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The Role of Gender, Empathy, Sensation Seeking, and Callousness in Physically Aggressive and Non-Aggressive Antisocial Behaviours among Students

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Abstract

The aim of this study was to find out if subtypes of empathy, sensation seeking and callous and unemotional traits predicted physically aggressive and non-aggressive antisocial behaviours in a student sample and also if there were any gender differences. An online survey on Qualtrics was administered to 428 university volunteers aged 18-25 years, with 9 personality measures through university email distribution list. Hierarchical regression analyses were used. Callousness was the only personality variable to contribute unique variance with age providing further unique variance. This study showed an important interplay of callous and unemotional traits, empathy and sensation seeking in differentially predicting gender-based antisocial behaviour subtypes. The current study has elaborated gender-based personality models predicting physically aggressive and the non-aggressive antisocial behaviour subtypes and contributed to the understanding of psychopathy.

Keywords: *sensation seeking, callous and unemotional traits, physically aggressive, non-aggressive, antisocial behaviours.*

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1. Introduction

Antisocial behaviours perpetrated by young individuals - such as hitting others, breaking into a building or a vehicle to steal something - often make the news (e.g. ABC7, WWSB, 2019). Also, the concept of 'successful psychopathy' in the corporate world repeatedly appears (Landay, Harms, & Credé, 2019). Psychopathy is an antisocial type of personality (American Psychiatric Association, 2013) with antisocial behaviours and callous and unemotional traits as its core features (Herpers, Rommelse, Bons, Buitelaar, & Scheepers, 2012). Disinhibition and thrill and adventure seeking are also the factors of psychopathy (sensation seeking subtypes; e.g. Patrick, 2010; Walters, 2015).

Sensation seeking is a pleasure-seeking tendency with disproportionate affect (e.g. Dvorak, Simons, & Wray, 2015). Disinhibition is the impulsive aspect of sensation seeking, a rule-breaking disposition (BSSS-8; Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) interchangeably used with antisocial lifestyle (e.g. Miller, Maples-Keller, & Lynam, 2016). Thrill and adventure seeking is a socio-affective aspect of callous and unemotional traits (e.g. Patrick, 2010) and sensation seeking (Hoyle et al., 2002). Callousness implies disregard for others, unemotional refers to emotional numbness while uncaringness is not caring about others in terms of the Inventory of Callous and Unemotional traits measure (Frick, 2004). Emotional reactivity is the emotional reaction in response to others' emotions such as being upset at others' distress or relishing caring for others. Cognitive empathy is the theory of mind, and understanding of others' thoughts and feelings. Social skills refer to understanding of and dealing with social situations and effectively managing relationships (e.g. Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004).

Little is known about the comparative role of callous and unemotional traits subtypes (i.e. callousness, unemotional, uncaring), empathy subtypes (i.e. cognitive empathy, emotional reactivity and social skills), and sensation seeking subtypes (i.e. disinhibition, thrill and adventure seeking, and experience seeking) in predicting physically aggressive (crimes against living things such as hitting others, and threatening others to snatch something, etc) antisocial behaviours and non-aggressive (crimes against non-living things/others' belongings such as breaking in a car to steal something, theft, damaging others' property, etc) antisocial behaviour subtypes.

Callousness subtype of callous and unemotional traits and disinhibition subtype of

sensation seeking have been linked to the physically aggressive/reactive antisocial behaviours (e.g. Charles, Acheson, Mathias, Michael, & Dougherty, 2012; Dahlen, Martin, Ragan, & Kuhlman, 2004) and the non-aggressive/proactive antisocial behaviours (Charles et al., 2012; Meltzer, Carreno, Caldwell, & Kosson, 2015). Callousness and disinhibition were expected to have a greater reliability in predicting the non-aggressive antisocial behaviours than physically aggressive antisocial behaviours (Guelker, Barry, Barry, & Malkin, 2014; Hoerold & Tranah, 2014) in the current study. Thrill and adventure seeking was not likely to predict any subtype of antisocial behaviour.

Low emotional reactivity as a subtype of empathy is strongly related to antisocial behaviours, specifically the physically aggressive antisocial behaviours, while low social skills are less likely to be related and cognitive empathy is not likely to be related to antisocial behaviours (e.g. Aaltola, 2014; Kokkinos, Antoniadou, & Markos, 2014). Since lack of empathy signifies the presence of callous and unemotional traits (Frick, O'Brien, Wootton, & McBurnett, 1994), and empathy does not include extreme callousness (APA, 2013), empathy subtypes were not expected to predict antisocial behaviours in the presence of callous and unemotional traits in current study (Ciucci & Baroncelli, 2014; Vachon, Lynam, & Johnson, 2014).

Gender has also been much investigated in regard to antisocial behaviour, though results have not been wholly consistent. Male students are more likely to exhibit antisocial behaviours, particularly the physically aggressive antisocial behaviours (e.g. Ibabe & Bentler, 2015) higher levels of callousness (Centifanti, Qualter, & Padgett, 2011), uncaringness (Berkout, Young, & Gross, 2011; Essau, Sasagawa, & Frick, 2006), and unemotionality (Centifanti et al., 2011) than the female students (Fanti, Frick, & Georgiou, 2009; Mann, Paul, Tackett, Tucker-Drob, & Harden, 2017). Males are likely to show a higher level of sensation seeking (e.g. Maneiro, Gómez-Fraguela, Cutrín, & Romero, 2017) probably due to greater opportunity to exhibit sensation seeking than females (Cross, Cyrenne, & Brown, 2013). Contrary to McMahon, Wernsman, and Parnes (2006), males were more likely to have lower levels of emotional reactivity/empathy in relation to different antisocial behaviours than females (e.g. Dean et al., 2017; Kokkinos et al., 2014). Female antisocial behaviour was more likely to be related to non-aggressive antisocial behaviours (Nordmarker, Norlander, & Archer, 2000), higher levels of physical subtypes of antisocial behaviours (Stickle, Marini, & Thomas, 2012) and 'uncaring' traits (Centifanti et al., 2011). On the contrary, evidence has also shown no gender differences in psychopathic traits, callous and unemotional traits, and antisocial behaviours (Berkout et al., 2011; Essau et al., 2006; Gabor, Strean, Singh, & Varis, 1986). However, antisocial behaviours also depend on gender-specific norms (e.g. Scarduzio, Carlyle, Harris, & Savage, 2017). Therefore, it was difficult to

predetermine gender differences in these socio-affective traits and subtypes of antisocial behaviours (Bastomski & Smith, 2017).

2. Aims of the Study

The purpose of the current study was to investigate the comparative role of subtypes of empathy, callous and unemotional traits, and sensation seeking in predicting physically aggressive (i.e. aggression towards living beings) and non-aggressive (i.e. aggression towards others' personal property) antisocial behaviours (Smith & McVie, 2003). Students (e.g. Kosson, Kelly, & White, 1997; Lethbridge, Richardson, Reidy, & Taroyan, 2017; Mann, Briley, Tucker-Drob, & Harden, 2015) are likely to emerge as future professionals, and the future of organisations depends on the personality traits and behaviours of professionals. Therefore, the current study was conducted with university students to find the prevalence of successful psychopathic tendencies in terms of empathy, callous and unemotional traits, sensation seeking and antisocial behaviour subtypes in the non-clinical/non-forensic educated population and the role of gender in it (e.g. Haas, Waschbusch, Willoughby, 2015). Empathy as a predictor was likely to be non-significant in the presence of callousness during overall regression analyses (Ciucci & Baroncelli, 2014; Vachon et al., 2014), however empathy in terms of levels of emotional reactivity is likely to emerge in gender based comparative t-test and regression analyses (e.g. Dean et al., 2017; Kokkinos et al., 2014).

Thus, following were the hypotheses.

H1: Callousness and disinhibition would predict both antisocial behaviour subtypes while empathy and thrill and adventure seeking would become non-significant.

H2: The male gender would have higher levels of callous and unemotional traits and sensation seeking traits and lower levels of empathy/emotional reactivity than the female gender. Low emotional reactivity, high disinhibition, and high callousness would predict both antisocial behaviour subtypes for both genders.

3. Method

Participants

The current study consisted of a sample of *n* = 428 student participants aged between 18-25 years because antisocial behaviours are likely to reach the peak in adolescence/youth, a time when socio-affective changes are likely to occur (e.g. Chen & Jaffee, 2015). In the sample of 428 participants 72.0% (*n* = 308) identified as female (mean age = 20.27, *SD*

= 2.03) and 27.6% (*n* = 118) identified themselves as male (mean age = 20.37, *SD* = 2.16). Two of the participants did not report their gender and two did not report their age. The student sample was obtained from a UK University.

Measures

- ✓ **Demographic Variables Questionnaire.** The demographic variables consisted of gender (i.e., male, female), and age.
- ✓ **Brief Sensation Seeking Scale (BSSS-8).** The BSSS-8 consists of 4 subscales each with 2 items. The three factors (each factor with two items) from confirmatory factor structure (Hoyle et al., 2002) i.e. thrill and adventure seeking with an alpha coefficient of .671, disinhibition with an alpha of .619, and experience seeking with an alpha of .507 were used for analyses. Boredom susceptibility (the fourth subscale) had an alpha of .238, and thus was excluded from the analyses. The scale was from 1-5 where 1 stood for 'Strongly Disagree' and 5 stood for 'Strongly Agree'.
- ✓ **The Cambridge Behaviour Scale (EQ).** The abbreviated version of The Cambridge Behaviour Scale (Baron-Cohen & Wheelwright, 2004) known as the Empathy Quotient (EQ) consisting of total 15-items with five items in each of the three subscales based on previous confirmatory factor structure (e.g. Gouveia et al., 2012) was administered. The same three subscales with a slightly different exploratory factor structure were used in inferential analyses to find data driven results. There were four items with an alpha of .782 in the cognitive empathy subscale, three items with an alpha of .673 in the social skills subscale, and four items with an alpha of .579 in the emotional reactivity subscale. Each item was scored from 1-4 where 1 stood for 'Strongly Agree' (least empathetic) and 4 stood for 'Strongly Disagree' (most empathetic) for negatively worded items. For positively worded items, 1 stood for 'Strongly Disagree' (least empathetic) and 4 stood for 'Strongly Agree' (most empathetic).
- ✓ **Inventory of Callous and Unemotional Traits (ICU).** The ICU (Frick, 2004), a youth self report measure consists of 24-items. The three subscales are Callousness with 11-items, Uncaring with eight items and Unemotional with five items based on confirmatory factor structure in various studies (e.g. Essau et al., 2006; Fanti et al., 2009). The score on each item varied from 1-4 where 1 stood for 'Not at All' and 4 stood for 'Definitely True'. Callousness had an alpha of .703 with 10 items, uncaring had an alpha of .752 with 6 items; unemotional had an alpha of .832 and five items.
- ✓ **The Antisocial Behaviour Measure (ABM).** ABM's 17-items were conceptually derived from items in Edinburgh Study of Youth Transitions and Crime survey (Smith & McVie, 2003) and classified as Physically aggressive to imply aggression against

people and as non-aggressive to imply aggression against things/others' property. Both physically aggressive and non-aggressive were then analysed for reliability in the current study. Only 10-items (which were found reliable) were used for analyses, five items each for the antisocial behaviour subtype. The physically aggressive subscale had an alpha of .687 with five items. The non-aggressive subscale had an alpha of .847 with five items. Each item on the Antisocial Behaviour Measure was scored on a scale of 1-5 where 1 stood for 'Never' and 5 stood for 'Very Often'.

Procedure

The Ethics Committee of the University's Psychology department approved the current study. We used a cross-sectional survey research design. An online survey on Qualtrics software with self-report measures was sent to the students through a University email distribution list consisting of an invitation to the study and a link to the survey. To attract participants, a prize draw of £50 was offered. The data were analysed using SPSS IBM 22 and 24.

4. Results

Data Screening

Reliability analyses were conducted on subscales of empathy (exploratory factor structure), sensation seeking and callous and unemotional traits in accordance with the established subscales/subtypes (Essau et al., 2006; Fanti et al., 2009; Gouveia, Milfont, Gouveia, Neto, & Galvão, 2012; Hoyle et al., 2002).

The standardized residuals and the distributions were approximately normal. Therefore, the statistical analyses were based on assumptions of a normal distribution. Antisocial behaviours and callous and unemotional traits were positively skewed because most of the students had reported low levels of antisocial emotions and antisocial behaviours.

The multicollinearity of the predictors was checked before running regression analyses. The Variance inflation factor (VIF), (which is a measure of the amount of multicollinearity in a set of multiple regression variables) has been calculated separately for each of the predictors. All the variance inflation factor of the predictor comes to be less than 2, suggesting negligible level of multicollinearity, which can be ignored.

The first hypothesis was tested using hierarchical regression analysis to determine the predictors of antisocial behaviour subtypes. The second hypothesis was tested using

independent samples *t*-test and hierarchical regression analysis to examine the gender differences in predictor and criterion variables, and to determine if there existed a difference in predictors across gender in predicting the two subtypes of antisocial behaviour. Gender and age were controlled in all hierarchical regression analyses.

Regression Analyses and Independent Samples *t*-test

Table 1. Hierarchical regression showing subtypes of empathy (exploratory factor structure), sensation seeking (confirmatory factor structure) and callous and unemotional traits (confirmatory factor structure) controlling for gender (i.e., Male=1, Female=2), and age in predicting subtypes of antisocial behaviour (n = 428).

Variable	Physically aggressive				Non-Aggressive			
	B	*SE* (B)	β	ΔR^2	B	*SE*(B)	β	ΔR^2
Step 1				.036 ***				.023 *
Gender	-.114	.032	-.170 ***		-.024	.022	-.052	
Age	.011	.007	.077		.014	.005	.142 **	
Step 2				.025 *				.029 *
Gender	-.087	.033	-.129 *		-.003	.023	-.006	
Age	.011	.007	.077		.014	.005	.141 **	
Emotional Reactivity	-.076	.029	-.137 *		-.072	.020	-.187 ***	
Cognitive empathy	-.013	.029	-.024		.010	.020	.028	
Social Skills	-.018	.022	-.042		.004	.016	.013	
Step 3				.028 *				.023 *
Gender	-.067	.034	-.100 *		.001	.024	.002	
Age	.016	.007	.106 *		.017	.005	.164 **	
Emotional Reactivity	-.068	.029	-.122 *		-.066	.020	-.172 **	
Cognitive empathy	-.017	.029	-.031		.009	.020	.023	
Social Skills	-.027	.023	-.061		-.001	.016	-.004	
Experience seeking	-.021	.018	-.063		.002	.012	.007	
Thrill and adventure seeking	.033	.015	.123 *		.002	.010	.011	
Disinhibition	.032	.016	.113 *		.029	.011	.148 *	

Step4			.043 ***			.048 ***
Gender	-.055	.033	-.082	.009	.023	.020
Age	.014	.007	.093 *	.015	.005	.150 **
Emotional Reactivity	-.012	.033	-.021	-.026	.023	-.067
Cognitive empathy	-.023	.028	-.043	.004	.020	.011
Social Skills	-.016	.023	-.038	.006	.016	.019
Experience seeking	-.031	.018	-.094	-.006	.012	-.025
Thrill and adventure seeking	.036	.015	.137 *	.005	.010	.026
Disinhibition	.026	.015	.091	.025	.011	.125 *
Callousness	.232	.053	.259 ***	.168	.037	.271 ***
Uncaring	-.012	.032	-.021	-.007	.022	-.018
Unemotional	-.033	.022	-.078	-.026	.015	-.088

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

Table 1 shows that high callousness followed by high thrill and adventure seeking and increasing age predicted physically aggressive antisocial behaviours while high callousness followed by increasing age and high disinhibition predicted non-aggressive antisocial behaviours in the final model.

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Table 2. Gender differences in subtypes of empathy, sensation seeking, callous and unemotional traits, and antisocial behaviours (*t*-tests).

	Male		Female		t statistics	Difference in means (df)	p-value	Cohen's d	Effect size Interpret-ation	Direction
	M	SD	M	SD						
Emotional reactivity	2.88 (N=117)	0.56	3.20 (N=308)	0.50	5.697	-.323 (423)	.000	0.602	High	Female
Cognitive empathy	2.97 (N=117)	0.61	3.13 (N=308)	0.53	2.663	-.158 (423)	.008	0.28	Low	Female
Social skills	2.89 (N=117)	0.76	2.95 (N=308)	0.67	0.794	-.060 (423)	.427	0.084	Very Low	Female
Disinhibition	3.00 (N=117)	1.07	2.90 (N=308)	1.05	0.872	.102 (423)	.384	0.094	Very Low	Male
Experience seeking	3.68 (N=118)	0.91	3.53 (N=308)	.923	1.51	.153 (424)	.132	0.164	Very Low	Male
Thrill and adventure seeking	3.50 (N=118)	1.10	2.87 (N=308)	1.10	5.29	.632 (424)	.000	0.573	Medium	Male
Callousness	.524 (N=117)	0.36	.358 (N=307)	0.32	4.609	.166 (422)	.000	0.487	Medium	Male
Uncaring	.917 (N=117)	0.51	.830 (N=307)	0.51	1.57	.086 (422)	.171	0.171	Very Low	Male
Unemotional	1.79 (N=117)	0.65	1.55 (N=307)	0.72	3.149	.242 (422)	.001	0.35	Low	Male
Physically aggressive antisocial behaviours	1.26 (N=117)	0.38	1.14 (N=307)	0.26	3.708	.116 (422)	.000	0.368	Medium	Male
Non-aggressive antisocial behaviours	1.06 (N=117)	0.29	1.03 (N=307)	0.17	1.315	.026 (422)	.189	0.126	Very Low	Male
Total antisocial behaviours	1.16 (N=117)	0.29	1.09 (N=307)	0.19	2.902	.071 (422)	.004	0.286	Low	Male

Note.

Cohen's d	
<0.2	Very Low
>=0.2 & <0.4	Low
>=0.4 & <0.6	Medium
>=0.6 & <0.8	High
>=0.8	Very High

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According to Table 2, the female participants had a higher level of empathy subtypes than male participants. The male participants had a higher level of thrill and adventure seeking, callousness, unemotional traits and physically aggressive antisocial behaviours than the female participants.

Regression Analyses by Gender

Table 3. Hierarchical regression showing subtypes of empathy, sensation seeking, and callous and unemotional traits score controlling for age in predicting subtypes of antisocial behaviour with respect to gender (n = 428).

	Male gender							
Variable	Physically aggressive				Non-aggressive			
	B	*SE* (B)	β	ΔR^2	B	*SE* (B)	β	ΔR^2
Step 1				.011				.063 *
Age	.018	.016	.104		.033	.012	.251 *	
Step 2				.147 ***				.110 **
Age	.015	.016	.082		.030	.012	.224 *	
Emotional Reactivity	-.247	.064	-.362 ***		-.172	.047	-.337 ***	
Cognitive empathy	-.033	.063	-.052		.008	.047	.017	
Social Skills	-.004	.047	-.007		-.008	.035	-.020	
Step 3				.014				.034
Age	.017	.016	.096		.029	.012	.219 *	
Emotional Reactivity	-.228	.066	-.335 **		-.171	.048	-.334 **	
Cognitive empathy	-.053	.065	-.084		.005	.048	.011	
Social Skills	-.002	.048	-.003		-.006	.035	-.016	
Experience seeking	-.026	.044	-.062		.038	.032	.120	
Thrill and adventure seeking	.046	.035	.133		-.010	.026	-.039	
Disinhibition	.003	.037	.007		.031	.027	.115	
Step 4				.023				.019
Age	.015	.016	.082		.027	.012	.203 *	
Emotional Reactivity	-.178	.076	-.260 *		-.154	.056	-.303 *	
Cognitive empathy	-.054	.065	-.086		.003	.048	.007	

Social Skills	.002	.053	.003		-.007	.039	-.019
Experience seeking	-.041	.045	-.098		.031	.033	.097
Thrill and adventure seeking	.060	.037	.174		-.005	.027	-.020
Disinhibition	-.005	.037	-.013		.025	.027	.094
Callousness	.195	.122	.183		.132	.090	.166
Uncaring	-.015	.080	-.020		-.059	.059	-.105
Unemotional	-.045	.060	-.076		-.027	.044	-.062

Female gender

Variable	Physically aggressive				Non-aggressive			
	B	*SE* (B)	β	Δ*R2*	B	*SE* (B)	β	Δ*R2*
Step 1				.004			.074	.005
Age	.008	.007	.063		.006	.005		
Step 2				.013			.073	.004
Age	.007	.007	.055		.006	.005	-.057	
Emotional reactivity	.014	.032	.028		-.019	.021	.050	
Cognitive empathy	.007	.031	.014		.016	.020	-.020	
Social skills	-.048	.024	-.126 *		-.005	.016		
Step 3				.049 **			.108	.022
Age	.013	.007	.107		.009	.005	-.044	
Emotional Reactivity	.022	.031	.043		-.015	.021	.055	
Cognitive empathy	.011	.030	.022		.017	.020	-.049	
Social Skills	-.062	.024	-.161 *		-.012	.016	-.050	
Experience seeking	-.016	.018	-.058		-.009	.012	.021	
Thrill and adventure seeking	.022	.015	.094		.003	.010	.160 *	
Disinhibition	.048	.016	.197 **		.026	.011		
Step 4				.062 ***			.089	.086 ***
Age	.012	.007	.092		.007	.005	.127	
Emotional Reactivity	.089	.036	.175 *		.042	.024	.038	

Cognitive empathy	-.001	.030	-.001		.012	.020	-.001	
Social Skills	-.046	.025	-.120		.000	.016	-.083	
Experience seeking	-.024	.017	-.086		-.015	.012	.022	
Thrill and adventure seeking	.021	.015	.090		.003	.010	.123	
Disinhibition	.042	.016	.172	*	.020	.010	.347	***
Callousness	.249	.055	.307	***	.186	.036	.060	
Uncaring	-.004	.032	-.008		.020	.021	-.086	
Unemotional	-.021	.021	-.059		-.020	.014	.074	

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

Table 3 shows that only emotional reactivity negatively predicted both antisocial behaviour subtypes with age as an additional predictor of the non-aggressive antisocial behaviour subtype in the male gender. High callousness, high emotional reactivity, and high disinhibition predicted the physically aggressive antisocial behaviour subtype while callousness predicted the non-aggressive antisocial behaviour subtype in the female gender.

5. Discussion

Both hypotheses H1 and H2 were partially supported.

H1: Callousness did (thus supporting the hypothesis) but disinhibition did not predict (thus rejecting the hypothesis) both antisocial behaviour subtypes while empathy was non-significant (thus supporting the hypothesis) but thrill and adventure seeking was a significant predictor (thus rejecting the hypothesis) of physically aggressive antisocial behaviour (see regression analyses in Table 1).

H2: The male gender had higher levels of callous and unemotional traits and sensation seeking traits and lower levels of empathy/emotional reactivity than the female gender (thus supporting this hypothesis; See table 2 showing independent levels of variables in t-tests).

Low emotional reactivity did (thus supporting the hypothesis), high disinhibition, and high callousness did not predict both antisocial behaviour subtypes (thus rejecting the hypothesis) for the male students. Low emotional reactivity did not (thus rejecting the hypothesis) while disinhibition did (thus supporting the hypothesis) predict both antisocial behaviour subtypes but callousness (thus partially supporting the hypothesis)

predicted only physically aggressive behaviours for the female students (See regression analyses in Table 3).

Different pathways to antisocial behaviours were found with further divisions when gender alone was taken into perspective. Moreover, novel findings appeared when the socio-affective personality traits were teased apart in a gender-wise hierarchy predicting the two antisocial behaviour subtypes.

H1: Hierarchical Regression Analyses of Empathy, Sensation Seeking, and Callous and unemotional traits subtypes in predicting Antisocial behaviour subtypes

Increasing age, callousness, and low emotional reactivity emerged as significant predictors of non-aggressive antisocial behaviours in the final model. Even though callousness as a predictor of antisocial behaviours superseded all other variables, both disinhibition and callousness (Factor 2/dual process model of psychopathy) were related to both antisocial behaviour subtypes, but both were predominantly involved in non-aggressive antisocial behaviours, thus showing the involvement of impulsive uncontrolled form of sensation seeking and disregard and lack of care for others in both antisocial behaviour subtypes, with a greater likelihood in the case of non-aggressive property offenses (e.g. Guelker et al., 2014). High thrill and adventure seeking (Factor 2 partially) predicted the physically aggressive antisocial behaviour subtype. Low emotional reactivity predicted both antisocial behaviour subtypes. The present study demonstrated while callousness is pertinent in predicting both of the antisocial behaviour subtypes (Charles et al., 2012), different aspects of sensation seeking predict different antisocial behaviours. Thrill and adventure seeking predicted the physically aggressive antisocial behaviour subtype, thus indicating that the tendency to take risk predicts physical aggression (e.g. Gill & Stickle, 2015). Disinhibition predicted the non-aggressive antisocial behaviour subtype, thus indicating that the tendency to seek new experiences even if they are illegal (Hoyle et al., 2002) and suggesting that individuals who indulge in the non-aggressive antisocial behaviour subtype have a personality disposition inclined towards seeking optimal arousal in an uncontrollable manner without any concern for morality. Hence, physically aggressive antisocial behaviours could be motivated by risk taking impulsivity while non-aggressive antisocial behaviours could be motivated by pathologically reward seeking impulsivity with addition to disregard for self and others in both antisocial behaviour subtypes. Since empathy became non-significant in the general regression analyses in the presence of callous and unemotional traits subtypes, disregard for others was more important than subtypes of empathy in predicting antisocial behaviour subtypes (Ciucci & Baroncelli, 2014; Vachon et al., 2014).

H2: Gender Based Hierarchical Regression Analyses of Empathy, Sensation Seeking, And Callous and Unemotional Traits Subtypes in Predicting Antisocial Behaviour Subtypes

In the gender-based regression analyses, callousness, unemotionality, thrill and adventure seeking, and the physically aggressive antisocial behaviours depicted the male gender while high emotional reactivity and high cognitive empathy depicted the female gender. Thus, high empathy was a feature of female students in the present study (and in Kokkinos et al., 2014; Lethbridge et al., 2017), while sensation seeking and callous and unemotional traits depicted the male gender (partially supporting Kokkinos et al., 2014; Lethbridge et al., 2017). The model without sensation seeking subtypes with low emotional reactivity predicting the physically aggressive antisocial behaviour subtype was highly significant for the male gender while the final model with callousness predicting the non-aggressive antisocial behaviour subtype was highly significant for the female gender. Increasing age predicted the non-aggressive antisocial behaviour subtype in the male gender.

Emotional reactivity was a negative predictor of antisocial behaviours for the males (partially supporting Drislane et al., 2014), while a number of predictors (i.e. high levels of callousness, disinhibition, emotional reactivity, low social skills) emerged for the females. High levels of callousness, emotional reactivity, and disinhibition predicted the physically aggressive antisocial behaviour subtype while only high levels of callousness predicted the non-aggressive antisocial behaviours subtype in the female gender. Low empathy (subtypes) were involved in both antisocial behaviour subtypes regardless of gender without callous and unemotional traits, while mixed socio-affective psychopathic personality traits characterised the female gender in different antisocial behaviours in the present study.

Conclusion

This study showed an important interplay of callous and unemotional traits, empathy and sensation seeking in predicting antisocial behaviour subtypes in male and female genders. The subtypes of callous and unemotional traits and sensation seeking did not surface as predictors of antisocial behaviour subtypes for the male gender in the present study (thus partly rejecting the second hypothesis). The female profile had subtypes of callous and unemotional traits, sensation seeking and empathy as predictors of antisocial behaviour subtypes (partially supporting the second hypothesis).

Hence, higher levels of sensation seeking and callousness in males might be harmless or these latent psychopathic traits might be manifested in other subtypes of antisocial behaviours (Cross et al., 2013), which are beyond the scope of the current

research. However, even low levels of sensation seeking and callousness in the females predicted physically aggressive and non-aggressive antisocial behaviours. High levels of emotional reactivity unexpectedly predicted the physically aggressive antisocial behaviour subtype in the female gender in the current study (thus rejecting the second hypothesis) along with callousness as a predictor of the physically aggressive antisocial behaviour subtype, thus indicating that emotional reactivity does not prevent engagement in physically aggressive antisocial behaviours for the female gender. A high level of callousness with high emotional reactivity in physical aggression might be indicating that being moved by others' emotions accompanies disregard for others in antisocial behaviours towards living beings.

The involvement of disinhibition in both antisocial behaviour subtypes (supporting the second hypothesis in present study) for the females suggests that antisocial and pathologically rewarding emotions might underlie aggression in the female gender (Colins, Fanti, Salekin, & Andershed, 2017; Ljubin-Golub & Sokić, 2016) to reduce negative affect/high emotional reactivity (negative affect is present in secondary psychopathic traits; Drislane et al., 2014). Contrary to past research (Ciucci & Baroncelli, 2014; Vachon et al., 2014), emotional reactivity was a positive predictor of the physically aggressive subtype in female students with callousness in present study (e.g. Patrick, 2010; Walters, 2015) in terms of distorted affect for female students.

Implications

The current study has elaborated gender-based personality model predicting physically aggressive and the non-aggressive antisocial behaviour subtypes and contributed to the understanding of psychopathic traits.

The current study builds on previous studies (e.g. Bacon, Burak, & Rann, 2014), which have shown the involvement of callous and unemotional traits and sensation seeking in various antisocial behaviours by specifying the subtypes of callous and unemotional traits and sensation seeking in physically aggressive and non-aggressive antisocial behaviours and by categorising the predictors according to gender.

Physically aggressive behaviour such as hitting others and non-aggressive behaviour such as stealing and destruction of property are aggressive criminal tendencies that might develop into strategic and covert antisocial behaviours as an individual moves upwards in his/her career hierarchy (Palmen, Derksen, & Kolthoff, 2020). The current study has interestingly shown that even though male students have high levels of callousness and sensation seeking, these traits are not manifested in physically aggressive and non-aggressive antisocial behaviours. Thus male students might be exhibiting these

traits later on life in a covert way when they gain executive positions in organisations. However, the subtypes of callous and unemotional traits, sensation seeking and empathy predicted antisocial behaviour in female students, which has implications for antisocial behaviour literature in terms of overt expression of female antisociality.

The current findings suggest the need for development of specific interventions for low emotional reactivity in the physically aggressive antisocial behaviour subtype and age specific interventions for callousness, and disinhibition in the non-aggressive antisocial behaviour subtype for male students. Female students might benefit from channelising high levels of callousness, disinhibition, and emotional reactivity to positive activities while male students might benefit from mindfulness and empathy training (e.g. Dean et al., 2017).

The current study focused on an educated sample of students and assessed their antisocial behaviour tendencies, which could be covertly manifested in the form of successful psychopathy in their future roles such as organisational managers, directors, CEOs, bosses, administrators and so forth. Therapists, and counsellors can incorporate strategies to include gender-based differences in their therapies and techniques of counselling. Personality tests for recruitment and selection can include such traits to filter out individuals with tendencies to engage in future physically aggressive and non-aggressive antisocial behaviours.

This is original research conducted in a predominantly white country in well-known university. It was a very challenging research because neither psychopathic traits such as callousness and sensation seeking nor physically aggressive and non-aggressive antisocial behaviours is blatantly observable in students. This study is based on self-reports of a large number of students. These students might become future politicians, doctors, lawyers, and be employed in other positions of influence. Psychopathic traits such as callousness and sensation seeking can have an adverse impact on others in the form of physically aggressive and non-aggressive antisocial behaviours. This study has shown the link between certain psychopathic personality traits and antisocial behaviour subtypes in a non-clinical educated sample, thus forecasting the threat of a speculative relationship between these traits and antisocial behaviours into future professional roles.

The present study also revealed the multidimensional quality of callousness by showing that callousness can appear with different subtypes of sensation seeking to predict different antisocial behaviour subtypes.

Furthermore, callousness emerged as a major predictor of antisocial behaviours in students thus demonstrating that personality traits such as deliberate inconsideration for time, and not caring about getting into trouble are the indicators for aggression (against both people and property) in students.

Limitations

The current research had some drawbacks. Social desirability effect, reliance on one's memory or denial might have occurred on self-report measures. Since an educated university sample was recruited and selected, very low levels of antisocial behaviours were reported. Except for emotional reactivity, thrill and adventure seeking, callousness, and physically aggressive behaviours, the effect size for other variables was low (see Table 2). It must be noted that female participants constituted the majority of the sample. The context and the age at which the participants engaged in a subtype of antisocial behavior was unknown.

Future Research

Given that callousness emerged as a predictor of both antisocial behaviour subtypes with mixed emotionality for females, future research should explore gender-based reasons for antisocial behaviours in a qualitative study. Exploring such reasons might help in preventing future antisocial behaviours/crime and promoting gender specific mental and emotional wellbeing for students.

A longitudinal study of subtypes of callous and unemotional traits, sensation seeking, and empathy in male and female students in relation to physically aggressive and non-aggressive (racist attacks) and other antisocial behaviours such as cyberbullying, verbal aggression, manipulative aggression (backstabbers) would be very helpful in understanding how these psychopathic personality traits manifest in various antisocial behaviours over a period of time and at different ages.

Since callousness and sensation seeking collectively form sadistic emotions (e.g. American Psychiatric Association, 2013; Buckels, Jones, & Paulhus, 2013), future research might also examine the role of everyday sadism in predicting physically aggressive and non-aggressive antisocial behaviours and the role of gender in it. Everyday sadism (Buckels et al., 2013) involves pathologically rewarding emotions for various types of antisocial behaviours. It is a scarcely researched topic, and needs attention for both the wellbeing of the victims and the perpetrators in society.

6. References

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