

Effect of social deprivation on weight in the UK cystic fibrosis population



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Background

Maintaining nutritional status is a key component of care for people with cystic fibrosis.

Low socioeconomic status has been linked with poor outcomes in CF in the UK and the US.

We have explored, for the first time in a UK-wide cohort, longitudinal weight gain and its relationship with socioeconomic status (SES)

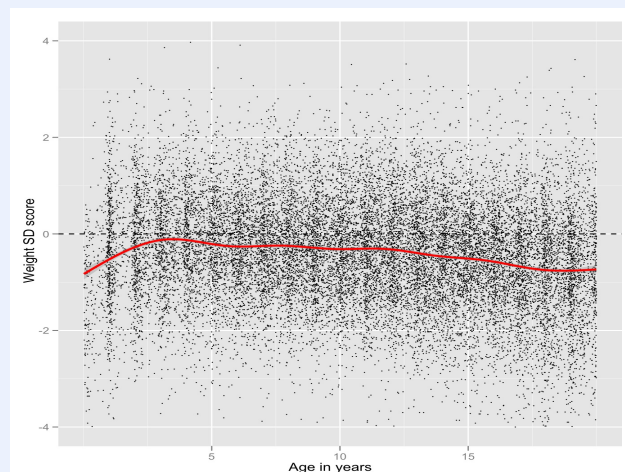
Methods

We undertook a retrospective **longitudinal cohort study** of 4346 people with cystic fibrosis aged less than 20 years in UK CF registry between 1995 and 2006.

We transformed the raw weight data to weight-for-age z-score (WFA) using the UK reference population. Piecewise mixed model regression was used to estimate the effect of SES on the **estimated WFA intercept and slope (outcome)**.

Census based **indices of multiple deprivation (IMD)** linked to postcodes from the UK constituent counties were used as small area **exposure** measures of SES.

WFA z-score versus age with smoothed mean



Weight z-score improves from birth to three years of age, and declines subsequently. Mean population WFA -0.32 (95%CI -0.36 to -0.29) which equates to the 37th centile, versus the 50th for the reference group

Equal distribution across deprivation quintiles

Deprivation quintile	1 (least deprived)	2	3	4	5 (most deprived)
N (%)	867 (19.9)	825 (19.0)	841(19.4)	924 (21.3)	889 (20.5)
Median age at diagnosis (yrs)	0.25	0.25	0.24	0.25	0.25
Female (%)	417 (48.1)	392 (47.5)	384 (45.7)	434 (47)	423 (47.6)

Final sample comprised of 21, 132 measures on 4346 individuals. IMD scores used to allocate each individual to a normative deprivation quintile.

There is a similar age at diagnosis and sex ratio across quintiles. **CF does not appear to discriminate by SES in terms of incidence.**

Conclusions

Mean WFA in CF population is below that of the UK reference population at all ages.

WFA improves from birth to three years of age, and declines subsequently.

The difference in WFA by deprivation is greatest at the time of diagnosis.

The deprivation gap narrows slightly to age three, and then remains constant.

Socioeconomic status has an important effect on weight in the UK CF population, and this is evident at the time of diagnosis.

The difference in weight z-score by deprivation is always present, and greatest at the time of diagnosis

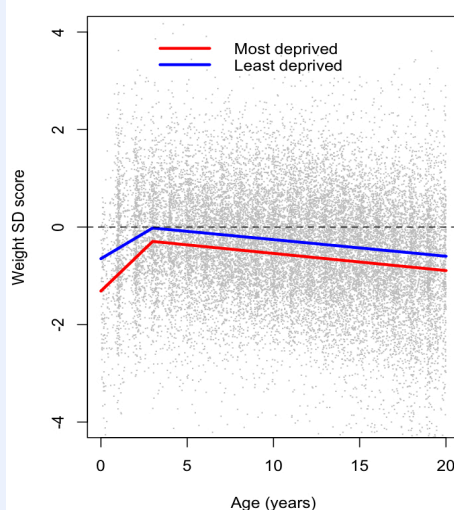
The estimated WFA at birth (intercept) was -0.64 in the least deprived quintile compared to -1.31 in the most deprived (mean difference 0.67 95%CI 0.42 to 0.92).

Mean deprivation gap in WFA of similar magnitude to the mean difference between the UK CF population and the UK reference population

The population WFA increased up to age three by 0.2 per year, and then declined subsequently by -0.033 per year.

DTR is supported by an MRC Population Health Scientist Fellowship. dctr@liv.ac.uk

Weight SD score versus age



Weight by age for females

