

ORIGINAL ARTICLE

Gender-based personality traits in physically aggressive and non-aggressive antisocial behaviours

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BACKGROUND

The current study aimed to understand the role of callousness, affective dissonance, and two subtypes of sensation seeking personality traits – 1) disinhibition and 2) thrill and adventure seeking – in physically aggressive and non-aggressive antisocial behaviours (ASB) among educated youth and to explore the gender differences in them.

PARTICIPANTS AND PROCEDURE

An online survey was sent to a large sample of students at a UK university. Initially, a sample of $N = 539$ participants was collected but after screening out the data, $N = 429$ participants were included for analyses based on the sampling criteria.

RESULTS

Callousness, disinhibition, and affective dissonance significantly predicted both antisocial behaviour subtypes. We

found multidimensional nature of callousness in predicting antisocial behaviours, and an intriguing relationship between thrill and adventure seeking and affective dissonance. Interesting gender differences emerged.

CONCLUSIONS

This study has implications for the understanding of the competitive roles of gender-based psychopathological personality traits in terms of callousness and affective dissonance and sensation seeking tendencies in physically aggressive and non-aggressive antisocial behaviours.

KEY WORDS

sensation seeking; disinhibition; thrill and adventure seeking; callousness; affective dissonance; antisocial behaviours

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BACKGROUND

Antisocial behaviours (ASBs) have been mostly classified into physically aggressive and non-aggressive subtypes (e.g. Burt, 2012; Burton, 1999). Physically aggressive behaviours refer to aggression such as hitting and kicking living beings, while non-aggressive behaviours refer to actual or threatened aggression such as breaking into a van to steal something, and burning other people's property (Smith & McVie, 2003). Sensation seeking is a pleasure-seeking personality disposition, which in the form of thrill could promote terrorism (Borum, 2014). Such pathological sensation seeking has been related to thrill and adventure seeking (a tendency to take risks to seek thrill) and disinhibition (a tendency to break the rules; Hoyle et al., 2002). Disinhibition and thrill and adventure seeking subtypes of sensation seeking (Egan et al., 2001) and callousness (callous disregard for others; Frick, 2004) are components of psychopathy (e.g. Patrick, 2010). Psychopathy is broadly defined (Paulhus, 2014) in terms of antisocial behaviours and callous and unemotional traits. Callous and unemotional (CU) traits represent cruelty, lack of empathy, and lack of caringness.

CU traits and sensation seeking have been merged in the recently investigated concept of everyday sadism, a feeling of joy in harming others, a subtype of affective dissonance. Affective dissonance is an antisocial emotion, which is opposite to that of others' emotions (Buckels, 2012; Davies & O'Meara, 2007) and consists of dark traits such as sadism, *schadenfreude*, and envy (Cikara, 2015; LeBlanc, 2014; Porter et al., 2014; Uniacke, 2000). Affective dissonance in terms of sadism, *schadenfreude*, and envy is related to callousness, disinhibition, thrill and adventure seeking, and the antisocial behaviour subtypes (e.g. Buckels, 2012; Cikara, 2015; Egan et al., 2001; Hoyle et al., 2002; Santamaría-García et al., 2017).

Affective dissonance in terms of antagonistic/opposing emotions has been linked to both physically aggressive and non-aggressive antisocial behaviours (e.g. Buckels, 2012; Burt et al., 2015; Cikara, 2015; Porter et al., 2014). Callousness (Guelker et al., 2014; Kunitatsu et al., 2012; Peng et al., 2015) and disinhibition (e.g. Charles et al., 2012) have predicted both antisocial behaviour subtypes in past research. Thrill and adventure seeking could be a positive emotion utilised in sports (e.g. Diehm & Armatas, 2004; Lauriola et al., 2014) or be related to physically aggressive antisocial behaviours (Crapanzano et al., 2010). Affective dissonance was expected to be a better predictor of the two antisocial behaviour subtypes as compared to callousness, disinhibition, and thrill and adventure seeking because affective dissonance consists of sadism and *schadenfreude* (which include callousness and sensation seeking emotions) in addition to envy (Abbott, 2006; Egan et al., 2001; James et al., 2014; Langman, 2015).

Terms such as 'callousness and sadism', and 'callousness and *schadenfreude*' have been used in the literature (James et al., 2014; Kehinde, 2010). However, there was no evidence about the direct relationship of 'affective dissonance' (denoting *schadenfreude*, sadism and envy) with thrill and adventure seeking and disinhibition subtypes of sensation seeking, callousness, physically aggressive and non-aggressive antisocial behaviours.

The study of dark traits such as sadism, *schadenfreude*, and envy in the form of affective dissonance becomes even more imperative among people with apparently positive personality traits (Paulhus, 2014) in predicting physically aggressive and non-aggressive antisocial behaviour subtypes. The non-aggressive antisocial behaviours are likely to increase with age (e.g. Ojanen & Kiefer, 2013; Tremblay, 2013; Vitaro et al., 2006). Moreover, there is no gender-based explanation about the roles of affective dissonance, callousness, disinhibition, and thrill and adventure seeking in physically aggressive and non-aggressive antisocial behaviours.

No gender differences in the levels of disinhibition were expected (Gatner et al., 2016) while the evidence of gender differences in affective dissonance is mixed (e.g. Buckels, 2012; Conejero et al., 2014; Piskorz & Piskorz, 2009; Smoker & March, 2017). Male students were expected to have higher levels of callousness and thrill and adventure seeking (in line with e.g. Essau et al., 2006; Fanti et al., 2009; Fragkaki et al., 2016; Kokkinos et al., 2014) and antisocial behaviours than the female students (e.g. Maughan, 2005; Tremblay, 2013) and non-aggressive antisocial behaviours are likely to increase with age (e.g. Maughan, 2005).

Males are more likely to have affective dissonance in relation to antisocial behaviours (Chabrol et al., 2009; Conejero et al., 2014), particularly the physically aggressive antisocial behaviour subtype. Callousness (in line with Kokkinos et al., 2014; Lethbridge et al., 2017) and disinhibition are likely to predict both antisocial behaviour subtypes in the female gender.

AIMS OF THE STUDY

We aimed to understand:

The relationship between callousness, thrill and adventure seeking, disinhibition and affective dissonance in terms of sadism, *schadenfreude*, and envy, and antisocial behaviour subtypes (physically aggressive and non-aggressive).

The competitive effect of callousness, thrill and adventure seeking, disinhibition and affective dissonance in predicting physically aggressive and non-aggressive antisocial behaviours and whether non-aggressive antisocial behaviours increased with age.

Gender differences in callousness, thrill and adventure seeking, disinhibition, affective dissonance, and antisocial behaviours and the role of age in antisocial behaviours.

Exploring such pathways was expected to reveal both general and gender-based roles of callousness, disinhibition, thrill and adventure seeking, and affective dissonance in relation to each other, and in relation to physically aggressive and non-aggressive antisocial behaviours in university students.

The hypotheses for the present study were:

H1: The callousness subscale of the Inventory of Callous and Unemotional traits (ICU), and disinhibition and thrill and adventure-seeking subscales of the Brief Sensation Seeking Scale (BSSS-8) will be positively correlated with the affective dissonance subscale of Affective and Cognitive Measure of Empathy (ACME) and with Antisocial Behaviour Measure (two antisocial behaviour subtypes).

H2: i) Affective dissonance will be a stronger predictor of the two antisocial behaviour subtypes as compared to callousness, disinhibition, and thrill and adventure seeking. ii) Affective dissonance, callousness, and disinhibition will predict both antisocial behaviour subtypes while thrill and adventure seeking will only predict the physically aggressive antisocial behaviours. iii) Non-aggressive antisocial behaviours will increase with age.

H3: i) There will be no gender differences in disinhibition and affective dissonance. Male students will have higher levels of callousness, thrill and adventure seeking, and antisocial behaviours than female students. ii) Non-aggressive antisocial behaviours in male students will increase with age. iii) Callousness and disinhibition will predict antisocial behaviours in female students while affective dissonance will predict antisocial behaviours in male students.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

A sample of $N = 429$ student volunteers (100% response rate) from one university in the UK, across the same university and different schools, 71% ($n = 303$) female and 29% ($n = 125$) male participated over a period of 2 months. The sample was recruited through an invitation email to participate in the study. The research invitation email was sent to the general and departmental university student email list with a link to the survey. The sample size was determined on the basis of age range and the response rate. Initially, a sample of $N = 539$ participants was collected but after screening out the data, $N = 429$ participants were included for analyses based on the sampling criteria. According to the selection criteria, participants with reported age of 18 to 25 years and those who had responded to most of the items in the questionnaires were included in the final sample. The mean age of female participants was $M = 20.72$, $SD = 1.81$, and the mean age of male participants was $M = 20.72$,

$SD = 2.15$. One of the participants did not report their gender.

MEASURES

The subscales of sensation seeking, callousness, affective dissonance and the antisocial behaviour subtypes based on established subscales/subtypes (Frick, 2004; Hoyle et al., 2002; Smith & McVie, 2003; Vachon & Lynam, 2015) were checked for reliability.

Demographic variables questionnaire. The demographic variables consisted of gender and age.

Brief Sensation Seeking Scale (BSSS-8). This scale varied from 1 (*strongly disagree*) to 5 (*strongly agree*). Out of the 4 subscales in the BSSS-8 (each subscale with 2 items; Hoyle et al., 2002), only 2 subscales, namely disinhibition and thrill and adventure seeking, based on confirmatory factor structure were included in the survey. The reliability analysis indicated a Cronbach's coefficient α of .63 for two items of thrill and adventure seeking, and .75 for two items of disinhibition, $r(429) = .45$, $p < .001$.

Inventory of Callous and Unemotional Traits (ICU). The ICU (Frick, 2004), a 24-item youth self-report measure varying from 1 (*not at all*) to 4 (*definitely true*), consists of three subscales. The current study included only the callousness subscale with 11 items based on confirmatory factor structure. The reliability analysis indicated a Cronbach's coefficient α of .72 for 9 items of callousness after item deletion.

Affective and Cognitive Measure of Empathy (ACME). ACME (Vachon & Lynam, 2015), a 36-item self-report measure varying from 1 (*strongly disagree*) to 5 (*strongly agree*), consists of three subscales, each subscale with 12 items. The affective dissonance subscale representing sadism, schadenfreude, and envy was used. Affective dissonance had a Cronbach's coefficient α of .86 for 12 items.

The Antisocial Behaviour Measure (ABM). The ABM consists of 17 items conceptually derived and analysed for reliability based on items in the Edinburgh Study of Youth Transitions and Crime survey (Smith & McVie, 2003). The physically aggressive antisocial behaviour subscale had a Cronbach's coefficient α of .86 for seven items representing actual or threatened aggression involving living things. The non-aggressive antisocial behaviour subscale had a Cronbach's coefficient α of .84 for the 10 items of non-aggressive antisocial behaviour representing actual or threatened aggression involving non-living things such as others' personal possessions or public property.

PROCEDURE

The ethics committee of the Psychology Department of the University of Sheffield, UK approved this re-

search project. We sent an online survey on Qualtrics software with self-report measures to students through a university email distribution list consisting of an invitation to the study with a link to the survey. We also offered a prize draw of £50 to attract participants. We have reported all manipulations, measures, and exclusions in this study.

DATA SCREENING AND ANALYTICAL PLAN

The distributions were approximately normal, except for gender, levels of antisocial behaviours, callousness, and affective dissonance. Antisocial behaviours, callousness, and affective dissonance were skewed because most of the participants had reported low levels of antisocial behaviours, callousness, and affective dissonance (reverse scored to indicate levels of empathy). Therefore, the statistical analyses were based on assumptions of a normal distribution.

The first hypothesis was tested using Pearson's correlations. The second set of hypotheses was tested using hierarchical regression analysis. The third set of hypotheses was tested using the independent samples *t*-test to examine gender differences in the levels of predictor and criterion variables and using hierarchical regression analysis to examine gender differences in predictors of the two ASB subtypes. The current study controlled for gender and age in all hierarchical regression analyses.

RESULTS

CORRELATIONAL ANALYSES

The results in Table 1 show a significant positive relationship between all the variables.

Table 1

Pearson's correlations between subtypes of sensation seeking, callousness, affective dissonance, physically aggressive and non-aggressive antisocial behaviours (N = 429)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------------|---|-------|-------|--------|--------|--------|
| 1. Disinhibition | – | .45** | .19** | –.25** | .14** | .31** |
| 2. Thrill and adventure seeking | | – | .17** | –.15** | .13** | .19** |
| 3. Callousness | | | – | –.56** | .55** | .58** |
| 4. Affective dissonance | | | | – | –.45** | –.48** |
| 5. Physically aggressive ASB | | | | | – | .75** |
| 6. Non-aggressive ASB | | | | | | – |

Note. Correlation was significant at the .01 level (2-tailed). **Correlation was significant at the .05 level (2-tailed). Affective dissonance was reverse coded, i.e. an increase in score indicated a greater level of empathy, whereas a decrease in score indicated a lower level of empathy and a greater level of anti-empathetic emotions. ASB – antisocial behaviours.

HIERARCHICAL REGRESSION ANALYSES

Table 2 shows that callousness and affective dissonance were found to be predictors of both antisocial behaviour subtypes while disinhibition and age were found to be predictors of the non-aggressive antisocial behaviour subtype.

INDEPENDENT SAMPLES T-TEST

Table 3 shows significant gender differences in disinhibition, thrill and adventure seeking, callousness, affective dissonance, and the antisocial behaviour subtypes.

HIERARCHICAL REGRESSION ANALYSES BY GENDER

Table 4 shows that in male gender, callousness positively predicted both antisocial behaviour subtypes with disinhibition as an additional predictor of the non-aggressive antisocial behaviour subtype. In female gender, callousness and affective dissonance positively predicted both antisocial behaviour subtypes with disinhibition as an additional predictor of the non-aggressive antisocial behaviour subtype.

DISCUSSION

The current study represents a host of female gendered dark emotions of callousness and affective dissonance (harm-joy and joy-harm) underlying antisocial behaviours, thus adding to the literature on female antisociality. Nevertheless, the levels of callousness and affective dissonance were greater for male students than the female students, with a high effect size.

Table 2

Hierarchical regression showing disinhibition, thrill and adventure seeking, callousness, and affective dissonance controlling for gender (male = 2, female = 1) and age in predicting subtypes of antisocial behaviours (N = 429)

| Variable | Physically aggressive | | | | Non-aggressive | | | |
|------------------------------|-----------------------|--------|---------|--------------|----------------|--------|---------|--------------|
| | B | SE (B) | β | ΔR^2 | B | SE (B) | β | ΔR^2 |
| Step 1 | | | | .03** | | | | .06*** |
| Gender | .12 | .04 | .16** | | .17 | .03 | .24*** | |
| Age | .00 | .01 | .02 | | .01 | .01 | .08 | |
| Step 2 | | | | .02* | | | | .08*** |
| Gender | .10 | .04 | .13* | | .12 | .03 | .18*** | |
| Age | .01 | .01 | .04 | | .02 | .01 | .11* | |
| Disinhibition | .03 | .02 | .10 | | .07 | .01 | .27*** | |
| Thrill and adventure seeking | .02 | .02 | .06 | | .01 | .02 | .04 | |
| Step 3 | | | | .26*** | | | | .24*** |
| Gender | -.01 | .03 | -.02 | | .03 | .03 | .04 | |
| Age | .00 | .01 | .02 | | .02 | .01 | .10* | |
| Disinhibition | .01 | .01 | .04 | | .06 | .01 | .21*** | |
| Thrill and adventure seeking | .01 | .01 | .02 | | .00 | .01 | .00 | |
| Callousness | .56 | .04 | .55*** | | .49 | .04 | .52*** | |
| Step 4 | | | | .03*** | | | | .02*** |
| Gender | -.04 | .03 | -.05 | | .01 | .03 | .01 | |
| Age | .00 | .01 | .01 | | .01 | .01 | .09* | |
| Disinhibition | .00 | .01 | .01 | | .05 | .01 | .19*** | |
| Thrill and adventure seeking | .01 | .01 | .03 | | .00 | .01 | .01 | |
| Callousness | .45 | .05 | .44*** | | .41 | .04 | .43*** | |
| Affective dissonance | -.13 | .03 | -.21*** | | -.10 | .01 | -.18*** | |

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Affective dissonance was reverse coded, i.e. an increase in score indicated a greater level of empathy, whereas a decrease in score indicated a lower level of empathy and a greater level of anti-empathetic emotions.

The current study demonstrated that affective dissonance, though not as strong a predictor as callousness (weaker predictor, contradicting Abbott, 2006; Egan et al., 2001; James et al., 2014; Langman, 2015), predicts both physically aggressive (aggression targeted at living things) and non-aggressive (aggression targeted at others' belongings) antisocial behaviours (e.g. Buckels, 2012; Burt et al., 2015; Cikara, 2015; Porter et al., 2014).

Disregard for others in terms of callousness along with active/passive enjoyment of others' pain, or the experience of pain at others' enjoyment in terms of affective dissonance, is likely to be involved in antisocial behaviours against people (physically aggressive) but more likely to be involved in antisocial behaviours against others' belongings (non-aggressive).

This greater tendency of callousness and affective dissonance towards non-aggressive behaviours appears to be a characteristic of a non-institutionalised and an educated sample.

The present study has added to the literature by showing that despite the strong links between affective dissonance and callousness, disinhibition, thrill and adventure seeking (e.g. Buckels, 2012; Cikara, 2015; Egan et al., 2001; Hoyle et al., 2002; Santamaría-García et al., 2017), a unique combination of these traits predicted different antisocial behaviour subtypes.

The relationship between disinhibition and non-aggressive antisocial behaviours demonstrated the role of impulsive sensation seeking in property offenses.

Table 3

Gender differences in disinhibition, thrill and adventure seeking, callousness, affective dissonance, and antisocial behaviours (t-tests)

| Variable | Male <i>n</i> = 125 | | Female <i>n</i> = 303 | | <i>t</i> | Mean difference (M-F) [CI] | <i>df</i> | <i>p</i> | Cohen's <i>d</i> | Effect size interpretation |
|---|------------------------|-----------|--------------------------|-----------|----------|----------------------------------|-----------|----------|---------------------|-------------------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | | | | | |
| Disinhibition | 3.30 | 1.09 | 2.80 | 1.11 | 4.26 | 0.50 [0.27, 0.73] | 426 | < .001 | 0.45 | Medium |
| Thrill and adventure seeking | 3.38 | 1.09 | 2.90 | 1.05 | 4.31 | 0.49 [0.27, 0.71] | 426 | < .001 | 0.45 | Medium |
| Callousness | 1.54 | 0.40 | 1.31 | 0.28 | 6.59 | 0.22 [0.16, 0.29] | 426 | < .001 | 0.67 | High |
| Affective dissonance | 3.90 | 0.61 | 4.31 | 0.52 | -6.90 | -0.40 [-0.52, -0.29] | 426 | < .001 | -0.72 | High |
| Physically aggressive antisocial behaviour | 1.25 | 0.36 | 1.13 | 0.33 | 3.35 | 0.12 [0.05, 0.19] | 426 | .001 | 0.35 | Low |
| Non-aggressive antisocial behaviour | 1.30 | 0.41 | 1.13 | 0.25 | 5.11 | 0.17 [0.10, 0.23] | 426 | < .001 | 0.50 | Medium |
| Total antisocial behaviours | 1.28 | 0.36 | 1.13 | 0.27 | 4.65 | 0.15 [0.09, 0.21] | 426 | < .001 | 0.47 | Medium |

Note. Affective dissonance was reverse coded, i.e. an increase in score indicated a greater level of empathy, whereas a decrease in score indicated a lower level of empathy and a greater level of anti-empathetic emotions. Cohen's *d* interpretation: < 0.2 – very low; ≥ 0.2 & < 0.4 – low; ≥ 0.4 & < 0.6 – medium; ≥ 0.6 & < 0.8 – high; ≥ 0.8 – very high.

H1 was fully supported (e.g. Buckels, 2012; Cikara, 2015; Egan et al., 2001; Hoyle et al., 2002; Santamaría-García et al., 2017). The callousness subscale of ICU, and disinhibition and thrill and adventure-seeking subscales of BSSS-8 were positively correlated with the affective dissonance subscale of ACME and ABM.

H2 was partially supported. i) Affective dissonance contrary to the hypothesis was a weaker predictor of both antisocial behaviour subtypes as compared to callousness, and slightly weaker predictor than disinhibition in predicting the non-aggressive antisocial behaviour subtype; but, supporting the hypothesis, affective dissonance emerged as a predictor of physically aggressive subtype whereby disinhibition and thrill and adventure seeking both were absent and affective dissonance emerged as a predictor of non-aggressive subtype whereby thrill and adventure seeking was absent; ii) supporting the hypothesis, affective dissonance and callousness predicted both antisocial behaviour subtypes while contradicting the hypothesis, disinhibition did not predict physically aggressive antisocial behaviours and thrill and adventure seeking did not predict any subtype of antisocial behaviour; iii) supporting the hypothesis,

non-aggressive antisocial behaviours increased with age (e.g. Maughan, 2005; Ojanen & Kiefer, 2013; Tremblay, 2013; Vitaro et al., 2006).

H3 was partially supported. i) Contrary to the hypothesis, there were gender differences in disinhibition and affective dissonance; supporting the hypothesis, male students had higher levels of callousness, thrill and adventure seeking, and antisocial behaviours than female students; ii) contrary to the hypothesis, non-aggressive antisocial behaviours did not increase with age in male students; iii) supporting the hypothesis, callousness predicted and, contradicting the hypothesis, disinhibition did not predict physically aggressive antisocial behaviour in female students while, contradicting the hypothesis, affective dissonance predicted antisocial behaviours only in female students.

Even though the male students had higher levels of callousness, thrill and adventure seeking (e.g. Fagan et al., 2017; Fanti et al., 2009; Kokkinos et al., 2014), disinhibition (Gatner et al., 2016), affective dissonance (e.g. Buckels, 2012; Conejero et al., 2014; Smoker & March, 2017), and antisocial behaviours (e.g. Maughan, 2005; Tremblay, 2013; Vitaro et al.,

Table 4

Hierarchical regression showing disinhibition, thrill and adventure seeking, callousness, and affective dissonance score controlling for age in predicting subtypes of antisocial behaviours with respect to gender (N = 429)

| Variable | Physically aggressive | | | | Non-aggressive | | | |
|------------------------------|-----------------------|--------|---------|--------------|----------------|--------|---------|--------------|
| | B | SE (B) | β | ΔR^2 | B | SE (B) | β | ΔR^2 |
| Male gender | | | | | | | | |
| Step 1 | | | | .00 | | | | .02 |
| Age | .01 | .02 | .07 | | .03 | .02 | .14 | |
| Step 2 | | | | .01 | | | | .06* |
| Age | .01 | .02 | .07 | | .03 | .02 | .14 | |
| Disinhibition | .00 | .03 | .00 | | .10 | .04 | .24* | |
| Thrill and adventure seeking | .04 | .03 | .11 | | .01 | .04 | .02 | |
| Step 3 | | | | .27*** | | | | .28*** |
| Age | .01 | .01 | .07 | | .03 | .01 | .14 | |
| Disinhibition | -.004 | .03 | -.01 | | .09 | .03 | .23* | |
| Thrill and adventure seeking | .03 | .03 | .10 | | -.002 | .03 | -.01 | |
| Callousness | .47 | .07 | .52*** | | .55 | .07 | .53*** | |
| Step 4 | | | | .01 | | | | .01 |
| Age | .01 | .01 | .06 | | .03 | .01 | .14 | |
| Disinhibition | -.01 | .03 | -.04 | | .08 | .03 | .20* | |
| Thrill and adventure seeking | .03 | .03 | .10 | | .00 | .03 | .00 | |
| Callousness | .42 | .09 | .46*** | | .49 | .09 | .48*** | |
| Affective dissonance | -.05 | .06 | -.09 | | -.07 | .06 | -.10 | |
| Female gender | | | | | | | | |
| Step 1 | | | | .00 | | | | .00 |
| Age | -.001 | .01 | -.01 | | .01 | .01 | .04 | |
| Step 2 | | | | .02* | | | | .10*** |
| Age | .00 | .01 | .02 | | .01 | .01 | .09 | |
| Disinhibition | .04 | .02 | .14* | | .07 | .01 | .29*** | |
| Thrill and adventure seeking | .01 | .02 | .03 | | .01 | .02 | .06 | |
| Step 3 | | | | .28*** | | | | .24*** |
| Age | -.004 | .01 | -.02 | | .01 | .01 | .05 | |
| Disinhibition | .02 | .02 | .05 | | .05 | .01 | .21*** | |
| Thrill and adventure seeking | -.01 | .02 | -.02 | | .00 | .01 | .01 | |
| Callousness | .64 | .06 | .55*** | | .45 | .04 | .50*** | |
| Step 4 | | | | .05*** | | | | .04*** |
| Age | -.003 | .01 | -.02 | | .01 | .01 | .05 | |
| Disinhibition | .01 | .02 | .03 | | .04 | .01 | .19*** | |
| Thrill and adventure seeking | -.01 | .02 | -.02 | | .00 | .01 | .01 | |
| Callousness | .50 | .06 | .43*** | | .36 | .05 | .40*** | |
| Affective dissonance | -.16 | .03 | -.26*** | | -.11 | .02 | -.22*** | |

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Affective dissonance was reverse coded, i.e. an increase in score indicated a greater level of empathy, whereas a decrease in score indicated a lower level of empathy and a greater level of anti-empathetic emotions.

2006) than female students, there were no gender differences in callousness, disinhibition, and thrill and adventure seeking except for affective dissonance (corresponding to Piskorz & Piskorz, 2009; contradicting Chabrol et al., 2009; Conejero et al., 2014; Smoker & March, 2017) in differentially predicting the antisocial behaviour subtypes.

Since affective dissonance, and thrill and adventure seeking did not predict antisocial behaviours in male students in this study, these traits might be harmless in male students or expressed in other behaviour problems beyond the scope of this study. Contrary to Crapanzano et al. (2010), thrill did not predict any antisocial behaviour subtype, suggesting that thrill is generally a positive emotion used in health activities (e.g. Diehm & Armatas, 2004; Lauriola et al., 2014).

Adding to the literature (e.g. Buckels, 2012; Burt et al., 2015; Cikara, 2015; Porter et al., 2014), affective dissonance predicted antisocial behaviours only for the female gender in a university sample.

The current findings that callousness and affective dissonance predicted both antisocial behaviour subtypes (Freckelton, 2013; James et al., 2014; Langman, 2015), and that callousness was correlated with affective dissonance suggest that callousness is a correlate of sadism, schadenfreude and envy in terms of affectively dissonant emotions, and both callousness and affective dissonance are personality traits underlying antisocial behaviours. Moreover, affective dissonance emerged as a correlate of disinhibition and thrill and adventure seeking sensation-seeking subtypes, which reflects the nature of affective dissonance personality trait in terms of impulsivity (disinhibition) and excitement (thrill).

The current findings have shown the hierarchy and the strength of predictors in terms of personality traits that predict physically aggressive and non-aggressive antisocial behaviours and have further teased apart the personality traits predicting the antisocial behaviour subtypes with respect to gender and age.

CONCLUSIONS

Callousness and disinhibition significantly predicted both antisocial behaviour subtypes. Callousness emerged as a major predictor of both subtypes of antisocial behaviours in students irrespective of gender, thus demonstrating that callous disregard for others predicts antisocial behaviours in both genders but affective dissonance (joy-harm and harm-joy emotions), though a weak predictor of antisocial behaviours, emerged only for the female gender.

Callousness was most likely to be related to affective dissonance while thrill and adventure seeking was comparatively least likely to be related to affective dissonance.

Pathological personality traits such as callousness and affective dissonance are involved in both physically aggressive and non-aggressive antisocial behaviours, particularly for female students in case of affective dissonance, while sensation seeking traits such as thrill and adventure seeking and particularly disinhibition are likely to be related to the non-aggressive antisocial behaviour subtype regardless of gender. Increasing age irrespective of gender was an additional predictor of non-aggressive antisocial behaviours.

IMPLICATIONS

Callousness as a correlate of affective dissonance (James et al., 2014) might not be overtly expressed (Blackburn, 2007). Instead, callousness might be manifested as affective dissonance, e.g. in micro-aggressions such as negative gossip about others (Peng et al., 2015). The involvement of affective dissonance in antisocial behaviour subtypes suggests the presence of some sort of maladaptive emotional coping strategy among youth (Chabrol et al., 2009) in terms of the female gender.

Affective dissonance is not merely the joy-harm and harm-joy phenomenon. It extends beyond the mere presence of dissonant emotions and relates to the sensation seeking traits of disinhibition and thrill and adventure seeking and insensitivity to others to the extent of being callous. Thrill and adventure seeking did not emerge as a predictor of antisocial behaviours, but the relationship of thrill and adventure seeking to affective dissonance implied that there is an element of thrill within affective dissonance.

Even though thrill and adventure seeking emerged as a harmless personality trait, thrill and adventure seeking was a correlate of affective dissonance, callousness, disinhibition, and antisocial behaviours. Given that thrill was a correlate of the antisocial personality traits and behaviours and that thrill was involved in terrorism as reported by Borum (2014), thrill and adventure seeking might be a potential risk factor for terrorist activities among female university students. The current research adds to the literature that such traits can exist amongst educated and non-institutionalised individuals.

The nature of callousness has been regarded as problematic in previous studies (such as Salekin et al., 2014). The current study has elaborated gender-based personality models predicting physically aggressive and non-aggressive antisocial behaviour subtypes by showing different predictors, which accompany callousness in male and female students and through the addition of affective dissonance from the ACME.

The present study also revealed the gender-based multidimensional quality of callousness by showing that callousness differentially predicts the two antisocial behaviour subtypes in the male gender (i.e.

callousness alone predicts the physically aggressive subtype and callousness with disinhibition predicts the non-aggressive subtype) and that callousness accompanies affective dissonance in the female gender. The current study has implications for gender-based personality and antisocial behaviour models for both genders in terms of disinhibition.

The results of the current study indicate the need for developing empathy and concern for others in female students versus the need for developing self control in addition to concern for others in male students to prevent both antisocial behaviours through cognitive behavioural interventions (Wallace & Newman, 2004).

Employers could benefit from this research in screening out prospective employees with traits of callousness, disinhibition, and affective dissonance.

LIMITATIONS

Since the results of the study were based on subscales from ICU (Frick, 2004), BSSS-8 (Hoyle et al., 2002), and ACME (Vachon & Lynam, 2015), the current findings might not support the personality model of psychopathy (Patrick, 2010), which is based on other scales such as the TriPM measure. The results of this study in terms of affective dissonance may not be generalised to studies involving separate and established subscales for sadism, schadenfreude, and envy.

The content validity of the two subscales – 1) thrill and adventure seeking and 2) disinhibition of BSSS-8 (Hoyle et al., 2002) – was limited to 2 items in each subscale.

Very low levels of antisocial behaviours were reported because we used an educated university sample. The effect size for physically aggressive behaviours was low (see Table 3). The majority of the sample consisted of female participants. The results of this study might not be generalized to populations other than UK university students aged 18-25 years. The context and the age at which the participants engaged in a certain subtype of antisocial behaviour were not known. Denial or reliance on one's memory and a social desirability effect might have occurred in self-report measures.

FUTURE RESEARCH

In the present study, disinhibition predicted the non-aggressive antisocial behaviour subtype whereas thrill and adventure seeking did not predict any antisocial behaviour subtype. However, callousness was linked to both disinhibition and thrill and adventure seeking. Therefore, the nature and function of callousness became context dependent (Mathieu & Babiak, 2015). Callousness can be manifested in anti-

social behaviours with disinhibition, but callousness might not have been manifested when accompanied by thrill and adventure seeking (Maes & Brazil, 2015). The expression of callousness might vary from subtle callousness (e.g. micro-aggressions) to blatant callousness (e.g. cruel and violent behaviour). Thus, future research should examine the context-dependent nature of callousness (Mathieu & Babiak, 2015) along with the overt expression of callousness (Kiskeri et al., 2015) in other subtypes of antisocial behaviours or behaviour problems. In-depth qualitative research might be used to find out the underlying reasons for callousness in order to prevent callous behaviour in different settings or devise methods to develop emotional sensitivity towards others amongst callous individuals. Participants might be more expressive during in-depth interviews or focus groups as compared to self-reports.

Since callousness was a correlate of affective dissonance, more research is needed on everyday affective dissonance in subtle forms of non-aggressive antisocial behaviour. Future research might focus on separate established subscales of sadism, schadenfreude, envy in relation to callousness, disinhibition, thrill and adventure seeking, antisocial behaviours and the role of gender in it.

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