PHYSICAL ACTIVITY, MACRONUTRIENT INTAKE, EATING BEHAVIOUR, AND OBESITY-ASSOCIATED GENES AS RISK FACTORS FOR OBESITY IN SELECTED 9-12 YEAR OLD CHILDREN IN TAGUIG AND PATEROS

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BACKGROUND

Physical activity, food intake, eating behavior, and obesity-associated genes were previously identified to have causal effect in the development of obesity.

OBJECTIVES

This study determined the association of physical activity, energy and macronutrient intake, eating behavior, and obesity-associated genes with the Body Mass Index (BMI) of children.

MATERIALS AND METHODS

A total of 125 children participated in the study. Body weight and height were measured to determine the BMI category. The physical activity level category and eating behavior of children were assessed through a Filipino-translated Physical Activity Questionnaire for Children (PAQ-C) and Child Eating Behavior Questionnaire (CEBQ), respectively. A five-day food diary was used to collect data for the energy and macronutrient intake. Amplification and genotyping of target genes (*FTO* rs993960, *FTO* rs1421085, and *MC4R* rs17782313) was done using BIORAD CFX-96 and Precision Melt Analysis software, respectively.

RESULTS AND FINDINGS

The participants had a mean BMI of a 22.4 ± 4.8kg/m² and were considered to be minimally active (2.6 ± 0.8). No significant differences were observed in the energy and macronutrient intakes between sex, and between the risk- and non-risk carriers of the three obesity-associated genes. The frequency of the risk carriers among the participants are as follows: 39%, 36.8% and 17.6% for *FTO* rs9939609 (AA/AT), *FTO* rs1421085 (CC/CT) and *MC4R* rs17782313 (CC/CT), respectively. The risk carriers of *FTO* rs9939609 and *FTO* rs1421085 had significantly higher ratings for enjoyment of food and lower ratings for satiety responsiveness and slowness in eating as compared with the non-risk carriers. Majority of the eating behavior subscales were found to be associated with BMI but not for the three obesity-associated genes and physical activity level. This holds true for energy and protein intakes of the participants.

CONCLUSION AND RECOMMENDATIONS

BMI may possibly be affected by the eating behavior of children carrying the risk genotypes for *FTO* rs9939609 and *FTO* rs1421085. Specific eating behavior, and awareness campaign, as well as providing the resources/facilities to promote increased physical activity among school children can be targeted in intervention studies to curb childhood obesity.