Intergenerational social class stability and mobility are associated with large absolute differences in adult participation in sport and exercise

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ABSTRACT

Objective To test whether there is an association of social class (im)mobility in childhood and adulthood with absolute rates of adult participation in sport and exercise.

Design Secondary analysis of the 2003 Scottish Health Survey.

Participants 2770 Scottish men and women aged 35–54.

Results The highest age- and sex-adjusted rate of sport and exercise was seen among those who were in the highest social class in both childhood and adulthood (62.8%), while those in the lowest social class at both stages had the lowest rate at 25.8%, 37% points lower. This gap was wider than if the assessment of participation had been based solely on childhood or adult social class. The upwardly mobile had a higher rate than their class of origin in childhood but a lower rate than their class of destination in adulthood. The downwardly mobile had a lower rate than their class of origin but a higher rate than their class of destination.

Conclusion There are major absolute differences in participation in sport and exercise associated with social class (im)mobility that will be important to understand in order to improve population health and to reduce health inequalities.

INTRODUCTION

Coronary heart disease (CHD) remains the most common cause of premature death in the UK with marked socio-economic inequalities in incidence.[1] It is well established that socio-economic circumstances in both childhood and adulthood are associated with CHD risk in adulthood primarily through the accumulation of exposure to poor socio-economic circumstances.[2–4]

As a result, people constantly in the highest social class from childhood to adulthood have the lowest risk, those constantly in the lowest class the highest risk and those socially mobile a risk level somewhere between those stable in their class of destination in adulthood and origin in childhood.[5 6]

As physical inactivity is a well-established risk factor for CHD,[7] a similar pattern as described above should be seen for participation in activities such as sport and exercise that are known to be intensive enough to provide cardiovascular (CVD) benefit.[8]

However, the impact of social stability and mobility on participation has not been extensively studied with most studies focusing on whether there is a lasting impact of childhood circumstances on participation (most commonly in broadly defined leisure time activities).[4] Understanding the association with social (im)mobility will be important for starting to understand the mechanisms underlying adult participation in sport and exercise.

METHODS

Sample

The 2003 Scottish Health Survey sampled adults living in private households in order to gather representative health information on the population of Scotland.

Further details on the sampling strategy are published elsewhere.[9]

In total, 8148 adults were interviewed, an estimated response rate of 60%.[9] All data used in this paper were collected with a questionnaire administered by a social researcher (see http://www.data-archive.ac.uk/doc/5318%5Cmrdoc%5Cpdf%5C5318interviewing.pdf).

Analysis was restricted to middle-aged men and women not in full-time education (aged 35–54) as this post-education period tends to see a decline in exercise participation but is also a period when maintaining or increasing physical fitness may be beneficial for cardiovascular health.[10] Of the 2994 people in this age range, 7.5% had missing data for at least one variable of interest and so were excluded from the analysis, leaving 2770 in the final sample.

Variables

Sport and exercise

In this study, individuals were coded as having taken part in sport or exercise if they had participated at least once in any sport or exercise at a moderate or higher intensity and for at least 15 min in a day in the preceding 4 weeks.

Interviewees were first shown a card listing a large number of sports and exercises and asked if they had participated in these and then further prompted for any other sport or exercises they had taken part in. Most sports and exercises were automatically coded as being of moderate or higher intensity, although for some they were only deemed so if the respondent reported that their involvement had made them sweaty or out of breath.

Social class

Childhood social class was based on the highest social class of the respondent's father or mother based on their occupation when the respondent was aged 14. Own social class was based on the present or last held occupation of the respondent

Table 1 Age- and sex-adjusted prevalence of sport and exercise by social class in childhood and adulthood

	Adult social class				
	I/II	**IIIN**	**IIIM**	**IV/V**	**Overall**
I/II	**62.8 (58.5 to 67.0)**	55.2 (47.6 to 62.9)	47.6 (33.9 to 61.3)	43.5 (33.2 to 53.8)	57.5 (54.1 to 60.9)
Childhood social class IIIN	*58.6 (52.3 to 64.8)*	**55.1 (44.3 to 65.8)**	46.4 (33.4 to 59.3)	32.2 (20.3 to 44.2)	52.5 (47.9 to 57.2)
IIIM	*61.2 (54.6 to 67.9)*	*40.4 (31.2 to 49.5)*	**50.2 (42.4 to 58.0)**	33.3 (27.1 to 39.4)	45.4 (41.6 to 49.2)
IV/V	*49.3 (41.1 to 57.6)*	*46.0 (34.7 to 57.2)*	*40.4 (28.6 to 52.3)*	**25.8 (19.0 to 32.6)**	38.9 (34.5 to 43.2)
	59.3 (56.0 to 62.6)	49.0 (43.9 to 54.1)	47.2 (41.8 to 52.6)	32.6 (28.1 to 37.0)	

Italics, upwardly mobile; Bold, socially stable.

Table 2 Participation in sport and exercise for upward and downward movers compared to the stable in their class of origin (childhood class) and their class of destination (adult class)

	Model A (age, sex and *childhood* class adjusted) Prevalence difference (95% CI)	**Model B (age, sex and *adult* class adjusted) Prevalence difference (95% CI)**
Stable	0	*0*
Upwardly	9.6 (4.0 to 15.3)	−6.2 (−11.2 to −1.2)
Downwardly	−11.0 (−16.5 to −5.5)	6.2 (0.4 to 12.0)

(or the social class of the head of the household if details of own occupation were missing). The Registrar General's Social Class classification was used and, following other mobility studies,[11] four groups were used in analysis, I/II, IIIN, IIIM and IV/V.

Analysis

All analysis was conducted in Stata 10 and accounted for the survey design by using the "svy" command and by incorporating the probability weight calculated by the Scottish Health Survey team for the analysis of individual level data. To gauge absolute differences in participation between social groups, age- and sex-standardised prevalence rates were calculated using the overall internal population as the standard. The average impact of social mobility compared to childhood class and adult class was modelled following the method of Bartley and Plewis[12] using a generalised linear model with binomial distribution and identity link.

RESULTS

Table 1 displays the rate of sport and exercise participation for each combination of childhood and adult social class. Those in the bottom class at both time points had an age- and sex-adjusted rate 37% points lower than those in the top class at both time points, the biggest gap. The absolute gap was larger than if social class difference was assessed using solely childhood social class (far right-hand column, 18.6% points lower) or solely on adult social class (bottom row, 26.7% points lower). *Those upwardly mobile*, with one exception, had a higher prevalence than the *socially stable* in their class, while the downwardly mobile, in normal font, had a lower rate.

In table 2, which displays the impact of social stability and upward and downward mobility on participation accounting for childhood social class (model A) and adult social class (model B), those upwardly mobile had a higher rate than the stable in their class of origin (in childhood) but a lower rate than the stable in their class of destination (in adulthood), the reverse was the case for the downwardly mobile. In combination, the results suggest an important role for both current and childhood social class in shaping adult social class participation. As rates of participation in sport and exercise are negatively associated with doctor-diagnosed CVD in this population and CVD is more prevalent in lower socio-economic groups, in sensitivity analysis, those reporting doctor-diagnosed CVD were excluded. The pattern of results was not changed.

CONCLUSION

This study highlights in absolute terms the wide and stark differences in sport and exercise participation among middle-aged adults associated with their lifetime socio-economic position. Limitations include the use of retrospective data on parental social class, although this is likely to lead to an underestimate of differences,[13] and the relatively small sample size (that means confidence intervals are wide). Despite these limitations, this research suggests that adopting a lifecourse approach to understanding and increasing adult sport and exercise participation will be crucial.

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