

# **Childhood overweight and obesity in preschool children - an emerging problem in urban and rural Vietnam.**

## **A study of epidemiology and associated factors**

Akademisk avhandling

som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i Academicum, sal Birgit Thilander, Medicinaregatan 3, torsdagen den 30 mars 2017, klockan 13.00

av Loan Minh Do

Fakultetsopponent:

Thorkild Tylleskär, professor, Bergens universitet, Norge

### **Avhandlingen baseras på följande delarbeten**

- I. Do ML, Tran KT, Eriksson B, Petzold M, Nguyen TKC, Ascher H. Preschool overweight and obesity in urban and rural Vietnam: differences in prevalence and associated factors. *Global Health Action* 2015; 8: 28615.
- II. Do ML, Larsson V, Tran KT, Nguyen TH, Eriksson B, Ascher H. Vietnamese mother's conceptions of childhood overweight: findings from a qualitative study. *Global Health Action* 2016; 9: 30215.
- III. Do ML, Eriksson B, Tran KT, Petzold M, Ascher H. Feeding of preschool children in Vietnam: a study of parents' practices and associated factors. *BMC Nutrition* 2015; 1: 16.
- IV. Do ML, Tran KT, Eriksson B, Petzold M, Ascher H. Prevalence and incidence of overweight and obesity among Vietnamese preschool children: A longitudinal cohort study. *BMC Pediatrics*. Submitted.

**SAHLGRENSKA AKADEMIN  
INSTITUTIONEN FÖR MEDICIN**



# Childhood overweight and obesity in preschool children - an emerging problem in urban and rural Vietnam

## A study of epidemiology and associated factors

Loan Minh Do

Avdelningen för samhällsmedicin och folkhälsa, Institutionen för medicin, Sahlgrenska akademien, Göteborgs universitet, Sverige.

### Abstract

**Background:** Childhood overweight and obesity is considered a global epidemic. From being a health problem mainly in high-income countries, it is now an emerging problem in low- and middle-income parts of the world as well. Contextual knowledge of obesity development dynamics is important as a basis for prevention and intervention strategies.

**Aims:** To study overweight and obesity in preschool children focusing on prevalence, incidence and associated factors including parents' conceptions, in one urban and one rural setting of Hanoi, Vietnam.

**Methods:** All studies were conducted identically in two Health and Demographic Surveillance Sites, one urban and one rural. Cross-sectional studies were used to study the prevalence of overweight, obesity and associated factors as well as feeding practices involving a total of 2,677 children three to six years of age. Follow-up studies of the same children were used to describe incidence and prevalence changes over three years. Parents were interviewed and anthropometric data of children and parents were collected. The children were classified as overweight or obese following the definitions of the International Obesity Task Force. Focus group discussions about mothers' conceptions of childhood overweight were conducted and analysed with a phenomenographic approach.

**Results:** In 2013, the estimated prevalence of overweight in the urban and rural area was 13.3% and 4.8% respectively. For obesity, the prevalence was 9.2% and 3.5% respectively. Three years later, the prevalence of overweight increased to 25.6% in the urban and to 7.7% in the rural children. The prevalence of obesity decreased to 7.1% in the urban and to 1.9% in the rural children. The main risk factors at the individual child level, in both areas, were large amount of food and frequent consumption of fatty food. In the rural area, frequent consumption of fried food, irregular snacks, and increased sedentary time were identified as additional risk factors. The main protective factors were physical activity, having meals at home in the urban area and longer sleep duration at night in the rural area. At the family level, higher socioeconomic status was associated with a higher prevalence of overweight in the urban children. Frequently watching TV food advertisement and availability of snacks at home were risks for the rural children. The qualitative study showed that mothers were concerned about health problems in overweight children. They used their own experiences, growth charts and information from health care providers as well as the mass media to recognise overweight. The mothers considered unhealthy lifestyle, heritability and economic development as factors contributing to overweight development and based their management of overweight on these as much as possible. This was sometimes challenged by grandparents who commonly regard chubbiness as healthy.

**Conclusion:** The prevalence of overweight among preschool children is considerable in Vietnam and increases with age, particularly in the urban area. Obesity prevention and interventions should start early, already at preschool age and include education programmes with focus on healthy lifestyle for children as well as the entire extended families, not least grandparents. The prevention and interventions should preferably be tailored differently for urban and rural areas. Restrictions on non-healthy food advertisements are recommended.

**Keywords:** overweight, obesity, preschool children, follow-up study, IOTF, Vietnam

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