STUDENTS' AND TEACHERS' PERCEPTIONS OF AGGRESSIVE BEHAVIOUR IN ADOLESCENTS WITH INTELLECTUAL DISABILITY AND TYPICALLY DEVELOPING ADOLESCENTS

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Abstract

This study investigated aggressive behaviour in Serbian adolescents with intellectual disability (ID) compared to typically developing peers. The sample consisted of both male and female adolescents aged 12 to 18 years. One hundred of the adolescents had ID, and 348 adolescents did not have ID. The adolescents were asked to complete the Reactive-Proactive Aggression Questionnaire (RPQ), and their teachers provided ratings of aggression for the adolescents using the Children's Scale of Hostility and Aggression: Reactive-Proactive (C-SHARP). Results indicated that adolescents reported a higher prevalence of aggressive behaviour than their teachers. Reactive aggression was more prevalent than proactive aggression in both subsamples. In the subsample of adolescents with ID, there were no sex or age differences for aggression. However, in the normative subsample, boys and older adolescents scored significantly higher on aggression. According to adolescent self-reports the prevalence of aggression was higher in adolescents without ID, while teachers perceived aggressive behaviour to be more prevalent in adolescents with ID. Scientific and practical implications are discussed.

Keywords

Adolescents, aggressive behaviour, C-SHARP, intellectual disability, proactive, reactive, RPQ

1. Introduction

According to UNICEF (2011), adolescence encompasses the second decade of life and may be divided into two stages: early adolescence (10-14 years) and late adolescence (15-19 years). The difference between early and late adolescence is determined by the specific physical, cognitive, social and affective changes. It has long been recognized that developmental changes in typically developing adolescents (e.g. increase in physical strength, spending more time with friends) may be associated with increased aggressive behaviour. However, very few evidence is available regarding the aggressive behaviour in adolescents with intellectual disabilitiy (ID). Because adolescents with ID manifest deficits in areas such as cognitive abilities and social skills, it is also possible that they differ in aggressive behaviour.

Existing data from total population studies indicate that 6-7% of people with ID display aggressive behaviour (Emerson et al., 2001; Holden & Gitlesen, 2006). Studies including heterogeneous samples of people with ID provide only generalized information on aggressive behaviour of these people, inapplicable to specific subpopulations and settings (Tenneij & Koot, 2008). Other studies have reported data on aggressive behaviour for groups with a broad age range, namely children and adolescents.

In a large UK study, Lowe et al. (2007) found that 90% of children and adolescents with ID presented with aggressive behaviour. Studies on the selected subgroups of children and adolescents with ID reported the following prevalence rates of aggressive behaviour: 96% of children and adolescents who were referred to a specialist support service (Adams & Allen, 2001); 49%, 64% and 59% of children and adolescents with mild, moderate and severe/profound ID, respectively, who attended specialised programs for developmental disorders (Hardan & Sahl, 1997); 72% of participants up to 16 years of age and 49% of participants aged 16 years and older in a project of outpatient treatment (Maes, Broekman, Došen, & Nauts, 2003). The studies that have investigated the aggressive behaviour of children and adolescents with ID in a school setting reported prevalence of serious aggression of 6% for day 'special' schools (Kiernan & Kiernan, 1994), as well as 24% (Pilling, McGill, & Cooper, 2006), 30% (McGill, Tennyson, & Cooper, 2006) and 66% (Emerson, Robertson, Fowler, Letchford, & Jones, 1996) for residential 'special' schools.

Past research has reported inconsistent findings on the influence of sex and age on aggressive behaviour in children and adolescents with ID. While some studies have reported more aggression among males (Hardan & Sahl, 1997; McClintock, Hall, & Oliver, 2003; Molteno, Molteno, Finchilescu, & Dawes, 2001), others have reported that there are no sex difference in aggressive behaviour (Adams & Allen, 2001; Chadwick, Piroth, Walker, Bernard, & Taylor, 2000; Einfeld & Tonge, 1996; Lowe et al., 2007; McIntyre, Blacher, & Baker, 2006). Researchers have also found the following different patterns of association between age and aggressive behaviour:

aggression tends to decrease with age (Chadwick et al., 2000; Cormack, Brown, & Hastings, 2000), aggression tends to increase with age (Einfeld & Tonge, 1996; Kiernan & Kiernan, 1994; Lowe et al., 2007) and aggression is not related to age (Adams & Allen, 2001).

This discrepancy in the reported data on aggressive behaviour in adolescents with ID can be partially explained by the heterogeneous nature of the groups that were studied, in terms of age range, degree of ID, living arrangements and other characteristics, as well as different study settings, such as communities, institutions, clinics and schools. Conversely, these differences may reflect variability in the operationalisation of aggressive behaviour and the aggression measures that were employed. Whereas some authors studied the larger spectrum of aggressive behaviour (Emerson et al., 2001; Lowe et al., 2007), other authors focused on certain types of aggression, such as physical aggression (Adams & Allen, 2001) and bullying (Reiter & Lapidot-Lefler, 2007; Sheard, Clegg, Standen, & Cromby, 2001).

Taking into account the above considerations, the purpose of the present study was to describe aggressive behaviour in adolescents with a mild ID (IQ 50-70) and to explore the distinctive features of their aggression compared to typically developing peers. This study compared aggressive behaviour of the non-referred, community sample of adolescents with mild ID who attended 'special' schools with a comparison group of adolescents from regular schools in Serbia. In the past, almost all pupils with ID attended separate schools for children with disabilities. The new Serbian Law on Education (Republic of Serbia, 2009) requires full inclusion of children with ID. However, in practice, only young pupils are enrolled in regular schools. Hence, the majority of adolescents with mild ID in Serbia still attend one of approximately 50 'special' schools. We expect most of these children to attend regular schools in near future. Regular school teachers apply different strategies to channel and control agresive behaviour of typically developing adolescents. Possible specifics in expressing and triggering agressive behaviour in adolescents with mild ID could bring the mentioned strategies into question. This research is aimed only at adolescents with mild ID, since children with more severe forms of ID are rarely included in regular school system in Serbia.

The current study was designed to extend findings on the association between ID and aggressive behaviour by examining a range of specific presentations of reactive and proactive aggression. The studies to date suggest that reactive and proactive aggression have different precursors and outcomes, as well as that they are driven by different social-cognitive and emotional processes, and related to different social experiences (Hubbard, McAuliffe, Morrow, & Romano, 2010). Reactive aggression refers to an angry, defensive response to frustration or provocation, whereas proactive aggression is deliberate behaviour that is controlled by external reinforcements (i.e. it is a means of obtaining a desired goal) (Crick & Dodge, 1996). Reactive aggression is

explained by the frustration-aggression model which postulates that an obstacle to goal attainment increases negative emotions and can lead to immediate and impulsive aggressive behavior to defend oneself or attack the source of frustration (Polman, Orobio de Castro, Koops, van Boxtel, & Merk, 2007; Vitaro, Brendgen, & Barker, 2006). On the other hand, the theoretical explanation for proactive aggression can be found in the social learning theory which implies that aggression is an acquired behaviour controlled by reinforcement contingencies (Polman et al., 2007; Vitaro et al., 2006). Proactive aggression is called instrumental, offensive and cold-blooded aggression, because it is unprovoked, directed to gaining goods or social dominance and associated with positive expectancies about the outcomes of aggression. The specific nature of reactive and proactive aggression in adolescents with ID has not been sufficiently examined. However, this type of investigation can provide a direction for research on specific antecedents and can reveal possible targets for prevention and intervention.

With few exceptions, most research on aggressive behaviour in people with ID has relied on reports from key informants (parents, teachers and staff members). This implies that self-reports of people with ID were generally considered to not be as useful as other sources of information. However, a number of researchers have commented on the necessity of the subjective views of people with ID and have offered evidence that self-report measures can be effectively utilised with this population (Bramston & Fogarty, 2000; Hartley & MacLean, 2006). Because motivation is a key factor that distinguishes reactive from proactive aggression, the self-report measures are particularly important to identify those individuals who display different types of aggressive behaviour (Baker, Raine, Liu, & Jacobson, 2008). In the present study, reports from teachers and self-reports were used to measure the adolescents' aggressive behaviour.

Results from previous comparative studies indicate that children and adolescents with ID are more likely to show problem behaviour (Eisenhower, Baker, & Blacher, 2005; McIntyre et al., 2006; Taggart, Cousins, & Milner, 2007), behavioral disturbance (Cormack et al., 2000; Einfeld & Tonge, 1996; Linna et al., 1999), conduct disorder (Emerson, 2003; Emerson & Hatton, 2007) and antisocial behavior (Dickson, Emerson, & Hatton, 2005) than their typically developing peers. Thus, we expect that ID carries an increased risk of aggressive behaviour in adolescence.

2. Method

2.1. Participants

The sample consisted of 448 Serbian-speaking adolescents who were 12 to 18 years old (M = 14.96; SD = 1.489). The sample population was divided into two subsamples based on the adolescents' intellectual level. The first subsample consisted of 348 typically developing adolescents (204 of which were boys) that were selected from three regular schools, by a table of

random numbers. The second subsample consisted of 100 adolescents (57 boys and 43 girls) who were classified as having a mild ID, as defined by the American Psychiatric Association (2000). The study excluded adolescents with dual diagnoses and multiple disabilities. The data on the degree of intellectual functioning and possible dual diagnosis were taken from school psychologists. Thus, the research includes practically all adolescents with mild ID attending three randomly selected special schools. There was no significant difference between the two groups regarding their age (t (446) = - 1.10, p = 0.272) and sex (χ^2 (1, 448) = 0.084; p = 0.772). Class teachers of the assessed adolescents, teaching at least one core subject and being in everyday contact with the participants, were also included in this research. Fifty teachers (26% males and 74% females), aged between 25 and 55, participated in the research. The response rate was 75%.

Informed consent was obtained from parents and school authorities. They were fully aware of the nature of the assessment.

2.2. Materials and procedure

Aggressive behaviour was assessed using the following two scales: the Children's Scale of Hostility and Aggression: Reactive-Proactive (C-SHARP) (Farmer, Aman, 2009) and the Reactive-Proactive Aggression Questionnaire (RPQ) (Raine et al., 2006). The RPQ was originally developed for self-report use with the advantage that the motivation for aggressive behavior is best known to the individual (Raine et al., 2006), while the C-SHARP was designed specifically to measure aggressive behavior in children and adolescents with ID (Farmer, Aman, 2009). These two instruments were applied to adolescents with and without ID in order to perform comparisons.

We performed a factor analysis, with two factorial solution in order to determine the factor structure of both groups (adolescents with and without ID). Two indicators of factor congruence, root mean square (RMS) and congruence coefficient (CC), were computed. The items of the C-SHARP with zero variance in the sample of adolescents without ID were excluded from the analysis. RMS values are closer to zero for both factors of the RPQ (Factor 1 = 0.227, Factor 2 = 0.124), the C-SHARP Problem Scale (Factor 1 = 0.319, Factor 2 = 0.261), and the C-SHARP Provocation Scale (Factor 1 = 0.311, Factor 2 = 0.271). Since RMS values vary between zero and two (zero indicates better congruence) we can assume that our factor congruence is satisfactory. On the other hand, higher CC values (closer to one) indicate better factor congruence. CC values are closer to one for both factors of the RPQ (Factor 1 = 0.764, Factor 2 = 0.832), and the C-SHARP Problem Scale (Factor 1 = 0.648, Factor 2 = 0.674). Less satisfactory congruence is determined for the C-SHARP Provocation Scale (Factor 1 = 0.622, Factor 2 = 0.418). With regard to the fact that the factor structure of the applied scales is equal in both subsamples, it is possible to compare the means of both groups.

Both scales were translated into Serbian by one of the authors of this paper. Then, a university English teacher translated the Serbian versions of the both scales into English. After back-translation, the two versions (original English text and translation of the Serbian translation) were compared by a native speaker of both languages who suggested minor changes in terminology in order to improve understanding. Thus, the final version of the Serbian translation was prepared.

The C-SHARP was completed by the class teachers who had daily contact with the adolescents for at least six months. This 58-item scale consists of the Problem Scale and the Provocation Scale. Teachers were asked to determine the degree to which the adolescents' behaviour was present in the last month. Each item was rated on a Likert scale from 0 (does not happen) to 3 (severe or frequent). Those items that received a rating of at least 1 on the Problem Scale were scored on the Provocation Scale, which ranges from -2 (provoked, reactive behaviour), to 0 (neutral) to +2 (proactive aggression). The Problem Scale consists of five subscales: Verbal Aggression (e.g., *calls names*), Bullying (e.g., *takes others' things*), Covert Aggression (e.g., *overly argumentative*), Hostility (e.g., *resentful*), Physical Aggression (e.g., *pinches*). All subscales in this study had an acceptable level of internal consistency reliability (Cronbach's alpha coefficient between 0.84 and 0.93).

All adolescents were asked to complete the RPQ, which consists of the 12-item Proactive Aggression Scale (e.g., *How often have you used force to obtain money or things from others?*) and the 11-item Reactive Aggression Scale (e.g., *How often have you hit others to defend yourself?*), which have an acceptable level of internal consistency reliability. In this study, Cronbach's alpha coefficients were 0.76, 0.77 and 0.84 for reactive, proactive and total aggression, respectively.

The adolescents completed the questionnaires in their classrooms, following the instructions provided by the RPQ authors (Raine et al., 2006). According to these instructions, the adolescents were required to determine whether, and to what exent, they exhibited a certain behaviour, using the three-point Likert scale (0 – never, 1 – sometimes, 2 – often). The adolescents with ID were provided with additional support, which means that the RPQ instructions were presented to each adolescent individually in the first phase of research. Three cards were used for that purpose (an empty card with the word *never* written under it, a card with one dot with the word *sometimes* written under it, and a card with two dots with the word *often* written under it). The RPQ cards were available to every adolescent with ID while completing the questionnaires, as a form of a visual reminder. The questions were written in large Cyrillic print, most frequently used by the adolescents with ID.

Higher scores on all scales and sub-scales indicated a higher level of aggressive behaviour.

3. Results

3.1. Self-reported aggressive behaviour

The majority (98%) of adolescents with ID and all adolescents from regular schools reported displaying one or more forms of aggressive behaviour. Furthermore, 25% of adolescents with ID and 75% of the normative subsample reported often engaging in aggressive behaviour. Among adolescents who reported aggressive behaviour, the significantly higher proportion of those from regular schools reported displaying six to ten forms and more than ten forms of aggression (χ^2 (2, 446) = 19.38; $p < 0.000$). Proactive aggression was reported by 62% of adolescents with ID and 72% of the normative subsample, while 98% of the adolescents with ID and all adolescents from regular schools reported reactive aggression.

3.2. Teacher-reported aggressive behaviour

According to teacher reports, 62% of the adolescents with ID and 15% of the normative subsample displayed aggressive behaviour, while 16% of adolescents with ID and 4% of the normative subsample presented with severe or frequent aggression. Within the group of adolescents who displayed aggressive behaviour, the significantly higher proportion of adolescents with ID than normative subsample showed six to ten forms and more than ten forms of aggression (χ^2 (2, 114) = 23.26; $p < 0.000$). Overall, 47% of the adolescents with ID and 8% of the normative subsample received more reactive ratings, whereas 15% of the adolescents with ID and 5% of the normative subsample received more proactive ratings. Prevalence rates for the specific forms of aggression in adolescents with ID and the normative subsample were as follows: 53% vs. 6% for verbal aggression, 54% vs. 9% for bullying, 58% vs. 11% for covert aggression, 48% vs. 10% for hostility, and 32% vs. 2% for physical aggression.

3.3. Sex and age differences in aggressive behaviour

To explore sex and age differences in adolescents' aggressive behaviour, a *t*-test for equality of means was conducted. These data are displayed in Table 1. For adolescents with ID, there were no significant sex differences for the self-reported or teacher-reported aggressive behaviour. In contrast, the boys from the normative subsample had significantly higher scores for the RPQ scales, as well as for the C-SHARP Problem Scale, except for verbal aggression. Furthermore, significant differences in the scores for the C-SHARP Provocation Scale among adolescents in the regular schools suggested that boys displayed reactive aggression more frequently than girls.

Additional *t*-test analyses were performed to examine differences in aggressive behaviour between younger (12 to 14 years old) and older (15 to 18 years old) adolescents. No significant differences were found for the adolescents with ID. For the normative subsample, older adolescents

had significantly higher scores for the C-SHARP Hostility and Physical Aggression subscales. Significant differences were found for the scores on the C-SHARP Provocation Scale and for each of the subscales (excluding verbal aggression), indicating that older adolescents from regular schools showed more reactive aggression.

Table 1. Sex and age differences by scales and subscales (t-test results)

	Sex differences		Age differences	
	Adolescents with ID (n = 100) t-test (df = 98)	Normative Subsample (n = 348) t-test (df = 346)	Adolescents with ID (n = 100) t-test (df = 98)	Normative Subsample (n = 348) t-test (df = 346)
The Reactive-Proactive Aggression Questionnaire				
Proactive Aggression	0.27	5.88***	- 0.08	- 0.34
Reactive Aggression	- 0.83	2.76**	0.13	- 0.45
Total Aggression Score	- 0.42	4.65***	0.04	- 0.46
C-SHARP problem subscales				
Verbal Aggression	- 0.20	1.35	1.23	- 1.11
Bullying	0.25	3.45***	1.61	- 0.28
Covert Aggression	- 0.79	3.24***	1.66	- 1.56
Hostility	- 1.12	2.65**	1.04	- 2.75**
Physical Aggression	0.74	2.28*	0.41	- 2.22*
Total Problem Score	- 0.35	3.01**	1.32	- 1.77
C-SHARP provocation subscales				
Verbal Aggression	1.47	- 2.09*	- 1.42	1.55
Bullying	0.88	- 3.09**	- 0.71	3.02**
Covert Aggression	1.47	- 3.09**	- 1.54	2.88**
Hostility	1.56	- 3.22***	- 0.23	2.90**
Physical Aggression	0.17	- 2.08*	- 0.47	2.03*
Total Provocation Score	1.20	- 3.16**	- 0.91	2.92**

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

3.4. Comparison of aggressive behaviour of adolescents with and without ID

The means and standard deviations for the RPQ and C-SHARP are presented in Table 2. Significant differences between adolescents with and without ID were observed. Adolescents with ID reported lower levels of proactive, reactive and total aggression relative to peers from regular schools. In contrast, teachers perceived that adolescents with ID showed more aggression relative to the normative subsample. The mean scores for the C-SHARP Provocation subscales suggested that reactive aggression was prevalent in both groups and that adolescents with ID were more likely to display reactive aggression than their typically developing peers.

Table 2. Means, standard deviations and differences between adolescents with ID and the normative subsample by scales and subscales

	Adolescents with ID (n = 100)		Normative Subsample (n = 348)		t-test (df = 446)
	Mean	SD	Mean	SD	
The Reactive-Proactive Aggression Questionnaire					
Proactive Aggression	1.56	2.31	2.54	2.87	- 3.14**
Reactive Aggression	5.73	3.31	8.53	3.72	- 6.79***
Total Aggression Score	7.29	5.05	11.07	5.83	- 5.89***
C-SHARP problem subscales					
Verbal Aggression	2.83	4.29	0.13	0.66	11.32***
Bullying	1.90	2.94	0.18	0.69	9.99***
Covert Aggression	2.46	3.10	0.36	1.42	9.62***
Hostility	2.74	3.63	0.28	1.08	11.05***
Physical Aggression	0.81	1.87	0.03	0.20	7.67***
Total Problem Score	11.71	16.40	1.09	4.17	10.94***
C-SHARP provocation subscales					
Verbal Aggression	- 1.09	2.91	- 0.06	0.45	- 6.35***
Bullying	- 0.54	2.25	- 0.09	0.48	- 3.50***
Covert Aggression	- 0.84	2.33	- 0.15	0.79	- 4.70***
Hostility	- 1.27	2.53	- 0.22	0.97	- 6.29***
Physical Aggression	- 0.02	1.38	- 0.02	0.13	- 0.04
Total Provocation Score	- 4.24	11.79	- 0.57	2.79	- 5.32***

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

3.5. Cross-informant correlations

Table 3 presents bivariate correlations among the scores obtained from the adolescent answers on the RPQ and the teacher-reported aggressive behaviour scores for the C-SHARP. For both subsamples, the scores for self-reported proactive, reactive and total aggression were significantly and positively correlated with the C-SHARP Total Problem scores. For adolescents with ID, the correlations among three RPQ scores and the C-SHARP Total Problem scores were moderate (ranged from 0.41 to 0.48), while concurrent correlations for the normative subsample were low (ranged from 0.20 to 0.23).

Table 3. Correlations between measures of aggressive behavior

	C-SHARP Total Problem Score	C-SHARP Total Provocation Score
Adolescents with ID		
RPQ Proactive Aggression	0.47**	0.34**
RPQ Reactive Aggression	0.41**	- 0.07
RPQ Total Aggression Score	0.48**	0.11
Normative Sample		
RPQ Proactive Aggression	0.23**	- 0.29**
RPQ Reactive Aggression	0.20**	- 0.15**
RPQ Total Aggression Score	0.22**	- 0.24**

**$p \leq 0.01$

Of particular interest was the relation between self-reported proactive and reactive aggression and teacher ratings of the forms of aggression. For adolescents with ID, the only significant correlations that were found were between self-ratings of proactive aggression and the C-SHARP Total Provocation scores. These results suggested that adolescent and teacher measures of proactive aggression in adolescents with ID were significantly related to each another, whereas the measures of reactive aggression were not. For the normative subgroup, all three correlations were significant. However, the RPQ Proactive Aggression scores were negatively related to the C-SHARP Total Provocation scores, which indicated that self-reported proactive aggression was assessed by teachers as reactive aggression. Adolescent self-ratings of reactive aggression were negatively related to the C-SHARP Total Provocation scores. Although this correlation was very low, this suggested a relationship between the adolescents' and teachers' ratings of reactive aggression. Finally, RPQ Total aggression scores were significantly and negatively correlated with the C-SHARP Total Provocation scores.

4. Discussion

Previous studies on aggressive behaviour that used self-report and teacher-report data have shown no correlation (Simons, Paternite & Shore, 2001), or a low correspondence (Epkins, 1993), between rater reports. More extensive explorations of externalising problems have also revealed a low concordance between adolescents' and teachers' ratings (Achenbach, McConaughy, & Howell, 1987; Youngstrom, Findling, & Calabrese, 2003; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). Considering these reports, our correspondence between reports of adolescents with ID and the teachers was uncommonly good. Furthermore, a greater degree of concordance between adolescent and teacher reports was found for adolescents with ID compared to the normative subsample. These findings support the validity of self-reports by adolescents with ID and suggest that the RPQ and C-SHARP can be useful screening tools for detecting aggressive behaviour in adolescents.

Adolescents from both subsamples reported a higher prevalence of aggressive behaviour than their teachers. A similar pattern has been observed in other research on aggression (Epkins, 1993) and externalising problems (Youngstrom et al., 2000). Regarding the adolescents with ID, there was disagreement in the self-reported and teacher-reported (98% vs. 62%) percentages of adolescents who were identified as expressing aggressive behaviour, but more comparable self-reported and teacher-reported percentages of adolescents who were identified as displaying frequent or severe aggression (25% vs. 16%) were found. The overall prevalence of self-reported aggressive behaviour in adolescents with ID was consistent with that reported in several studies (Adams & Allen, 2001; Lowe et al., 2007; McGill et al., 2006; Pilling et al., 2006), whereas the teacher-reported prevalence was similar to that found by Emerson et al. (1996). Because different measures were used, it is difficult to compare the prevalence rates of serious aggressive behaviour. However, the prevalence of self-reported serious aggressive behaviour was similar to that found for students who attended residential 'special' schools (McGill et al., 2006; Pilling et al., 2006).

Both subsamples obtained higher mean scores on the RPQ Reactive Aggression scale than the RPQ Proactive Aggression scale. These findings are consistent with results from other studies on typically developing adolescents that used the same instrument (Fanti, Frick, & Georgiou, 2009; Fossati et al., 2009; Fung, Raine, & Gao, 2009; Raine et al., 2006; Seah & Ang, 2008). The teacher ratings also indicated a higher prevalence of reactive than proactive aggression for both groups. These findings are in agreement with the remarks by Raine et al. (2006) that reactive aggression may be more adaptive and quasi-normative, while proactive aggression may be more pathological. It is possible that reactive aggression partially reflects a relatively normative defensive and consistent aggressive reaction of adolescents to any challenge to their social status (Fung et al., 2009), or to a hostile school environment with unsupportive teachers (Aceves, Hinshaw, Mendoza-Denton, & Page-Guld, 2010).

Covert aggression was the most prevalent form of aggressive behaviour in both subsamples. This pattern is consistent with research that has shown that cognitive advances and greater understanding of the outcomes of aggression may contribute to the occurrence of various forms of aggression at older ages (Card, Stucky, Sawalani, & Little, 2008). These developmental changes in aggression styles are directed to more sophisticated strategies of aggression (Björkqvist, Österman, & Lagerspetz, 1994). In addition, there was consistency with other research that has indicated a high prevalence of verbal aggression (Emerson et al., 2001) and bullying (Reiter & Lapidot-Lefler, 2007) among adolescents with ID. Conversely, the present findings on the prevalence of particular forms of aggressive behaviour are inconsistent with results from other studies that used the C-SHARP (Farmer & Aman, 2009; Matlock, 2008). However, participants in Farmer and Aman's

(2009) study were children and adolescents with various forms of developmental disabilities, whereas in the second study, participants with mild ID were significantly older (aged 18-84 years).

In the subsample of adolescents with ID, boys and girls did not differ significantly with respect to their scores on self-report and teacher-report measures of aggressive behaviour. These results are in accord with several previous studies (Adams & Allen, 2001; Chadwick et al., 2000; Einfeld & Tonge, 1996; Lowe et al., 2007; McIntyre et al., 2006). A possible explanation for the equivalence of aggression in males and females with ID is that the degree of neurological damage and the deficits of basic skills override the effect of sex (Chadwick et al., 2000). On the contrary, boys from the normative subsample scored significantly higher than girls for both measures of aggression. The present findings are similar to those reported by Baş and Yurdabakan (2012), but are only partially consistent with the studies by Fanti et al. (2009), Fossati et al. (2009) and Fung et al. (2009), which found no significant sex differences for reactive aggression.

Furthermore, the present findings suggest that aggressive behaviour in adolescents with ID is not affected by age. Similar results were reported by Adams and Allen (2001). Considering the explanation that decreases in aggression in adolescence are due to brain maturation and better regulatory control (Fung et al., 2009), it can be speculated that these processes are slower in adolescents with ID. Regarding the normative subsample, older adolescents exhibited more reactive aggression than the younger adolescents, which was also observed by Fanti et al. (2009). However, previous research on age differences in reactive and proactive aggression has been inconsistent, as some authors found that most adolescents followed infrequent and desisting trajectories of reactive and proactive aggression (Barker, Tremblay, Nagin, Vitaro, & Lacourse, 2006), some authors found that proactive aggression increased with age only in boys, while reactive aggression showed minimal increases with age for both sexes (Fung et al., 2009), and some authors found that reactive aggression decreased, while proactive aggression remained stable over time (Tuvblad, Raine, Zheng, & Baker, 2009). More studies are needed to shed light on the age differences in reactive and proactive aggression.

Based on the results of this study, it is not possible to say whether the level of aggression was higher or lower in adolescents with ID with respect to the normative subsample. Mean scores for the self-reported aggressive behaviour remained lower for adolescents with ID, whereas the mean scores for teacher-reported aggression was higher in adolescents with ID when compared to their peers from regular schools. Moreover, adolescents with ID self-reported a significantly lower level of the co-occurrence of multiple forms of aggressive behaviour than the normative subsamples, while teacher reports were exactly the opposite. Literature provides several explanations for these findings. First, it is possible that adolescents with ID underreport aggressive behaviour because they have difficulties comprehending verbal information and have poor insight

into their own behaviour, or they try to minimise their level of aggression due to fear of punishment (Bramston & Fogarty, 2000). Second, it is possible that the education placement strongly influences the teacher perceptions of the adolescents' aggressive behaviour. Given the research on predictors influencing aggressive behaviour of students in special education settings (Hastings, 2005; Rose, Monda-Amaya, & Espelage, 2011), it is plausible that some unexamined teacher and school factors contributed to higher teacher ratings of aggressive behaviour for adolescents with ID.

The current study has several strengths and limitations that need to be considered when interpreting our findings. Data on aggressive behaviour from multiple informants and separate analyses of the reports from different sources were strengths of this study. The discrepancy between adolescent and teacher reports indicates that the conclusion about aggression in adolescents with ID depends on the source of the information. Hence, an important implication for future research is that a multi-informant and multi-measures approach is needed to accurately assess aggressive behaviour in adolescents with ID. Regardless of the importance of individual viewpoints of aggression, the failure to include aggregate scores from two sources limits the conclusions that can be drawn from this study.

Another strength of the current study was the investigation of aggression in adolescents with and without ID. Due to its comparative nature, this study documented both similarities and differences in aggressive behaviour of these two groups of adolescents. However, some characteristics of the sample limit the generalisability of the present findings. Although the present sample of adolescents with ID included a sufficient number of participants, the sample was not randomly selected. In addition, data were obtained from the 'special' school students with mild ID, which may have precluded the generalisation of the present results to adolescents with a severe ID or to settings other than schools.

The current study also provides insight into the heterogeneity in the aggressive behaviour of adolescents with ID and suggests that research on reactive and proactive aggression can provide a better understanding of this issue. Special attention was paid to the selection of reliable and valid assessment tools. However, the obvious limitation of using the RPQ and C-SHARP in the present study concerns the fact that these two rating scales do not have the same content, but assess different sets of aggressive behaviour. Therefore, future studies need to replicate the present findings using more similar instruments.

Despite its limitations, the present study contributes to the literature on aggressive behaviour of adolescents with ID by documenting similarities and differences between these adolescents and the normative population. The results from this study have an implication for the prevention and intervention of aggressive behaviour, as they suggest that programs tailored to the normative population could be successfully applied to adolescents with ID. At the same time, the present

findings on the specificities of aggressive behaviour of adolescents with ID can be used to design suitable and effective school-based programs for special education settings.

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