

TITLE: “Childhood Obesity is Associated with Back Pain: A Cohort Study of 466,997 Individuals”

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Abstract: [296 max 300]

Background:

Back pain is the leading cause of disability worldwide and prevalence continues to increase in children and adults. Back pain during childhood has been shown to predict adult back pain. An improved understanding of risk factors may identify children at greatest risk of developing back pain and facilitate the development of preventative strategies.

Methods:

A dynamic cohort of children seen at age 4 years (± 6 months) at paediatric screening clinics between 01/01/2001 and 31/12/2013 were identified in primary care records (SIDIAP) data, and followed up until they turned 15, migrated, died, or end of 2016. Study outcomes were recorded diagnoses of spine pain by a community paediatrician using ICD10 codes. Outcomes were measured from 01/01/2001 until 12/12/2016. Cumulative incidence was calculated using actuarial lifetables, and multivariable Cox models fitted to explore the association between spine pain and body mass index, categorised according to World Health Organisation 2007 growth reference groups. Models were adjusted for age, sex, socioeconomic status, and nationality.

Results:

A total of 466,997 children were included in the study and followed up for a median (interquartile range) of 5.1 (5.2) years. The 11-year cumulative incidence of back pain was 3.81% (2.98 to 4.63) for underweight, 4.71% (95% CI 4.68 to 4.75) for normal weight, 5.72% (5.58 to 5.86) in overweight, and 6.52% (6.27 to 6.78) in children with obesity. Back pain risk increased with BMI, with adjusted Hazard Ratios (HR) of 1.18 (95%CI 1.09 to 1.27) and 1.34 (95%CI 1.19 to 1.51) for overweight and obese respectively. Boys were at lower risk of back pain than girls: adjusted HR 0.71 (95%CI 0.69 to 0.74).

Conclusions:

Overweight females are at greatest risk of developing back pain during childhood and represent a target group for prevention. Strategies to minimise childhood obesity may offer musculoskeletal benefits.