

## **A Preliminary Investigation into the Relationship Between Autistic Traits and Self-Compassion**

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**Abstract**

Self-compassion refers to the extension of kindness to oneself when faced with feelings of inadequacies, shortcomings or failures. It is possible that individuals high in autistic traits may encounter difficulties with self-compassion, and this could be particularly pronounced due to the social challenges they might face. To explore this potential relationship, we recruited university students and members of the general population to an online survey (n=176). Participants completed measures on demographics, autistic traits, and self-compassion. We found that autistic traits were indeed negatively correlated with self-compassion in both males and females. Interestingly, a comparison of the slopes showed significantly stronger relationships in males compared to females for the negative (but not the positive) subscales of the self-compassion scale. Although speculative at this point, it is possible that self-compassion acts as a mediator between autistic traits and psychopathology. With this in mind, further work is warranted to determine whether self-compassion could be a target for therapeutic intervention.

Keywords: *Self-Compassion; Autism; Autistic Traits; Autistic Disorder; Autism Spectrum Disorder*

## 1. Introduction

Autism spectrum conditions are characterised by social and communication difficulties in addition to restrictive and repetitive behaviours (American Psychiatric Society, 2013). Researchers frequently examine phenomena relevant to autism by measuring autistic traits, which are normally distributed throughout the general population (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001; Ruzich et al., 2015). A meta-analysis by Ruzich et al. (2015) showed that on average males typically report higher levels of autistic traits than females, and this sex difference is consistent with the 4:1 male to female ratio found in people diagnosed with autism.

Self-compassion is defined by Neff (2003) as comprising three core and interrelated elements: self-kindness versus self-judgement, common humanity versus isolation, and mindfulness versus over-identification. Self-kindness is the act of being supportive and caring towards the self in times of distress, rather than imposing harsh self-judgement. Common humanity is a recognition that all people make mistakes and experience hard times throughout life, and that suffering and personal failure is part of a shared human experience that connects us with others, rather than causing isolation. Mindfulness in the context of self-compassion is where an individual is aware of, and can balance their suffering, and without overidentifying with negative thoughts and emotions. A meta-analysis by Yarnell et al. (2015) showed a small ( $d = .18$ ) but significant sex difference in self-compassion, with males reporting higher self-compassion than females.

The original factor structure of self-compassion proposed by Neff (2003) has been subjected to considerable debate. Raes, Pommier, Neff and van Gucht (2011) proposed a two-factor structure, with the positive elements (self-kindness, common humanity, and mindfulness) loading highly on to one factor (labelled *self-focused perspective-taking ability*) and the negative elements (self-judgement, isolation, and over-identification) loading highly onto the other (labelled *negative sense of self*). Indeed, Neff (2016) argued for a positive pole and a negative pole for self-compassion, which represents compassionate versus uncompassionate behaviour. A considerable amount of research has adopted, and found support for, the two-

factor solution of self-compassion (e.g., Pandey, Tiwari, Parihar, & Rai, 2019; Stolorow et al., 2016).

Research has examined the role of self-compassion in the parents of autistic children, and findings from these studies suggest that self-compassion may be a significant factor in parental well-being. Wong, Mak, and Liao (2016) found support for a moderating role of self-compassion, with self-compassion acting as a protective buffer between perceived stigma and psychological distress. Neff and Faso (2014) found that self-compassion was positively related to hope, goal reengagement and life satisfaction, and negatively related to parental stress and depression in this population. Surprisingly, no research published to date has looked at the role of self-compassion in relation to autistic traits. Indeed, the role of self-compassion in autistic people could be important, as low self-compassion is associated with various expressions of psychopathology (MacBeth & Gumley, 2012).

It is also possible that low self-compassion relates to aspects of a cognitive style akin to autism. For instance, particular facets of self-compassion, such as common humanity, could be related to difficulties such as connecting with others, and a struggle for personal social readjustment. It can also be argued that both autistic people and neurotypical people with high levels of autistic traits often experience difficulties in perspective taking, and indeed, the ability to take another's perspective is known to correlate positively with self-compassion (Birnie, Speca, & Carlson, 2010).

The current study is a preliminary investigation examining whether self-compassion is associated with autistic traits in a neurotypical population. We predicted that (1) self-compassion would be negatively correlated with autistic traits, and (2) that this effect would hold true for both males and females.

## **2. Method**

Ethical approval was granted by the Department of Psychology Research Ethics Committee at Birmingham City University (approval number: PSY\_Dec18\_002), and the work described was carried out in accordance with The Code of Ethics of the World Medical Association

(Declaration of Helsinki). Participants provided informed consent before taking part in the study.

## 2.1 Participants

An a priori power analysis (G\*Power; Faul, Erdfelder, Lang, & Buchner, 2007) determined a sample size of  $n=111$  would be required to observe an effect of medium size (i.e.  $r = 0.30$ ) with 80% statistical power and  $\alpha$  set at  $p < 0.05$ . One hundred and seventy-six adults (age-range = 18-71 years,  $M = 24.50$ ,  $SD = 9.74$ ) took part in the study. Most ( $n=106$ , 59.6%) were female, 67 (37.6%) were male, and 3 (1.7%) reported other. Seventy-three participants were students (55 female, 18 male) recruited from the Birmingham City University Psychology Research Participation Scheme (RPS), in which psychology students participate in studies for course credit, and 103 participants (54 female, 49 male) were recruited from the general population via social media.

## 2.2 Apparatus/Materials

Participants reported basic demographic information (gender and age) before completing a series of measures. The **Autism Spectrum Quotient** (AQ; Baron-Cohen et al., 2001) was administered to provide a quantitative measure of autistic traits. The AQ is a valid and reliable self-report measure (Baron-Cohen et al., 2001) that is commonly used within research settings. It comprises 50 items that assess five trait subscales (Social Skill, Attention Switching, Attention to Detail, Communication, and Imagination), with the subscales being summed to provide an overall score. Internal consistency for the current study (calculated from all individual items) was determined to be excellent: Cronbach's  $\alpha = 0.836$ ;

The **Self-Compassion Scale** (SCS; Neff, 2003) is a 26-item self-report questionnaire that contains six subscales, three positive (Self-kindness, Common Humanity, and Mindfulness) and three negative (Self-Judgement, Isolation, and Over-identification). The sum of the positive scales is calculated for the *self-focused perspective taking ability* factor and the sum of the negative scales is calculated for the *negative sense of self* factor (Raes et al., 2011). An overall self-compassion score is determined by calculating the mean of the subscales.

Internal consistency for the SCS total score was excellent ( $\alpha = 0.935$ ), and that for each subscale used here is as follows: self-focused perspective taking ability  $\alpha = 0.921$ , negative sense of self  $\alpha = 0.924$ , self-kindness  $\alpha = 0.879$ , common humanity  $\alpha = 0.802$ , mindfulness  $\alpha = 0.783$ , self-judgment  $\alpha = 0.825$ , isolation  $\alpha = 0.822$ , over-identification  $\alpha = 0.811$ .

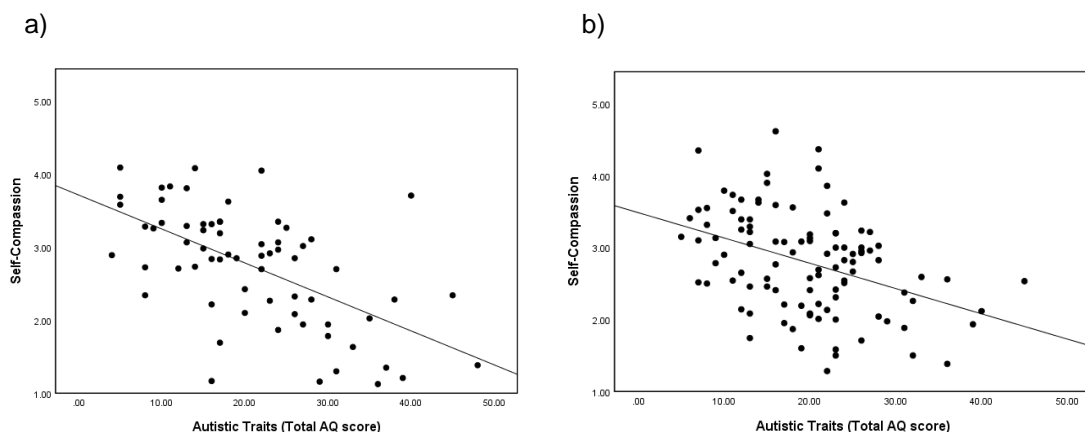
### 2.3 Design and Procedure

An online self-report questionnaire (hosted by Qualtrics) was distributed to students via the RPS and to the general population via social media. The study utilised a cross-sectional correlational design: the predictor variable was autistic traits and the outcome variable was self-compassion. Data were analysed using IBM SPSS version 26.

### 3. Results

AQ did not differ between males ( $n=67$ ,  $M = 20.99$ ,  $SD = 10.06$ ) and females ( $n=106$ ,  $M = 19.58$ ,  $SD = 7.95$ ),  $t(171) = 1.016$ ,  $p = 0.311$ ,  $d = 0.156$ . Likewise, there was no difference for self-compassion between males ( $n=67$ ,  $M = 2.739$ ,  $SD = 0.792$ ) and females ( $n= 106$ ,  $M = 2.794$ ,  $SD = 0.699$ ),  $t(171) = -0.481$ ,  $p = 0.631$ ,  $d = -0.074$ . Pearson's correlations (two-tailed) determined that AQ was negatively associated with self-compassion in the whole sample,  $r(174) = -0.510$ ,  $p < 0.001$ . This effect was stronger in males,  $r(65) = -0.592$ ,  $p < 0.001$  (**Figure 1a**) than females,  $r(104) = -0.400$ ,  $p < 0.001$  (**Figure 1b**), and a Fisher's  $r$ -to- $z$  transformation (two-tailed) determined that the difference in slopes showed a trend towards significance,  $z = -1.615$ ,  $p = 0.053$  (two-tailed).

**Figure 1.** Association between AQ and self-compassion in males (a) and females (b).



Correlations between autistic traits and the individual self-compassion subscales were then examined and stratified by sex. Correlations were in the predicted direction, with the positive SCS subscales negatively correlated with AQ and the negative SCS subscales positively correlated with AQ (see Table 1). Fisher's *r*-to-*z* tests determined significant differences in the slopes for the negative (but not positive) subscales of the self-compassion scale, with stronger correlations being found in males compared to females (also described in Table 1).

**Table 1.** Pearson's correlations for the whole sample and stratified by sex. Fisher's *r*-to-*z* tests (two-tailed) tested sex differences in the slopes \**p* < .05; \*\* *p* < .01

	Self-focused perspective	Negative sense of self	Self-kindness	Self-judgement	Common humanity	Isolation	Mindfulness	Over-identification
<b>Pearson's <i>r</i> (whole sample)</b>	-.472**	.437**	-.390**	.343**	-.448**	.399**	-.423**	.449**
<b>Male Pearson's <i>r</i></b>	-.517**	.571**	-.425**	.444**	-.473**	.540**	-.506**	.566**
<b>Female Pearson's <i>r</i></b>	-.390**	.309**	-.302**	.212*	-.413**	.252**	-.311**	.352**
<b>Fisher's <i>r</i>-to-<i>z</i> (<i>z</i>)</b>	-1.008	2.071**	-0.893	1.646*	-0.469	2.178**	-1.481	1.721*

We next ran a multiple linear regression model with self-compassion as the outcome, AQ total score as the predictor, and age, sex (male, female, or other), and recruitment strategy (RPS sample = 1, social media sample = 0) as covariates. The overall model fit was significant,  $F(4, 171) = 15.195$ ,  $p < 0.001$ , and the model explained 24.6% of the variance in self-compassion (Adjusted  $R^2 = 0.246$ ). AQ remained a statistically significant (negative) predictor of self-compassion, and age, sex, and recruitment strategy did not share significant associations with the outcome variable (Table 2).

**Table 2.** Multiple linear regression model with self-compassion as outcome.

Predictor	Unstandardized coefficients			Standardized coefficients ( $\beta$ )	<i>t</i>	<i>p</i>
	B	SE	95% CI			
<b>(Constant)</b>	3.602	0.269	3.071, 4.132		13.407	< 0.001
<b>AQ</b>	-0.041	0.005	-0.052, -0.031	-0.506	-7.667	<0.001
<b>Gender</b>	-0.002	0.097	-0.193, 0.189	-0.002	-0.023	0.981
<b>Age</b>	0.001	0.005	-0.009, 0.012	0.017	0.245	0.807
<b>Recruitment</b>	-0.067	0.104	-0.273, -0.031	-0.045	-0.647	0.518

#### 4. Discussion

The current study reports a preliminary investigation into whether self-compassion relates to traits associated with autism. In support of our hypothesis, we found that total AQ score was negatively correlated with self-compassion, that this effect remained statistically significant after controlling for covariates, and that it was also observable separately in males and females. Additionally, the subscale analysis showed that the relationship between autistic traits and self-compassion differed by sex, with males (relative to females) showing significantly stronger associations between AQ and the negative subscales of the SCS. Future studies are needed to examine these effects in autistic populations.

It is interesting to note that we did not observe a statistically significant sex difference for AQ in this study. The lack of significant effect could be due to a lack of statistical power, with this study recruiting a relatively small sample of males. Although, this is an obvious limitation, it should be noted that the difference for AQ was in the predicted direction ( $d = 0.156$ ), and that the 95% confidence intervals (95% CI = -0.234, 0.581) overlap with effect sizes typically observed in the literature (e.g. Baron-Cohen et al., 2014: male  $n=1344$ , female  $n=2562$ ,  $d = 0.41$ ). A further issue is a lack of homogeneity, with the study including both undergraduate student and general population samples. However, we controlled for this statistically by including recruitment strategy as a covariate in the regression model. It is therefore unlikely that either the sample size or recruitment method unduly affected the overall pattern of results. However, caution is still necessary when attempting to generalise these results to other populations.

Elevated autistic traits are predictive of increased risk of psychopathological outcomes including anxiety, depression, and suicidality (Richards et al., 2019; Rosbrook & Whittingham, 2010), and associations between autistic traits and mental health difficulties have been suggested to be mediated by a number of other variables. For instance, Pelton and Cassidy (2017) reported that perceived burdensomeness and thwarted belonging both mediated the association between autistic traits and lifetime suicidality. It is therefore possible that self-compassion could also act as a mediator between autistic traits and certain aspects of mental



health. However, as we did not include any measures of psychopathology in the current study, this idea remains speculative.

Although we predict that self-compassion may mediate the relationship between autistic traits and depression, it is known that the presence of depression symptoms may cause participants to score higher on the AQ (Domes et al., 2016). Indeed, it could simply be that self-compassion is correlated strongly with depressive symptoms as well as AQ score, and that there is no casual mediation link. Alternatively, there are numerous unmeasured variables that may explain the association between autistic traits and self-compassion. For example, emotion regulation styles and alexithymia have been linked to autistic traits and psychopathology, and are both also linked to self-compassion (Morie, Jackson, Zhai, Potenza, & Dritschel, 2019). Future studies should include these and additional measures, to help determine how self-compassion relates to other potential mediators between autism and psychopathology.

### **Conclusions and Implications**

No research to date has explored the relationship between autistic traits and self-compassion. Findings from the current study suggest a negative correlation between these variables, and that the association is stronger in males than females. Based on this result, we encourage a new line of research into self-compassion and autism, and have identified some possible avenues in need of further investigation. In particular, future research should assess whether self-compassion is a mediator between autistic traits and mental health symptomatology in the general population and individuals with a diagnosis of autism.

### **Conflicts of interest**

The authors report no conflicts of interest.

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