UNIVERSITI TEKNOLOGI MARA (UiTM)

ASSOCIATION BETWEEN MATERNAL WEIGHT INDICATORS AND IRON DEFICIENCY ANEMIA (IDA) AMONG PREGNANT WOMEN IN SELANGOR

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"In the name of ALLAH, the Most Gracious and Most Merciful"

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ABSTRACT

Iron deficiency anemia (IDA) during pregnancy is a prevalent public health concern, particularly in developing countries. The risk of iron deficiency anemia (IDA) during pregnancy is greatly influenced by the weight of the mother. This study aimed to determine the prevalence of IDA, to investigate the association between maternal weight indicators and iron deficiency anemia (IDA) risk and to identify its predictors among pregnant women in Selangor, Malaysia. The cross-sectional study involved 197 pregnant women, with data collected through questionnaires and medical records. The prevalence of IDA among the participants was found to be 35%, higher than the national range of 31.6% to 34.6%. Significant predictors of IDA included pre-pregnancy BMI, gestational weight gain, meat intake frequency, and pregnancy complications. The data obtained from this study were analyzed using SPSS version 29, including Chi-Square test, Fisher's Exact Test, and Binary Logistic Regression to address the study's objectives. The results indicated that pre-pregnancy BMI was a significant predictor of IDA. Underweight women had a crude OR of 4.364 (95% CI: 1.470-12.965, p=0.007) and an adjusted OR of 4.023 (95% CI: 1.202-13.479, p=0.021), indicating a fourfold increase in IDA risk. Women with normal BMI also showed a significant association with IDA, with a crude OR of 2.622 (95% CI: 1.162-5.931, p=0.020) and an adjusted OR of 2.722 (95% CI: 1.099-6.737, p=0.030). Women in the third trimester exhibited a trend towards higher IDA odds (crude OR=3.168, 95% CI: 1.000-10.035, p=0.052; adjusted OR=2.563, 95% CI: 0.749-8.765, p=0.143), though the association was not statistically significant. Meat intake frequency, initially showing a crude OR of 0.478 (95% CI: 0.219-1.043, p=0.065), became non-significant after adjustment (adjusted OR=0.499, 95% CI: 0.228-1.090, p=0.127). The presence of pregnancy complications indicated a crude OR of 0.000 (95% CI: undefined, p=0.999), reflecting the protective effect of the absence of complications. These findings underscore the importance of monitoring maternal nutrition status and gestational progression to mitigate the risk of IDA during pregnancy.

Keywords: Anaemia, Iron Deficiency Anaemia, Pregnant Women, Maternal Weight Indicator, Pre-Pregnancy BMI, Gestational Weight Gain

TABLE OF CONTENT

CHAPTER 1: INTRODUCTION

1.1 Research Background

Anemia is a serious global health problem that particularly affects young children, menstruating adolescent girls and pregnant women. The World Health Organization (WHO, 2023) estimates that 40% of children 6-59 months of age, 37% of pregnant women, and 30% of women 15-49 years of age worldwide are anemic. Anemia, most commonly due to iron deficiency, is a common problem in pregnant women worldwide, affecting nearly 50% of pregnancy globally (Antonia et al., 2023). The Centers for Disease Control and Prevention (CDC) characterize pregnancy related anemia as having hemoglobin levels below 11g/dL in the first and third trimesters, and below 10.5g/dL in the second trimester. Numerous studies have indicated that the most frequent reason for anemia during pregnancy is attributed to iron deficiency (Breyman et al., 2017). During pregnancy, anemia is categorized as mild if the hemoglobin level falls within the range of 10-10.9 g/dL, moderate if the hemoglobin level ranges from 7-9.9 g/dL and severe if hemoglobin level is less than 7 g/dL (World Health Organization, 2008).

Globally, the reported prevalence of pregnancy-related anemia is 29.95% (Abd Rahman et al., 2022). Maternal anemia poses substantial risks for both mothers and infants (Beckert et al., 2019). Pregnant women with severe anemia have been found to face twice the risk of mortality compared to those without anemia (Daru et al., 2018). The increased risk derived from severe bleeding during delivery or postpartum (Khaskheli et al., 2016) and (Nair et al., 2016), as well as complications associated with anemia such as heart failure (Khaskheli et al., 2016) and (Tangeda et al., 2016). However, anemia in expectant mothers is also associated with unfavorable perinatal outcomes, such as intrauterine growth retardation, premature labor, low birth weight, and neonatal anemia. Additionally, it can contribute to maternal complications