screening and extraction there were 10 journals identified as meeting the inclusion and exclusion criteria. Quality assessment using NOS revealed that among cohort and case-control studies, 7 journals are categorized as high quality, 2 journal moderate quality, and 1 journal low quality. The following will elaborate on the 10 journals by looking at the author's name, purpose of research, methods, location, and results.

Table 2. Article Extraction Result Based on PRISMA According to the Quality Journal on The Impact of Pre-pregnancy BMI and Incidence of Preeclampsia

No	Writer	Purpose	Method	Location	Result
1.	Mao Jing <i>et al.</i> (2025)	To investigate the relationship between pre-pregnancy Body Mass Index (BMI) and the risk of developing preeclampsia, including its severe form.	Retrospective cohort study	Shanghai, China	Overweight (BMI 24-<28 kg/m ²) and obese (BMI ≥ 28 kg/m ²) women exhibited a significantly higher risk of preeclampsia. The adjusted ORs were 2.152 (95%CI, 1.911-2.425) for overweight and 3.493 (95%CI, 2.874-4.245) for obese women, respectively.
2.	Huang Sulan <i>et al.</i> (2025)	To quantify the predictive validity of the TyG-BMI index through longitudinal analysis and establish clinical utility thresholds for preeclampsia risk stratification in elderly gravidas.	Retrospective cohort study	Changde, China	The TyG-BMI index was significantly and positively associated with the risk of preeclampsia, showing a dose-response relationship. A one-standard deviation increase in the TyG-BMI index was linked to a 43% higher risk of preeclampsia in the fully adjusted model (OR = 1.43; 95% CI: 1.25–1.65; P < 0.0001).
3.	Sun Mengtin <i>g et al.</i> (2023)	To investigates the interplay between advanced maternal age and pre-pregnancy body mass index (BMI) on the risk of pre-eclampsia and gestational diabetes mellitus (GDM).	Prospective cohort study	Hunan, Central China	Maternal pre-pregnancy overweight/obesity was associated with increased risks of pre-eclampsia (aOR 3.64, 95% CI 3.12-4.24) and GDM (aOR 1.71, 95% CI 1.60-1.85).
4.	Cakina Suat <i>et al.</i> (2025)	To investigates the role of oxidative stress in preeclampsia (PE) by analyzing biomarkers across different Body Mass Index (BMI) categories.	Case-control study	Canakkale, Turkey	The study observed that preeclamptic women's oxidative stress increased as their BMI rose MDA levels in the PE group were significantly higher than controls across all BMI categories (normal weight, overweight, and obese).
5.	Abdi Fatemeh <i>et al.</i> (2025)	To investigate the association between pre-pregnancy high maternal weight, specifically overweight and obesity, and the occurrence of adverse maternal and neonatal complications.	Retrospective cohort study	Bandar Abbas, Iran	Compared to normal weight mothers, overweight mothers had: A significantly higher risk of preeclampsia (OR=2.148), An increased risk of gestational diabetes (OR=1.319), A notably

					reduced likelihood of normal vaginal delivery (OR=0.583). Obese mothers faced even higher risks: Increased odds of induced labor (OR=2.046), Significantly higher risk of preeclampsia (OR=3.079), Increased risk of gestational diabetes (OR=2.378), Significantly increased odds of maternal ICU admission (OR=5.088), A decreased chance of normal vaginal delivery (OR=0.438).
6.	Hoorn Fieke <i>et al.</i> (2021)	To investigated the impact of maternal body mass index (BMI) on adverse pregnancy outcomes, with a particular focus on women within the normal weight range.	Prospective cohort study	Utrecht, Netherland	Even within the normal BMI reference interval, a graded increase in maternal BMI was associated with a higher risk for adverse pregnancy outcomes. Specifically, for a BMI-point increment within the 18.5–24.9 kg/m ² range, adjusted relative risks were: (1,15 (95%CI 1.06–1.26) for composite adverse maternal outcome; 1.12 (95%CI 1.00–1.26) for pregnancy-induced hypertension; 1.31 (95%CI 1.11–1.55) for gestational diabetes mellitus; 1.09 (95%CI 1.01–1.17) for large-for-gestational-age neonates).
7.	Mackeen Dhanya <i>et al.</i> (2024)	To investigate the prepregnancy Body Mass Index (BMI) class-specific risks for various pregnancy and neonatal complications.	Retrospective cohort study	Pennsylvania, USA	There was a significant increasing trend across BMI classes for hypertensive disorders of pregnancy (HDP), GDM, preterm delivery (PTD), induction of labor (IOL), cesarean delivery (CD), and postpartum hemorrhage (PPH). For instance, class III obesity was associated with significantly increased odds of GHTN (OR 4.55), preeclampsia (OR 2.35), and GDM (OR 1.71).
8.	Gong Xiaoli <i>et al.</i> (2022)	To estimate the risk of preeclampsia based on gestational weight gain (GWG) among women with varied prepregnancy Body Mass Index (BMI).	Retrospective cohort study	China	Overweight and obese women had significantly increased risks of preeclampsia compared to women with normal BMI, with 1.92-fold (95%CI, 1.73-2.14) and 5.06-fold

					(95%CI, 4.43-5.78) increased risks, respectively. Underweight women did not show a significant difference in risk compared to normal weight women.
9	Jancsura McKenz ei <i>et al.</i> (2023)	To investigates the role of inflammatory markers in early and late pregnancy among overweight and obese women who later develop preeclampsia.	Case-control secondary analysis	Columbus, USA	Early and Mid-Pregnancy Elevations: Pro-inflammatory markers (IL-1 α , IL-1 β , IL-6, IFN- α , IFN- γ , GM-CSF, IL-12p70, IL-17 α , TNF- α , IL-8) and anti-inflammatory markers (IL-4, IL-10, IL-13) were significantly higher in the first and second trimesters in women who later developed preeclampsia compared to controls (p < .05). Late Pregnancy Persistence: Only TNF- α and IL-8 remained elevated in the third trimester in preeclampsia cases.
10	Abramov a Maria <i>et al.</i> (2022)	To investigate how pre-pregnancy overweight or obesity influences the association pattern between hypertension susceptibility genes and preeclampsia (PE).	Case control study	Belgorod, Russia	Two specific SNP hypertension/BP genes were significantly associated with PE in women with pre-BMI \geq 25. No significant association between the studied SNPs and PE was found in the group with pre-BMI < 25.

Based on the screening dan data extraction result, most of the articles obtained indicate that excessive weight gain in pregnancy women can increase the risk of preeclampsia. Although not many studies directly examine the relationship between BMI and preeclampsia, some articles show a connection between preeclampsia and inflammation markers. Pregnant women with preeclampsia show an increase in leptin, triglycerides, and TNF-alpha (Veiga et al., 2022).

A study show that preeclampsia is a complex form of prenatal hypertension characterized by endothelial dysfunction, inflammation, and oxidative stress. The levels of malondialdehyde, total oxidant status, and oxidative stress index significantly higher in the preeclampsia group. Preeclampsia women's oxidative stress rose as their BMI rose (Çakina et al., 2025). This approach can demonstrate that there many risk factors that influence preeclampsia. Therefore, early detection is the first step we can take to prevent maternal death due to preeclampsia.

DISCUSSION

This systematic review provides that elevated pre-pregnancy BMI is associated with significantly increased risk of preeclampsia. Some research with 75.773 pregnant women were categorized into four groups based on their pre-pregnancy BMI: underweight (<18.5 kg/m²), normal weight (18.5-<24 kg/m²), overweight (24-<28 kg/m²),

and obese (≥ 28 kg/m²), showing that overweight and obese women exhibited a significantly higher risk of preeclampsia. The adjusted ORs were 2.152 (95%CI, 1.911-2.425) for overweight and 3.493 (95%CI, 2.874-4.245) for obese women, respectively. For severe preeclampsia, the adjusted ORs were 1.652 (95%CI, 1.364-2.001) for overweight and 2.762 (95%CI, 2.014-3.788) for obese women (Mao et al., 2025). Underweight showed either no association or a modest protective effect. Gong *et al* (2022) explained that excessive gestational weight gain was found to be associated with increased risk of preeclampsia among woman with normal weight in his study. The mechanism by which pre-pregnancy obesity and excessive gestational weight gain result in preeclampsia had not been fully clarified, but studies suggested that oxidative stress may play an important role in the pathogenesis (Gong et al., 2022). These findings confirm that pre-pregnancy obesity is one of the risk factors for preeclampsia.

Preeclampsia in obese versus normal weight women, consistent with our observed range. Identified a dose response gradient, which our review trying to compare this review with research across a larger and more geographically diverse set of studies. A review indicates that there are racial and ethnic differences in the prevalence of hypertension disorder of pregnancy (HDP). Hypertension disorder of pregnancy is consistently associated with increased cardiovascular disease (CVD) risk across various racial and ethnic groups. The prevalence gestational hypertension among Asian and Pasific Islander (API) women is significantly lower compared to non Hispanic white women. Eclampsia prevalence among API women does not different significantly from that non Hispanic white women (Zahid et al., 2022).

However, there are several other factors that influence the incidence of preeclampsia. We found that, the association between overweight and preeclampsia was stronger in nulliparous women (OR: 2,4), advanced maternal age (≥ 35 years) (OR: 1,73), being unmarried (OR: 2,03), chronic hypertension (OR: 18,66), and multiple pregnancy (OR: 6,58) (Frank et al., 2020) (Nakimuli et al., 2025). The paper investigates the risk of preeclampsia particularly in low and middle income settings found that lower socioeconomic status, nulliparity, and younger maternal age are identified as significant predictors of eclampsia progression, necessitating comprehensive, contextualized risk assessment strategies that integrate social determinants of health (Nakimuli et al., 2025).

Our findings align with and extend previous systematic reviews on this topic. Research found that maternal pre-pregnancy overweight/obesity was associated with increased risks of preeclampsia (aOR 3.64, 95% CI 3.12-4.24) and gestational Diabetes Mellitus (GDM) (aOR 1.71, 95% CI 1.60-1.85). Maternal age and pre-pregnancy BMI had a significant interaction on the risk of preeclampsia/GDM (all p for interaction < 0.001). Pregnant women with pre-pregnancy overweight/obesity and advanced age (≥ 35 tahun) had risk 5.66 times experience preeclampsia. Beside that had 2.80 times higher risk of GDM than those under 35 years with normal weight. Pre-pregnancy BMI moderated the link between advanced mother age and the development of preeclampsia and GDM (Sun et al., 2023). Blood sugar levels in pregnant women also have a higher risk of preeclampsia, where GDM and BMI are related to each other. These findings support the accumulating notion that some PE phenotypes are caused by pre-existing cardiovascular impairment, rather than placental dysfunction. Diabetes is a major cardiovascular risk factor (Pankiewicz et al., 2022).

The TyG-BMI index was significantly and positively associated with the risk of preeclampsia, showing a dose-response relationship. A one-standard deviation increase in the TyG-BMI index was linked to a 43% higher risk of preeclampsia in the fully adjusted model (OR = 1.43; 95% CI: 1.25–1.65; P < 0.0001). The association was particularly strong in nulliparous women, with an odds ratio of 2.21 (95% CI: 1.68–7.14;

$P < 0.001$), no significant relationship was found in parous women (Huang et al., 2025). This is accordance with research which state higher pregestational body mass index (aOR 1.03, 95% CI: 1.01-1.06; $P < 0.012$), previous GDM history (aOR 9.97, 95% CI: 3.92–25.37; $P < 0.001$), family history of diabetes (aOR 2.36, 95% CI: 1.39–4.02; $P < 0.001$), higher mean arterial pressure (aOR 1.17, 95% CI: 1.07-1.27; $P < 0.040$) were independently associated with the development of GDM (Guo et al., 2024). From these two studies, there is a correlation showing that pregnant women who are overweight or obese before pregnancy are at risk of increased blood sugar, and this is also a risk factor for pre-eclampsia.

Obesity is linked to leptin resistance and hyperleptinemia. Leptin, an adipokine, promotes angiogenesis (the development of new blood vessels), but excessive amounts can lead to endothelial dysfunction and oxidative stress (Jancsura et al., 2023). Abnormal leptin signaling in the placenta may impede the natural remodeling of spiral arteries, which is necessary for proper uteroplacental blood flow. When these arteries do not remodel adequately, the placenta become hypoxic, releasing anti-angiogenic substance (such as sFlt-1) that contribute to maternal hypertension and proteinuria (Veiga et al., 2022). Previous studies reported that obese pregnant women with PE have increased leptin levels compare with healthy pregnant women. Hyperleptinemia may contribute to placental ischemia and the ensuing onset of PE (Xue et al., 2025).

Role of oxidative stress in preeclampsia (PE) by analyzing biomarkers across different Body Mass Index (BMI) categories also related to this research. The study observed that preeclamptic women's oxidative stress increased as their BMI rose MDA levels in the PE group were significantly higher than controls across all BMI categories (normal weight, overweight, and obese). Preeclamptic women exhibit a significantly different oxidative-antioxidative balance compared to women with normal blood pressure, characterized by increased oxidative stress markers (MDA, TOS, OSI) and decreased TAS levels. While oxidative stress changes were observed across all BMI categories, obese women showed the largest effects, indicating that obesity may exacerbate redox imbalance in PE (Çakina et al., 2025).

For clinicians, pre-pregnancy BMI should be considered as critical risk factor for preeclampsia during antenatal risk assessment. Pregnant women are required to have at least 6 antenatal care (ANC) visit during pregnancy (Kemenkes, 2021). ANC is early detection if there are pregnant women with pre-pregnancy BMI overweight or obese, so that midwives can monitor them periodically. Pregnant women with BMI ≥ 30 should be advised and evaluated more regularly such as blood pressure and proteinuria. Importantly, risk reduction is possible. Even minor pre-pregnancy weight loss (5-10% of body weight) has been proven to reduce preeclampsia risk, providing a window for preconception management (WHO, 2017).

Mackeen explained in his research increasing pre-pregnancy BMI class is associated with a significant increase in the risk of both composite maternal and composite neonatal adverse outcomes. As pre-pregnancy BMI class increased, the odds of composite maternal morbidity significantly increased. Women with class III obesity (BMI ≥ 40.0 kg/m²) were 4.40 times more likely to experience composite maternal morbidity compared to those with normal BMI. This information highlights the importance of achieving a healthier BMI category prior to conception to potentially lower pregnancy morbidity (MacKeen et al., 2024). This research in consistent with research that compared to normal weight mothers, overweight mothers had: A significantly higher risk of preeclampsia (OR=2.148) and increased risk of gestational diabetes (OR=1.319). Obese mothers faced even higher risks: increased odds of induced labor (OR=2.046); significantly higher risk of preeclampsia (OR=3.079) and increased risk of gestational diabetes (OR=2.378) (Abdi et al., 2025).

The rising global prevalence of obesity among women of reproductive age now more than 30% especially in low and middle-income countries. Preeclampsia preventive measure should target population-level strategies that promote healthy weight before pregnancy, such as school-based nutrition education, community fitness programs, and legislative actions to limit sugar sweetened beverage consumption (Kementrian Kesehatan RI, 2020). Preeclampsia remains a primary cause of maternal and neonatal morbidity and mortality globally, resulting in a significant economic burden. Investing in preconception weight management programmes may be cost effective compared to the downstream expenses of addressing preeclampsia and its sequelae (including preterm birth, neonatal intensive care, and long-term cardiovascular disease affected women) (WHO, 2025).

According some research, the genetic vulnerability to preeclampsia is significantly influenced by pre-pregnancy BMI status, with certain genes linked to hypertension only exhibiting relationships in overweight/obese women (Antwi et al., 2020). This highlights the intricate interaction between genetic predisposition and environmental factors in the development of PE and implies that genetic risk factors for PE may be a part of shared genetic components linking overweight/obesity to the illness. The discovered SNPs possible relevance in the pathogenesis of the disease is further supported by their functional impact (Abramova et al., 2022). Even for women whose BMI falls within the reference range, a graded increase in maternal BMI seems to be a predictor of poor pregnancy outcomes (Van Hoorn et al., 2021). In order to identify the most effective solutions for promoting safety and long-term health for mothers and their children, it is important to access the degree to which BMI directly contributes to the elevated the risk of preeclampsia.

CONCLUSSION AND RECOMMENDATION

Finally, this systematic review found a strong, dose-dependent relationship between high pre-pregnancy BMI and incidence of preeclampsia. As worldwide obesity rates among women of reproductive age continue to climb, preeclampsia caused by maternal obesity constitutes an increasing and mostly preventable burden. Even modest preconception weight management is a promising technique for reducing preeclampsia occurrence. Future research should prioritize rigorous intervention trials to determine if weight loss before pregnancy can reduce preeclampsia risk. Conducting direct surveys with respondent to obtain more accurate evidence is needed. Given that preeclampsia cases remain quite high in Indonesia and research with this topic are still rare.

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