



How impulsivity and intelligence are related to different forms of aggression



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ARTICLE INFO

Article history:

Received 7 April 2017

Received in revised form 16 May 2017

Accepted 20 May 2017

Available online 26 May 2017

Keywords:

Aggressive behaviour

Intelligence

Direct aggression

Indirect aggression

ABSTRACT

Several studies have shown that the relationships between intelligence and self-reported aggression are low or non-existent. Most have focused on direct forms of aggression, which often have an impulsive component, unlike indirect aggression, which is usually delayed and allows more time to find alternative solutions to the problem. The present study analyses the relationships between different measures of intelligence and an overall estimate of “g” with direct and indirect forms of aggression and impulsivity in a sample of adolescents ($N = 532$). The results showed that impulsivity and intelligence showed a different pattern of relationships with different forms of aggression. While intelligence measures were more related to indirect aggression, particularly to the g factor estimate, impulsivity was more related to direct forms of aggression. Furthermore, the relationships observed between aggression and intelligence cannot be explained by impulsivity having the same effect on both kinds of measure and are independent of sex effects. Taking everything into account, intelligence should be regarded as a relevant predictor for the prevention of aggressive behaviour in adolescents, particularly indirect aggression.

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1. Introduction

Intelligence is one of the most commonly studied predictors of delinquency. The inverse relationship between intelligence and delinquency has been widely documented with a variety of samples, tests, and methodological approaches (Ayduk, Rodriguez, Mischel, Shoda, & Wright, 2007; Beaver et al., 2013; Kennedy, Burnett, & Edmonds, 2011; Lynam, Moffitt, & Stouthamer-Loeber, 1993; White, Moffitt, & Silva, 1989). Intelligence, and especially verbal IQ, has also been related to violence and violent offenders (Ayduk et al., 2007; Kennedy et al., 2011; Walling, Meehan, Marshall, Holtzworth-Munroe, & Taft, 2012). Although violence may be understood as an extreme form of aggressive behaviour, these results suggest that intelligence is also related (albeit much less clearly).

One of the first studies to relate aggression and intelligence was carried out by Farrington (1989), who reported that low IQ at childhood had a slight relationship with aggression and violence in adolescence and adulthood. Nevertheless it should be pointed out that the measure of aggression used by Farrington (1989) was more a measure of difficulty with discipline than a measure of aggression. On the other hand, more recent studies have not found any relationship between intelligence and self-reported aggression (White, Jarrett, & Ollendick, 2013; Zajenkowski & Zajenkowska, 2015). Nevertheless, as Zajenkowski and

Zajenkowska (2015) pointed out, the use of a homogenous university sample in some studies may involve a rank restriction which explains the lack of any relationship between intelligence and aggression measures.

It should be noted that the studies relating aggression measures and intelligence have mainly focused on measures of direct aggression (DA) and have not analysed the possible relationship between intelligence and indirect aggression (IA). Aggressive behaviour not only involves overt acts (physical or verbal) but also ways of harming others less directly. Indirect aggression refers to these other ways of harming which do not require the victim to be faced, and which use tools of social manipulation such as spreading rumours, gossiping, excluding them from the group, ignoring them, etc. (Salmivalli & Kaukiainen, 2004).

The study of IA is of considerable importance because direct forms of aggression are characteristic of early childhood but, as a result of the socialization process, decrease while indirect aggression increases during childhood, peaks during adolescence and becomes the most frequent form of aggression in adulthood (Björkqvist, 1994; Björkqvist, Lagerspetz, & Kaukiainen, 1992; Tremblay & Nagin, 2005).

Direct and indirect forms of aggression show a different pattern of relationships with many variables. In this regard, direct and indirect aggressions are differentially related to several aspects of maladjustment: DA is more related to delinquency and externalizing disorders, and IA is more related to internalizing disorders (Card, Stucky, Sawalani, & Little, 2008). The two forms of aggression also show different relationships with psychological maturity in adolescence, understood as the ability to take on obligations and make responsible decisions. IA shows a

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much greater relationship than DA (Morales-Vives, Camps, Lorenzo-Seva, & Vigil-Colet, 2014). On the other hand, the opposite pattern is found with anger, which is more related to DA than to IA (Warren, Richardson, & Mcquillin, 2011).

It should be taken into account that direct forms of aggression, and especially reactive aggression, often have an impulsive component. Furthermore, DA usually occurs immediately after the situation that triggers it, while IA is usually delayed because it does not occur in front of the victim and requires a higher degree of planning, often involving a third person or group. These differences may mean that direct aggression is more related to processes that are subject to less cognitive control because they are mainly driven by impulsivity and anger, while the delay between the triggering act and the aggressive response that characterizes IA may give some individuals the chance to search for solutions to the problem other than retaliation. This last hypothesis may explain why psychological maturity is more related to IA than to DA while anger shows the reverse pattern. Furthermore, one consequence of this possible effect is that intelligence may show a different pattern of relationships with DA and IA, in the sense that, as previous research has shown, the relationships between intelligence and DA are low or non-existent but, in the case of IA, individuals with higher cognitive abilities may find solutions other than aggressive retaliation.

One issue that we had to take into account in this study is the possible effect of impulsivity on the relationships between aggression and intelligence, which are controversial. Several authors have reported that they are related, although the correlation coefficients reported are usually small (Lynam et al., 1993; Russo, De Pascalis, Varriale, & Barratt, 2008; Schweizer, 2002), while others have failed to find any relationship (Ashton, Lee, Vernon, & Jang, 2000; Austin et al., 2002; de Wit, Flory, Acheson, McCloskey, & Manuck, 2007; Vigil-Colet & Morales-Vives, 2005). Nevertheless, taking into account the close relationship between impulsivity and aggression, we discarded the possibility that impulsivity underlies the relationship between aggression and intelligence so it cannot possibly explain any relationships found.

Bearing in mind all the above, the main objective of this paper was to analyse the relationships between intelligence and different forms of aggression, under the hypothesis that intelligence is more related to IA than to DA. On the other hand, if DA is more related to acting on the “spur or the moment” than IA, then DA should be more related to impulsivity than IA. This second hypothesis reflects the work of several authors who have shown that impulsive aggression is quite frequent and involves unplanned aggressive acts which are spontaneous in nature, have a large emotional component and process information inefficiently, and which make people rely upon their default cognitive-processing patterns (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999; Fite, Goodnight, Bates, Dodge, & Pettit, 2008; Houston & Stanford, 2001).

To test these hypotheses we administered various measures of intelligence and impulsivity to a sample of adolescents, a population that usually shows high levels of aggression. The different measures of intelligence allowed us to compute an estimate of the score of each individual on the “g” factor. This is relevant because as Zajenkowski and Zajenkovska (2015) pointed out, one limitation of the few studies that have related aggression and intelligence is that they use a single measure of intelligence which cannot identify g. The use of different measures allowed us to compute g scores for each individual by means of a factor analysis of different intelligence scales as Jensen and Weng (1994) suggested and to analyse whether, as in the case of delinquency, aggressive behaviour is also related to deficits in verbal abilities. Furthermore, instead of using a sample of university students, which may be homogenous in intelligence and aggression, we used a more heterogeneous sample.

Our last objective was to test whether sex has effects on the relationships between intelligence and aggression. As several meta-analyses have shown (for example, Archer, 2004), sex differences in aggressive behaviour are well established for PA and less clear for IA, so it is possible that any relationship between intelligence and aggression may be sex dependent only in some kinds of aggression.

2. Method

2.1. Participants

The sample consisted of a total of 532 volunteer students (252 men and 280 women) from 8 different public high schools from the Tarragona province, with ages ranging from 11 to 18 years old ($M = 14.75$ $SD = 2.1$). A total of 80.4% of the participants were native Spaniards and 19.6% were immigrants. Both parents were unemployed in 4.7% of cases and employed in 70% of cases.

2.2. Measures

2.2.1. The indirect-direct aggression questionnaire – IDAQ (Ruiz-Pamies, Lorenzo-Seva, Morales-Vives, Cosi, & Vigil-Colet, 2014)

The test comprises 27 items and participants rate each item using a five-point Likert-type scale. The tests gave scores on a T-scale ($M = 50$ $SD = 10$) where higher scores meant higher aggression levels. This test gives scores for the factors physical aggression (PA; 6 items), verbal aggression (VA; 7 items) and indirect aggression (IA; 10 items) and an overall aggression score. Four items were used as markers of social desirability because the test was developed using a method that controls social desirability and acquiescence, because they have a considerable effect on the scores and factor structure of aggressive behaviour self-reports (Navarro-Gonzalez, Lorenzo-Seva, & Vigil-Colet, 2016; Vigil-Colet, Ruiz-Pamies, Anguiano-Carrasco, & Lorenzo-Seva, 2012). The factors measured by I-DAQ have appropriate factorial reliabilities: $r_{00} = 0.83$, $r_{00} = 0.77$ and $r_{00} = 0.78$ for PA, VA and IA respectively.

2.2.2. Barratt Impulsiveness Scale-11 for children (Chahin, Cosi, Lorenzo-Seva, & Vigil-Colet, 2010; Cosi, Vigil-Colet, Canals, & Lorenzo-Seva, 2008)

This is a self-report questionnaire for assessing impulsivity that is specifically designed for children and adolescents. The test gives scores for Motor Impulsivity (MI), Non-Planning Impulsivity (N-PI) and Cognitive Impulsivity (CI). MI is related to lack of inhibition and delay, and N-PI is related to planning abilities while CI is related to the tendency to make quick cognitive decisions.

2.2.3. Thurstone's primary mental abilities (Cordero, Seisdedos, González, & de la Cruz, 1989)

The subscales of Thurstone's test were: Verbal, Spatial, Numerical, Reasoning, and Word Fluency. This test comprises scales of fluid and crystallised intelligence.

2.2.4. Raven progressive matrices test (Raven, 1996)

This test can be regarded as a measure of fluid intelligence free of cultural bias.

2.2.5. Information scale of the WAIS intelligence test for adults (Cordero et al., 1989)

This scale is an indicator of crystallised intelligence.

2.3. Procedure

School approval and parental written informed consent were obtained before participation in the study. Participation was voluntary and no incentives were given. About 96% of the participants who were invited to participate in the study eventually did so. The ethics committee of the Faculty of Education and Psychology approved the research project, which is made up of several different studies. A professional psychologist administered the tests collectively in their classrooms. Only when more than one class was tested at the same time was a second psychologist involved in the testing process. The participants were asked to volunteer to answer the inventories in their classroom. The

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