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How actively do children travel to their pre-school setting?

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ABSTRACT

Background: Physical activity in early childhood can impact favourably on later child and adult health and walking or cycling for transport, otherwise known as 'active travel', is recommended as a way of increasing activity levels in children and adults. This preliminary study focussed on active travel amongst pre-school aged children, an age group that has received little attention in this respect. It aimed to determine the prevalence of active travel in four pre-school settings and assess factors influencing travel patterns.

Methods: A cross sectional travel survey in four pre-schools: two in each of two contrasting socio-economic neighbourhoods was completed in April 2013.

Results: 289 questionnaires were completed i.e. a response rate of 83.5%. Analysis focussed on the four pre-schools since sample heterogeneity precluded neighbourhood comparisons. Active travel prevalence for children usually arriving and/or collected for each pre-school was 40.8% (A), 56.9% (B), 34.1% (C) and 60.0% (D). Regression analysis showed that distance to pre-school, weather and other travel commitments independently predicted active travel.

Conclusion: This preliminary study identified factors associated with active travel amongst pre-school aged children and issues warranting further research. Addressing these could assist in developing effective strategies to promote active travel in the early years of life.

1. Introduction

Regular physical activity in the early years of life is considered to be essential for promoting physical and psychological development and contributing towards establishing behaviour patterns that persist into later childhood and adulthood (Department of Health (DH), 2011). Guidelines state children of pre-school age capable of walking unaided should be physically active for at least 180 min, spread throughout the day. However most UK pre-school children spend 120–150 min a day in physical activity (Department of Health (DH), 2011) and sedentary behaviour may become established at an early age (Reilly et al., 2004). Active travel (walking or cycling for transport) is recommended as a means of contributing to overall physical activity levels amongst children going to a 'pre-school or early years facility' (National Institute for Health and Clinical Excellence (NICE), 2009). There is however, no agreed criterion for a child's reasonable walking distance although in England, 800 m has been commonly applied to primary aged children, based on the 85th percentile for 'Pupil Home-School Distance' (School Travel Health Check (STHC), 2013).

There is a dearth of literature regarding active travel to pre-school settings. The only research available relates to school aged children. These studies indicate active travel to school can contribute to physical activity targets (McCormack et al., 2011; Murtagh and Murphy, 2011; van Sluijs et al., 2009).) Furthermore, children who walk to school may be active over and above the time spent on active travel (Alexander et al., 2005; Cooper et al., 2003). They may also have a healthier body composition and better cardiorespiratory fitness compared to children who travel inactively (Lubans et al., 2011; Sandercock and Ogunleye, 2012).

The literature regarding school-aged children indicate that active travel has been found to be consistently positively associated with neighbourhood density and connectivity (Larsen et al., 2009; Martin et al., 2007; Panter et al., 2008), with concerns about road safety and personal safety being barriers (Panter et al., 2008; Timperio et al., 2006; Zhu and Lee, 2009). Distance is also consistently negatively associated with active travel amongst school aged children (D'Haese et al., 2011; Larsen et al., 2009; Stewart et al., 2012; Yeung et al., 2008). Additional barriers include

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inflexible parental work schedules, other commitments or lack of time (Ahlport et al., 2008; Faulkner et al., 2010). However whilst some studies have suggested active travel prevalence is greater in lower socio-economic groups (Brophy et al., 2011; Martin et al., 2007; Larsen et al., 2009; Zhu and Lee, 2009) others have found less active travel (Panter et al., 2010) or no association in either direction (D'Haese et al., 2011). Walking to school may be more likely if there is no access to a car (Brophy et al., 2011; Steinbach et al., 2012; Zhu and Lee, 2009) although D'Haese et al. (2011) found no such association. Similarly, some studies have suggested boys are more likely to travel actively to school (Larsen et al., 2009; Yeung et al., 2008) but Martin et al. (2007) found no such difference. Faulkner et al. (2010) suggested 'nice' weather may influence parents usually travelling inactively to walk with their children but Mitra and Faulkner (2012) found weather related variables were not associated with choice of travel mode.

Some authors have proposed predictive frameworks 'capturing' the complexities of decision making about active travel but these have not been validated and currently have limited application (Panter et al., 2008; Pont et al., 2011).

There is no published validation for measurement of travel mode and the criteria such as frequency, duration and type of activity considered to be "active" travel, are inconsistently reported, making study comparisons difficult (Lubans et al., 2011). Methods used to measure travel distance itself have also varied (Wong et al., 2011).

Parental decision making about travel mode and the need to escort pre-school aged children are likely to be important. Assessing the factors applicable to pre-school children could assist in developing effective travel strategies for this group. The preliminary cross sectional study reported here aimed to compare prevalence of active travel and other variables amongst pre-school children in a small sample of urban pre-school settings.

2. Material and methods

2.1. Sample

Four pre-schools in urban locations in South Gloucestershire were chosen for this study, with two pre-schools from each of two areas categorised as a "Priority Neighbourhood" (PN) and a "non-Priority Neighbourhood" (non-PN). Public health activity in South Gloucestershire is focused on PN areas as a matter of local government policy but we wished to include both PN and non-PN areas in our preliminary study to assess variation. To qualify as a PN at least one of the domains (unemployment, housing, crime, education, health, housing, and environment) must be in the lowest 20% nationally and/or in the lowest 20% overall within South Gloucestershire and part of a cluster.

The PN area in this study was a cluster of four 'lower super output areas' (LSOA) on a pre-war Bristol 'fringe' housing estate. The two pre-schools were situated in a LSOA with an IMD score of 15.30 and in the third decile nationally (1 being most deprived). The non-PN area was a group of six LSOAs in an urban area on the eastern border with Bristol, the two pre-schools situated in a LSOA with an IMD score of 13.03 (fourth decile). The pre-schools selected were in the LSOA in which the town/parish council offices were situated.

The target respondents were all parents/carers bringing to and/or collecting children aged 2–4 years old from the pre-schools on the survey days. The intention was to obtain a high response rate in a few pre-schools enabling generalisation of results to those settings only. As a preliminary study focussing on descriptive statistics we estimated an overall sample of 200 cases would provide acceptable levels of precision for assessing factors associated with active travel. Ethical approval for this study was obtained from the University of the West of England.

2.2. Data collection

The manager of each selected pre-school (A, B, C, D), was invited to participate by letter in March 2013. In a follow up phone call they each agreed for their pre-school to participate and a meeting was arranged between the researcher and each individual manager in which they were given study details and copies of ethical approval; an introduction letter and; information sheet which specified the voluntary nature of participation to give to parents in advance of the survey. They were also given a copy of the travel questionnaire, (double sided A4 sheet), that had been previously piloted in a single comparable preschool. Questions related to factors potentially affecting travel and were based on those commonly identified in the literature review and pilot. The final version of the questionnaire included questions about child and parent travel to and from the pre-school 'today' and 'usually' at this time of year', factors affecting the pattern of travel (with space provided for respondents comments on this), journey length, access to a car and home postcode (Appendix A). The questionnaire was designed for fast completion by parents/carers 'on the go' in order to maximise completion rates in each pre-school setting.

The survey was undertaken over four weeks commencing 8th April 2013 during which there was no rain. Each pre-school was visited on four different weekdays, and at both child delivery and collection times, over two weeks, to 'capture' as many parents/carers as possible with different pre-school attendance patterns. The questionnaires were completed voluntarily and this constituted 'informed consent'. Questionnaires were personally distributed to the parent or person usually dropping off and collecting the child, and completed before or after their child went into the pre-school room. Another information sheet was available for parents who wished to be reminded of the study details. Each family completed a questionnaire once only.

2.3. Data analysis

Completed questionnaires were logged, checked for gross inconsistencies and entered onto SPSS Version 19 (IBM Corporation, 2010). The following decisions were made: families with twins and siblings at the same pre-school were entered as one case but an additional variable created to capture this information; in 11 cases two modes of travel were indicated and both variables were entered: postcode data were used to determine the 'walking' distance using Google Maps (2013); ten grandparents and four childminders completing the survey were not included in the analysis involving distance travelled as it was known they had used their own home postcode rather than the child's.

Active travel frequencies for the child were determined from amalgamating 'active travel' modes (walking, cycling, scooter/cycle, bus) and 'inactive travel' modes (car, taxi, pushchair, cycle seat/trailer) for the arrival and collection journeys of children 'today' and 'usually'. As we recognised that travel that included a bus trip involved some walking this mode was categorised as 'active'. In fact, only one child in the sample arrived by bus. The measurement of 'today' provided a 'snapshot' of active travel behaviour but did not take account of varying weather conditions, family sickness, appointments or unexpected events although one potential weakness of using 'usually' is that respondent's personal definition of the term may vary. The preliminary analysis, showed, that the results for 'today' and 'usually' were similar in each of the four pre-schools. To avoid duplicating results 'usually' was used in further analysis since this was more likely to reflect normal patterns of behaviour. A judgement was made that a child 'usually' travelling actively either to and/or from the pre-school had positively engaged in active travel and a derived variable was created to represent this. Pearson's chi-squared tests, and a logistic regression were also undertaken where indicated.

In addition, ten short interviews were conducted with parents that lived within 800 m of the pre-school but drove. These did not provide any additional information about their reasons for driving; all related to dropping off other children, travelling on to other commitments or to or back from work. These findings did not conflict with the questionnaire results and are, therefore, not reported here.