

**Gender differences in the correlates of reactive aggression**

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**Abstract**

The main aim of the present study was to examine the relationships between four psychopathy dimensions (Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Antisocial Behaviour) as well as childhood exposure to violence and reactive aggression in men and women. Participants were a sample of working adults ( $N = 319$ ) recruited from the University of Security in Poznan. Results indicated that reactive aggression among males formed significant associations with Erratic Lifestyle, Interpersonal Manipulation, and childhood exposure to violence. Only one correlate, Erratic Lifestyle, was a significant correlate of reactive aggression in females. These findings are discussed in light of theory and previous research findings.

*Keywords:* Reactive aggression, Psychopathy factors, SRP-III, Exposure to violence, Gender differences

### **Introduction**

Aggression is a psychological concept defined as an attempt to harm another individual or destroy an object (Van Eyken, 1987). Researchers have long debated over the origins of aggressive predispositions. The frustration-aggression hypothesis posits that aggression is a direct consequence of frustration which leads to anger and readies one to act aggressively. Whether or not an individual chooses to engage in aggressive behaviour depends on their learning history and interpretation of an event (Berkowitz, 1973; Dollard, Doob, Miller, Mowrer, & Sears, 1939). This is congruent with Bandura's (1965) social learning theory, which suggests that an important role in aggressive behaviour is played by past learning experiences. Indeed, research revealed that children are most likely to acquire aggressive behaviour if they observe aggression on many occasions, if their own aggressive behaviours are positively reinforced, or when they are subject to aggression themselves (Huesmann, 1988). Recent cognitive models emphasise the importance of information processing in acquiring aggressive behaviour. Huesmann (1997) proposed a hypothesis called the cognitive scripts model, according to which aggressive behaviour is controlled by cognitive schemata. Scripts are learned and memorised through exposure to certain situations and provide one with knowledge on how to behave in specific circumstances. Once established, the script becomes a cognitive programme which is resistant to change. Therefore, children do not simply mimic the behaviours of their parents, but encode their attitudes into their own repertoire of scripts.

Aggression is not a unitary phenomenon. Feshbach (1964) suggested a bimodal categorisation of aggression: affective and predatory. These terms are most widely used in animal research. Studies investigating aggression in human population refer to affective and predatory aggression as reactive/hostile and proactive/instrumental respectively (Buss, 1961).

Littlen, Henrich, Jones, and Hawley's (2003) study examining the two types of aggression revealed no statistically significant correlation between them, suggesting the involvement of distinct psychological mechanisms in the activation of reactive and instrumental aggression.

Reactive aggression is conceptualised as a response to threat or frustration (Buss, 1961). Reactive aggressive acts are not premeditated and occur spontaneously in the face of an oncoming danger. Such behaviour serves defensive purposes and no gains are expected from it (Blanchard, Blanchard, & Takahashi, 1977; Price & Dodge, 1989). Following the aggressive acts, reactive aggressors were frequently found to feel remorseful (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999; Dodge, 1991). It has been suggested that reactive aggressive acts are a function of information-processing deficits and erroneous encoding of social cues (Raine *et al.*, 1994). An increased risk of reactive aggression can be expected in some psychiatric conditions such as borderline personality disorder (BPD), bipolar disorder, post-traumatic stress disorder (PTSD), and secondary psychopathy (i.e., individuals scoring higher on lifestyle/antisocial factor of psychopathy) (Blair, 2010). In contrast, instrumental aggression consists of purposeful actions, driven by the anticipation of obtaining an external goal (Buss, 1961; Weinshenker & Siegel, 2002). Proactive aggressors do not tend to experience heightened arousal during or negative feelings after acting violently (Barratt *et al.*, 1999; Dodge, 1991).

Levels of aggression have been found to vary by gender, with men more likely to receive higher scores than females (Connor, 2002; Salmivalli & Nieminen, 2002). One possible explanation for this gender disparity is that men are considered to be more impulsive than females (Chapple & Johnson, 2007), and increased impulsivity has been previously linked with reactively aggressive acts (Raine *et al.*, 2006). Conversely, Connor, Steingard, Anderson, and Melloni (2003), in a study with 323 clinically referred youths, found no

gender differences in levels of aggression. However, these research findings revealed different correlates of reactive aggression for males and females. Reactive aggression in males was significantly associated with hyperactive/impulsive behaviours ( $\beta = .27, p < .001$ ), hostility ( $\beta = .28, p < .001$ ), and victimisation by an adult perpetrator ( $\beta = .17, p < .01$ ).

Variables which correlated with reactive aggression among females, on the other hand, included younger age at first abuse experience ( $\beta = -.32, p < .05$ ), lower verbal IQ ( $\beta = -.33, p < .01$ ), and receiving stimulant medications ( $\beta = .23, p < .05$ ). Moreover, reactive aggression was statistically associated with poor emotional regulation and anger reaction in a sample of 58 detained girls (Marsee & Frick, 2007). Xie, Swift, Cairns & Cairns (2002) also suggest that poor emotional regulation may indeed be associated with reactive aggression in females. Further, poor emotional regulation has previously been linked with aggression in boys, too (Garber & Dodge, 1991; Leadbeater, Kupermine, Hertzog, & Blatt, 1999), suggesting that the inability to control one's emotional reactions is a function of both male and female reactive aggression. Indeed, in research with Chinese children, reactive aggression in *both* genders was strongly related with emotion regulation, as well as unreciprocated friendship, peer victimisation, and hostility (Xu & Zhang, 2008). In another study exploring gender differences in aggression among 115 college students, aggression was found to be significantly positively correlated with age and education for both males and females (Harris & Knight-Bohnhoff, 1996). Nevertheless, given the nature of the samples, these findings may not be generalizable to other populations. Additionally, to date, most studies examining gender differences in reactive aggression have been conducted with children and adolescents (e.g., Connor *et al.*, 2003; Marsee & Frick, 2007; Marsee, Weems, & Taylor, 2008). Therefore, in order to expand the current understanding of gender differences in aggressive behaviour, research among adult populations is warranted.

Family factors including parental psychopathology and child abuse have also been associated with an increased risk for aggression (Maxfield & Widom, 1996) and extreme forms of violence (Boduszek, Hyland, & Bourke, 2012). Indeed, childhood exposure to violence has been frequently reported as an important correlate of aggressive behaviour (Kaufman & Cicchetti, 1989; Rogosch & Cicchetti, 1994). Maltreated children were consistently perceived as more aggressive by familiar adults (Alessandri, 1991; Crittenden, Claussen, & Sugarman, 1994) and peers (Salzinger, Feldman, Hammer, & Rosario, 1993). In a research with 141 maltreated and 87 non-maltreated children, Shields and Cicchetti (1998) found an increased risk for reactive aggression among physically abused children. The association between reactive aggression and child abuse was argued to be mediated by insecure attachments to parents and deficits in social information processing (Dodge, Pettit, Bates, & Valente, 1995). Abused children were also reported to evidence disrupted emotional development, resulting in fear, anger, or blunted affect (Gaensbauer, 1980). Consistent with the cycle-of-violence hypothesis, childhood exposure to violence may heighten an individual's risk for condoning and engaging in acts of violence (Kerr & Bowen, 1988). Nevertheless, not all abusers have a history of being subject to violence in childhood and only about 30% of maltreated children are likely to become abusers themselves (Kaufman & Zigler, 1987). Moreover, as suggested in the aforementioned research, age at first abuse experience appears crucial in the development of reactive aggression in females but not in males (Connor *et al.*, 2003).

Aggression has often been studied in relation to psychopathy, particularly with male populations. Psychopathy is a clinical construct characterised by a constellation of interpersonal (e.g., deceitfulness, superficial charm, grandiosity), affective (e.g., lack of empathy, remorse, or guilt), lifestyle (e.g., impulsivity, irresponsibility), and behavioural (e.g., social deviance, criminality) features (Hare & Neumann, 2008). Children, adolescents,

and adults exhibiting psychopathic traits were reported to be more aggressive than their non-psychopathic counterparts. Although psychopaths appear to engage in both reactive and proactive aggressive behaviour, empirical research reported a stronger link between psychopathy and instrumental aggression (Dhingra & Boduszek, 2013; Porter & Woodworth, 2007). Interpersonal/affective psychopathy factor was found to be strongly related with both reactive and proactive aggression, whereas lifestyle/antisocial psychopathy facet correlated with reactive aggression only (Cornell *et al.*, 1996; Falkenbach, Poythress, & Creevy, 2008; Reidy, Zeichner, Miller, & Martinez, 2007). In contrast, other research indicated a significant association between antisocial behaviour and instrumental, not reactive, aggression (Fite, Raine, Stouthamer-Loeber, Loeber, & Pardini, 2009; Nas, Orobio de Castro, & Koops, 2005; Raine *et al.*, 2006; Vitaro, Brendgen, & Barker, 2006). Pulkinnen (1987, 1996), who examined the relation between reactive and instrumental aggression and adult adjustment, found only instrumental aggression to be predictive of antisocial outcomes and criminality in adulthood.

Callous/unemotional (CU) traits, which constitute the core of psychopathic personality, were frequently associated with proactive aggression (e.g., Frick, Cornell, Barry, Bodin, & Dane, 2003; Williamson, Hare, & Wong, 1987; Woodworth & Porter, 2002) and reduced impulsivity (e.g., Snowden & Gray, 2011). Some research suggests that adolescents with CU traits partake in aggressive acts which are both reactive and proactive in nature (Enebrink, Andershed, Langström, 2005; Fanti, Frick, & Georgiou, 2009; Kruh, Frick, & Clements, 2005). However, there are some inconsistencies in the findings of studies examining the role of CU traits in combined or pure forms of reactive and instrumental aggression. For example, Raine *et al.* (2006) reported pure instrumental aggression to be correlated with psychopathy and blunted affect in a sample of boys. Likewise, only proactive aggression was associated with CU traits within a sample of detained girls (Marsee & Frick,

2007). Overall, reactive aggression seems to be a function of both interpersonal/affective and lifestyle/antisocial psychopathy factors, however, contradictory evidence has been reported. One possible explanation of this may be that previous studies examined two, rather than four, facets of psychopathy.

It appears that the role of gender, childhood exposure to violence, and psychopathy factors in reactive aggression is not yet clear in the literature. Therefore, in the current study, we assessed the relations between four psychopathy facets as well as childhood exposure to violence and reactive aggression, separately for male and female participants. Given research demonstrating no significant association between reactive aggression and antisocial behaviour as well as callous traits, it was hypothesised that two psychopathy facets, Interpersonal Manipulation and Erratic Lifestyle, would be statistically related with reactive aggression in both genders. Additionally, it was suggested that childhood exposure to violence would form a significant association with reactive aggression in both samples.

## Method

### Participants

The opportunistic sample consisted of 319 Polish working adults recruited at the University of Security in Poznan (Poland). The University offers part-time training courses with flexible timetables for working adults. Participants ranged in age from 19 to 51 years ( $M = 25.16$ ,  $SD = 6.24$ ). The sample consisted of 175 males and 144 females. Additionally, 77.4% of participants reported being unmarried ( $n = 247$ ), 20.7% being married ( $n = 66$ ), 1.6% being divorced ( $n = 5$ ), and 0.3% being widowed ( $n = 1$ ). Participation was voluntary without any form of reward.

## Measures

***Self-Report Psychopathy Scale – Polish version*** (SRP-III-PV; Debowska, Boduszek, Kola, & Hyland, 2014). The SRP-III, first created in English, was used to assess self-reported psychopathic traits (Paulhus, Neumann, & Hare, in press). Based on the ‘gold standard’ of clinical psychopathy assessment, the Psychopathy Checklist-Revised (PCL-R; Hare, 1991), the SRP-III is a 64-item measure that yields a total score as well as four sub-scale scores. The factor structure and construct validity of the Polish version of the SRP-III was evaluated using confirmatory factor analysis (Debowska *et al.*, 2014). Statistical findings indicated that the data was best explained by a bifactor model of psychopathy with two hidden general factors (Affective/Interpersonal, Lifestyle/Antisocial) and four meaningful grouping factors (Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Antisocial Behaviour), which formed the basis for creating the SRP-III subscales:

- (1) Interpersonal Manipulation (IPM), 16 items, (e.g. “I think I could "beat" a lie detector”; “I purposely flatter people to get them on my side”);
- (2) Callous Affect (CA), 16 items, (e.g. “It tortures me to see an injured animal”; “I don’t bother to keep in touch with my family anymore);
- (3) Erratic Lifestyle (ELS), 16 items, (e.g. “I’ve often done something dangerous just for the thrill of it”);
- (4) Antisocial Behaviour (ASB), 16 items, (e.g. “I have never stolen a car, motorcycle or a bicycle”).

Items are scored on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). In the present sample, Cronbach’s alphas were all acceptable: .92 for the full scale; .83 for IPM; .76 for CA; .76 for ELS; .80 for ASB.

*The Recent Exposure to Violence Scale* (REVS; Flannery, Singer, van Dulmen, Kretschmar, & Belliston, 2007). The REVS is a 22-item scale measuring children's experiences of violent and threatening events using a 4-point Likert scale (1 = *never*, 4 = *almost every day*). Originally, the scale was divided into five subcategories: threats, slapping/punching/hitting, beatings, knife attacks, and shootings. For the purpose of the present study, the shooting subcategory of the inventory was omitted. Given that the scale was administered to adults and the focus was on their exposure to violence in childhood, all items were re-written in the past tense and the prompting phrase was changed from "How often in the past year...?" to "How often in your childhood...?". In the present sample, Cronbach's alpha was .89.

The scale items were translated to Polish by a professional translator. In order to ensure that the meaning of the original inventory has been retained, the Polish version was translated back to English. Both the original translation and back-translation were then shown to three experts in translation who suggested minor changes.

*The Buss-Perry Aggression Questionnaire – Short Form* (BPAQ; Bryant & Smith, 2001; Buss & Perry, 1992). The original BPAQ consists of 29 items rated on a 5-point Likert scale. The measure was translated to Polish by the AMITY Institute (Instytut AMITY, n.d.). It contains all 29 items from the original version of the questionnaire, however, for the purpose of the present research, only 12 items composing the abbreviated version of the instrument have been used ( $\alpha = .83$ ). A perusal of aggression scales conducted by Weinshenker and Siegel (2002) revealed that the BPAQ is a measure of reactive aggression.

## **Procedure**

Ethical approval was granted by the relevant institutional ethical review board. Measures were administered in groups of up to 40 individuals. Participants gave informed consent to take part in the study and completed anonymous, paper and pencil questionnaires which were compiled into a booklet along with an instruction sheet and a consent form attached to the

front of the booklet. Each participant was provided with a brief description of the study, how to complete the questionnaire, and the general expected completion time. Participants were assured about the confidentiality of their participation and informed that they could withdraw from the study at any time. Participants were debriefed upon completion of the questionnaire.

## Results

### Descriptive statistics and correlations

Descriptive statistics including means (*M*) and standard deviations (*SD*) for aggression, Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, Antisocial Behaviour, and exposure to violence are presented in Table 1. Male participants in the current sample revealed moderate levels of reactive aggression, Interpersonal Manipulation, Callous Affect, and Erratic Lifestyle. Scores on Antisocial Behaviour and exposure to violence were low. Similar results were obtained for female participants, however, their scores on all measures were lower than those of males.

Correlations amongst all continuous variables included in the study were examined using the Pearson product-moment correlation coefficient (see Table 1). All correlations in both samples were weak to strong, ranging between  $r = .17, p < .05$  and  $r = .69, p < .001$ .

Table 1

*Descriptive statistics and correlations between aggression, Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, Antisocial Behaviour, and Recent Exposure to Violence for males and females*

Variables	AGG	IPM	CA	ELS	ASB	REV
<b>Males</b>						
AGG	-					
IPM	.53***	-				
CA	.44***	.68***	-			
ELS	.54***	.66***	.57***	-		
ASB	.40***	.42***	.42***	.47***	-	
REV	.37***	.41***	.25**	.36***	.31***	-
Mean	19.07	27.93	28.38	28.83	13.09	8.08
SD	8.50	9.53	7.17	8.38	9.37	6.68
Range	0-45	6-60	7-59	10-62	0-52	0-39
<b>Females</b>						
AGG	-					
IPM	.46***	-				
CA	.37***	.69***	-			
ELS	.48***	.66***	.62**	-		
ASB	.28**	.43***	.42***	.34***	-	
REV	.22**	.25**	.20*	.18*	.17*	-
Mean	19.44	24.22	21.27	27.43	9.19	5.71
SD	8.00	8.63	7.90	8.42	7.62	4.53
Range	0-38	3-51	4-47	9-55	0-32	0-23

*Note.* AGG = Aggression; IPM = Interpersonal Manipulation; CA = Callous Affect; ELS = Erratic Lifestyle; ASB = Antisocial Behaviour; REV = Recent Exposure to Violence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

### Multiple linear regression analysis

Two separate multiple linear regression analyses were performed for male and female participants in order to verify whether psychopathy factors and exposure to violence were significantly associated with reactive aggression. Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for both analyses. Preliminary analyses revealed no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

In the sample of males, the five correlates explained 38% ( $R^2 = .38$ ) of variance in reactive aggression ( $F_{(5, 167)} = 20.08, p < .001$ ). Three correlates were statistically significant, with Erratic Lifestyle recording a higher Beta value ( $\beta = .25, p < .01$ ) than Interpersonal Manipulation ( $\beta = .22, p < .05$ ) and childhood exposure to violence ( $\beta = .14, p < .05$ ) (see Table 2).

In the sample of females, the five correlates explained 29% ( $R^2 = .29$ ) of variance in reactive aggression ( $F_{(5, 135)} = 11.00, p < .001$ ). Only one correlate, Erratic Lifestyle, made a significant contribution to the model ( $\beta = .35, p < .01$ ) (see Table 2).

Table 2

*Multiple regression models of aggression for males and females*

	<i>R</i>	<i>R</i> <sup>2</sup>	<i>adjR</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>t</i>
<b>Model 1 (Males)</b>	.61	.38***	.36				
REV				.18	.09	.14*	2.01
IPM				.20	.09	.22*	2.29
CA				.07	.10	.06	.66
ELS				.26	.09	.25**	2.95
ASB				.11	.07	.13	1.76
<b>Model 2 (Females)</b>	.54	.29***	.26				
REV				.18	.13	.10	1.37
IPM				.17	.10	.18	1.62
CA				-.03	.11	-.03	-.29
ELS				.34	.10	.35**	3.47
ASB				.07	.09	.07	.88

*Note.* REV = Recent Exposure to Violence; IPM = Interpersonal Manipulation; CA = Callous Affect; ELS = Erratic Lifestyle; ASB = Antisocial Behaviour.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

## Discussion

Previous research has demonstrated that psychopathy and childhood exposure to violence have a significant impact on reactive aggression (Debowska & Zeyrek Rios, 2015; Murray-Close, Ostrov, Nelson, Crick, & Coccaro, 2010; Shields & Cicchetti, 1998). Additionally, correlates of reactive aggression have been found to vary by gender (Connor, 2002; Salmivalli & Nieminen, 2002). However, to date, no known study has examined gender differences in the relationship between four psychopathy factors and reactive aggression. Moreover, most research investigating the role of exposure to violence in reactive aggression was conducted looking at younger populations (i.e., children and adolescents) (e.g., Connor *et*

*al.*, 2003; Marsee & Frick, 2007; Marsee *et al.*, 2008; Xu & Zhang, 2008). The main purpose of the present study, therefore, was to examine the relationship between psychopathy dimensions as well as childhood exposure to violence and reactive aggression in adult male and female participants.

Of the four psychopathy dimensions, Erratic Lifestyle was found to be the strongest correlate of reactive aggression. Although Connor *et al.* (2003) have linked hyperactive/impulsive behaviours with reactive aggression in males only, the current results indicate a correlation between Erratic Lifestyle and reactive aggression in both samples. The present finding is also partly supportive of earlier studies which have linked lifestyle/antisocial psychopathy factor with reactive aggression (e.g., Cornell *et al.*, 1996; Falkenbach *et al.*, 2008; Reidy *et al.*, 2007). One possible explanation of the current result may be provided by looking at what Erratic Lifestyle facet represents. Specifically, erratic lifestyle refers to behaviour that is characterised by impulsivity, recklessness, and risk-taking (Paulhus *et al.*, in press). Individuals leading such a disorganised lifestyle appear to be in a constant need for stimulation. Indeed, reactive aggressors were noted for being impulsive, acting spontaneously, and experiencing heightened arousal during transgressing (Price & Dodge, 1989; Raine *et al.*, 2006); factors which correspond with the previous notion that reactive aggression in both genders is associated with poor emotional regulation (Garber & Dodge, 1991; Leadbeater *et al.*, 1999; Marsee & Frick, 2007; Xie *et al.*, 2002). Moreover, impulsivity is suggested to be closely related to response disinhibition (Hinshaw, 2006), whereby an individual is unable to adequately control their reaction to provocation or perceived threat. The link between impulsivity and response disinhibition may therefore account for the significant association between Erratic Lifestyle and reactive aggression.

Additionally, as hypothesised, reactive aggression was not related with Antisocial Behaviour facet. Although previous research reported a significant association between the combined lifestyle/antisocial psychopathy factor and reactive aggression (e.g., Cornell *et al.*, 1996; Falkenbach *et al.*, 2008; Reidy *et al.*, 2007), studies looking at antisocial behaviour only found it to be correlated with proactive, but not reactive, aggression (e.g., Fite *et al.*, 2009; Nas *et al.*, 2005; Pulkinen, 1987, 1996; Raine *et al.*, 2006; Vitaro *et al.*, 2006). Therefore, the current findings provide an evidence that Erratic Lifestyle and Antisocial Behaviour psychopathy dimensions should be considered separately in relation to reactive aggression.

A significant association between Interpersonal Manipulation and reactive aggression among males was also found in the present study. Interpersonal manipulation closely resembles relational aggression and hence it may be that individuals with increased scores on this psychopathy facet resort to manipulation as a means of harming others. Interpersonal manipulation has also been conceptualised as a form of indirect aggression which, given the circumstances, may develop into violence (Yoon & Somers, 2003). Another possible explanation of the significant association reported here is that thwarted attempts at manipulating others lead to frustration which may result in overtly aggressive acts. This is consistent with the frustration-aggression hypothesis, according to which aggression is a direct consequence of frustration (Dollard *et al.*, 1939). Further, based on Berkowitz's (1973) claim that the association between frustration and aggression is mediated by anger, the lack of significant relation between Interpersonal Manipulation and reactive aggression in females may be due to differential social expectations in anger expression for the two genders. This is congruent with earlier suggestions that women are more likely to express their emotions, except for anger, which is seen as a primary emotion in males (Collier, 1982).

As predicted, reactive aggression was not statistically correlated with Callous Affect. Although earlier research reported interpersonal/affective psychopathy factor to be a significant correlate of reactive aggression (e.g., Cornell *et al.*, 1996; Falkenbach *et al.*, 2008; Reidy *et al.*, 2007), those studies treated psychopathy as being composed of two dimensions. Therefore, it seems that this significant association could have been influenced by the Interpersonal Manipulation factor, rather than callous traits. Offering support for this, previous studies reported individuals displaying increased callous traits to be void of the feelings of guilt (Helfgott, 2008), whereas reactive aggressors were noted for being remorseful following aggressive acts (Barratt *et al.*, 1999; Dodge, 1991). Additionally, prior research reported an association between reactive aggression and emotional sensitivity (Murray-Close *et al.*, 2010). Also in line with the present result are earlier research findings indicating a significant association between callous characteristics and reduced impulsivity (Snowden & Gray, 2011).

The direct effect of childhood exposure to violence was also reported for reactive aggression among males. This result is supportive of previous findings linking childhood abuse with an increased risk for future aggression (e.g., Maxfield & Widom, 1996; Shields & Cicchetti, 1998). Indeed, according to the cycle-of-violence hypothesis, childhood exposure to violence renders an individual more likely to condone and partake in aggressive acts in adulthood. Adult reactive aggression, hence, appears to be a function of childhood maltreatment experiences, which may give rise to the deficiencies in self-control and anger expression (Kerr & Bowen, 1988). Moreover, it appears that childhood maltreatment does not correlate significantly with reactive aggression among females. However, the present study did not control for age at first exposure to violence. Therefore, given Connor *et al.*'s (2003) study results indicating that female reactive aggression is associated with being subject to

abuse at an early stage of development, future studies examining gender differences in aggression should account for age at first abuse experience.

The results of the present study should be interpreted in light of some limitations. First, the present sample consisted of Polish adults and hence it cannot be certain that the findings can be generalised to other populations. Research with more diverse samples (i.e., participants from other cultural and linguistic backgrounds) is, therefore, needed in order to exclude the possibility that the effects reported here were due solely to cultural differences. Second, the present research utilised a cross-sectional design and hence causality could not be inferred. The present findings, however, can help generate hypotheses for future longitudinal studies.

Previous research on reactive aggression and psychopathy is undermined by inconsistent findings. Most studies conceptualised psychopathy as consisting of two, rather than four, factors, thus, despite the aforementioned limitations, the present results represent a contribution to the existing literature through demonstrating differential correlations between reactive aggression and four psychopathy dimensions. Additionally, most previous studies were conducted with younger populations and hence an advantage of the present study is that it provides information on the phenomenon of reactive aggression among adults.

The main objective of this paper was to examine the role of psychopathy factors and childhood exposure to violence in reactive aggression among males and females. Overall, the findings provide a substantial contribution to the understanding of gender differences in the correlates of reactive aggression. The results revealed Erratic Lifestyle psychopathy facet to be a significant correlate of aggression in both genders. Additionally, reactive aggression among males was statistically associated with Interpersonal Manipulation and childhood exposure to violence.

### References

- Alessandri, S.M. (1991). Play and social behavior in maltreated preschoolers. *Development and Psychopathology, 3*, 191-205.
- Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology, 1*, 589-595.
- Barratt, E.S., Stanford, M.S., Dowdy, L., Liebman, M.J., & Kent, T.A. (1999). Impulsive and premeditated aggression: a factor analysis of self-reported acts. *Psychiatry research, 86*(2), 163-173.
- Berkowitz, L. (1973). Words and symbols as stimuli to aggressive responses. In J.F. Knutson (Ed.), *The Control of Aggression* (pp. 113-143). Chicago: Aldine.
- Blanchard, R.J., Blanchard, D.C., & Takahashi, L.K. (1977). Attack and defensive behaviour in the albino rat. *Animal Behavior, 25*, 197-224.
- Boduszek, D., Hyland, P., Bourke, A. (2012). An investigation of the role of personality, familial, and peer-related characteristics in homicidal offending using retrospective data. *Journal of Criminal Psychology, 2*(2), 96-106.
- Bryant, F.B., & Smith, B.D. (2001). Refining the architecture of aggression: A measurement model for the Buss-Perry Aggression Questionnaire. *Journal of Research in Personality, 35*, 138-167.
- Buss, A.H. (1961). *The psychology of aggression*. New York: Wiley.
- Buss, A.H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology, 63*, 452-459.

- Chapple, C.L., & Johnson, K.A. (2007). Gender differences in impulsivity. *Youth Violence and Juvenile Justice*, 5(3), 221-234.
- Collier, H.V. (1982). *Counseling women: A guide for therapists*. New York: Free Press.
- Connor, D.F. (2002). *Aggression and antisocial behavior in children and adolescents: Research and treatment*. New York: Guilford Press.
- Connor, D.F., Steingard, R.J., Anderson, J.J., & Melloni, R.H. (2003). Gender differences in reactive and proactive aggression. *Child Psychiatry and Human Development*, 33(4), 279-294.
- Cornell, D.G., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy in instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology*, 64, 783-790.
- Crittenden, P.M., Claussen, A.H., & Sugarman, D.B. (1994). Physical and psychological maltreatment in middle childhood and adolescence. *Development and Psychopathology*, 6, 145-164.
- Debowska, A., Boduszek, D., Kola, S., & Hyland, P. (2014). A bifactor model of the Polish version of the Hare Self-Report Psychopathy Scale. *Personality and Individual Differences*, 69, 231-237.
- Debowska, A., & Zeyrek Rios, E.Y. (2015). The role of psychopathy factors in reactive aggression within a sample of prisoners. *Journal of Criminal Psychology*, 5(1), 25-33.
- Dhingra, K., & Boduszek, D. (2013). Psychopathy and criminal behaviour: A psychosocial research perspective. *Journal of Criminal Psychology*, 3(2), 83-107.

- Dodge, K.A. (1991). The structure and function of reactive and proactive aggression in the development and treatment of childhood aggression. In D.J. Pepler, & K.H. Rubin (Eds.), *The Development and Treatment of Childhood Aggression* (pp. 201–218). Hillsdale, NJ: Erlbaum.
- Dodge, K.A., Pettit, G.S., Bates, J.E., & Valente, E. (1995). Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology, 104*, 632-643.
- Dollard, J., Doob, L.W., Miller, N.E., Mowrer, O.H., & Sears, R.R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.
- Enebrink, P., Andershed, H., & Langström, N. (2005). Callous-unemotional traits are associated with clinical severity in referred boys with conduct problems. *Nordic Journal of Psychiatry, 59*(6), 431-440.
- Falkenbach, D., Poythress, N., & Creevy, C. (2008). The exploration of subclinical psychopathic subtypes and the relationship with types of aggression. *Personality and Individual Differences, 44*(4), 821-832.
- Fanti, K.A., Frick, P.J., & Georgiou, S. (2009). Linking callous-unemotional traits to instrumental and non-instrumental forms of aggression. *Journal of Psychopathology and Behavioral Assessment, 31*(4), 285-298.
- Feshbach, S. (1964). The function of aggression and the regulation of aggressive drive. *Psychological Review, 71*(4), 257-272.
- Fite, P.J., Raine, A., Stouthamer-Loeber, M., Loeber, R., & Pardini, D.A. (2009). Reactive and proactive aggression in adolescent males: Examining differential outcomes 10 years later in early adulthood. *Criminal Justice and Behavior, 37*(2), 141-157.

Flannery, D.J., Singer, M.I., van Dulmen, M., Kretschmar, J.M., & Belliston, L.M. (2007).

Exposure to violence, mental health, and violent behavior. In D.J. Flannery, A.T. Vazsonyi, & I.D. Waldman (Eds.), *The Cambridge Handbook of Violent Behavior and Aggression* (pp. 306-321). New York: Cambridge University Press.

Frick, P.J., Cornell, A.H., Barry, C.T., Bodin, S.D., & Dane, H.E. (2003). Callous-

unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology*, 31(4), 457-470.

Gaensbauer, T.J. (1980). Anaclitic depression in a three-and-one-half-month old child.

*American Journal of Psychiatry*, 137, 841-842.

Garber, J., & Dodge, K. (1991). *The development of emotional regulation and dysregulation*.

New York: Cambridge University Press.

Hare, R.D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto: Multi-Health

Systems.

Hare, R.D., & Neumann, C.S. (2008). Psychopathy as a clinical and empirical construct.

*Annual Review of Clinical Psychology*, 4, 217-246.

Harris, M.B., & Knight-Bohnhoff, K. (1996). Gender and aggression II: Personal

aggressiveness. *Sex Roles*, 35(1/2), 27-42.

Helfgott, J.B. (2008). *Criminal behavior: Theories, typologies, and criminal justice*.

Thousand Oaks, CA: Sage Publications Inc.

- Hinshaw, S.P. (2006). Impulsivity, emotion regulation, and developmental psychopathology: Specificity versus generality of linkages. *Annals of the New York Academy of Sciences, 1008*(1), 149-159.
- Huesmann, L.R. (1988). An information processing model for the development of aggression. *Aggressive Behavior, 14*, 13-24.
- Huesmann, L.R. (1997). Observational learning of violent behavior: Social and biosocial processes. In A. Raine, P.A. Brennan, D.P. Farrington, & S.A. Mednick (Eds.), *Biosocial Basis of Violence* (pp. 69-88). New York: Plenum.
- Instytut AMITY (n.d.). *Kwestionariusz Agresji Buss-Perry*. Retrieved from <http://amity.pl>
- Kaufman, J., & Cicchetti, D. (1989). Effects of maltreatment on school-age children's socioemotional development: Assessments in a day-camp setting. *Developmental Psychology, 25*, 516-524.
- Kaufman, J., & Zigler, E. (1987). Do abused children become abusive parents? *American Journal of Orthopsychiatry, 57*(2), 186-192.
- Kerr, M.E., & Bowen, M. (1988). *Family Evaluation: An approach based on Bowen theory*. New York: W.W. Norton & Company.
- Kruh, I.P., Frick, P.J., & Clements, C.B. (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behavior, 32*(1), 69-96.
- Leadbeater, B.J., Kuperminc, G.P., Hertzog, C., & Blatt, S.J. (1999). A multivariate model of gender differences in adolescents' internalizing and externalizing problems. *Developmental Psychology, 35*(5), 1268-1282.

- Littlen, T.D., Henrich, C.C., Jones, S.M., & Hawley, P.H. (2003). Disentangling the "whys" from the "whats" of aggressive behaviour. *International Journal of Behavioral Development, 27*(2), 122-133.
- Marsee, M.A., & Frick, P.J. (2007). Exploring the cognitive and emotional correlates to proactive and reactive aggression in a sample of detained girls. *Journal of Abnormal Child Psychology, 35*(6), 969-981.
- Marsee, M.A., Weems, C.F., & Taylor, L.K. (2008) Exploring the association between aggression and anxiety in youth: A look at aggressive subtypes, gender, and social cognition. *Journal of Child and Family Studies, 17*(1), 154-168.
- Maxfield, M.G., & Widom, C.S. (1996). The cycle of violence revisited 6 years later. *Archives of Pediatrics and Adolescent Medicine, 150*(4), 390-395.
- Murray-Close, D., Ostrov, J.M., Nelson, D.A., Crick, N.R., & Coccaro, E.F. (2010). Proactive, reactive, and romantic relational aggression in adulthood: Measurement, predictive validity, gender differences, and association with intermittent explosive disorder. *Journal of Psychiatric Research, 44*(6), 393-404.
- Nas, C.N., Orobio de Castro, B., & Koops, W. (2005). Social information processing in delinquent adolescents. *Psychology, Crime, and Law, 11*(4), 363–375.
- Paulhus, D.L., Neumann, C.S., & Hare, R.D. (in press). *Manual for the Self-Report Psychopathy Scale*. Toronto: Multi-Health Systems.
- Porter, S., & Woodworth, M. (2007). Psychopathy and aggression. In C.J. Patrick (Ed.), *Handbook of Psychopathy* (pp. 481-494). New York: The Guilford Press.

- Price, J.M., & Dodge, K.A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. *Journal of Abnormal Child Psychology, 17*(4), 455-471.
- Pulkinnen, L. (1987). Offensive and defensive aggression in humans: A longitudinal perspective. *Aggressive Behavior, 13*, 197–212.
- Pulkinnen, L. (1996). Proactive and reactive aggression in early adolescence as precursors to anti- and prosocial behavior in young adults. *Aggressive Behavior, 22*(4), 241–257.
- Raine, A., Dodge, K.A., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., et al. (2006). The Reactive–Proactive Aggression Questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior, 32*(2), 159–171.
- Raine, A., Reynolds, C., Lencz, T., Scerbo, A., Triphon, N., Kim, D. (1994). Cognitive-perceptual, interpersonal, and disorganised features of schizotypal personality. *Schizophrenia Bulletin, 20*(1), 191-201.
- Reidy, D.E., Zeichner, A., Miller, J.D., & Martinez, M.A. (2007). Psychopathy and aggression: Examining the role of psychopathy factors in predicting laboratory aggression under hostile and instrumental conditions. *Journal of Research in Personality, 41*, 1244-1251.
- Rogosch, F.A., & Cicchetti, D. (1994). Illustrating the interface of family and peer relations through the study of child maltreatment. *Social Development, 3*, 291-308.
- Salmivalli, C., & Nieminen, E. (2002). Proactive and reactive aggression among school bullies, victims, and bully-victims. *Aggressive Behavior, 28*(1), 30-44.
- Salzinger, S., Feldman, R.S., Hammer, M., & Rosario, M. (1993). The effects of physical abuse on children's social relationships. *Child Development, 64*, 169-187.

- Shields, A., & Cicchetti, D. (1998). Reactive aggression among maltreated children: The contributions of attention and emotion dysregulation. *Journal of Clinical Child Psychology, 27*(4), 381-395.
- Snowden, R.J., & Gray, N.S. (2011). Impulsivity and psychopathy: Associations between the Barrett Impulsivity Scale and the Psychopathy Checklist revised. *Psychiatry Research, 187*, 414-417.
- Van Eyken, A. (1987). Aggression: Myth or model? *Journal of Applied Philosophy, 4*(2), 165-176.
- Vitaro, F., Brendgen, M., & Barker, E.D. (2006). Subtypes of aggressive behaviors: A developmental perspective. *International Journal of Behavioral Development, 30*(1), 12–19.
- Weinshenker, N.J., & Siegel, A. (2002). Biomodal classification of aggression: Affective defense and predatory attack. *Aggression and Violent Behavior, 7*, 237-250.
- Williamson, S., Hare, R.D., & Wong, S. (1987). Violence: Criminal psychopaths and their victims. *Canadian Journal of Behavioural Science, 19*(4), 454-462.
- Woodworth, M., & Porter, S. (2002). In cold blood: Characteristics of criminal homicides as a function of psychopathy. *Journal of Abnormal Psychology, 111*(3), 436-445.
- Xie, H., Swift, D.J., Cairns, B.D., & Cairns, R.B. (2002). Aggressive behaviour in social interaction: A narrative analysis of interpersonal conflicts during early adolescence. *Social Development, 11*(2), 205-224.
- Xu, Y., & Zhang, Z. (2008). Distinguishing proactive and reactive aggression in Chinese children. *Journal of Abnormal Child Psychology, 36*(4), 539-552.

Yoon, J.S., & Somers, C.L. (2003). Aggressive content of high school students' TV viewing.  
*Psychological Reports, 93*, 949-953.