Abstracts

PREDICTING THE RISK OF CHILDHOOD OVERWEIGHT AND OBESITY AT 4–5 YEARS USING PREGNANCY AND EARLY LIFE HEALTHCARE DATA

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Background In England, 9.5% of children aged 4–5 years and 20.1% aged 10–11 years are obese, with the prevalence in the most deprived areas being more than twice as that in the least deprived. There is evidence illustrating the developmental origins of obesity, but it focuses on individual risk factors and comes mostly from research birth cohorts which are not necessarily representative of the wider population. There is no system-based early identification of childhood obesity risk at pregnancy stage and onwards. The aim was to develop and validate a risk identification system for childhood obesity using existing routinely collected maternal and early-life population-level healthcare data in Hampshire.

Methods Studying Lifecourse Obesity PreEditors (SLOPE) study is an anonymised population-based linked cohort of maternal antenatal and delivery records for all births taking place at University Hospital Southampton 2003–2018, and child health records including information on postnatal growth, type of feeding and childhood body mass index (BMI) up to 14 years. Childhood age- and sex-adjusted BMI at 4–5 years was used to define the outcome of overweight and obesity in the models. Logistic regression models together with multivariable fractional polynomials were used to select model predictors and to identify transformations of continuous predictors that best predict the outcome. Predictive accuracy was evaluated by assessing model discrimination and calibration.

Results Childhood BMI was available for approximately 30000 children aged 4–5 years (9% obese). Models were developed in stages, incorporating data collected at first antenatal booking appointment, birth and early life predictors. The area under the curve (AUC) was lowest (0.64) for the model only incorporating maternal predictors from the booking appointment and highest for the model incorporating all factors up to weight 2 years for predicting outcome at 4–5 years (0.82 for overweight and obesity and 0.89 for obesity excluding overweight). Maternal predictors included BMI, smoking status at first antenatal appointment, age and ethnicity. Early life predictors included birthweight, gender, breastfeeding and weight at 1 or 2 years of age. Although AUC was lower for the booking models, maternal predictors remained consistent across the models, thus high-risk groups could be identified at an early stage with more precise estimation as the child grows.

Conclusion This prediction modelling can be used to identify and quantify clustering of risk for childhood obesity as early as the first trimester of pregnancy, and can strengthen the long-term preventive element of antenatal and early years care.

DEVELOPMENT OF A SHORT FOOD FREQUENCY QUESTIONNAIRE TO ASSESS DIET QUALITY IN POPULATION STUDIES

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Background Food frequency questionnaires (FFQs) are a popular tool in nutritional epidemiology, enabling estimates of habitual diet in large populations, but are time-consuming to complete. There is an increasing need for a short, accurate dietary tool that characterises healthy dietary patterns for use in observational and interventional research.

Methods The National Diet and Nutrition Survey (NDNS) is a general population national survey. Randomly-selected...