

Effect of serum albumin and protein of pregnant mothers on weight of mother- newborn pair

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Introduction

Maternal albumin and total protein deficiencies are the indices to show the suitable state of an individual and these could have influence on the birth weight (BW) of the newborns and weight of the mothers.

Objectives

Determine the relationship between maternal albumin & total protein and BW of the newborns & weight of the mothers.

Methodology

In this study, systematic sampling technique was used and 420 mothers were selected. Maternal serum samples were analyzed with fully automatic biochemical analyzer (Urba XL-200). BW was categorized into Low Birth Weight (LBW) (<2500 g), Normal Birth Weight (NBW)(2500-4500 g) and High Birth Weight (HBW) (>4500 g). Mothers weight was categorized as <55 and ≥55 kg

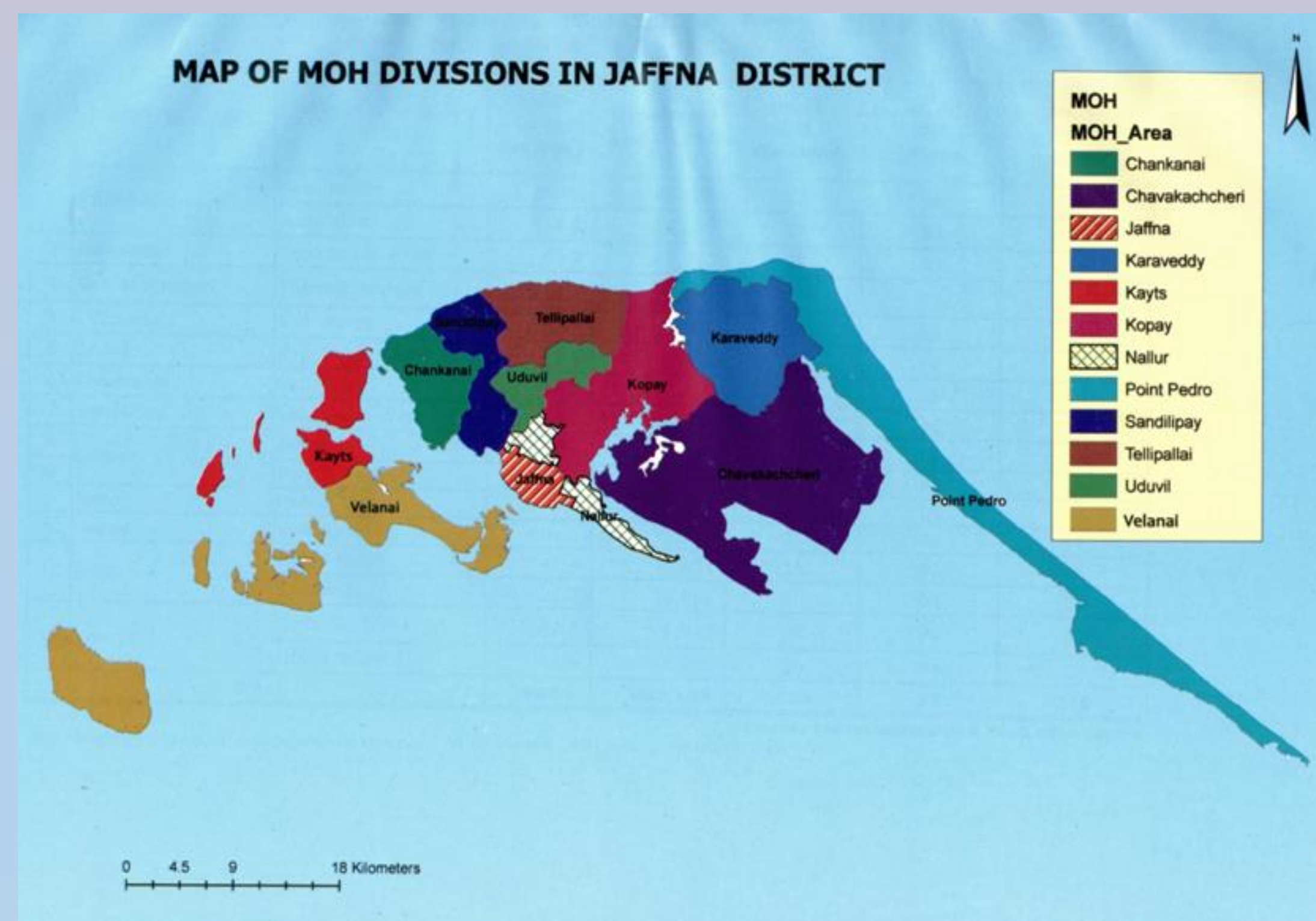


Fig. 1: Study area for sample collection in Jaffna District, Sri Lanka

Ethical clearance was obtained from Ethical Review Committee, Faculty of Medicine, University of Jaffna to conduct the study. Data were analyzed by Statistical Package for Social Sciences (SPSS) Version 16 for window.

Results

- Among the 420 newborns, 212 were females (50.5%).
- Mean BW of the newborn was 3027.5 (±431.6) g, ranging from 1500.0 to 4550.0 g.

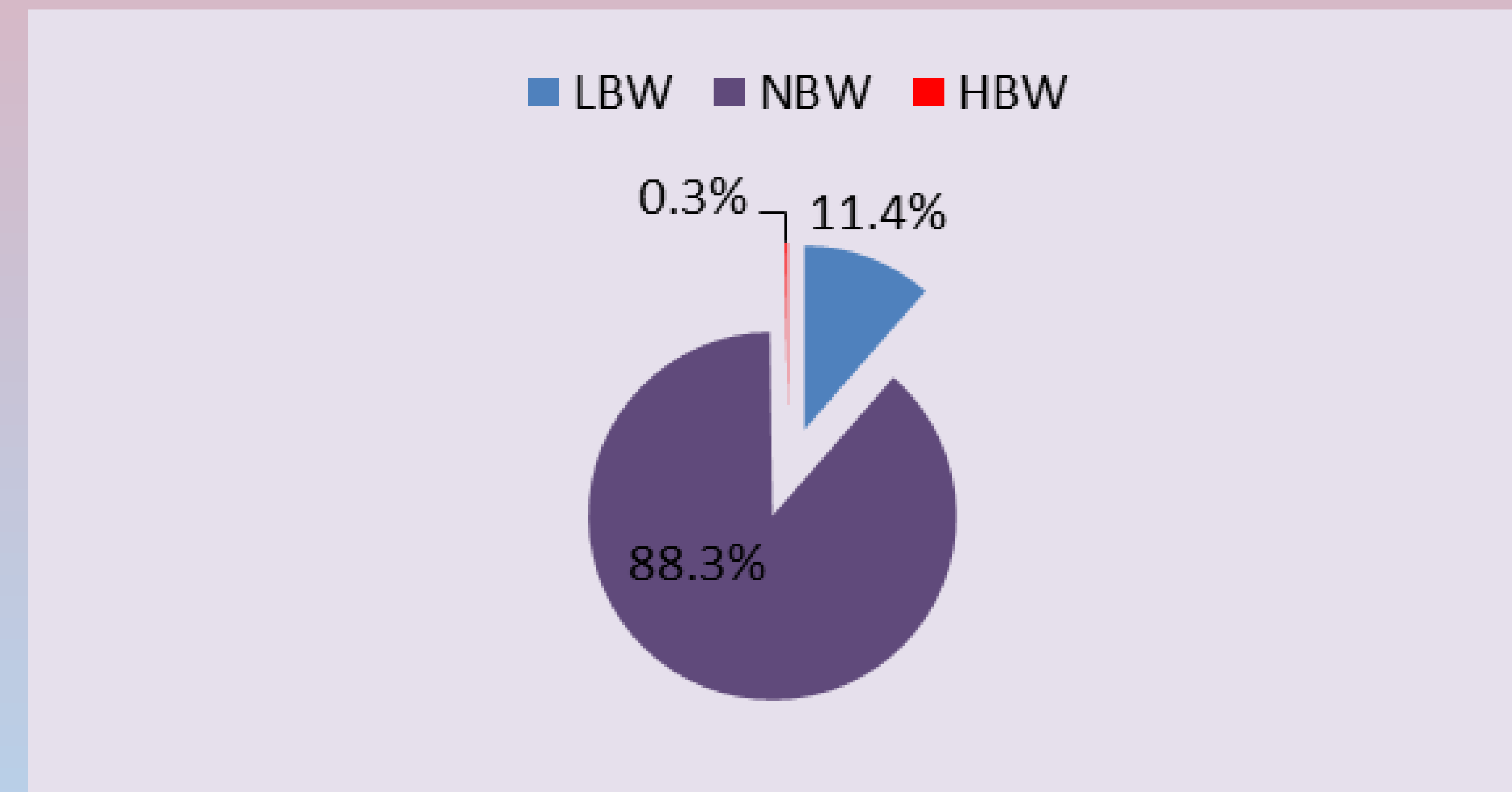


Fig. 2: BW categories of the newborns

- Mean weight of the mothers was 63.0 (±11.6) kg.
- Of the total mothers 23.8 (n100) and 76.2 % (n320) had weight <55 and ≥55 kg respectively.

- Mean albumin and total protein were 3.86 (±0.35) and 6.84 (±0.68) g/dL, ranged from 2.74 to 5.07 g/dL and from 4.89 to 9.28 g/dL respectively.
- Albumin and total protein deficiencies were seen among 9.5 (n40) and 6.9 % (n29) of the mothers respectively.
- In this study, 11.0 (n42) and 11.8 % (n46) of LBW newborns were born to the mothers who had acceptable level of albumin and total protein respectively while 88.7 (n337) and 88.0 % (n344) of NBW newborns were born to similar mothers.
- Albumin and total protein deficiencies were seen among mothers, those weights were <55 kg or ≥55 kg and the values were 27.5 (n11) & 31.0% (n9) and 72.5 (n29) & 69.0 % (n 20) respectively.
- A significant correlation was found between maternal total protein and weight (r= -0.098, p=0.045).
- Maternal albumin (r= -0.029, p=0.548) and total protein (r= -0.031, p=0.533) did not significantly correlate with the BW of the newborns while maternal albumin had correlated with weight of mothers (r= -0.088, p=0.071).

Conclusion

- Maternal albumin and total protein were observed to associate with the BW of the newborns and mothers weight.
- However, the relationship between total protein and weight of the mothers was only significant. There is a need for further work in this regard.