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Pervasive developmental disorder behavior in adolescents with intellectual disability and co-occurring somatic chronic diseases

B. Oeseburg [a,b,*], J.W. Groothoff [a], G.J. Dijkstra [a], S.A. Reijneveld [a], D.E.M.C. Jansen [a,c]

[a] Department of Health Sciences and Graduate School for Health Research (SHARE), University Medical Center Groningen, University of Groningen, Groningen, The Netherlands
[b] Wenckebach Institute, School of Nursing and Health, University Medical Center Groningen, Groningen, The Netherlands
[c] Department of Sociology, Faculty of Behavioral and Social Sciences, University of Groningen, Groningen, The Netherlands

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ABSTRACT

Evidence on the association between somatic chronic diseases in ID-adolescents and the full range of pervasive developmental disorder behavior (PDD behavior) is scarce. The aim of the present study is to assess the association between somatic chronic diseases in ID-adolescents and mild PDD behavior. We obtained data on 1044 ID-adolescents, aged 12–18, attending secondary schools in the Netherlands. Parents of the adolescents completed the Dutch version of the Children's Social Behavior Questionnaire (CSBQ) parent version, covering a wide range of PDD behavior, and questions about chronic diseases and background characteristics of their child. ID-adolescents with somatic chronic diseases showed more PDD behavior, in particular milder forms, than their peers without chronic diseases. In addition, ID-adolescents with somatic chronic diseases in combination with pervasive development disorders (PDD) and attention deficit hyperactivity disorder (ADHD) also showed more PDD behavior than their peers with only PDD/ADHD. Clinicians should be extra alert on PDD behavior, in particular the milder forms, in ID-adolescents when somatic chronic diseases are present. However, to strengthen our results about the relationship between somatic chronic diseases in ID-adolescents and PDD behavior studies are needed using both the CSBQ and standardized diagnostic instruments.

1. Introduction

Studies on the association between somatic chronic diseases in adolescents with intellectual disability (ID-adolescents) and the full range of pervasive developmental disorder behavior (PDD behavior), in particular milder forms of PDD behavior (mild PDD behavior), are hardly available. Mild PDD behavior is a term reserved for those who do not meet the criteria for severe PDD behavior like in autism or Asperger syndrome. Mild PDD behavior is widespread among ID-adolescents and has a profound effect on their daily functioning (de Bildt et al., 2005a; de Bildt, Sytema, Kraijer, & Minderaa, 2005; Hartman, Luteijn, Serra, & Minderaa, 2006; Kraijer, 2000).

Literature shows a positive association between severity of ID and mild PDD behavior in adolescents (de Bildt et al., 2005a). This positive association is caused by the fact that ID-adolescents, especially those with lower levels of ID, have a

* Corresponding author at: University Medical Center Groningen (UMCG), Department of Health Sciences and Graduate School for Health Research (SHARE), P.O. Box 30.001, 9700 RB Groningen, The Netherlands. Tel.: +31 0 50 363 8914; fax: +31 0 50 363 6251.
E-mail address: b.oeseburg@med.umcg.nl (B. Oeseburg).

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greater chance on both pervasive development disorders (PDD) (de Bildt et al., 2005a; Harris et al., 2008; Matson & Shoemaker, 2009; Walker et al., 2004) and attention deficit hyperactivity disorder (ADHD) (Emerson & Hatton, 2007; Matson & Shoemaker, 2009). Although ADHD and PDD have different nosological diagnoses, both diagnostic categories partly include similar symptoms like deficits in social interaction, impulsivity, attention and hyperactivity deficit (Gallagher, Bellgrove, Hawi, Segurado, & Fitzgerald, 2007). These deficits are also associated with mild PDD behavior (de Bildt et al., 2005a; Hartman et al., 2006; Nijmeijer et al., 2009).

Literature also suggests that adolescents with somatic chronic diseases show more PDD behavior than adolescents in the general population (Ekström, Hakenas-Plate, Samuelsson, Tulinius, & Wentz, 2008; Fombonne, 2009; Freeman, Roberts, & Daneman, 2005; Hendriksen & Vles, 2008; Kilincaslan & Mukaddes, 2009; Nordin & Gillberg, 1996; Steffenburg, Gillberg, & Steffenburg, 1996; Thome-Souza et al., 2004), but only two studies have focused explicitly on *ID-adolescents* with somatic chronic diseases (Nordin & Gillberg, 1996; Steffenburg et al., 1996). None of the aforementioned studies used instruments that were suitable for screening or diagnosing mild PDD behavior (Hartman et al., 2006).

Studies on the association between somatic chronic diseases in ID-adolescents and PDD behavior, in particular milder forms of PDD behavior, are highly needed. Professionals do not always recognize mild PDD behavior in (ID-)adolescents (de Bildt et al., 2005b; Kilincaslan & Mukaddes, 2009). Evidence on an association between somatic chronic diseases in ID-adolescents and mild PDD behavior may thus increase the attentiveness of professionals for mild PDD behavior, enabling earlier diagnosis and treatment. PDD behavior is very disabling in social and interpersonal situations and hinder successful participation in society (de Bildt et al., 2005a; Haccou & Hamond, 2006; Matson, Wilkins, Smith, & Ancona, 2008).

The aim of this study is to assess the association between somatic chronic diseases in ID-adolescents and PDD behavior, in particular the milder forms of PDD behavior.

2. Methods

2.1. Participants and procedure

We collected data on adolescents with a borderline, mild, moderate or severe ID aged 12–18 years in two provinces in the north of the Netherlands: Groningen and Drenthe (total population about 1.1 million people).

Nearly all adolescents of the target population attended secondary schools (schools for practical training) or special secondary schools (regional expertise centers). ID-adolescents attending schools for practical training can be classified as mainly educable and have IQs between 60 and 80. ID-adolescents attending regional expertise centers can be classified as mainly trainable and have IQs between 30 and 60 (Dekker, Koot, Van der Ende, & Verhulst, 2002). ID-adolescents not attending secondary schools, most of them with profound ID, were not included.

In the current school-based cross-sectional research project, 88% of the schools for practical training and regional expertise centers in both provinces participated. Non-participating schools did not differ from participating schools regarding urbanization of the catchment area and number of students. All parents of the 2156 adolescents aged 12–18 years received a questionnaire and a reminder when they did not respond. One thousand forty four parents returned the questionnaire (48.4%). Adolescents in the response and non-response group did not differ regarding age (t-test = 1.751, ns), but the response group had a higher proportion of girls ($\chi^2 = 5.9$; $p < 0.05$) and a higher proportion of adolescents with borderline or mild ID ($\chi^2 = 9.8$; $p < 0.05$). However, the effect sizes for both variables were negligible; Cohen's W were 0.06 and 0.07, respectively (Cohen, 1988).

The study protocol was approved by the Medical Ethics Committee of the University Medical Center Groningen, the Netherlands.

2.2. Measures

2.2.1. Intellectual disability

The target population had been officially classified as having ID by an independent committee established by the Dutch Ministry of Education, Culture and Science (Dutch Eurydice Unit, 2007). The classification of ID is based on a set of objective criteria, with the Dutch version of the Wechsler Intelligence Scale for Children-3rd Edition (Kort et al., 2002; Wechsler, 1991), and the Snijders-Oomen Nonverbal Intelligence Test-Revised (Snijders et al., 2003) as core ones.

2.2.2. Chronic diseases

Chronic diseases in ID-adolescents were measured by the National Permanent Survey on Living Conditions questionnaire (POLS); module health and labor, part chronic diseases in children (Statistics Netherlands, 2003). POLS part chronic diseases in children covers the most prevalent chronic diseases such as: ear, eye, skin diseases, diseases of the nervous, musculoskeletal, blood and circulatory, respiratory, digestive, and endocrine, nutritional and metabolic systems and ADHD. Questions were added about the presence of pervasive developmental disorders. Parents were asked to fill in the presence or absence of each specific chronic disease in the last 12 months for their child. Parents were also offered the possibility to mention the presence of chronic diseases that were not listed in the questionnaire. POLS was developed by Statistics Netherlands and is yearly used in a representative sample ($n \approx 10.000$) of the Dutch population (Otten & Winkels, 1998).