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PhD Thesis Abstract:

The relationship between diet and selected anthropometric measurements of pregnant women in Jersey, UK and the birth status of the newborn. Crosscultural study.

Recent studies have demonstrated that nutrition and general lifestyle choices in pregnancy, a sensitive period of development, induce permanent changes in the physiology of the offspring. Moreover, nutrition and lifestyle choices have an impact on the long-term health of the offspring. Although current evidence-based recommendations for a well-balanced diet and healthy lifestyle are widely available, obesity prevention before, during and after pregnancy remains a challenge for healthcare practitioners and general public health. This observational study, based on a cross-cultural population in Jersey, the Channel Islands (native-born Jersey, British, Polish and Portuguese/Madeiran nationals), was designed to assess diet and the issue of obesity among pregnant women as well as the risk of early childhood obesity. To the best of the author's knowledge, this project is unique because it was conducted on mothers and their offspring from various ethnic backgrounds for the first time in Jersey.

The prospective observational study was offered to 200 women who attended the Antenatal Clinic at Jersey General Hospital (JGH) from January to December 2017. Of the 115 women who agreed to participate in this project, 81 completed all stages of the research. Socioeconomic and demographic data, as well as data on the maternal diet and delivery, birth and feeding methods were compared with selected anthropometric measurements of mothers and their offspring during the child's first year of life. The period of time the mothers had lived on the island was used to split the groups for Native and the UK, women who had lived on the island less than 10 years (Europe < 10y on the island) and women who had lived on the island more than 10 years (Europe ≥ 10y on the island).

The study revealed significant differences in the sociodemographic characteristics of the women depending on their period of stay on the island of Jersey. Although, no significant

differences were observed regarding the weights and BMIs among the research groups, this study indicated that overall there was a high prevalence of overweight and obese women who attended the maternity unit of JGH in 2017 (44%). No statistically significant differences in gestational weight gain (GWG) were observed among the three groups of women, although the migrant women Europe ≥ 10y on the island had a higher average weight gain compared to the other groups of women. An analysis of the offspring at birth did not reveal significant differences regarding the anthropometric measurements, except for the weight for gestational age (FGA) z-score, for which the natives showed significantly higher scores compared with the other groups. The highest average birth weight FGA, length FGA centiles and percentage growth percentiles were also observed among the natives. The children born of native women showed the highest weight and length gain while the children born of participants in the immigrants ≥ 10yrs group showed the lowest weight and length gain. Regarding the maternal diet, the general intake of animal proteins during pregnancy for all women did not change from the pre-pregnancy period, the intake of fats and oils increased during pregnancy, and the intake of milk and dairy products decreased during pregnancy for all three groups of women. Although the intake of vegetables decreased for all the groups, the intake of fruit increased for the Native and Europe < 10y on the island groups. The women in the Europe ≥ 10y on the island group were the only participants who registered the alcohol intake during pregnancy. In terms of the Mediterranean diet scores, the participants in the immigrants ≥ 10yrs group shifted to a worse diet during pregnancy, while the women in the immigrants < 10yrs group adopted a healthier diet after becoming pregnant. However, the aMED scores among the three groups were not statistically significant. The largest proportion of women who used formula feeds in the first 48 hours and at the 6-month follow-up were the native and UK women.

No significant correlations were observed between either the women's diet and their selected anthropometric measurements or any of the mother or child pregnancy outcomes. The period of stay in Jersey influenced some of the pregnancy outcomes for both mother and child, therefore a more individualised and ethnic-specific pregnancy and postpartum care may help to improve dietary habits and encourage weight management. Similar future studies among a larger cohort are needed to confirm the findings of this research.

Keywords: pregnancy, nutrition, anthropometric measurements, child health, weight, ethnicity, public health