Research in Developmental Disabilities 35 (2014) 2137–2147

Contents lists available at ScienceDirect

Research in Developmental Disabilities

Shifting impairment and aggression in intellectual disability and Autism Spectrum Disorder

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ARTICLE INFO

Article history:
Received 9 December 2013
Received in revised form 15 April 2014
Accepted 22 April 2014
Available online 29 May 2014

Keywords:
Cognitive shifting
Aggression
Autism
Intellectual disability

ABSTRACT

Aggressive behaviour is a major problem in individuals with an intellectual disability (ID) as well as in individuals with an Autism Spectrum Disorder (ASD). There are indications that suggest a link between cognitive shifting and aggression. In this study, reports of aggressive incidents of adolescents and young adults with different clinical diagnoses (ID, ID + ASD, ASD) were collected during 1 year, using the Staff Observation Aggression Scale-Revised. Whether they were diagnosed with ID, ASD or both; individuals who displayed aggression were found to face more cognitive shifting difficulties than non-aggressive individuals, while no significant differences were found on severity of ASD symptoms. Study results support the assumption that a cognition-based model for aggression may be more adequate than a diagnose-based model.

1. Introduction

Aggression is frequently reported in the care for individuals with an intellectual disability (ID) and an Autism Spectrum Disorder (ASD). For instance, in a review on prevalence studies of aggressive challenging behaviour, Benson and Brooks (2008) report that aggression is a significant problem in individuals with ID, from childhood to adulthood and at all levels of intellectual impairment. Aggressive behaviour is defined as any verbal, non-verbal of physical behaviour that is threatening or causing harm to the client him- or herself, to others or to objects (Morrison, 1990). Incidence rates of aggression in ID vary between around 10% (Emerson et al., 2001; Holden & Gitlesen, 2006; Tyrer et al., 2006) till around 50% of study samples (Benson & Brooks, 2008; Crocker et al., 2006; Tenneij & Koot, 2008). In a large-scale study, Crocker et al. (2006) found that over half of 3165 adults with ID receiving services from rehabilitation departments in Quebec exhibited aggressive behaviour in 1 year, of which 24% were involved in property damage, 36.7% in verbal aggression and 24.4% in physical aggression. Several authors identify ASD as an added risk factor for aggressive challenging behaviour in ID (Brosnan & Healy, 2011; McClintock, Hall, & Oliver, 2003; Tsiouris, Kim, Brown, & Cohen, 2011). Aggression is more common among individuals

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http://dx.doi.org/10.1016/j.ridd.2014.04.021
0891-4222/

with a dual diagnosis of ID and ASD (Brosnan & Healy, 2011; McClintock et al., 2003; Tsiouris et al., 2011), and more severe ASD is associated with higher rates of challenging behaviour (Matson & Rivet, 2008).

Aggressive behaviour is not only a major issue in individuals with ID and ASD, but also in individuals with ASD, without ID. High prevalence rates of aggression have been reported in individuals with high functioning ASD (Kanne & Mazurek, 2011; Lerner, Haque, Northrup, Lawer, & Bursztajn, 2012; White, Ollendick, & Bray, 2011). Quek, Sofronoff, Sheffield, White, and Kelly (2012) examined the incidence of anger in young adults with Asperger's syndrome and found that 17% of the participants reported clinically significant levels of anger.

Aggression could be considered the most direct form of ASD symptoms and externalising problem behaviour, compared to other behavioural problems such as intrusive and destructive behaviour. General behavioural problems have an overall negative influence on parents and caregivers: it elicits stress in caregivers and leads to negative interactions between caregivers and their clients, which may result in a deterioration of the quality of care (Bromley & Emerson, 1995; Brosnan & Healy, 2011). Moreover, behavioural problems are linked to increased service costs because of raised staff sickness and turnover rates, higher investment in support and supervision and possible compensatory payments for injured staff (Allen, 2000). Yet, particularly the occurrence of aggressive incidents immediately causes a disturbance in caregivers' well-being and everyday functioning, due to the direct perceived threat to personal safety (Brosnan & Healy, 2011) and feelings of shock, fear and anger (Kiely & Pankhurst, 1998). Reported failure in managing care for adults with ID rises from 10% when aggression is absent to 42% when clients do display aggression (Tyrer et al., 2006). For this reason, we will specifically concentrate on aggression in the present study.

One of the factors that may increase the occurrence of aggressive incidents is an impairment in cognitive shifting. Cognitive shifting (also referred to as attentional set-shifting or cognitive/mental flexibility) is a component of executive functioning and refers to the ability to shift to different thoughts, actions and strategies when changes in a situation occur (Geurts, Corbett, & Solomon, 2009; Hill, 2004a). We have demonstrated in a previous article that it is possible to measure and differentiate cognitive shifting using the Wisconsin Card Sorting Test (WCST) and the Intra Dimensional/Extra Dimensional Task of the Cambridge Neuropsychological Test Automated Battery (CANTAB ID/ED), in individuals with ID as well as in those who additionally have an ASD diagnosis (Roelofs et al., in press).

In a review on ERPs, fMRI and brain connectivity studies, Gomot and Wicker (2012) suggest that need for sameness and restricted, repetitive behaviours in ASD can be explained through stressful reactions and a sense of overstimulation triggered by unpredictable events. Indeed, shifting impairment is illustrated by perseverative, stereotyped behaviour and difficulty handling unexpected and changing situations (Hill, 2004a). Woodcock, Oliver, and Humphreys (2011) found a direct association between attention switching and temper outburst in individuals with Prader–Willi syndrome. Furthermore, shifting deficits have been linked to the number and the severity of violent offences in adolescent and adult delinquents (Hancock, Tapscott, & Hoaken, 2010; Pihet, Combremont, Suter, & Stephan, 2012), indicating that a rigid cognitive style may contribute to the expression of aggression.

Several studies have found impairment in shifting to be central to ASD (Hill, 2004b; Russo et al., 2007; Sanders, Johnson, Garavan, Gill, & Gallagher, 2008). However, in an overview of studies concerning shifting in ASD, no consistent evidence for shifting impairment was found (Geurts et al., 2009). These inconsistent findings may be due to the heterogeneousness of ASD: individuals with ASD display varied and miscellaneous symptoms (American Psychiatric Association, 2000) and there are substantial differences in the type of difficulties they experience (Geurts et al., 2009). Teunisse, Cools, van Spaendonck, Aerts, and Berger (2001) have been able to create subgroups in ASD participants on basis of central coherence and cognitive shifting performance, implying that shifting impairment is present in some, but not all individuals with ASD.

Though some authors describe a link between ASD symptom severity and aggression (Matson & Rivet, 2008; White et al., 2011), Kanne and Mazurek (2011) found that ASD symptom severity as assessed by clinicians was not associated with aggression. Likewise, in a previous study we did not find an association between ASD-symptoms and ratings of externalising problem behaviour, while shifting impairment was significantly correlated with externalising problem behaviour (Visser, Berger, Van Schrojenstein Lantman-De Valk, Prins, & Teunisse, Submitted). It proved to be possible to differentiate between individuals displaying severe behavioural problems and individuals displaying mild or no behavioural problems based on rated shifting, while this differentiation was not possible based on ID and ASD diagnosis (Visser et al., Submitted).

In the current study we will analyse the possible association between ASD symptoms, shifting impairment and aggression through a different perspective: using observation-based registrations of aggression, we will compare participants who have exhibited aggression (the 'aggressive group') with participants of whom no aggressive incidents have been reported (the 'non-aggressive group') on shifting impairment and severity of ASD symptoms. In contrast to our previous study, we will not only include individuals with ID, with and without ASD, but also individuals with ASD, without ID. The aim of this study is to investigate whether individuals who display aggression face more shifting difficulties than non-aggressive individuals and to examine how both groups score on severity of ASD symptoms. Shifting will be measured using both neuropsychological tasks (the CANTAB ID/ED; Cambridge Cognition, 1996; and the WCST; Heaton, Chelune, Talley, Kay, & Curtiss, 1993) as well as two rating scales of shifting (the Behaviour Flexibility Rating Scale-Revised; Peters-Scheffer et al., 2008; and the BRIEF executive functioning questionnaire; Smidts & Huizinga, 2009), for the reason that these two types of instruments possibly measure different constructs (Mahone et al., 2002; Teunisse et al., 2012; Vriezen & Pigott, 2002).

In addition to the main analyses, we will explore provocations that have led to aggression. Furthermore, we will examine differences between the three diagnostic groups (ID, ID + ASD, ASD) on severity of ASD symptoms, shifting impairment and externalising problem behaviour, in order to aid the interpretation of our main findings.