

30.6% of Traveller births occurred in the 3 major Dublin maternity hospitals compared to the 35% of total national births in 2008.

**Conclusions** In a difficult-to-reach nomadic minority group this study has overcome significant challenges in recruitment. Data to date indicates a downward trend in birth rate in this group.

**027 BIRTH CHARACTERISTICS AND EARLY-LIFE SOCIAL CHARACTERISTICS PREDICT UNEQUAL EDUCATIONAL OUTCOMES: CONSISTENCY ACROSS SWEDISH COHORTS BORN 1915–1929 AND 1973–1980**

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**Objective** To investigate early-life biological and social predictors of educational outcomes, and compare the nature and magnitude of these effects across twentieth century Sweden.

**Design** Multi-generational data from a representative, population-based birth cohort, with linkage to routinely collected data.

**Setting** Sweden.

**Participants** 9829 Swedish male and females born 1915–1929 and 9465 of their grandchildren born 1973–1980, restricting participants to those who remained alive and in Sweden until age 20.

**Characteristics measured at birth** Sex, birthweight for gestational age, preterm birth, birth multiplicity, birth order, mother's age, mother's marital status and family social class.

**Educational outcomes** School achievement was measured using standardised schoolmarks in elementary school. Education continuation was measured as a) senior school attendance and b) entrance to higher education.

**Results** The predictors of both school achievement and education continuation were very similar in the two cohorts, and effect sizes were usually at least as large in the younger cohort. In both cohorts, the independent predictors of better schoolmarks were: female gender (adjusted effect size 0.35 standard deviations (SD) in 1915–1929, 0.41SD in 1979–1980); higher birthweight for gestational age (0.09SD in 1915–1929, 0.23SD in 1979–1980 for highest vs lowest quintile); lower birth order (eg, 0.33SD in 1915–1925, 0.65SD in 1973–1980 for birth order 1 vs 4–5); older mother (eg, 0.12SD in 1915–1929, 0.34SD in 1973–1980 for 35–39 years vs 20–24 years); married mother (0.14SD in 1915–1929, 0.15SD in 1973–1980 for married vs unmarried); and higher family social class (eg, 0.39SD in 1915–1929, 0.66SD in 1973–1980 for high/mediate non-manual vs semi/unskilled manual). There were no independent effects of preterm or twin status. The same characteristics predicted education continuation, except that for this outcome the older cohort now showed a marked male advantage and no birthweight effect. Even after adjusting for school achievement, education continuation was still predicted by lower birth order, older mother, married mother and higher social class.

**Conclusions** Multiple early-life characteristics predicted educational outcomes across the lifecourse. These included size at birth (foetal growth rate) and family composition effects which typically receive far less attention than socio-economic influences. A range of pathways including impaired cognitive development, are likely to mediate these effects. Most effects were remarkably stable across the half-century separating our cohorts, indicating their potential relevance for understanding educational inequalities in populations around the world. Greater understanding of educational inequalities would, in turn, shed light onto a major mechanism whereby health inequalities are created and recreated across generations.

**028 BIRTH SIZE DIFFERENCES BETWEEN WHITE AND PAKISTANI-ORIGIN INFANTS BY GENERATION: RESULTS FROM THE BORN IN BRADFORD COHORT STUDY**

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**Background** Previous studies have shown marked differences in birthweight between babies born in the UK of South Asian origin and those of UK origin. Whether such differences persist across generations in contemporary populations, the mechanisms underlying them and the extent to which other dimensions of birth size vary between these two groups is unclear.

**Objective** To describe differences in term birthweight, head, arm and abdominal circumference and skinfolds between Pakistani origin and white British origin infants and to investigate whether the magnitude of any differences reduces depending on whether the parents and grandparents of Pakistani infants are born in the UK or Pakistan.

**Design** Birth cohort study (Born in Bradford (BiB)).

**Setting** Bradford, UK.

**Participants** 1838 white British and 2222 Pakistani mothers recruited to BiB who completed a questionnaire at 26 weeks gestation and their babies born between Sept 2007 and Nov 2009.

**Main outcome measures** Birthweight, head, arm and abdominal circumference and skinfolds.

**Results** Pakistani babies were lighter (mean difference 227.6g, 95% CI 198.3 to 256.8), had smaller head, arm and abdominal circumferences (mean differences 0.43cm, 95% CI 0.30 to 0.56; 0.22cm, 95% CI 0.10 to 0.34; 1.25cm, 95% CI 1.02 to 1.39 respectively) and smaller subscapular and triceps skinfold thickness (mean differences 0.22 mm, 95% CI 0.12 to 0.32 and 0.21 mm, 95% CI 0.13 to 0.29) than white British infants. Differences remained significant following adjustment for deprivation. Mean birthweight was highest in Pakistani infants when both parents were born in Pakistan (3206 g) and was lowest when both parents were UK-born (3165g).

**Conclusions** These results reaffirm that significant differences in birth size exist between white British and Pakistani origin infants in the UK. Despite the assumption that differences will reduce over successive generations, mean birthweight has not increased in infants of UK-born Pakistani origin parents compared with infants of Pakistani born parents. This suggests that differences may be genetically determined or are affected by epigenetic or persisting behaviour characteristics. Further analysis will include adjustment for additional socio-economic variables, other maternal and family characteristics and birthplace of maternal and paternal grandparents.

**029 DOES A HEAVY BABY BECOME A STRONG CHILD? GRIP STRENGTH AT 4 YEARS IN RELATION TO BIRTHWEIGHT**

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**Objective** Consistent positive relationships have been found between birthweight and grip strength in young, middle-aged and older adults, suggesting that early influences on the growth and development of muscle are important for muscle function later in the lifecourse. However there are limited data in children. We aimed to assess the relationship between birthweight and grip strength in children aged 4 years.