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Physical activity and wellbeing of 8–9 year old children from social disadvantage: An all-Ireland approach to health

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ABSTRACT

Background: Physical activity (PA) has been shown to improve psychological wellbeing in adults, however less is known about this relationship in children. The aim of this study was to examine the relationship between PA and wellbeing in children for the first time across Ireland and to explore potential differences by gender, jurisdiction (Northern Ireland and the Republic of Ireland) and region of Ireland.
Method: A sample of 673 8–9 year olds attending school in socially disadvantaged areas took part. Participants completed a measure of PA and the KIDSCREEN-27 quality of life questionnaire.
Results: 18% of children accumulated the recommended 60 min of MVPA per day for health, with 18% of boys (n = 63) and 17% girls (n = 55) achieving this level. Children in Northern Ireland reported higher wellbeing scores than those in Republic of Ireland. Children achieving the recommended level of MVPA scored significantly higher on measures of wellbeing than less active children. Gender differences in wellbeing were found for perceived parental, social and school support with girls scoring higher than boys.
Conclusions: Children who meet the recommended MVPA guidelines and those who live in Northern Ireland report a higher level of wellbeing than their peers who live in the Republic of Ireland.

1. Background

Although there is no single definition of child wellbeing, many definitions encompass subjective evaluations of psychological, physical and social health implying that wellbeing is multidimensional (Pollard & Lee, 2003). Similarly, when wellbeing is defined in relation to quality of life (QoL) or health-related quality of life (HRQoL), it refers to psychological, physical and social wellbeing (Harding, 2001). Wellbeing is more than the absence of negative symptoms, such as depression or anxiety, but is the presence of positive characteristics, such as happiness, life satisfaction and optimal functioning (Huppert & Whittington, 2003). Low levels of wellbeing can lead to poor outcomes, such as social isolation, involvement in risky behaviour and poor mental health (Friedli, 2009; Rees, Bradshaw, Goswami, & Keung, 2010). Yet perceived positive wellbeing, such as feeling happy, is associated with improved social relations as well as protection against psychological illnesses (Park, 2004). However, a systematic review of child wellbeing found that wellbeing was inconsistently measured, narrowly focused and used mainly negative indicators (Pollard & Lee, 2003). Furthermore, previous measures of wellbeing had not taken children's perceptions of what wellbeing is into consideration. It has been argued that children's wellbeing can be more accurately assessed by using measures that have been developed based on asking children their views of wellbeing (Ben-Arieh, 2005). One such measure is KIDSCREEN-27, a health-related quality of life (HRQoL) questionnaire developed by a European consortium across 13 countries in Europe (Ravens-Sieberer et al., 2007). Children and youth aged 8–18 years identified dimensions and items relevant to their wellbeing. Consequently KIDSCREEN-52, a 52-item questionnaire was developed. Shorter version of the

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scale are also available which assess HRQoL across 5 dimensions; physical and psychological wellbeing, parent relations and autonomy, support and peers and school environment (Ravens-Sieberer et al., 2007). Hence, the content considers wellbeing from a physical, psychological and social aspect which are relevant to how children perceive their wellbeing and is accepted as a valid and cross-cultural comparable tool (Ravens-Sieberer et al., 2007). Considering the multidimensional nature of wellbeing, there are a number of potentially influencing factors, such as physical activity (Biddle, Fox, & Boutcher, 2000), gender, weight status and socioeconomic status (Hartmann, Zahner, & Puhse, 2010).

The United Kingdom (UK) physical activity guidelines recommend at least 60 min of moderate to vigorous intensity physical activity (MVPA) each day for improving; children's physical and psychological wellbeing (Department of Health, Physical Activity, Health Improvement & Protection, 2011). Children who reported high levels of physical activity scored lower in depression (Cheung, Mak, & Chan, 2008; Parfitt, Pavey, & Rowlands, 2009; Tomson, Pangrazi, Friedman, & Hutchinson, 2003) and anxiety (Parfitt et al., 2009) higher in vigour (Cheung et al., 2008), physical self-worth (Parfitt et al., 2009) and global self-esteem (Parfitt & Eston, 2005), as well as a better quality of life (Sanchez-Lopez et al., 2009). Furthermore, those who met the recommended daily physical activity guidelines scored higher on measures of wellbeing than less active children (Breslin et al., 2012b). However, the evidence for children is not as convincing as it is for adults with methodological and measurement inconsistencies in studies (Larun, Nordheim, Ekeland, Hagen, & Heian, 2006; Biddle & Asare, 2011). Inconsistent and restricted use of subcomponents of wellbeing (Pollard & Lee, 2003) may be a reason for the small relationship between physical activity and wellbeing. Furthermore, gender differences in both physical activity (Breslin et al.,2012b) and wellbeing (Ravens-Sieberer et al., 2007) have been documented, and significant gender differences in the association between physical activity and depressed mood (McKercher et al., 2012; Goldfield et al., 2011) have also been observed. Hence, gender should be considered when analysing physical activity and wellbeing in children. Despite the positive effects shown from physical activity, a major problem exists in trying to get children to be active as 75% of 9-year old children and 81% of 8–9 year old children are not achieving the guidelines in the Republic of Ireland (Harrington et al., 2014) and Northern Ireland (Breslin, Brennan, Rafferty, Gallagher, & Hanna, 2012a) respectively.

Children from low socioeconomic status (SES) are at increased risk from suffering from anxiety, depression, reduced health status and higher incidences of behavioural problems (Reiss, 2013) as well as a higher risk of low levels of physical activity (Drenowatz et al., 2010; Currie et al., 2008). Indeed, in Ireland socioeconomic disadvantage and family stressors are a predictor of low child wellbeing (McAuley & Layte, 2012). There is a dearth of research investigating the relationship between MVPA and wellbeing in children from socially disadvantaged areas. Yet understanding the relationship with this population is necessary to determine whether promoting physical activity for their wellbeing is important.

The data for the current study was the baseline data for a longitudinal clustered randomised control trial (CRCT) called Sport For Life: All island. Hence, the objective was to achieve a nationally representative sample of school-aged children from low socioeconomic status across the four provinces of the Republic of Ireland and Northern Ireland (Ulster). Obtaining such a sample enabled the relationship between physical activity and wellbeing in children from social and economic disadvantaged areas across the island of Ireland to be established for the first time. Children's physical activity and wellbeing levels in each region of Ireland were taken into account. This is because the State of the Nation's Children Report in 2012 in Ireland found a significant difference in the percentage of children aged 10–17 years reaching the MVPA guidelines when stratified by geographic location (Department of Children and Youth Affairs, 2012). Approximately 45.4% of children in Dublin were reaching the MVPA guidelines, while 54.6% in the West and South-West were achieving the guidelines. In addition, significant differences were also found for self-esteem and self-reported happiness by geographic location, with 53.6% of children in the West to 60.9% of children in the South-West reported feeling happy with the way they are, while 88.9% of children in the Mid-East to 92.6% of children in the Midlands of Ireland reported feeling happy with their lives at present (Department of Children and Youth Affairs, 2012). Therefore, due to the regional differences found, taking the separate regions within Ireland into consideration when determining the relationship between physical activity and wellbeing, was considered a potential determining factor.

The aim of the current study was to examine associations between MVPA and wellbeing in children from socially disadvantaged areas on the island of Ireland, taking into consideration the effect of gender and the geographical region. We hypothesized that children who achieved the 60 min MVPA guideline will score higher on wellbeing measures than those not achieving this level. This study is the first of its kind to profile and report on these variables across Ireland providing policy makers with data on where to focus resources to increase physical activity to improve the wellbeing of children in disadvantaged areas.

2. Methods

In writing this paper we have followed the STROBE standards for reporting cohort studies.

The study is part of a larger longitudinal clustered randomised control trial (CRCT) called Sport For Life: All island, a healthy lifestyle intervention for children aged 8–9 years across the island of Ireland, including Northern Ireland and the Republic of Ireland. The island is separated politically into two jurisdictions: Northern Ireland in the North East of the island and is part of the United Kingdom with an approximate population of 1.8 million people and the Republic of Ireland with a population of 4.6 million. Northern Ireland comprises one province (Ulster) and this consists of six counties. The Republic of Ireland comprises four provinces (Ulster, Leinster, Munster and Connaught), consisting of 26 counties, which contains three counties within Ulster (Donegal, Monaghan and Cavan). The data reported here are the baseline data for the CRCT.

2.1. Design

A cross-sectional study of 8–9 year old children was conducted between September/October 2014 and January/February 2015. Following ethical approval, primary schools from areas of social and economic disadvantage were identified using Northern Ireland and Republic of Ireland government databases. In Northern Ireland, the inclusion criteria meant schools within the 2010 Multiple Deprivation Measure (NIMDM) were invited to participate. This database consists of seven domains of deprivation including: income, employment, health, education, proximity to services, living environment and crime. Schools included for participation in the Republic of Ireland were from the Delivering Equality of Opportunity in Schools (DEIS) index. Socioeconomic variables in the DEIS database include: local authority accommodation, lone parenthood, Travellers, large families (5 or more children) and pupils eligible for free books. Twenty six schools agreed to participate. Schools were randomly chosen to be invited to take part in the study as (a) an intervention or (b) a wait-list control condition. Schools selected were given an information sheet, parental consent