



Impulsivity, depression and aggression among adolescents



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ABSTRACT

The main goal of the present study was to examine interrelationships among adolescent depressive symptomatology, types of aggressive behaviors (verbal, physical, psychic), impulsivity and other aspects of one's personality (venturesomeness, empathy and self-efficacy). Data collection occurred in Debrecen (Hungary) during the first semester of the year 2012, using classes from three high schools ($N = 413$), 237 (57.4%) boys and 176 (42.6%) girls. The self-administered questionnaire contained variables of mental health beyond sociodemographics. Girls reported more depressive symptoms and a higher level of empathy. In terms of aggression, a significant gender difference was detected only in the case of physical aggression for boys. Based on multiple regression analyses, impulsivity acted as a risk factor both for mean levels of depressive symptomatology and aggression subscales. Besides, lack of empathy was related to aggressive behavior. In both genders, self-efficacy was positively associated with verbal and physical aggression. Among girls, self-efficacy was a negative predictor of psychic aggression. We may conclude that there are strong interrelationships among depressive symptomatology, aggressive behaviors and impulsivity, and this association may be colored by risk-taking/venturesomeness, empathy, and self-efficacy. There is a need for learning some basic effective techniques for impulsivity management in adolescence.

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1. Introduction

Impulsivity is a key concept for psychological and psychiatric research. Since the introduction of cognitive neuroscience, we know more and more about the neuroanatomical features of impulsivity which helps us better understand its role in behavior (Chamberlain & Sahakian, 2007). It may be defined as a predisposition toward rapid, unplanned reactions to external/internal stimuli with diminished concern for the negative consequences of these reactions (Chamorro et al., 2012). Impulsivity has a deep impact on our everyday living, personality, quality of life, decision-making processes, and contributes to psychopathological symptoms and psychiatric illness (Whiteside & Lynam, 2001). As results of psychiatric epidemiological studies suggest, it is quite common in the general population and it has a great effect on our social relationships through emotion-regulation in various social situations (Schreiber, Grant, & Odlaug, 2012). Impulsivity has been found to be associated with a number of psychiatric disorders, such as antisocial, narcissistic and borderline personality disorders, bipolar disorders, suicide attempts, substance abuse,

ADHD, posttraumatic stress syndrome, pathological gambling, and OCD as well as with domestic violence and driving violations, promiscuity and risky sexual behavior (Chamorro et al., 2012). Impulsivity is partly a learned reaction; however, genetic predisposition also plays a role (Seroczynski, Bereman, & Coccaro, 1999). As a consequence, due to a complicated interplay of genetic and environmental effects, impulsivity becomes a personality trait.

Not surprisingly, most studies of impulsivity have included adolescent populations since adolescents have an elevated likelihood of impulsivity in their behaviors. This may be closely linked to neurodevelopmental processes during adolescence. Namely, increased risk-taking behavior and greater emotional reactivity in adolescence are associated with different developmental trajectories of subcortical limbic regions relative to cortical control regions (prefrontal cortex); as a result, when adolescents are faced with an immediate personal decision, they will rely less on intellectual capabilities and more on feelings (Cassey, Jones, & Hare, 2008). This also means that providing information about the risks of substance use or unprotected sex seldom changes their actual behavior (Steinberg, 2007). All in all, adolescence becomes a sensitive life period with an increase in substance use, depressive symptomatology and other forms of problem behavior (Gullo & Dawe, 2008; Piko, Fitzpatrick, & Wright, 2005). Impulsivity is also related to

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adolescents' greater engagement in risk-taking/venturesomeness and sensation/novelty seeking that may contribute to development of problem behaviors (Kelley, Schochet, & Landry, 2004; Zuckerman, 1979).

However, it would be wrong to focus only on negative consequences and harmful reactions of impulsive behavior. As part of the ongoing developmental processes during adolescence, it may have the evolutionary advantage for adaptation to new situations, increased possibilities, independence and autonomy, new types of social relationships, changes in the self and development of a new identity in this life period (Greene, Krcmar, Walters, Rubin, & Hale, 2000). In addition, studies also found strong interrelationships among impulsivity, spontaneity and creativity (Kipper, Green, & Prorak, 2010; Westby & Dawson, 1995). Thus a certain degree of impulsivity may contribute to healthy adaptation to developmental processes; whereas it may contribute to problem behaviors when it exceeds the normal level since it may lead to perceived invulnerability (Arnett, 1992; Quadrel, Fischhoff, & Davis, 1993).

In the mechanism of developing psychopathological symptoms, characteristics of decision-making play a role. Due to neurodevelopmental processes, deficiencies in impulse control may be related to adolescents' tendency to showing low tolerance toward a delay of gratification. This is because around the time of puberty an increase in reward salience (that is, how much attention individuals pay to the magnitude of potential rewards) has been indicated that may be linked to elevated sensation/novelty seeking and risk-taking (Steinberg, 2007). Not surprisingly, impulsivity may often lead to cognitive distortions since impulsive individuals may interpret a given situation in a different way. Such cognitive distortions may be, e.g., when the individual tends to focus on the negative aspects of the situation or discount positive ones, catastrophizes the situation, overgeneralizes, blames, personalizes, regrets orientations or ruminates (Mobini, Pearce, Grant, Mills, & Yeomans, 2006). These cognitive distortions may result in depressive symptoms or suicidal ideation/attempts, particularly when impulsivity goes together with alcohol use that otherwise also worsens one's self-control (Dvorak, Lamis, & Malone, 2013). In addition, impulsivity may also contribute to depression through strengthening maladaptive coping (Cyders & Coskunpinar, 2011). Impulsive individuals, particularly when they show anxiety, are also prone to aggressive behaviors (Askénazi et al., 2003) in which the too rapid information processing, the lack of response inhibition and control over the situation all may play a role (Nagtegaal & Rassin, 2004; Vigil-Colet & Codorniu-Raga, 2004). Although some forms of aggression (particularly risky aggression) are more common among males, there is a close relationship between impulsivity and aggressive behaviors regardless of gender (Campbell & Munver, 2009).

As part of adolescent problem behavior, both depression and aggressive behaviors are universal major concerns (Piko & Fitzpatrick, 2003; Piko, Keresztes, & Pluhar, 2006). Besides high prevalence among adolescents, they often overlap (Lederhendler, 2003). Both they are linked not only to impulsiveness but other aspects of one's personality that undergo important developmental changes during adolescence, such as empathy/prosocial behaviors or self-efficacy. Aggressive behavior and bullying are more common among youth with psychological and psychiatric disorders, such as depression, anxiety or common psychosomatic symptoms (Forero, McLellan, Rissel, & Bauman, 1999; Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000; Piko et al., 2006). However, while depressive youth usually show lower levels of self-esteem or self-efficacy, aggressive/antisocial problem behavior may be related to high level of both (Andreou, Vlachou, & Didaskalou, 2005; Piko et al., 2005; Puckett, Aikins, & Cillessen, 2008). Finally, since empathy/prosocial behavior is an important correlate of youth social adjustment, those who lack prosocial skills may be

at risk for social adjustment difficulties and prone to aggressive behaviors (Crick, 1996).

The literature above suggests that impulsivity, venturesomeness/risk-taking, empathy/prosocial behavior and self-efficacy may play important roles in adolescent depressive symptomatology and aggressive behaviors. Therefore, the main goal of the present study was to detect interrelationships among these variables in a sample of Hungarian adolescents, with special attention paid on the role of impulsivity. In addition, we examined these possible associations separately for boys and girls as well.

2. Methods

2.1. Participants and procedure

Data were collected in Debrecen, a major metropolitan center in the eastern region of Hungary. Data collection was going on in the spring of 2012, in the frame of 'Youth Sports Research' project. In this pilot phase of the research, three high schools were randomly chosen from a list of all high schools in town: one with a normal curriculum, another one with a sports faculty and one with a mixed curriculum. Altogether, 413 questionnaires were processed and analyzed (response rate was above 95%, the remaining students likely included youth who were absent or those whose parents did not want them participating in the study). Of the sampled students, 57.4% were males, aged between 15 and 20 years (school years from 9 to 12; Mean = 17.3 years, S.D. = 1.2 years; only 7 students were above the age of 19). Parents were informed about the study and their consent was obtained. Using a standardized procedure of administration, trained graduate students distributed the questionnaires to youth in each class, after briefly explaining the study objectives and giving the necessary instructions. Students completed the questionnaires during the class period. Student participation was voluntary and confidential.

2.2. Measures

The self-administered questionnaire contained items on depressive symptomatology, aggressive behaviors, impulsivity, empathy, venturesomeness and self-efficacy beyond sociodemographics.

Depressive symptomatology was measured by a shortened version of the original 27-item Children's Depression Inventory (CDI) that is a self-rated depressive symptom scale for children adapted from the Beck Depression Inventory for adults (Kovács, 1992; Piko & Fitzpatrick, 2003). This adapted and validated version is widely used in Hungarian child and adolescent (high school student) populations (Rózsa, Vetró, & Komlósi, 1992). Each item of the original and shortened versions assesses a single symptom, such as sadness, and was coded from 0 to 2. The shortened version of the CDI, based on the current data, was reliable with a Cronbach's alpha of 0.75. We weighted the shortened CDI by a factor of 3.375 (number of original CDI items – 27/shortened version items – 8 = 3.375) for purposes of comparing this sample with other Hungarian, European and US samples of adolescents. Thus, the mean score and standard deviation for this sample was 6.9 (S.D. = 7.7), the cutoff CDI score for the upper 10% of the distribution for the current sample was 17.

Aggressive behaviors were measured by three subscales of The Aggression Questionnaire (Buss & Perry, 1992). These subscales were used to measure three forms of aggression: physical (nine items, e.g., "If somebody hits me, I hit back."), verbal (five items, e.g., "I tell my friends openly when I disagree with them.") and psychic (seven items, e.g., "Some of my friends think I am a hothead."). The scale was previously adapted to Hungarian samples (Piko et al.,

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