Modes of transport to or from school and mental well-being of schoolchildren in Ireland

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INTRODUCTION

The importance of physical activity for promoting well-being among children and adolescents is widely recognised [1,2]. Active transport is a priority area within the Physical Activity Strategy for the WHO European Region 2016-2025 [3]. The health-related impacts of children's active travel have primarily focused on physical well-being, but there is a lack of empirical evidence measuring this effect on mental well-being, particularly in Ireland.

Active school transport is influenced by multiple health determinants: individual (age, sex), social (family, friends) and neighbourhood/environmental factors (infrastructure, roads) [3]. Thus the relationships may be mediated or moderated by such determinants, including family affluence or area of residence (urban/rural) [5,6].

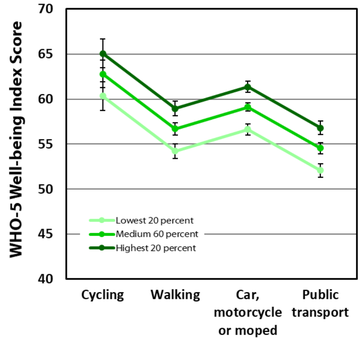
This study examines the modes of transport to or from school and their relationship with the mental well-being of school children in Ireland. The impact of family affluence and area of residence on these associations is also explored.

SAMPLE AND METHOD

We used data from 9,180 children participating in the 2018 Irish Health Behaviour in School-aged Children (HBSC), (10–17 years, mean age: 13.53, SD = 1.92). Children reporting their journeys as primarily cycling (3.3%), walking (n = 2,300, 25.1%),by car, motorcycle or moped (private vehicle) (n = 4,249, 46.3%), or by public transport (n = 2,326, 25.3%) were compared across seven indicators of mental well-being.

We used analysis of variance and binary logistic regression as approriate. All analyses were run using mode of transport as the sole predictor variable, then they were repeated controlled for relative family affluence [7] and area of residence (city, town, village, or country).

Figure 1. **Estimated marginal means for WHO-5 Well-being Index scores across modes of transport and relative family affluence**

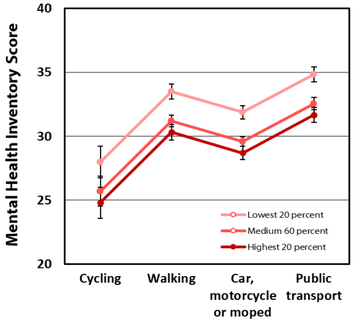


A higher score indicates better well-being. Scores varied signficantly by mode of transport: $F(3) = 22.75$, $p < .001$, $\eta^2_p = .008$.

Relative family affluence and area of residence significantly improved the model: $F(17) = 13.39$, $p < .001$, $\eta^2_p = .025$.

All four transport groups' well-being scores were significantly different (p-values ≤ .014) with cyclists scoring most favourably.

Figure 2. **Estimated marginal means for MHI-5 Mental Health Inventory across modes of transport and relative family affluence**

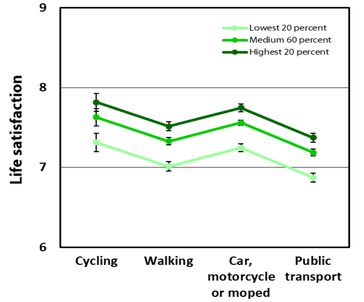


A higher score indicates mental health problems. Scores varied significantly by mode of transport: $F(3) = 26.29$, $p < .001$, $\eta^2_p = .009$.

Relative family affluence and area of residence significantly improved the model: $F(17) = 28.39$, $p < .001$, $\eta^2_p = .026$.

All four transport groups' well-being scores were significantly different (p-values ≤ .029), with cyclists scoring most favourably.

Figure 3. **Estimated marginal means for life satisfaction scores across modes of transport and relative family affluence**

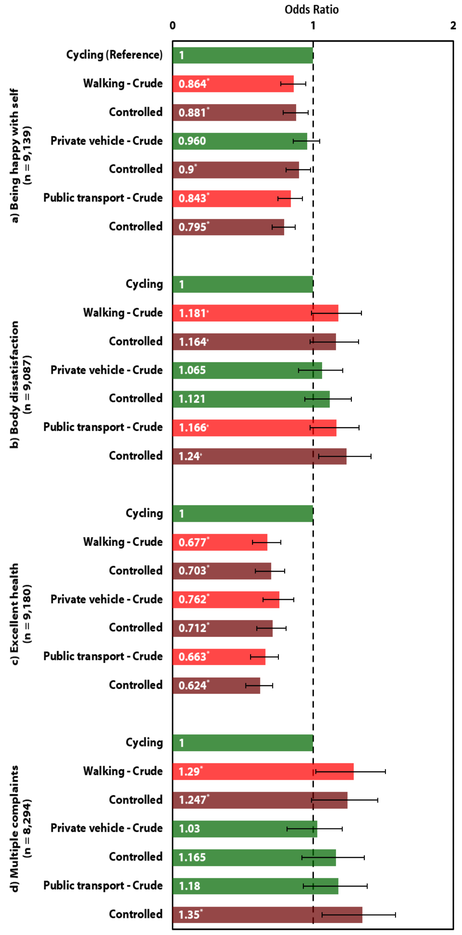


A higher score indicates greater life satisfaction. Scores varied significantly by mode of transport: $F(3) = 33.55$, $p < .001$, $\eta^2_p = .011$.

Relative family affluence and area of residence significantly improved the model: $F(17) = 30.93$, $p < .001$, $\eta^2_p = .027$.

Cyclists and those using a private vehicle were significantly higher than those who walked (p-values ≤ .008) while those using public transport significantly worse than all others (p-values ≤ .017).

Figure 4. **Odds of the transport groups, compared to cycling for commuting to/from school, to report a) feel happy with self, b) body dissatisfaction, c) excellent health, and d) multiple health complaints.**



Compared to cyclists:

Those who walked or used public transport were less likely to report that they are happy with themselves. Controlling for family affluence and area of residence did not change this pattern.

Those commuting to/from school by private vehicle were less likely to be happy with themselves but only in the model controlled by family affluence and area of residence.

Those who walked or used public transport were more likely to report body dissatisfaction.

Those using all three other modes of transport were less likely to rate their health as excellent (c. 0.6–0.7 times).

Those who walked were more likely to report multiple health complaints (around 1.3 times).

DISCUSSION

Children who cycle to/from school reported better mental well-being than those who walk or use public transport, while both family affluence and area of residence have some impact on the associations between mode of travel and mental well-being.

Children who cycle to/from school are probably living relatively close to their school, and it is likely that parents consider it to be safe. Children who walk or use public transport to/from school report poorer mental well-being outcomes than the other two groups, which may be influenced by other family or contextual factors that are also related to mental well-being.

These findings suggest that beside family affluence and area of residence, children's social class and attributes of their neighbourhoods should be considered in future investigations.

Cycling is a viable public health intervention for children because it is a low-cost, lifelong, physical activity [8]. Our results suggest that cycling is associated with favourable mental well-being outcomes, which supports policy actions to promote cycling in children. It seems worthwhile to invest in developing cyclist-friendly infrastructures, training in road and cycling safety for children and families, but social and contextual inequalities must be considered in any policy action.

For the abstract and list of references, visit:
https://tinyurl.com/transportposter2020

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