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Prevalence and factors associated with polypharmacy in Victorian adults with intellectual disability



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ABSTRACT

Although polypharmacy is a medication safety concern leading to increased risk of non-adherence, adverse drug reaction and drug–drug interactions, polypharmacy and associated risk factors has rarely been investigated involving people with ID at a population level. The purpose of this paper is to analyze the prevalence of polypharmacy and to evaluate the role of different factors associated with polypharmacy in a state-wide representative population of adults with ID. In a population-based survey in Victoria, Australia, 897 people with ID 18 years of age or older were selected by simple random sampling. The data were collected from proxy respondents on behalf of people with ID. Polypharmacy was defined as the concomitant use of five or more medications. The data were weighted to reflect the age/sex/geographic distribution of the population. Results revealed that more than 76% of adults with ID had used prescribed medicine and about 21% were exposed to polypharmacy in the last two weeks. In both univariate and multivariate analyses, polypharmacy was significantly associated with older age, unemployment and inability to get help from family and friends if needed. After controlling for age, sex and severity of intellectual disability, polypharmacy was associated with having a blood pressure, blood cholesterol and blood glucose level check. Polypharmacy was also associated with a greater number of visits to general practitioners, fair or poor reported health status and inability to walk unaided. Subjects with epilepsy, diabetes, stroke, osteoporosis and cancer had a higher probability of polypharmacy. None of the disease inducing behaviors was associated with polypharmacy. This study highlights the need that medication should be regularly reviewed overall in ID population and particularly when polypharmacy exists.

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1. Introduction

Polypharmacy is a medication safety concern, as it is associated with the risk of developing adverse drug reactions, undesirable drug–drug interactions, hospitalization, medication non-adherence, poorer quality of life and of premature

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mortality (Lunsky & Elserafi, 2012; Passarelli, Jacob-Filho, & Figueras, 2005; Stortz, Lake, Cobigo, Ouellette-Kuntz, & Lunsky, 2014; Straetmans, van Schrojenstein Lantman-de Valk, Schellevis, & Dinant, 2007). While polypharmacy may be necessary for the treatment of multiple co-morbid health conditions, in other cases it may represent inappropriate prescribing, which itself represents a substantial clinical and economic burden for both patients and society (Simonson & Feinberg, 2005).

People with ID have high rates of premature mortality, morbidity and comorbidity (Emerson & Hatton, 2013; Haveman et al., 2010; Krahn & Fox, 2013; Hara, McCarthy, & Bouras, 2010; Oeseburg, Dijkstra, Groothoff, Reijneveld, & Jansen, 2011; Van Schrojenstein Lantman-de Valk, 2005). Given the high prevalence of comorbid conditions such as epilepsy, hyperactivity disorder, schizophrenia, bipolar disorder, anxiety, depression, sleep disorders and gastrointestinal problems (Levy, Mandell, & Schultz, 2009; Mahan et al., 2010), people with ID are likely to be prescribed a variety of medicines and experience polypharmacy (Straetmans et al., 2007).

According to a recent review, there is a lack of consensus on the methods used to study polypharmacy including measurements, definitions of polypharmacy, study samples and analytical methods (Stortz et al., 2014). Although there is no clear consensus on the definition of polypharmacy, one of the most commonly used definitions is the concurrent use of five or more drugs (Haider, Johnell, Weitoft, Thorslund, & Fastbom, 2009; Linjakumpu et al., 2002; Veehof, Stewart, Haaijer-Ruskamp, & Jong, 2000).

The prevalence of polypharmacy among people with ID varies considerably, ranging from 11% to 60% (Stortz et al., 2014). This variability in prevalence of polypharmacy may be due to different study methods and analytics used, making comparisons difficult across different studies. This evidence base may also be criticized on two important counts (Stortz et al., 2014). First, the majority of studies are based on small scale convenience or clinical-based samples, making it difficult to generalize the findings to the wider ID population. Second, there is a lack of studies examining factors associated with polypharmacy to understand why the prevalence of polypharmacy differs within populations. For example, studies in people who do not have ID have shown that factors associated with polypharmacy include older age, female gender, low education, institutional living, poor self-reported health, high number of visits to health professionals and dementia (Agostini, Han, & Tinetti, 2004; Haider, Johnell, Thorslund, & Fastbom, 2008; Haider et al., 2009; Jyrkka, Enlund, Korhonen, Sulkava, & Hartikainen, 2009; Pitkala, Strandberg, & Tilvis, 2001).

To our knowledge, no study has investigated polypharmacy (concurrent use of five or more drugs) and associated factors in a representative ID population. The aims of this study were to describe the prevalence of medicine use and polypharmacy (defined in this study as use of five or more drugs) and to investigate the role of different factors associated with polypharmacy in a representative population of people with intellectual disability living in the state of Victoria, Australia.

2. Methods

The design, data source, and sampling frame reflect the population based and cross sectional nature of the study.

2.1. Design and data source

The data used in this study were obtained from state-wide population health survey; the 'Victorian Population Health Survey of people with an Intellectual Disability 2009' (VPHS-ID 2009). The VPHS-ID 2009 was the first population level survey in Victoria, Australia for people with intellectual disability and was designed to provide information on the health and wellbeing of the population to inform policy and planning.

A public health model of the social determinants of health, provided the theoretical framework for the VPHS-ID and informed the development of the questionnaire (Ansari, Carson, Ackland, Vaughan, & Serraglio, 2003). Essentially the model predicts that the underlying social determinants of health, which include socioeconomic determinants, psychosocial risk factors and community and societal characteristics (social determinants), impact on the health of the individuals (health outcomes) both directly and indirectly via the healthcare system and disease-inducing behaviors (Ansari et al., 2003).

2.2. Sampling frame

The VPHS-ID 2009 was a cross sectional study conducted by the Victorian Department of Health with data collected from proxy respondents between October and December 2009. The VPHS-ID 2009 sampling plan was designed to yield state-wide representative estimates that would generalize to all people with intellectual disability aged 18 years and over living in Victoria.

A full description of details about design, recruitment and representativeness of the sample, as well as diagnostic methods, has been published elsewhere (Department of Health, 2008, 2011; Haider, Ansari, Vaughan, Matters, & Emerson, 2013). An administrative database of people with ID who had previously sought assistance from the Victorian Department of Human Services was used as the sampling frame for the VPHS-ID 2009. The database contained information on approximately 21,210 people aged 18 years and over who were listed on the administrative database and resided in Victoria and had ID as either a primary or secondary condition (0.5% of the resident adult population of Victoria). 7106 recruitment packages were mailed to a randomly selected sample of people aged 18 years and over with ID. 897 people with ID, and their proxy respondents agreed to participate, giving a response rate of 14% of people with whom contact was made. The overall participation rate defined as completed interviews divided by people who agreed to participate in the survey was 90.7%.

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