

Paediatrics

Childhood migration and cardiovascular risk



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People from the Indian subcontinent have the highest death rates from cardiovascular disease (CVD) in the UK, with rates up to 60% higher than in the general population. Much of this excess risk is attributable to increased prevalence of type 2 diabetes, with more than a third of Pakistanis affected in some UK inner cities.

The reason for the striking ethnic heterogeneity in metabolic risk is not clear. A number of possible explanations include differences in genetic, environmental and lifestyle influences, as well as intrauterine environment. People at most risk appear to be those who have migrated, typically from a condition of poverty to one of relative affluence. The timing of such a move has not been given much consideration, but, given the dramatic changes that occur during childhood and adolescence, it seems reasonable to postulate that the consequences of changes in environment and lifestyle may differ according to maturational stage. The impact of any move may also be greater in Asian populations, which have experienced a dramatic acceleration in the transition to a Westernised lifestyle.

This paper by Schooling and colleagues examined self-reported diabetes, hypertension, hyperlipidaemia and ischaemic heart disease in over 7000 Hong Kong Chinese people, 40% of whom had emigrated from southern China over a 25-year period from 1955 to 1980. Hong Kong has experienced rapid economic growth: in 1952, per capita gross domestic product was half of that in Western Europe, but by 1995 it had surpassed that in Western Europe and was one of the highest in Asia. The authors found that migration before the age of 25 years, especially if the individuals were aged 8–17 years, carried an increased risk of type 2 diabetes, hypertension and hyperlipidaemia. Only those migrating when aged 8 years or younger had an increased risk of ischaemic heart disease.

The reasons for this variability in effect at different life stages are most likely multifactorial. Nutrition, physical activity and psychological stress may all play a role, especially during puberty. As with much published research, more questions are asked than answered by this paper, but the prospect that potentially modifiable postnatal factors may influence metabolic risk during childhood raises opportunities for interventions which could have a far-reaching impact.

INTERNATIONAL JOURNAL OF EPIDEMIOLOGY

Childhood migration may increase risk of diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

- 1 Migration in childhood to a more affluent area has been linked to accelerated growth.
- 2 The authors hypothesised that this accelerated growth might predispose people to diabetes or cardiovascular disease, and they tested this in 3643 Chinese men and 3778 Chinese women, some of whom had migrated from mainland China to Hong Kong.
- 3 After adjustments for family history, risk factors and socio-economic status, diabetes risk was significantly higher in people who migrated in the first two decades of life.
- 4 For migration at ages 0–7, the odds ratio (OR) was 2.02 (95% confidence interval [CI], 1.18–3.45); the ORs were smaller, but still significant, for migration at ages 8–17 and 18–24 (1.84 [95% CI, 1.27–2.66] and 1.72 [95% CI, 1.21–2.45], respectively).

- 5 Migration before age 25 was also associated with an increased risk of ischaemic heart disease, hyperlipidaemia and hypertension.
- 6 The effect on hypertension was most pronounced during the growth spurt and puberty (ages 8–17), while the critical period for ischaemic heart disease, in men, was early childhood (ages 0–7).
- 7 These results could be relevant in populations undergoing rapid development, such as populations in Asia, which are witnessing a compressed transition to a Westernised lifestyle.

Schooling M, Leung GM, Janus ED et al (2004) Childhood migration and cardiovascular risk. *International Journal of Epidemiology* 33(6): 1219–26

PEDIATRIC DIABETES

Timing of pubertal events in T1D

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- 1 Puberty is often linked to poor glycaemic control and acceleration of diabetes complications, and type 1 diabetes (T1D) appears to have an effect on pubertal timing in girls.
- 2 Previous studies of pubertal development either had small samples or used historical controls.
- 3 This study (n=676) had a contemporary control group with a similar socioeconomic level and

ethnicity, and used probit analysis to estimate onset time of pubertal events; anthropometric measurements were also taken.

- 4 T1D was associated with a 6-month delay in both menarche ($P<0.05$) and Tanner stages 3 and 4 for breast development ($P=0.03$).
- 5 Waist-to-hip ratio decreased in controls ($P<0.001$) but was stable in patients with T1D, while body mass index standard deviation score increased throughout puberty with T1D ($P<0.001$) but not in controls.
- 6 These anthropometric findings suggest that the period of puberty may be critical for weight gain and body composition in adult women with T1D.

Codner E, Barrera A, Mook-Kanamori D et al (2004) Ponderal gain, waist-to-hip ratio, and pubertal development in girls with type-1 diabetes mellitus. *Pediatric Diabetes* 5(4): 182–9

PATIENT EDUCATION AND COUNSELING

Participation in dietary counselling

Readability	✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓

1 Children and adolescents make up an important fraction of the people seen by healthcare professionals, and this study analysed how they participated in dietary counselling for people with diabetes.

2 Thirteen- to 15-year-olds had an active role in two-party encounters, but when accompanied by a parent (as was often the case) conflict could result, which could lead to the adolescent becoming withdrawn.

3 Seven- to 9-year-old children were mostly silent, with the parent speaking for them, but they answered questions directed at them and would correct their parent's inaccuracies and engage in topic-related play.

4 In both groups, the more adults that were present, the more marginalised the role of the patient.

Pyorala E (2004) The participation roles of children and adolescents in the dietary counseling of diabetics. *Patient Education and Counseling* **55**(3): 385–95

JOURNAL OF CLINICAL EPIDEMIOLOGY

Paediatric BMI as an adult predictor

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓

1 Because weight control is more easily induced in overweight children than overweight adults, early identification of children at high risk of being obese in adulthood is useful.

2 This longitudinal study (n=12 327; UK cohort) was used to assess the predictive value of paediatric body mass index (BMI; at 7, 11 and 16 years) for obesity and overweight at age 33.

3 BMI values at ages 11 and 16 could predict adult obesity and overweight (with areas under the receiver operating characteristic curves of around 0.80 and 0.75, respectively, which represented good sensitivity–specificity profiles).

4 Prediction using BMI at age 7 was less accurate, but this must be weighed against the fact that it is probably easier to make lifestyle changes at this early age.

Cheung YB, Machin D, Karlberg J et al (2004) A longitudinal study of pediatric body mass index values predicted health in middle age. *Journal of Clinical Epidemiology* **57**(12): 1316–22

JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION

Diabetes knowledge and quality of life

Readability	✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓

1 Diabetes knowledge and quality of life can affect disease management and treatment compliance in young people with type 1 diabetes, and so assessing them is important.

2 Assessing these two parameters was the primary aim of this study; the secondary objectives were to investigate the relationship between these parameters and to assess how each was affected by treatment regimen and demographic factors.

3 The study was completed by 103 people, who were 9–17 years old.

4 Both diabetes knowledge and diabetes-specific measures of quality of life were good.

5 No significant correlations were observed with demographic factors and mode of treatment (insulin pump or multiple daily injections).

O'Neil KJ, Jonnalagadda SS, Hopkins BL et al (2005) Quality of life and diabetes knowledge of young persons with type 1 diabetes: Influence of treatment modalities and demographics. *Journal of the American Dietetic Association* **105**(1): 85–91

‘Diabetes knowledge and quality of life can affect disease management and treatment compliance in young people with type 1 diabetes, and so assessing them is important.’

JOURNAL OF PEDIATRICS

Coeliac disease linked to earlier onset of diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

1 Recently, cases of coeliac disease without the typical symptoms, such as malabsorption and chronic diarrhoea, have been identified with antibody screening, but data from patients with this disease and type 1 diabetes (T1D) are still scarce.

2 This study aimed to investigate the prevalence of coeliac disease in 19 796 children and adolescents with T1D in Germany and Austria, as well as the effect on anthropometry, and thyroid disease.

3 Antibody screening gave a coeliac disease prevalence of 6.7% (with 90% confirmation by biopsy), and females were significantly more susceptible than males ($P<0.001$).

4 Patients in the cohort with coeliac disease had a significantly earlier onset of diabetes ($P<0.001$).

5 Furthermore, the disease was associated with other significant results: a lower height standard deviation score (SDS) at onset (–0.49

versus –0.06; $P<0.05$) and after 9 years (–0.80 versus –0.26; $P<0.05$); a lower body mass index SDS (0.22 versus 0.47; $P<0.05$); and a higher prevalence of thyroid disease (6.3% versus 2.3%; $P<0.05$).

6 The results provide support for the recommendation of regular screening both for coeliac disease in all children and adolescents with T1D and for other autoimmune diseases (such as thyroiditis) in people with both.

7 It is important to consider the extra burden on patients with T1D placed by a gluten-free diet for coeliac disease.

Kaspers S, Kordonouri O, Schober E et al (2004) Anthropometry, metabolic control, and thyroid autoimmunity in type 1 diabetes with celiac disease: A multicenter survey. *Journal of Pediatrics* **145**(6): 790–5

‘The results provide support for the recommendation of regular screening [...] for coeliac disease in all children and adolescents with T1D.’