HIGHER BMI IN INFANCY ASSOCIATES WITH OVERWEIGHT AND HIGHER BODY ADIPOSITY IN EARLY CHILDHOOD: A COHORT STUDY IN TAIWAN

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Background and Aims: Body mass index (BMI) in infancy has been reported as a predictor for childhood obesity as defined by BMI in some studies. However, the relationship between BMI in infancy and body adiposity in childhood remains unclear. The aim of this study was to investigate whether BMI in infancy is a predictor for higher BMI and body adiposity at 6 years of age in a population-based cohort study of Taiwanese children.

Study design: This cohort study included 613 Taiwanese children (345 boys, 56.3%). BMI data was collected at 6 months, 12 months, 18 months and 6 years of age. A child’s weight status (overweight or normal weight) was defined by International Obesity Task Force cut-offs. We also measured percentage of total body fat and percentage of central body fat at 6 years of age.

Table 1. Sample characteristics

Characteristic	Normal weight at 6 years of age	Overweight at 6 years of age
N	520	92
Gender, n (male/female)	284/236	60/32
BMI at birth (means±SD)	12.62±1.52	13.03±2.36
BMI at 6 months* (means±SD)	17.70±2.02	18.35±2.16
BMI at 12 months* (means±SD)	16.95±1.60	17.60±1.77
BMI at 18 months* (means±SD)	17.36±1.40	17.36±1.93
BMI at 6 years* (means±SD)	15.37±0.94	19.61±1.94

*P-value< 0.05

Results: Children with overweight at 6 years had a higher mean BMI at 6 months (P=0.024), 12 months (P=0.005), and 18 months (P=0.001), compared to those with normal weight at 6 years. BMI at 6 months (P=0.006), 12months (P<0.001), and 18 months (P<0.001) was significantly associated with BMI at 6 years. In addition, BMI at 6 months, 12 months, and 18 months was also significantly associated with both percentage of total body fat (PBF) and percentage of central body fat (central PBF) at 6 years (all P<0.001). We then evaluate whether PBF and central PBF could be used to define adiposity at 6 years of age.

Figure 1. Relationship of body composition at 6 years of age to BMI at 6 months

Figure 2. Relationship of body composition at 6 years of age to BMI at 12 months

Figure 3. Relationship of body composition at 6 years of age to BMI at 18 months

Conclusion: Our study indicates that higher BMI in infancy may predict overweight and higher body adiposity in early childhood. Further studies are needed to confirm the findings in this study.