

Association between pre-pregnancy body mass index and gestational weight gain on adverse pregnancy outcome among gestational diabetes mellitus patients in Pasir Mas district, Kelantan

Aimi Syairah Ismail¹, Munira Mahmud², Nur Farha Adnin Azmi³, Nor Asmah Hassan¹, Nik Aida Nik Adib², Zubaidah Ismail¹

¹Meranti Health Clinic, Pasir Mas, Kelantan, Malaysia, ²Pasir Mas Health District Office, Kelantan, Malaysia, ³Chekok Health Clinic, Pasir Mas, Kelantan, Malaysia

ABSTRACT

Introduction: Gestational diabetes mellitus (GDM) is a growing concern among antenatal mothers worldwide, with gestational weight gain (GWG) and pre-pregnancy body mass index (pBMI) being key factors for adverse pregnancy outcomes (APOs). These complications include pregnancy-induced hypertension, pre-eclampsia, Caesarean section, macrosomia, neonatal jaundice and prematurity. The study aims to determine association between pBMI and GWG on APOs among GDM patients in Pasir Mas. **Materials and Methods:** A cross-sectional study was conducted from January to June 2023, utilizing secondary data obtained from antenatal record books in four government health clinics with specialists located in the Pasir Mas district. The data collected spanned from June 2020 to June 2022. The study included Malaysian women with registered GDM who were over 18 years old and had their first antenatal visit during the first trimester. Participants with known pre-existing diabetes or chronic illnesses and multiple pregnancies were excluded. A total of 143 respondents were included in the study. The association between pBMI and GWG on APOs were analyzed using the Chi-square test and the relationship between pBMI and GWG using Pearson's correlation. The IBM SPSS version 26 was used for analysis. **Results:** The mean age of respondents is 30.3 ± 4.90 years, majority respondents have attained secondary education level (55.9%), housewife (56.6%), multipara (60.8%) and with diet control alone (84.6%). In terms of delivery modes, 64.3% had spontaneous vaginal delivery. Mean pBMI is 28.5 ± 6.91 kg/m², majority of respondents are obese (34.3%) and have inadequate GWG (44.8%). There is statistical significance between pBMI and delivery modes ($p < 0.036$). 80.4% of respondents undergoing Caesarean section were those having abnormal pBMI. There is also statistical significance between GWG and maternal complication ($p < 0.020$). Pearson's correlation showed there was a significant and moderately negative correlation between pBMI and GWG ($r = 0.48$, $p < 0.001$). **Conclusion:** The research indicates that pBMI plays a role in determining the method of delivery, as abnormal pBMI is linked to Caesarean section. Additionally, abnormal GWG is associated with maternal complications. The research emphasizes the importance of effectively managing pBMI and promoting appropriate GWG to enhance the health outcomes of both mothers and babies. Health care providers can implement suitable interventions and strategies to optimize these outcomes.