The forensic implications of camouflaging: a study into victimisation and offending associated with autism and pathological demand avoidance

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Abstract

Purpose – *This study aims to investigate the influence of social camouflaging on victimisation and offending in relation to autism and pathological demand avoidance (PDA) traits. Camouflaging aims to overcome or conceal difficulties in social and communication skills. Autistic individuals report camouflaging in response to threat and being verbally and physically assaulted when they have not camouflaged. Thus, camouflaging could be associated with victimisation. Camouflaging could also impact on specialist support available to an individual, potentially increasing the risk of victimisation or offending.*

Design/methodology/approach – *Cross-sectional study was conducted using 220 participants from the general population who completed online questionnaires measuring victimisation and offending, autism and PDA traits, camouflaging and symptoms of depression and anxiety.*

Findings – *Correlational analysis found positive associations between camouflaging and victimisation, and camouflaging and lifetime offending. Greater camouflaging and PDA traits predicted greater offending, whereas greater autism traits predicted fewer offending behaviours. While correlated, camouflaging was not significantly predictive of victimisation. Victimisation was predicted by symptoms of depression and PDA traits.*

Originality/value – *To the best of the authors' knowledge, this study is the first to consider camouflaging as an influencing factor on offending and victimisation in autistic and PDA individuals.*

Keywords *Autism, PDA, Offending, Victimisation, Camouflaging*

Paper type *Research paper*

Introduction

Autism spectrum disorder, hereafter referred to as autism, is a developmental condition present in over 1% of the UK population (HM Government, 2014), characterised by difficulties in social communication and interactions and restrictive, repetitive patterns of behaviour (World Health Organization, 2018). Autistic people report experiencing higher rates of bullying, child maltreatment, sexual victimisation and crime victimisation than non-autistic individuals (Brown-Lavoie *et al.*, 2014; Humphrey and Symes, 2010; Paul *et al.*, 2018; Trundle *et al.*, 2022; Weiss and Fardella, 2018). Difficulties with social communication in autism can lead to misunderstanding of non-verbal cues or inappropriate responding in reciprocal conversations and difficulties discriminating between good- and ill-intended peers which increases the risk of victimisation (Sreckovic *et al.*, 2014; Sofronoff *et al.*, 2011). This is likely influenced by an interaction between the autistic traits and the environment. For example, it has been argued that difficulties in social understanding between autistic and non-autistic people are because of a mismatch in communication styles between autistic

and non-autistic individuals (Milton, 2012; Crompton, *et al.*, 2020). These differences in verbal and non-verbal communication have been found to lead to autistic individuals being rated more negatively and less likeable even when viewing very brief samples of behaviour (Alkhaldi *et al.*, 2021; Sasson *et al.*, 2017). In addition, repetitive behaviours may also make autistic people stand out from their peers as "different" leading to increased victimisation (Sreckovic *et al.*, 2014). Thus, stigma surrounding autism may contribute to perceived vulnerability by others (Mathews, 2018), which make autistic people seem "easier" to victimise (Pearson *et al.*, 2022).

Pathological demand avoidance (PDA) is a putative developmental syndrome associated with autism, characterised by extreme avoidance of everyday demands, social manipulation in avoidance and superficial sociability (The National Autistic Society, 2020). There is ongoing debate as to whether PDA is exclusively part of the autism spectrum (Green *et al.*, 2018). Although there are similarities between PDA and autism (difficulties with social communication, obsessional behaviour and language delay, Newson *et al.*, 2003), there are also differences (e.g. PDA children can play imaginatively and do not need predictability, O'Nions *et al.*, 2014). Although the relationship between PDA and victimisation has not yet been examined, the experiences of autistic individuals may extend to PDA individuals given the similarities of presentations.

Likewise, frustrations arising from environments that fail to accommodate autistic differences may lead to aggressive, destructive and defiant behaviour (Hartley *et al.*, 2008). In autistic people who have offended, difficulties understanding the intentions and experiences of others and with moral reasoning may have contributed to offending (Lerner *et al.*, 2012). Any emotional regulation difficulties can also manifest in impulsivity, aggression and violence (Gardner and Moore, 2008). Furthermore, autism may be associated with mental health difficulties, which contribute to the risk of offending (Payne *et al.*, 2021). PDA individuals may have similar experiences to autistic people as some have co-occurring mental health conditions and difficulties regulating their emotions (The National Autistic Society, 2020). Extreme demand avoidance can also manifest as "crisis situations" involving physical and verbal aggression (Christie *et al.*, 2012). Egan *et al.* (2019) found PDA traits significantly predicted delinquency, though this was not replicated in a subsequent study (Egan *et al.*, 2020).

Although victimisation and offending can occur separately, there is a relationship between the two experiences (Zaykowski, 2015). For example, both autistic and non-autistic samples show an association between childhood abuse and adult criminal behaviour (Kawakami *et al.*, 2012). Several hypotheses regarding this relationship have been proposed. For instance, violent behaviour may be learned through exposure to violence (Akers and Jennings, 2019). Alternatively, revenge for victimisation may precipitate offending (Allen *et al.*, 2008). The impact of psychological trauma on emotional regulation and problem-solving abilities (Im, 2016) may contribute to offending (Gardner and Moore, 2008). It is useful to examine victimisation and offending separately but simultaneously in autistic and PDA individuals.

The association between autism and PDA and offending/victimisation is not causal and the area is complex: not all autistic or PDA individuals offend, and not all are victimised. However, a greater understanding of factors increasing or decreasing the risk of adverse experiences in autistic and PDA individuals is needed. Social camouflaging may be one factor that could be associated with both offending and victimisation and has been reported to occur in autism (Hull *et al.*, 2017) as well as in PDA individuals (Cat, 2018; PDA Society, 2022). Camouflaging is a complex and multi-faceted concept that includes a range of behaviours including suppression of self-soothing behaviours, portraying characters and following social "rules" to fit in socially (Hull *et al.*, 2017). It has been theorized that camouflaging occurs in part because of stigma and marginalization experienced by autistic individuals as a way to minimize further negative social interactions

(Pearson and Rose, 2021), but has also been noted in non-autistic individuals as part of stigma avoidance (Miller *et al.*, 2021). Thus, camouflaging is likely associated with the experiences of marginalization and victimisation.

In some instances, autistic individuals can be ostracised, and verbally, emotionally and physically assaulted if they do not camouflage (Hull *et al.*, 2017). Thus, camouflaging may reduce threat to autistic and PDA individuals by reducing the risk of victimisation. Furthermore, camouflaging can impact on accurate diagnosis and access to specialist support (Calzada *et al.*, 2012; Gould and Ashton-Smith, 2011). If an individual's specific needs are not known, this may result in inappropriate provisions being applied, increasing the risk of offending and victimisation. Later diagnosis of autism has been associated with an increased prevalence of criminal behaviour (Heeramun *et al.*, 2017). In addition, camouflaging in autism can be extremely effortful and challenging to the individual's identity (Cage and Troxell-Whitman, 2019), which may contribute to the high levels of depression, anxiety and stress found in autistic individuals reporting camouflaging (Cage and Troxell-Whitman, 2019; Hull *et al.*, 2019). Mental health difficulties are associated with victimisation and offending behaviour (Cage and Troxell-Whitman, 2019; Lagdon *et al.*, 2014; Payne *et al.*, 2021). The influence of camouflaging on victimisation and offending has not yet been investigated in autistic and PDA individuals.

Aims

To explore relationships between autism traits, PDA traits, camouflaging, offending and victimisation. It is hypothesised that:

- There will be a relationship between camouflaging behaviours (Camouflaging Autistic Traits Questionnaire, CAT-Q; Hull *et al.*, 2019), and victimisation (adult retrospective version of the Juvenile Victimization Questionnaire, JVQ; Hamby *et al.*, 2005).
- Camouflaging will be associated with offending (Non-Violent and Violent Offending Behaviour Scale, NVOBS; Thornton *et al.*, 2013).
- There will be an association between autism (Ritvo Autism Asperger Diagnostic Scale Revised, RAADS-14; Eriksson *et al.*, 2013) and PDA traits (Extreme Demand Avoidance Questionnaire Adult, EDA-QA; Egan *et al.*, 2019) and camouflaging.
- There will be an association between autism and PDA traits and victimisation and between both autism and PDA traits and offending.

Method

Design

A cross-sectional online quantitative predictor–outcome study: outcome variables (self-reported victimisation and offending behaviour) and predictor variables (self-reported social camouflaging, autism and PDA traits and symptoms of depression and anxiety).

Participants and procedure

Ethical approval was granted by University of Nottingham's Faculty of Medicine and Health Sciences Research Committee (382–1,909). The study was conducted using Bristol Online Survey, open to adults over 18 years old from any country. We sought a sample of participants who displayed variability in their scores for autism and PDA, as is reflective of the general population. Recruitment strategies included advertising on online groups for people with autism and PDA and via online groups associated with research participation (e.g. Facebook and Reddit). There were no material incentives for participating. Individuals reporting "poor" or "very poor" reading and writing abilities were excluded and redirected to

a webpage which informed participants they were not eligible to participate. To achieve a realistic effect size of 0.15 at $p < 0.01$ with a power of 0.95, a sample size of at least 170 participants was required.

Participants were asked to read an online participant information form and provide consent. As some individuals who use camouflaging may not participate in a study of this nature (Hull *et al.*, 2017), the true aims of the study were concealed and the study was described as investigating social processes and risky behaviour. The survey took approximately 20 minutes to complete. If participants did not want to disclose camouflaging during the study, they could withdraw at any point. Participants were provided debriefing information which described the true aims as well as providing relevant resources and links to support groups.

Measures

- *Preliminary questionnaire:* Age, gender and rating of basic reading and writing ability ("very poor", "poor", "average", "good" or "very good"), and self-reported diagnoses of any of the following: autism, PDA, attention deficit hyperactivity disorder, dyslexia, dyspraxia, intellectual/learning disability, oppositional defiant disorder, conduct disorder, depression and anxiety. The question: "was this diagnosed by a doctor?" with yes/no response options, provided more context and integrity to self-reported diagnoses.
- *EDA-QA* (Egan *et al.*, 2019): A 26-item self-report measure of PDA traits in adults with high criterion validity and reliability (Egan *et al.*, 2019). Items are scored on a four-point Likert scale (1 = not true, 4 = very true) providing a single score (higher scores indicating greater presence of PDA traits).
- *RAADS-14* (Eriksson *et al.*, 2013): A 14-item self-report tool for autism traits. Items are scored on multiple-choice single-response scale (3 = true now and when I was young, 2 = true only now, 1 = true only when I was younger than 16, and 0 = never true). The *RAADS-14* has high sensitivity and specificity in general population samples, and good psychometric properties (Eriksson *et al.*, 2013). Higher scores indicate more autistic traits.
- *CAT-Q* (Hull *et al.*, 2019): A 25-item self-report measure of camouflaging behaviour scored on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). It has demonstrated good internal consistency and reliability (Hull *et al.*, 2019). The *CAT-Q* provides a total score for overall camouflaging, with higher scores indicating more camouflaging.
- *The Patient Health Questionnaire-9* (PHQ-9; Kroenke *et al.*, 2001). A nine-item self-report questionnaire measuring current symptoms of depression. Items are rated on a four-point scale (0 = not at all, 3 = nearly every day). It has good internal consistency, test-retest reliability, predictive validity and criterion validity (Kroenke *et al.*, 2010). The PHQ-9 provides a single score indicative of current symptoms of depression which was included in this study as both camouflaging and victimisation have been associated with depression (Cage and Troxell-Whitman, 2019; Lagdon *et al.*, 2014). Thus, symptoms of depression may influence the investigated relationships.
- *Generalised Anxiety Disorder Screener* (GAD-7; Spitzer *et al.*, 2006): A seven-item self-report questionnaire which measures symptoms of anxiety present in the past two weeks scored on a four-point Likert scale (0 = not at all, 3 = nearly every day). It has good reliability, construct validity and criterion validity in clinical samples (Spitzer *et al.*, 2006). A score indicative of current anxiety symptoms which was included in this study as camouflaging and victimisation have been associated with anxiety (Cage and Troxell-Whitman, 2019; Lagdon *et al.*, 2014). Thus, symptoms of anxiety may influence the investigated relationships.

- *JVQ (*Hamby *et al.*, 2005*) – Adult Retrospective Questionnaire* (JVQ-AR; Weiss and Fardella, 2018): A self-report questionnaire assessing the frequency of childhood victimisation. The JVQ has demonstrated good construct validity, test-retest reliability and inter-rater reliability (Hamby *et al.*, 2005). Weiss and Fardella (2018) modified the JVQ to assess experiences of victimisation in adulthood (JVQ-AR). The authors removed items pertaining to childhood and changed the target period to 18 years and up. The JVQ-AR was used in this study to assess adult experiences of victimisation. It is scored dichotomously (1 = experienced, 0 = not experienced). Items are summed to provide a total score indicating the number of self-reported victimisation experiences.
- *NVOBS* (Thornton *et al.*, 2013): A 33-item self-report questionnaire of violent and non-violent offending occurring in the past year. It has demonstrated acceptable reliability and moderate to good internal consistency (Thornton *et al.*, 2013). Items are scored on a seven-point scale (0 = never happened, 6 = more than 20 times). To widen the scope of offending history, a question stating, "have you ever [offending behaviour item]" was included before each item, with a response of "yes" or "no". Participants were directed to the original item measuring offending in the past year only if they selected "yes". This follows Blinkhorn *et al.* (2019), who found the adapted scale had acceptable reliability. Items related to the experience of interpersonal violence against themselves were omitted, as the study focus is participants' own offending. Thus, two sets offending scores were obtained by totalling the responses: in the past year and over a lifetime.

Statistical analysis

SPSS version 24 was used for statistical analysis. In total, 1,798 individuals accessed the online survey, of whom 225 (12.5%) completed the scales. Attrition was largest where study information was provided rather than during actual participation.

Partial correlations were used to remove any age and gender effects to examine the relationships between camouflaging, victimisation, offending, PDA and autism traits, and symptoms of anxiety and depression. Although age and gender may influence these variables, this was not the main research question. Partial correlation analysis examined if correlations exist between the variables, separately from any influence of age and gender. Bonferroni correction was used control for the probability of committing a type one error.

Multiple regression was performed to determine the relative contribution of camouflaging, PDA and autism traits, depression and anxiety to victimisation scores, and the same regression transposing victimisation with offending as the outcome. The data met almost all assumptions. For both regressions, there was evidence of heteroscedasticity. Regression with non-transformed data was therefore computed using the heteroskedastic-consistent standard errors approach (Astivia and Zumbo, 2019). This approach recognises the presence of non-constant variance. In the second regression, there was also evidence of deviation from the normal distribution in the standardized residuals, $D(220) = 0.11$, $p = 0.000$. Based on recommendations by Knief and Forstmeier (2018), the variables were not transformed as regression is generally robust to violations of this assumption. Regression predicting past year offending was not conducted because of several violated assumptions (e.g. non-linear relationships, heteroscedasticity and deviations from the normal distributions in standardized residuals).

Results

Descriptive statistics

In total, 225 participants completed the online survey (four removed because of incomplete responses, one because they did not meet the inclusion criteria; age > 18). The final sample size was 220 (n = 167 women, n = 45 men, n = 5 other, n = 3 gender not reported; mean

age = 32.14 years, SD = 11.28, range = 18–75). The number of participants reporting each self-reported diagnoses is presented in Table 1 (mean = 1, SD = 1.51). Diagnoses co-occurred, with some participants reporting up to six.

Mean scores, ranges and alpha values for the questionnaires are presented in Table 2. Participants scored within the average range for mild anxiety and depression. The percentage of participants reporting at least one experience on the JVQ-AR and NVOBS sub-categories are presented in Table 3.

Correlational analysis

Correlational analysis was conducted to identify any predictors of value for victimisation and offending scores. Partial correlation analysis was conducted to determine the relationship between EDA-QA, RAADS-14, CAT-Q, PHQ-9, GAD-7, JVQ-AR and NVOBS scores whilst controlling for age and gender. Results are presented in Table 4.

NVOBS lifetime scores were significantly positively correlated with CAT-Q, EDA-QA, PHQ-9 and GAD-7 scores. Thus, as scores for lifetime offending increased, so did scores for camouflaging, PDA traits and symptoms of depression and anxiety. The correlation between RAADS-14 total scores and NVOBS lifetime scores was non-significant when age and gender were controlled. However, zero-order correlations found a weak significant positive correlation between NVOBS lifetime scores and RAADS-14 scores ($r = 0.14$, $p < 0.05$), suggesting age and gender influence the relationship between autistic traits and lifetime offending. NVOBS past year scores were not significantly correlated with RAADS-14 scores. The correlation between CAT-Q and NVOBS past year scores was non-significant. NVOBS past year scores were positively significantly correlated with EDA-QA, PHQ-9 and GAD-7 scores. In summary, as scores for offending in the past year increased, so did

Table 1 Number of participants self-reporting diagnoses and whether diagnosis was made by a doctor

Diagnosis	*Self-reported (n)*	*Diagnosed by a doctor (n)*
Autism	35	21
PDA	24	4
Attention deficit hyperactivity disorder	25	15
Learning disability	1	1
Dyslexia	12	9
Dyspraxia	12	4
Depression	57	47
Anxiety	85	61
Oppositional defiant disorder	0	0
Conduct disorder	0	0
None	112	–

Table 2 Mean, standard deviations, range and Cronbach's alpha for the questionnaires

Variable	*Mean (SD)*	*Range*	*Cronbach's α (n)*
EDA-QA	46.30 (13.62)	14–101	0.92 (210)
RAADS-14	15.07 (12.45)	0–42	0.92 (215)
CAT-Q	94.11 (28.49)	34–160	0.93 (212)
PHQ-9	8.58 (6.75)	0–27	0.90 (216)
GAD-7	7.49 (5.64)	0–21	0.91 (219)
JVQ-AR	5.30 (4.91)	0–23	0.87 (213)
NVOBS lifetime	3.7 (4.54)	0–25	0.88 (176)
NVOBS past year	2.64 (4.91)	0–36	0.74 (174)

Table 3 Percentage of participants reporting at least one experience of the JVQ-AR and NVOBS sub-categories

Scale	*Category*	*(%)*
JVQ-AR (past year)	Property crime	48.2
	Physical assault	44.5
	Maltreatment	56.4
	Peer victimisation	36.4
	Sexual victimisation	45.0
	Witness victimisation	59.5
NVOBS past year	General violence	20.5
	Interpersonal violence	30.9
	Drug use	9.1
	Criminal damage	2.7
	Theft	5.9
NVOBS lifetime	General violence	50.9
	Interpersonal violence	55.9
	Drug use	32.3
	Criminal damage	15
	Theft	20.5

Table 4 Partial correlation analysis between total scores for all psychometric measures

Variable	*RAADS-14 total*	*CAT-Q total*	*PHQ-9 total*	*GAD-7 total*	*JVQ-AR total*	*NVOBS past year total*	*NVOBS lifetime total*
EDA-QA total	0.58***	0.61***	0.50***	0.51***	0.32***	0.29***	0.41***
RAADS-14 total	–	0.61***	0.41***	0.47***	0.21**	0.03	0.11
CAT-Q total	–	–	0.44***	0.46***	0.17*	0.07	0.28***
PHQ-9 total	–	–	–	0.75***	0.47***	0.22**	0.19**
GAD-7 total	–	–	–	–	0.40***	0.14*	0.15*
JVQ-AR	–	–	–	–	–	0.31***	0.47***
NVOBS past year total	–	–	–	–	–	–	0.52***

Notes: *$p < 0.05$; **Bonferroni corrected at $p = 0.05$ to $p < 0.007$; ***Bonferroni corrected at $p = 0.001$ to $p < 0.0001$

scores for PDA traits and symptoms of depression and anxiety. Offending behaviour in the past year was not correlated with autistic traits or camouflaging. Neither scores for lifetime offending or past year offending were correlated with autistic traits.

JVQ-AR scores were significantly positively correlated with CAT-Q, RAADS-14, EDA-QA, PHQ-9 and GAD-7 scores. As victimisation scores increased, so did scores for camouflaging, symptoms of depression and anxiety and autism and PDA traits. CAT-Q scores were significantly positively correlated with EDA-QA scores, RAADS-14 scores, PHQ-9 scores and GAD-7 scores. As scores for camouflaging increased, so did scores for autistic and PDA traits and symptoms of depression and anxiety. There was a strong, positive, significant correlation between EDA-QA scores and RAADS-14 scores.

Multiple linear regression

Multiple regression analysis was conducted understand how camouflaging, autistic and PDA traits and symptoms of depression and anxiety contributed to scores for offending and victimisation. The first multiple regression analysis sought to predict JVQ-AR scores from CAT-Q, RAADS-14, EDA-QA, PHQ-9 and GAD-7 scores. CAT-Q, RAADS-14, EDA-QA, PHQ-9 and GAD-7 scores significantly predicted 21% of JVQ-AR score variance $F(5, 214) = 11.04$, $p = 0.001$ $R^2 = 0.21$. EDA-QA ($p = 0.02$) and PHQ-9 ($p = 0.002$) scores were

significant independent predictors within the model: victimisation was significantly predicted by scores for PDA traits and symptoms of depression. Regression coefficients and standard errors can be found in Table 5.

A second multiple regression was conducted to predict NVOBS Lifetime scores from CAT-Q, RAADS-14, EDA-QA, PHQ-9 and GAD-7 scores. CAT-Q, RAADS-14, EDA-QA, PHQ-9 and GAD-7 scores significantly predicted 22% of NVOBS Lifetime score variance $F(5, 214) = 11.71$, $p = 0.000$, $R^2 = 0.22$. EDA-QA ($p = 0.000$), RAADS-14 ($p = 0.008$) and CAT-Q ($p = 0.048$) scores were significant independent predictors within the model: lifetime offending behaviour was predicted by autistic and PDA traits and camouflaging. Regression coefficients and standard errors can be found in Table 6.

Post hoc analysis

Structural equation modelling (SEM) combines factor analysis and multiple regression analysis to describe the structural relations between measured and latent variables (Byrne, 2016). SEM was used to examine direct and indirect relationships between camouflaging, victimisation, offending, autism, PDA and mental health difficulties. A latent "Mental Health Difficulties" variable was created from PHQ-9 and GAD-7 scores to model covariance between these. The data demonstrated non-normal multivariate distribution. Bootstrapping was used to account for this (Sharma and Kim, 2013), using 5,000 bootstrap draws to produce bias-corrected 95% confidence intervals around each estimate (Hayes, 2009). The model used was initially constructed using outcomes of regression and correlational

Table 5 Multiple regression analysis predicting JVQ-AR scores

		95% CI for B					
JVQ-AR scores	B	*LL*	*UL*	SE B	*β*	R^2	ΔR^2
Model						0.21	0.19**
Constant	1.85	−1.04	4.75	1.48			
EDA-QA	0.07*	−0.00	0.15	0.04	0.20		
RAADS-14	0.01	−0.05	0.07	0.03	0.02		
CAT-Q	−0.03	−0.06	0.00	0.01	−0.16		
PHQ-9	0.21**	−0.06	0.35	0.07	0.29		
GAD-7	0.11	−0.05	0.27	0.08	0.12		

Notes: Parameter estimates with robust standard errors. Model = "Enter" method in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE *B* = standard error of the coefficient; *β* = standardised coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2; $^*p < 0.05$, $^{**}p < 0.01$

Table 6 Multiple regression analysis predicting NVOBS lifetime scores

		95% CI for B					
JVQ scores	B	*LL*	*UL*	SE B	B	R^2	ΔR^2
Model						0.22	0.20
Constant	−4.66						
EDA-QA	0.16**	0.09	0.23	0.03	0.48		
RAADS-14	−0.08**	−0.13	−0.03	0.02	−0.22		
CAT-Q	0.03*	0.00	0.05	0.01	0.17		
PHQ-9	0.03	−0.08	0.14	0.06	0.05		
GAD-7	−0.09	−0.22	0.05	0.07	−0.11		

Notes: Parameter estimates with robust standard errors. Model = "Enter" method in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE *B* = standard error of the coefficient; *β* = standardised coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2; $^*p < 0.05$, $^{**}p < 0.01$

analyses. Examination of the model fit directed changes to the model, specifically for the identification of indirect effects. The final model, depicted in Figure 1, appears to be a good fit to the data (CFI = 0.992; RMSEA = 0.050, Bollen–Stine bootstrap $p = 0.17$).

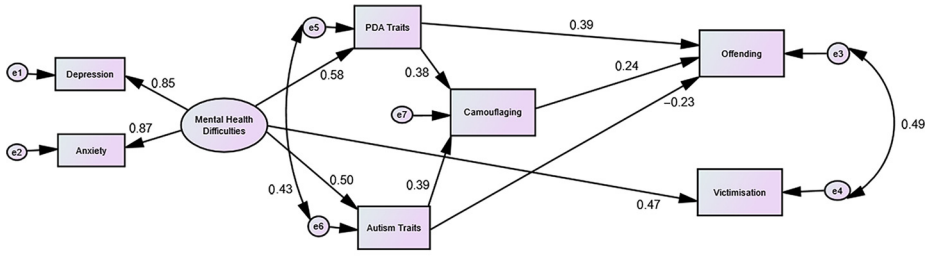
Autism and PDA traits were predicted by greater mental health difficulties ($\beta = 0.50$, CI = 0.37–0.61 and $\beta = 0.58$, CI = 0.45–0.69, respectively). Camouflaging was predicted by greater PDA ($\beta = 0.38$, CI = 0.22–0.51) and autism traits ($\beta = 0.40$, CI = 0.25–0.54). The model showed a direct positive predictive pathway between PDA traits and offending ($\beta = 0.39$, CI = 0.23–0.57). The model also found a direct negative predictive pathway between autism traits and offending ($\beta = -0.23$, CI = −0.34–−0.12). The effects of mental health difficulties on offending were indirect, through PDA and autism traits ($p < 0.001$). Camouflaging predicted offending ($\beta = 0.24$, CI = 0.07–0.38). Camouflaging was indirectly predicted by mental health difficulties through autism ($\beta = 0.40$, CI = 0.25–0.54) and PDA traits ($\beta = 0.38$, CI = 0.22–0.51). Victimisation was predicted by more mental health difficulties ($\beta = 0.47$, CI = 0.36–0.58). Victimisation and offending were positively associated with one another.

Discussion

Camouflaging is a useful concept to help understand why some autistic and PDA people are victimised, some offend and most manage to avoid both outcomes. Based on research that camouflaging occurs in response to threat and stigma (Cage and Troxell-Whitman, 2019; Pearson and Rose, 2021) and autistic individuals being ostracized, verbally, emotionally and physically assaulted when they had not camouflaged their autism (Hull *et al.*, 2017), it was expected that there would be a relationship between camouflaging and victimisation. Correlational analysis showed the more camouflaging, the greater number of victimisation experiences. However, camouflaging was unable to predict victimisation, meaning camouflaging behaviours alone are unlikely to increase the risk of victimisation.

Camouflaging is described as exhausting (Hull *et al.*, 2017) and associated with depression and anxiety (Cage and Troxell-Whitman, 2019), which was supported in this study. Mental health difficulties can be predictive of victimisation in autistic individuals (Cappadocia *et al.*, 2012). Camouflaging may prevent the development or application of protective factors, influencing an individual's mental health, indirectly increasing risk of victimisation. SEM findings showed mental health difficulties predicted victimisation. However, there were no significant indirect predictive pathways to victimisation. Thus, although camouflaging is

Figure 1 SEM fitting autism and PDA traits, camouflaging and mental health difficulties to offending and victimisation



Notes: Model calculated with AMOS. A latent variable indicated by circular shape. Measured variables shown in rectangles. Circles with an e and a number are error variances.
Double-headed arrows indicate covariance between error variances. Solid arrow pathways are significant standardised regression coefficients (β). All are $p < 0.01$

positively correlated with victimisation, camouflaging does not appear directly or indirectly predictive of victimisation. It may be difficult to unpick this relationship as those who are marginalised/stigmatised who experience mental health difficulties in response to difficult experiences may use camouflaging to reduce this, or camouflaging may be initiated in response to stigmatisation, subsequently leading to mental health difficulties. Furthermore, victimisation could lead to both camouflaging and mental health difficulties. Though this cross-sectional study starts the discussion, longitudinal research may be better able to disentangle the relationship between these variables.

There was no significant predictive relationship between PDA traits and victimisation in the SEM, contradicting regression findings. This suggests the "mental health difficulties" variable may have impacted on the effects of PDA traits on victimisation, which was not accounted for in the multiple regression analysis. Further investigation of the role of mental health on the association between PDA and victimisation is needed.

Camouflaging may play an important role in the association between autism and PDA and offending behaviour. Camouflaging may lead to missed or late diagnosis of autism (Gould and Ashton-Smith, 2011) which has been correlated with greater prevalence of criminal behaviour (Heeramun *et al.*, 2017). A person using camouflaging to obtain friendships may be vulnerable to offending with peers as means to ascertain social value. In this study, camouflaging behaviour was positively correlated with lifetime offending. Thus, as camouflaging increased, so did the frequency of offending behaviour. However, camouflaging was not significantly correlated with past year offending behaviour of any kind. One potential explanation for this lack of association is that camouflaging may be initiated after initial offending to protect against future offending. For example, if there is a miscommunication between an autistic and non-autistic person, this may sometimes lead to a physical altercation. If the individual is reprimanded, they may avoid these consequences in the future by concealing difficulties in social situations, hoping to reduce the risk of interpersonal difficulties and aggressive conflict.

The complex interplay of camouflaging and mental health difficulties may also influence the risk of offending behaviour. SEM results showed indirect pathways from mental health difficulties to offending through autism and PDA traits. Thus, more mental health difficulties (symptoms of depression and anxiety) predicted more autism and PDA traits, and which in turn predicted offending behaviour. Payne *et al.* (2021) found autistic offenders had more mental health risk factors (e.g. mental health diagnosis, past and current use of psychiatric medication), differentiating them from non-autistic offenders. However, the current study suggests lower autism traits predict more offending behaviour which contrasts with the findings of Payne and colleagues (2021). SEM results showed there was a significant positive pathway from autism traits to offending behaviour through camouflaging, thus this relationship may still be of interest. Individuals with high levels of autistic traits may engage in more camouflaging because of greater "othering" or marginalisation and be subsequently at risk of offending (likely affected by mental health difficulties). Both camouflaging and mental health difficulties should be considered when examining the risk of offending in autistic and PDA individuals.

As expected, victimisation and offending were positively associated. However, the theoretical model did not identify significant direct or indirect pathways between offending and victimisation. As only small amounts of variance in victimisation and offending scores were predicted by the included variables, factors not measured in this study may be important. For instance, access to services, support systems or interventions may influence the risk of victimisation. It was expected that autism and PDA traits would be associated with victimisation, as shown by correlational analysis. Conflicting evidence exists for the association between autism and victimisation, with some researchers suggesting autistic traits increase the risk of victimisation (Cappadocia *et al.*, 2012) and others finding no relationship (van Schalkwyk *et al.*, 2018). From this study we can conclude autism traits do

not increase the risk of victimisation. PDA traits significantly predicted victimisation which requires further investigation. The mechanisms and risk factors surrounding the victimisation of autistic and PDA people are complex. Autistic people are not victimized due to presenting with specific autistic traits. They are victimized due to stigmatization and "othering". Thus, those who score highly on measures of autistic traits, may present with greater neurodiversity, and experience greater stigma and victimisation.

In this study, the interaction between autistic traits and demographic variables (e.g. age and gender) appeared important in the association between autism and offending. For example, autistic traits were not significantly correlated with lifetime offending when age and gender were controlled. When uncontrolled, there was a positive correlation between autistic traits and lifetime offending. This study also explored the relationship between PDA traits and offending. PDA individuals may be at increased risk of offending due to increased impulsivity, difficult temperament and physical and verbal aggression during demand avoidance behaviour (Egan *et al.*, 2019). In this study, PDA traits significantly predicted lifetime offending behaviour and were correlated with lifetime and recent offending. However, much of the variance in offending scores remained unexplained by the model.

The results of this study are in line with previous research, finding autistic traits positively correlated with camouflaging (Hull *et al.*, 2019). PDA traits are also positively correlated with camouflaging behaviours. Camouflaging could represent a component of the PDA profile. For example, superficial sociability, described as appearing social but lacking depth or understanding (The National Autistic Society, 2020), could manifest as camouflaging. Further investigation into whether camouflaging in autism and PDA are qualitatively similar is required. Motivations for camouflaging may differ, given the different experiences of the populations: autism is a recognised developmental condition, whereas there is a lack of consensus about PDA (Green *et al.*, 2018). Possible scrutiny and lack of validation may influence camouflaging of PDA. This research contributes to the ongoing debate regarding the aetiology of PDA: here, PDA traits were associated with autism traits, suggesting a relationship between PDA and autism traits in adulthood.

Strengths and limitations

The sample size was sufficiently powerful to elicit a moderate effect size, and all standardized measures had high reliability. However, the assumption of normally distributed residuals in the multiple linear regression was violated. Therefore, the results may have limited generalisability outside of this sample. In terms of the measures used, the RAADS-14 provides a valid screen for autism traits. However, there is uncertainty regarding the construct validity of "autistic traits" and the relevance of these to autistic and non-autistic (Sasson and Bottema-Beutel, 2021). Future research should explore the relationship between victimisation, offending and camouflaging in those with a formal clinical diagnosis of autism. The CAT-Q cannot determine how effortful an individual finds camouflaging, which likely influences consequent personal social effort costs. Similarly, severity of offending could not be determined and participants were not asked to report whether their behaviour had resulted in formal adjudication. This study is likely limited to individuals without learning disabilities based on the required level of understanding to participate. It is acknowledged that the question in the preliminary questionnaire, "was this diagnosed by a doctor?" may have been misleading if another practitioner type completed the diagnostic assessment. As most of the sample identified as female, future research should attempt to recruit a more diverse sample including males and those who identify as non-binary (Dewinter *et al.*, 2017). Details of socio-economic status, ethnicity, IQ and educational attainment were not collected in this study which prevents a reliable estimation of representativeness. Future research should better gather demographic details to ascertain if any of these variables are driving the effects observed.

The research is cross-sectional, preventing the identification of causal direction; depression and anxiety may be both risk factors for, and consequences of, victimisation and offending. When camouflaging was initiated in relation to victimisation and offending could not be determined in this study. Camouflaging is a multi-faceted and complex process which is influenced by life experiences and interactions with others and likely develops across the lifespan (Pearson and Rose, 2021). Longitudinal research would be appropriate to determine the temporal order of victimisation, offending and camouflaging behaviour, to highlight contextual factors contributing to camouflaging and to further the understanding of the nuances within camouflaging.

Victimisation is a sensitive topic which can influence participants' willingness to disclose. Although details of privacy and anonymity were outlined in the participant information, participants may have still been concerned about repercussions of disclosing offending behaviour. This may have contributed to the high pre-consent attrition rate. Alternatively, the high attrition rate may also have been influenced by the large number of questionnaires used. Nevertheless, internet-mediated research elicits significantly more reports of socially undesirable and sensitive behaviours than comparable pen-and-paper studies (Gnambs and Kaspar, 2015). Moreover, autistic individuals may find online communication easier than in-person communication (Gillespie-Lynch *et al.*, 2014).

Implications and future directions

Given the complexity of camouflaging behaviour and the limitations described above, our implications are tentative. Social and criminal justice systems should be aware of the possibility of camouflaging. If camouflaged, the behaviour of autistic and PDA individuals may be misinterpreted by professionals (e.g. when providing witness statements or victim testimony, autistic individuals may be regarded as less credible or trustworthy; Brewer and Young, 2018). Increased awareness could be achieved by training professionals about the characteristics of autism and PDA, the possibility and impact of camouflaging and areas requiring adjustment for autistic and PDA individuals. Understanding the socio-cultural influence may provide another context to be explored in future research. This should include perceptions of autism, stigma and "othering". Future research should also examine the onset and frequency of camouflaging behaviour in autism and PDA and explore experiences qualitatively. Types of victimisation and offending should be considered to understand the association with camouflaging.

Conclusions

This study explored the forensic implications of camouflaging in relation to autism and PDA. Findings showed autistic and PDA individuals may be vulnerable to victimisation and offending through the interaction of the condition and their environment, camouflaging being a response to the environment. Camouflaging does not appear protective against victimisation or offending.

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