



## Research article

# Increased risk for mental illness, injuries, and violence in children born to mothers with intellectual disability: A register study in Sweden during 1999–2012



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## ABSTRACT

Several studies have demonstrated that mothers with intellectual disability (ID) have a higher prevalence of mental health illness, lower socio-economic status, and a higher risk of alcohol and drug use compared to mothers without ID. The children of mothers with ID are over-represented in child protection and legal proceedings but are generally a less studied group than the mothers. The aim of this study was to investigate if children born to mothers with ID had an increased risk of being diagnosed with mental illness, injuries, and violence compared with children of mothers without ID. The study comprised a population-based cohort of children born in Sweden between 1999 and 2005. Data were collected from the Medical Birth Register and linked with two other national registers; ICD-10 codes were used for medical diagnoses, including ID. The children were followed from birth to seven years of age. In total, 478,577 children were included, of whom 2749 were born to mothers with ID. Children of mothers with ID were at a greater risk of having mental health problems (adjusted odds ratio (OR) = 2.02; 95% confidence interval (CI) = 1.74–2.35) and ID (OR = 4.14; CI = 2.95–5.82) in early childhood. They had an increased risk for injuries due to falls (OR = 1.15; CI 1.04–1.27). The largest risk related to trauma was violence and child abuse (OR = 3.11; CI = 1.89–5.12). In conclusion, children of mothers with ID had an increased risk for injuries, violence, and child abuse. We therefore suggest that parents with ID should receive evidence based support so that their children receive the best care and protection.

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## 1. Introduction

The prevalence of children born to mothers with intellectual disabilities (ID) varies in the literature, ranging from 0.09% to 6.5% (Emerson & Brigham, 2013; Goldacre, Gray, & Goldacre, 2015; Hindmarsh, Llewellyn, & Emerson, 2015; McConnell, Mayes, & Llewellyn, 2008). However, these reports are based on small cohorts with diverse socio-economic circumstances. Recently, a Swedish study affirmed that 0.21% of all children born between 2002 and 2008 had a mother with ID (Weiber, Berglund, Tengland, & Eklund, 2011).

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Several studies have demonstrated that mothers with ID had a higher prevalence of mental illness, smoking, and alcohol use compared to mothers without ID (Emerson & Brigham, 2013; Goldacre et al., 2015; Hindmarsh et al., 2015). Moreover, their socio-economic status was lower, they were younger when they first became mothers, and more often lived as single parents than mothers without ID (Emerson & Brigham, 2013; Goldacre et al., 2015; Hindmarsh et al., 2015; Höglund, Lindgren, & Larsson, 2012b). Moreover, violence within the family was more common; additionally, during the younger ages, they more often had been “in care” or abused (Emerson & Brigham, 2013). Mothers with ID also had a higher level of stress, which increased when their child became older (Feldman, Legér, & Walton-Allen, 1997).

Children of mothers with ID were more often born preterm and had a lower birth weight (Goldacre et al., 2015; Hindmarsh et al., 2015; Höglund et al., 2012a). Children having one or two parents with ID more often had developmental delays and emotional/behavior problems; however, the frequency of such problems differs in the studies. One study reported that 43% of children of mentally retarded parents had learning difficulties (Morch, Skar, & Andersgard, 1997). Another study described that 30% of children born to parents with cognitive impairment had developmental problems and almost 50% had emotional/behavior problems (Feldman, McConnell, & Aunos, 2012). In a study involving younger children, it was found that 30% of children born to parents with ID had a developmental delay and 32% had behavior problems (Emerson & Brigham, 2014). Emerson and Brigham (2014) also showed that the children born to parents with ID were more frequently exposed to accidents and injuries compared to children who were born to parents without ID (5% vs. 1%) even if the association did not remain significant after adjustment. Studies on small cohorts have shown that a large proportion of children born to parents with ID had also been abused (Booth & Booth, 2000; Lindblad, Billstedt, Gillberg, & Fernell, 2014). However, parents with ID were seldom the perpetrators, but rather other close individuals around them.

Parents with ID commonly fail to seek medical help for the child (Emerson & Brigham, 2014), and 40% of children born to parents with ID have experienced deficits in care such as malnutrition, low standards of hygiene, and under-stimulation (Morch et al., 1997). One study claims that children of mothers with learning disabilities appear in family court more often due to child neglect (Booth, Booth, & McConnell, 2005). Mental health problems in mothers increased the risk for neglect, and children of mothers with ID had the highest risk of being neglected (O'Donnell et al., 2015).

It is also known that children of mothers with intellectual disability have a higher risk of perinatal death (Höglund, Lindgren, & Larsson, 2012a). Little is known about whether children of mothers with ID also have an increased risk for mortality later in life. However, low socio-economic status has been shown to have an impact on infant mortality (Hjern, 2012), child mortality (Shaw, Blakely, Crampton, & Atkinson, 2005), and adult mortality (Galobardes, Lynch, & Davey Smith, 2004).

Many of the above-mentioned studies, however, included small cohorts and were conducted on selected groups, or without following the children over time (Collings & Llewellyn, 2012; The National Board of Health and Welfare, 2005). Further, there are only a few larger studies on children born to women with ID investigating their risks for mental illness, injuries, or violence (Emerson & Brigham, 2014; Feldman et al., 2012).

The aim of the present study was to investigate whether children born to mothers with ID have an increased risk of being diagnosed with mental illness, injuries, and violence compared with children born to mothers without ID.

## 2. Method

### 2.1. Design

The study is a population-based register study on a cohort of children born between 1999 and 2005 in Sweden. Children of mothers with ID were compared with children of mothers without ID, as a control group.

### 2.2. Procedure

All the children born between 1999 and 2005 were identified in the Medical Birth Register (MBR). We were also able to identify the mothers in the same register and thus, obtained data on both the children and the mothers. Additional data about the children and the mothers during this time period were retrieved from two other national registers: the National Patient Register (NPR), and the Multi-Generation Register. The registers were linked together through the personal identification number, unique for every individual in Sweden. Each of the three registers contains different types of information and data, see 1.3 Data Sources and variables, for more information. Data were collected on all children in the registers from birth to 7 years of age.

Between 1999 and 2005, 654,003 newborn children were registered in the MBR. A total of 3009 children did not have a valid personal identification number and were excluded from the cohort. Only the first recorded child of every mother was included in this study ( $n = 478,577$ ). The stratification excluded 172,417 siblings to avoid the same mother from appearing several times. The number of mothers in the cohort was 478,577. In total, 2749 (0.57%) mothers had an ID diagnosis, Fig. 1.

### 2.3. Data sources and variables

**2.3.1. Medical birth register.** The register was started in 1973 and includes information about mothers and their infants in Sweden. In 2014, it included 99% of births to mothers with valid identification numbers. The register contains information

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