

## Investigating the Relationship between Precocious Puberty and Obesity: A Cross-Sectional Study in Shanghai City of China

Shijian Liu

Shanghai Jiaotong University, China

**Objectives:** Obesity is reported closely relevant to early sexual development but the relationship between sexual precocity and obesity or central obesity is still inconsistent, especially in boys. We aimed to investigate the relationship between precocious puberty and obesity as well as central obesity.

**Design:** A large population-based cross-sectional study using multistage, stratified cluster random sampling.

**Setting:** Data from the Shanghai Children's Health, Education and Lifestyle Evaluation (SCHEDULE) study in June 2014.

**Participants:** 17,620 Chinese children aged 6–12 years.

**Primary and secondary outcome measures:** Obesity was defined by WHO Child Growth Standards. Central obesity was defined by sex-specific waist-to-height ratio (WHtR) cut-offs (WHtR  $\geq$  0.48 for boys, WHtR  $\geq$  0.46 for girls). Precocious puberty was identified by Tanner stage of breast, pubic hair and testicle. A chi-square test was performed to compare rates. Odds ratios (ORs) with 95% confident interval (CI) were calculated to assess the association between precocious puberty and general obesity and central obesity. Probit analysis was used for estimating the median age at entry into Tanner stage 2 or greater for breast, pubic hair and testicle development. Linear regression was utilized to compare the effects of WHtR and BMI on sex development indicators.

**Results:** 25.98% and 38.58% precocious boys were respectively accompanied by obesity (OR = 2.15, 95%CI = 1.31–3.50) or central obesity (OR = 2.10, 95%CI = 1.46–3.03); meanwhile, 13.86% and 29.42% precocious girls were respectively accompanied by obesity (OR = 9.00, 95%CI = 5.60–14.46) or central obesity (OR = 5.40, 95%CI = 4.10–7.12). The median ages of breast, pubic hair and testicle development decreased with BMI increased and median ages of thelarche and testicular rather than pubarche were earlier in children with central obesity.

**Conclusions:** Earlier pubertal development was positively associated with obesity and central obesity in Chinese children.

### Biography:

Dr. Shijian Liu, Advisor, The director of Biobank in Shanghai Children's Medical Center and China National children's Medical Center, Professor of school of public health, Shanghai Jiao Tong University School of Medicine. Dr. Liu focus on the research in mechanism and association of obesity and precocious puberty, especial in the epidemiology and genetics of obesity in children. He Graduated from the Second Military Medical University, his major is epidemiology and biostatistics. He studied in the Center of Biostatistics and Bioinformatics, University of Mississippi Medical Center as a visiting scholar from September 2013 to October 2014.