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Review Article

Physical activity levels in adults with intellectual disabilities: A systematic review

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ABSTRACT

Despite evidence that inactivity is a major factor causing ill health in people with intellectual disabilities (pwID) there are gaps in our knowledge of their physical activity (PA). To date, there is no published systematic review of their PA levels. Therefore, we performed a systematic review from January–October 2015, comprising studies from across the globe to establish PA levels, determine how they were measured, and what factors influenced PA in adults with intellectual disabilities (awID). Five databases were searched. Studies were included if written in English, peer-reviewed, had primary research data, and measured PA levels of awID. Quality was assessed using a 19-item checklist. Meta-summary of the findings was performed and a meta-analysis of factors influencing PA using multiple regression.

Fifteen studies were included consisting of 3159 awID, aged 16–81 years, 54% male and 46% female. Only 9% of participants achieved minimum PA guidelines. PA levels were measured using objective and subjective methods. ID severity, living in care, gender, and age were independently significantly correlated with the number of participants achieving PA guidelines with the strongest predictor being ID severity (Beta 0.631, $p < 0.001$). Findings should be in the context that most of the participants were in the mild/moderate range of ID severity and none of the studies objectively measured PA in people with profound ID. To inform measurement and intervention design for improved PA, we recommend that there is an urgent need for future PA studies in awID population to include all disability severity levels. PROSPERO registration number CRD42015016675.

Contents

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1. Introduction

Intellectual disabilities (ID[1]) also referred to as learning disability in the UK and intellectual developmental disorder in the U.S. is defined as 'a significantly reduced ability to understand new or complex information and to learn and apply new skills. The intellectual disability begins before adulthood, resulting in a reduced ability to cope independently, with a lasting effect on development' (World Health Organisation, 2015). In addition, the extent to which an individual is unable to face the demands established by society for the individual's age group can be further classified as: mild, moderate, severe, and profound (Katz and Lazcano-ponce, 2008; Salvador-Carulla et al., 2011; American Psychiatric Association aww, 2013). Estimates of prevalence of ID vary for several reasons, including methodological differences between studies (Harris, 2006; Doran et al., 2012; Maulik et al., 2011), the wealth of the country, and the age-group of the study population (Harris, 2006; Maulik et al., 2011; Maulik and Harbour, 2010). Maulik et al. (2011) reported a prevalence of 16.41 and 15.94/1000 population in low- and middle-income countries respectively, whereas in high-income countries, these figures are lower, at an estimated prevalence of 9.21/1000 population. Additionally, they reported higher prevalence among studies based on children/adolescents (18.30/1000), compared to those on adults (4.94/1000) (Maulik et al., 2011). Importantly, these figures are set to rise due to increase in life expectancy in this group of people (Harris, 2006; Holland, 2000; Emerson et al., 2014). This has implications as people with intellectual disabilities (pwID[2]) have poorer health than their non-disabled peers, with differences in health status that are avoidable (Emerson et al., 2014; Krahn et al., 2006; Heslop et al., 2014). These differences start early in life, with higher prevalence of diseases such as obesity, hypertension, and hyperlipidemia common among pwID as early as adolescence (Lin et al., 2010; Wallén et al., 2009). While there may be several reasons for these health differences (Krahn et al., 2006; Heslop et al., 2014; Emerson and Baines, 2011), low level of physical activity (PA[3]) is one of the key lifestyle factors causing ill health and an increased risk of chronic diseases in pwID (Bergstrom et al., 2013; Robertson et al., 2000). The medical and non-medical lifetime costs associated with the diagnoses of ID are much higher than for non-ID individuals with many associated with an inactive lifestyle. These costs are substantially higher than those associated with the diagnosis of other disabilities (e.g., cerebral palsy, vision, and hearing impairments) and could potentially be reduced with lifestyle modifications (Doran et al., 2012; Honeycutt et al., 2004).

A physically inactive lifestyle increases the risk of non-communicable diseases. However, increasing PA has been shown to improve health outcomes (Richards et al., 2013; Lifestyles statistics team HaSCIC, 2014). In spite of clear guidance about the need for an active lifestyle, several studies in the literature reported absence of regular PA in adults with intellectual disabilities (awID[4]) (Robertson et al., 2000; Finlayson et al., 2009; McGuire et al., 2007; Haveman et al., 2011; Emerson, 2005; Frey, 2004; Draheim et al., 2002). Compared with the general population, there are gaps in our knowledge of their PA. For example, individual factors such as sex, race, and social status that have been shown in the general population to influence PA levels are yet to be established within ID populations. To implement effective non-communicable disease prevention programmes, policy makers need data for PA levels (Hallal et al., 2012). However, to date, there is no published systematic review of PA levels in awID. A review by Temple et al. (2006), on PA levels in awID, did not use systematic methodology. Out of the 14 papers included in their review, eight used questionnaires that were neither valid nor reliable and overall, their review data were informed by studies set within a limited context, with high levels of bias and samples that were not reflective of ID populations. This gap in the literature highlights the need for a systematic review to determine PA levels within ID populations, and factors relating to this behaviour in order to improve risk factor identification and better target PA promotion in this group. It is hoped that the findings of the review will promote our understanding of the factors influencing PA levels and in turn inform interventions to minimise inactivity. Therefore, the aims of this review will be to examine the published literature to establish PA levels, determine how PA levels were measured and examine the reported factors that influenced PA levels in awID.

2. Methods

The review was prepared and reported with reference to the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' guidelines (Moher et al., 2009). A protocol for this review was registered with PROSPERO on 02/03/15, registration number CRD42015016675. Available at http://www.crd.york.ac.uk/PROSPERO.

2.1. Identification of literature

Searches of electronic literature databases were conducted in January 2015 from the earliest available date. The databases searched were Cochrane Library, PubMed, Web of Science, CINAHL, and MEDLINE (the latter two via EBSCO). In order to ensure that no relevant studies were missed, additional studies were identified by hand searching reference list of reviews and research papers relating to PA in pwID. The searches were re-run in July 2015 just before the final analyses, but no further study was retrieved.

2.1.1. Search strategy

In each database, terms for *intellectual disability* and associated synonyms were identified. These terms were then combined with search terms relating to *PA* and *PA level/measurement*. Searches were limited to papers published in English language, on humans and included adults (Appendix A).

2.2. Screening and eligibility

All articles identified by searches were exported to Endnote Web. Duplicates and irrelevant records were removed. Remaining records were screened by one review author (YD) to identify studies that

[1] Intellectual disabilities (ID).
[2] People with intellectual disabilities (pwID).
[3] Physical activity (PA).
[4] Adults with intellectual disabilities (awID)