

## **Association of maternal characteristics with neonatal parameters among live births in obstetric wards of Teaching Hospital Jaffna**

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**Background and Objective:** Maternal factors influence neonatal health and development. This study aims to describe maternal characteristics and neonatal parameters and determine the association between them.

**Methods:** This is a hospital-based retrospective descriptive cross-sectional study conducted on 660 live births that occurred in Teaching Hospital Jaffna (THJ) from July 2021 to January 2022. Data extraction forms were used to extract data on maternal characteristics and neonatal parameters. Frequency statistics and bivariate analysis were used to analyse data.

**Results:** In the sample, 10.4% (n=68) and 14.8% (n=98) of mothers were teenagers and mothers of advanced maternal age, respectively. A third (33%, n=215) had body mass index (BMI) higher than the normal range. Prevalence of gestational diabetes mellitus (GDM) was 10.8% (n=71), pregnancy-induced hypertension (PIH) 4.4% (n=29), maternal anaemia 9.2% (n=61), hypothyroidism 3.3% (n=22) and asthma 2.4%. Among babies, 20.5% (n=135) were of low birth weight (LBW), 0.3% had high birth weight and others were of normal birth weight (79.2%, n=523). With respect to length, 12.2% (n=80) had low birth length, while 82.2% (n=542) and 5.6% (n=37) were of normal and high birth length, respectively. In addition, 30.3% (n=200) babies were born with low occipital frontal circumference (OFC), while 69.1% (n=456) and 0.6% (n=4) were born with normal and high OFC, respectively. There was a significant association between birth weight ( $p < 0.001$ ), birth length ( $p = 0.002$ ), OFC ( $p = 0.001$ ) and maternal BMI. There was a significant association between OFC ( $p < 0.001$ ), birth weight ( $p < 0.001$ ), birth length ( $p = 0.002$ ) and maternal PIH. OFC and maternal anaemia also had a significant association ( $p = 0.047$ ).

**Conclusions:** This study revealed that 1/3 of the mothers had high BMI, 1/5 of the babies had LBW and 1/3 had low OFC at THJ. There was a significant association between pre-pregnancy BMI and all neonatal parameters. Birth weight and birth length were significantly related to maternal PIH. OFC was significantly associated with anaemia and PIH. Maternal age and other maternal morbidities did not have an association with neonatal parameters.

**Keywords:** Neonatal parameters, Maternal factors, Jaffna, Maternal diseases, Low birth weight