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Gender differences in mental health prevalence in autism

Approximately 1 – 2% of the general population are diagnosed as autistic, with current gender ratios standing at 3:1 male:female (Loomes, Hull and Mandy, 2017). This ratio has decreased from earlier estimates of 12:1 male:female (Fombonne, 2003) largely due to increased recognition of girls and women as being on the autism spectrum (Gould & Ashton-Smith, 2011; Haney, 2016; Lai et al., 2015). Being autistic is a minority identity in a non-autistic majority world, and those who are non-male also face the experience of a minority identity in a society which is generally patriarchal (Miller, 2013). This means that autistic non-males are potentially subject to greater stressors, leading to higher rates of mental health issues, according to Multiple Minority Theory (Meyer, 1995; Botha and Frost, 2018).

There are a range of mental health conditions which occur in the general population – with anxiety and depression being most common, affecting between 3.8% and 25% of adults (Brody, Pratt and Hughes, 2013; Remes *et al.*, 2016). Eating disorders (ED), although occurring at lower rates (approx. 1–6% of the population) (Smink, van Hoeken and Hoek, 2012; Micali *et al.*, 2013) are also relatively common, and are approximately 10 times more commonly diagnosed in women than men (Raevuori, Keski-Rahkonen and Hoek, 2014). EDs have a high level of co-occurrence with anxiety and/or depression, ranging from 9% to 71% of ED patients having a major mood or anxiety disorder in different studies (for reviews see: Godart *et al.*, 2007; Swinbourne and Touyz, 2007), and so any study of ED rates should also investigate these conditions.

It has long been recognised that autistic people are more likely to experience a range of mental health issues than non-autistic people (White *et al.*, 2009). Anxiety and depression are the most common mental health issues for those on the spectrum, as they are for non-autistic people, with up to 40% of autistic people having at least one anxiety disorder (van

1 Steensel, Bögels and Perrin, 2011) and similar numbers having clinical depression (Kim *et*
2 *al.*, 2000). Difficulties around food also appear to be more common in autistic children than
3 their non-autistic counterparts (Schreck, Williams and Smith, 2004), such as food selectivity
4 and refusal (Cermak, Curtin and Bandini, 2010). While a range of underlying causes for these
5 difficulties have been suggested, such as sensory sensitivities (Chistol *et al.*, 2018; Dovey,
6 Kumari and Blissett, 2019), the eating behaviours of autistic adults have not been
7 investigated in the same way. One review commented on the relative paucity of population-
8 based research into EDs among autistic adults but found a number of case studies reporting
9 unusual eating behaviour, including pica, rumination, and food refusal, to be common
10 (Rastam, 2008). The only qualitative study of eating behaviour among autistic adults found
11 that childhood behaviours continued into adulthood, especially in the areas of sensory
12 sensitivity, medical or physical issues, and the impact of executive function challenges on
13 eating, but that adults felt they had mostly developed strategies for managing these eating
14 behaviours (Kinnaird *et al.*, 2019).

15 A link between autism and anorexia nervosa (AN) has long been theorised (Gillberg,
16 1985). Research has shown that up to 23% of women with AN meet clinical criterion for an
17 autism diagnosis (Westwood, Mandy and Tchanturia, 2017), and other works have shown
18 significant overlap between the cognitive profiles of the two conditions (Westwood and
19 Tchanturia, 2017). There has been speculation that women with severe and treatment resistant
20 AN may have underlying autism which has gone unrecognised (Oldershaw *et al.*, 2011),
21 partly because there is a clinical focus on treating the immediate danger of AN rather than
22 consideration of potential underlying autism, a condition more frequently seen in men
23 (Gould, 2017) which therefore may not spring to mind in a female AN patient. However,
24 previous research examining this potential shared aetiology has primarily investigated the
25 presence of autistic traits among people with AN with a focus on women.

1 To date, however, there has been little work exploring whether there are gender
2 differences in rates of mental health conditions within the autistic population. What work
3 there is has focussed on a binary conception of gender – male and female (Worley and
4 Matson, 2011; May, Cornish and Rinehart, 2014; Magiati *et al.*, 2016). There is growing
5 evidence that autistic adults are more likely to be non-binary and non-heteronormative
6 (Dewinter, De Graaf and Begeer, 2017) in terms of their gender identity. This means that they
7 likely face unique life experiences and potentially are exposed to even higher rates of
8 discrimination and difficulty than cisgender autistic people, following the ‘Multiple Minority
9 Theory’ (Meyer, 1995). Multiple Minority Theory argues that those with a minority identity,
10 such as being homosexual, experience more everyday stressors than those who are in the
11 majority, and that these stressors are multiplied if you are a member of multiple minority
12 groups, such as being both gay and black. Within this approach, being autistic can be seen as
13 a form of minority identity, and so can being female, non-binary, trans, or LGBT+. However,
14 in line with an update to this theory, these individuals are also potentially more resilient than
15 those in the majority, as they have both the autism community and the LGBT+ community to
16 draw on for support (Meyer, 2015). Despite this, there are known health inequalities among
17 non-autistic non-binary people (Whitehead, 2017; Jones *et al.*, 2019) which are likely to also
18 affect autistic people, who report extensive difficulties in accessing mental health support
19 (Camm-Crosbie *et al.*, 2019; Crane *et al.*, 2019). It is therefore important to investigate the
20 intersection of these minority identities regarding mental health.

21 This study sought to examine the rates at which anxiety, depression, and a range of
22 EDs are reported among a large sample of autistic and non-autistic adults of all genders. Our
23 hypotheses were:

- 24 1) Autistic people of all genders would report higher levels of anxiety and depression
25 symptomatology than non-autistic people

1 **Measures**

2 *Demographics:* Participants completed a demographics questionnaire, including age,
3 self-defined gender, height, weight, ethnicity, education level and employment status.

4 Participants were also asked whether they had a diagnosis of autism, any physical or mental
5 health diagnosis, and/or a diagnosed ED, and if so, what that diagnosis was.

6 *AQ:* The Autism Quotient-28 item version (Hoekstra *et al.*, 2011) is a self-report
7 screening questionnaire assessing the presence and level of autism symptomatology. Answers
8 are given on a Likert scale from ‘Very accurate’ to ‘Very inaccurate’ and are then scored 1 or
9 0 depending on the direction of the question. Higher scores reflect more autistic
10 symptomatology. The abbreviated version of this measure was used in this study in order to
11 reduce participant burden, but it still has a high level of reliability ($\alpha=.77-.86$).

12 *HADS:* The Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983) is a
13 14-item self-report questionnaire assessing both anxiety and depression symptomatology. The
14 HADS creates two subscales, HADS-Anxiety (HADS-A) and HADS-Depression (HADS-D),
15 each with seven items. It has been widely used in a variety of populations, and has been
16 validated for use with autistic people (Uljarević *et al.*, 2018). Higher scores reflect higher
17 levels of anxiety and depression symptomatology.

18 *EDE-Q:* The Eating Disorder Examination Self-Report Questionnaire (Fairburn and
19 Beglin, 1994) is a 36-item self-report questionnaire assessing ED psychopathology over the
20 past 28 days. Participants score the frequency of their behaviours or thoughts from ‘0 days’ to
21 ‘Every day’. Higher scores reflect greater ED symptomatology.

22 **INSERT TABLE ONE ABOUT HERE**

23 **Data Analysis**

1 All data analyses were conducted with R (R Core Team, 2018). Group differences in
2 demographic and clinical characteristics were explored with t-tests. Prior to conducting
3 regression analyses, assumptions were checked. Where assumptions for a linear regression
4 analyses were not met, impact of gender and autism status on ED, anxiety, and depression
5 symptomatology were investigated using robust multiple regression from the MASS package
6 (`rlm()`) (Venables and Ripley, 2002). The `rlm()` function conducts a robust M-estimator with
7 Huber's weights to reduce the impact of outliers and heteroscedasticity (Huber and Ronchetti,
8 1981). Where significant main effects or interactions were present, post-hoc pairwise
9 comparisons were conducted. All statistics from post-hoc tests were adjusted for multiple
10 comparisons using Bonferroni correction. Differences between the autistic and non-autistic
11 groups in the number of participants reporting a diagnosis of an eating disorder were
12 investigated using robust binomial regression from the `robustbase` package (`glmrob()`)
13 (Maechler *et al.*, 2019). Correlations between AQ-28 score and ED, anxiety, and depression
14 symptomatology were explored within the autistic and non-autistic groups using Spearman
15 test. Significance level was set at $p < 0.05$.

16 Results

17 Demographics

18 Participants were not matched on age, $t(911) = -2.38$, $p = 0.02$, with autistic participants
19 being older than non-autistic. Participants were also not matched on AQ score, with those
20 who reported being autistic scoring significantly higher than those who reported being non-
21 autistic, $t(680) = -34.02$, $p < 0.001$, supporting their self-reported diagnoses. People who
22 reported having anxiety, depression and a current or past ED scored significantly higher on
23 the relevant questionnaires, supporting their self-reported diagnoses (all $p_s < 0.01$).

24 Demographic characteristics of the sample can be seen in Table 1.

1 INSERT TABLE TWO ABOUT HERE

2 **Anxiety**

3 The data did not meet the assumptions for linear multiple regression (Supplementary
4 Figure 1) and robust regression was conducted. The robust multiple regression revealed a
5 significant effect of autism status (Table 2; Figure 1A) such that autistic participants reported
6 significantly more anxiety symptoms on the HADS than the non-autistic participants. There
7 was also a significant effect of gender. Post-hoc pairwise comparisons showed that female
8 participants reported experiencing significantly more anxiety than male participants
9 regardless of autism status ($Z=3.30, p=0.003$). Male participants also reported significantly
10 less anxiety than NBT participants regardless of autism status ($Z=-3.25, p=0.003$). There was
11 no significant difference between female and NBT participants in anxiety ($Z=-1.32, p=0.566$).
12 There was no significant autism status by gender interaction.

13 Correlation analyses found a a significant positive correlation between HADS anxiety
14 and AQ-28 scores among both the autistic ($\rho=0.16, p<0.001$) and non-autistic participants
15 ($\rho=0.40, p<0.001$) (Figure 2A, Figure 2B).

16 **Depression**

17 The data did not meet the assumptions for linear multiple regression (Supplementary
18 Figure 2) and robust regression was conducted. The robust multiple regression revealed a
19 significant effect of autism status (Table 2; Figure 1B). Autistic participants reported
20 significantly more depression symptoms on the HADS than non-autistic participants. There
21 was also a significant interaction between autism status and gender. Post-hoc pairwise
22 comparisons showed that non-autistic females and males reported significantly less
23 depression than non-autistic NBT participants ($Z=-3.08, p=0.006$ and $Z=-2.59, p=0.029$

1 respectively). There were no significant differences in depression scores between non-autistic
2 female and non-autistic male participants ($Z=-0.27, p=1.00$). There were also no significant
3 differences between autistic female and autistic male participants ($Z=0.76, p=1.00$), autistic
4 female and autistic NBT participants ($Z=1.59, p=0.335$) or autistic male and autistic NBT
5 participants ($Z=0.39, p=1.00$).

6 Correlations analysis found a significant positive relationship between HADS
7 depression and AQ-28 scores in both autistic ($\rho=0.21, p< 0.001$) and non-autistic groups
8 ($\rho=0.48, p< 0.001$) (Figure 2C, Figure 2D).

9 **Eating Disorders**

10 The data did not meet the assumptions for linear multiple regression (Supplementary
11 Figure 3) and robust regression was conducted. The robust multiple regression revealed a
12 significant effect of autism status (Table 2; Figure 1C). Autistic participants reported
13 significantly more ED symptoms on the EDEQ than non-autistic participants. There was also
14 a significant effect of gender. Post-hoc pairwise comparisons showed that female participants
15 reported significantly more ED symptoms than male participants ($Z=3.54, p=0.001$)
16 regardless of autism status. There was no significant difference between female and NBT
17 participants ($Z = 1.96, p = 0.152$) or male and NBT participants ($Z = -0.65, p = 1.00$)
18 regardless of autism status. There was no significant autism status by gender interaction.

19 As the above finding may have been influenced by the number of participants
20 reporting having been diagnosed with an ED further analyses were conducted. Indeed, a
21 robust binomial regression showed that significantly more autistic participants reported
22 having been diagnosed with an ED than non-autistic participants (Table 2). Therefore, an
23 additional robust regression analysis was conducted among participants who did not report

1 having an ED to explore if the difference between autistic and non-autistic groups was due to
2 over-representation of ED symptomatology among the autistic participants or was driven by
3 difference in number of participants reporting ED diagnosis. The robust regression again
4 revealed a significant effect of gender ($F(2)=3.87, p=0.021$). However, post-hoc pairwise
5 comparisons showed that the difference between female and male participants only
6 approached significance ($Z=2.10, p=0.091$). There were no significant differences between
7 female and NBT participants ($Z=1.84, p=0.156$) or male and NBT participants ($Z=0.40,$
8 $p=0.915$) who did not report an ED diagnosis. The previous finding of significant difference
9 between autistic and non-autistic participants in ED symptomatology was not replicated
10 among participants who did not report having an ED ($F(1)=2.40, p=0.122$). There was also
11 no significant autism status by gender interaction ($F(2)=0.15, p=0.861$).

12 Correlation analyses found significant positive relationships between EDEQ and AQ-
13 28 scores among both autistic ($\rho=0.11, p=0.013$) and non-autistic participants ($\rho=0.13,$
14 $p=0.007$) (Figure 2E, Figure 2F).

15 Discussion

16 This study investigated the prevalence of self-reported anxiety, depression and ED
17 among autistic and non-autistic people of all genders. Our findings suggest autistic people are
18 more likely to have anxiety and depression than their non-autistic counterparts, and that as
19 autistic symptomatology increases so do mental health issues. While autistic people were
20 more likely to have an existing ED diagnosis, we also found that as autistic traits rose, so did
21 ED symptomatology. Importantly, we found that gender plays a role in the levels of anxiety,
22 depression, and eating disorder behaviours which participants endorsed, emphasising that it is
23 not just being autistic which has an impact on mental health. This is evidence for the

1 applicability of Multiple Minority Theory in the context of autism research and lived
2 experience.

3 *Anxiety*

4 As expected according to Hypothesis 1, and in line with a wealth of previous research,
5 autistic people of all genders were more anxious than their non-autistic counterparts. This fits
6 with a pattern of findings showing that autistic people experience high levels of anxiety
7 across the lifespan, from childhood (Gillott, Furniss and Walter, 2001) through adolescence
8 (Kuusikko *et al.*, 2008; Magiati *et al.*, 2016) and into adulthood (Bejerot, Eriksson and
9 Mörtberg, 2014; Maddox and White, 2015).

10 What was novel, and was in line with Hypothesis 2, was the finding of a gendered
11 pattern to these experiences of anxiety. While all autistic groups were more anxious than non-
12 autistic groups, women and NBT people were significantly more anxious than men,
13 regardless of autism status. This supports the idea that Multiple Minority Theory (Meyer,
14 1995) can be meaningfully applied to the experiences of autistic people, with a notable
15 impact of non-male gender on anxiety. It may be that being autistic, combined with belonging
16 to groups who are traditionally under-valued in a patriarchal and heteronormative society,
17 leads to more daily stressors than being autistic and male does. Daily stressors can be things
18 like the high levels of stigma and bullying autistic people are subjected to (Rowley *et al.*,
19 2012), or the difficulties sensory sensitivities can present in navigating the world (Gillott and
20 Standen, 2007). The impact of being a multiple minority – autistic *and* non-male – can be
21 seen in the difficulties autistic women have. For example, they suffer from being judged as
22 not meeting traditional female stereotypes (Baldwin and Costley, 2016; Kanfischer, Davies
23 and Collins, 2017), but also struggle to access an autism diagnosis because they do not fit a
24 ‘male stereotype’ (Gould, 2017; Gould & Ashton-Smith, 2011). The challenges facing

1 autistic NBT people in both daily life and in accessing autism diagnoses and support have not
2 yet been investigated but are likely to be similar, as they also likely do not meet the male
3 stereotype of autism and are statistically a gender-identity minority.

4 Following Hypothesis 3, the correlation results suggested that increased anxiety is
5 related to higher levels of autistic traits also suggests that elements like social difficulty or
6 sensory sensitivities have an impact on the mental health of everyone. It may be that finding
7 communities where people feel supported in their identity, whether that is around their gender
8 or autism status, can help to minimise the levels of anxiety they experience. Indeed, there is
9 growing evidence that autistic people socialise better together than they do with non-autistic
10 people (Crompton, 2019; Crompton, Fletcher-Watson, & Ropar, 2019; Heasman & Gillespie,
11 2018). This provides hope that the autism community may provide the same protective
12 effects as have been seen in the LGBT+ community (Roberts, Schwartz and Hart, 2011;
13 Budge, Rossman and Howard, 2014), although this support cannot entirely counteract the
14 stressors presented by the wider world in general.

15 *Depression*

16 Regarding depression, and consistent with Hypothesis 1, it was unsurprising to find
17 that autistic people scored more highly than their non-autistic counterparts, regardless of
18 gender. For example, a recent study has shown that autistic people are more likely than non-
19 autistic people to have been unemployed, homeless, and suffered domestic abuse (Griffiths *et*
20 *al.*, 2019). Experiencing more negative life events may naturally lead to a higher likelihood
21 of developing depression.

22 Counter to the prediction of Hypothesis 2, the lack of gender differences on
23 depression among the autistic sample is in stark contrast to the anxiety findings. This may be
24 because while a greater number of stressors make autistic women and NBT people more

1 anxious, whether this anxiety is paired with low mood in response to these stressors is more
2 individual and so there are fewer clear group-level effects. However, growing research on
3 self-harm and suicide among autistic people finds that autistic women (autistic NBT people
4 are not included in these studies) are more likely to attempt and complete suicide than autistic
5 men (Cassidy and Rodgers, 2017). Camouflaging (consciously attempting to reduce visible
6 autistic traits), a phenomenon known to be more common among autistic women (Hull *et al.*,
7 2019), has been found to be a specific risk factor for suicidality in autistic people (Cassidy *et*
8 *al.*, 2018). This suggests that while there may not be quantitative differences in the rates or
9 levels of depression between autistic men, women and NBT people, there are important
10 qualitative differences in behaviour which future work should investigate.

11 Partially in line with Hypothesis 2, we found that non-autistic men and women scored
12 similarly in terms of their depression levels, with non-autistic NBT people scoring
13 significantly higher – and at a similar level to autistic people. While non-autistic NBT people
14 formed the smallest group in the research, it is notable that this is the group who Multiple
15 Minority Theory is most likely to apply to within the non-autistic sample, as they are a
16 minority within the minority LGBT+ community, and therefore we would expect them to
17 have elevated levels of mental health issues. NBT people are among the most attacked
18 members of the LBGT+ community, and so it may be that they benefit less from the
19 protective effects against depression than those who are cisgender gay (McLaren, Jude and
20 Mclachlan, 2008) or lesbian (McLaren, 2009).

21 In line with Hypothesis 3, correlation analyses suggested that for both autistic and
22 non-autistic people, higher levels of autistic traits were associated with higher levels of
23 depression. This may be because those with more challenges in social interaction experience
24 a form of negative reinforcement cycle, e.g. they struggle to interact as expected, so get
25 negative responses from peers, leading them to socially withdraw and interact less often,

1 meaning they get less practice, and so struggle to develop better social skills, contributing to
2 depression (Katz *et al.*, 2011).

3 *Eating Disorders*

4 As predicted in Hypothesis 1, we found that autistic people endorsed more ED
5 behaviours than non-autistic people of all genders. However, once those with a clinical ED
6 diagnosis were removed from the analysis, no significant difference persisted. This suggests
7 that those on the spectrum may be more likely to fall into the treatment-resistant, severe and
8 enduring group of those with ED, in line with previous research (Westwood and Tchanturia,
9 2017).

10 In line with Hypothesis 2, we found that the gendered patterns seen in the general
11 population – i.e. that women are more likely to endorse ED behaviours than men (Andersen
12 and Holman, 1997) – were also true in the autistic sample. Interestingly, NBT people
13 reported ED behaviours at similar rates to women, in line with previous work on EDs among
14 a transgender population (Diemer *et al.*, 2015, 2018). This implies that the health inequalities
15 often affecting non-heteronormative populations (Whitehead, 2017; Jones *et al.*, 2019) are
16 also present in EDs, with transgender clients in ED services experiencing a range of unique
17 challenges around clinician assumptions about their bodies and negative experiences with
18 clinicians (Duffy, Henkel and Earnshaw, 2016).

19 Autistic people reported a range of ED diagnoses, not exclusively anorexia nervosa,
20 something which is important for future research to account for as, to date, almost all the
21 literature in this field has focussed on AN to the detriment of our understanding of other
22 diagnoses. There is extensive work documenting the links between autism and AN
23 (Oldershaw *et al.*, 2011; Westwood and Tchanturia, 2017). However, our important addition
24 to the work previously published (Gesi *et al.*, 2017; Westwood and Tchanturia, 2017) shows

1 that the links between autism and AN are not restricted to women. The correlation analyses,
2 in line with Hypothesis 3, suggested a relationship between higher levels of autistic traits and
3 higher levels of ED traits both autistic and non-autistic participants, suggesting that autism
4 screening may be a valuable addition to clinical assessments, as there is evidence that
5 treatment should be adapted for those with high levels of autistic traits, e.g. avoiding or
6 adapting the talking therapies which are common approached to ED treatment, as they may
7 be difficult for those with communication differences (Spain *et al.*, 2015).

8 This study has some limitations. First, the data is entirely self-report. As the data was
9 collected through an online study, we were not able to verify diagnoses with clinicians, but
10 the AQ and EDE-Q scores of the groups provide support for the accuracy of people's self-
11 report. It is also worth noting that autistic women (and, potentially, non-binary people) face
12 unique challenges to accessing a formal autism diagnosis (Bargiela, Steward, & Mandy,
13 2016; Gould & Ashton-Smith, 2011), and so the authors made a conscious decision to respect
14 self-reported autistic identity in this study. While AQ generally has good specificity and
15 validity, there have been critiques made of both its accuracy among non-male groups
16 (Murray *et al.*, 2017). However, currently this measure is one of the most accurate and widely
17 used in autism research, and so is justified in its usage in this paper. Second, the groups are
18 not matched on demographic variables such as gender. This is to be expected, however,
19 considering work showing that autistic people are more likely to be gender non-conforming
20 than non-autistic people (George and Stokes, 2016, 2017; Dewinter, De Graaf and Begeer,
21 2017) and therefore these differences are representative of the population. Third, we did not
22 collect qualitative data on people's experiences with their mental health, such as length of
23 illness, treatment experiences, or their perception of the causes of their difficulties. Future
24 work should ask these questions, to gain greater understanding of the differences in autistic
25 people's lives which result in their greater chance of developing a range of mental health

1 issues. Fourth, it is worth noting that this sample has more autistic women and non-binary
2 people than is usual for autism research, as many studies have all- or majority-male samples
3 (Banach *et al.*, 2009). This gender balance is normal for survey studies however (Sax *et al.*,
4 2008), and may be a feature of self-selecting samples as autistic women are more active in
5 the online communities where this study was advertised.

6 In conclusion, this is the first study to examine the self-reported rates of anxiety,
7 depression and different types of EDs among autistic and non-autistic people of all genders.
8 We found that autistic adults are more likely to report having not only anxiety and
9 depression, but also every type of ED, going beyond existing work on anorexia nervosa, and
10 that the gendered patterns of ED in the non-autistic population are also seen in the autistic
11 population. These findings have significant implications, suggesting that future work on
12 autism and mental health should consider gender, including non-binary and trans identities, as
13 an important factor in people's experiences. This consideration of the interaction between
14 gender and autism as shaping experiences should cover everything from healthcare and
15 mental health support, through to interactions with employers and the criminal justice system.
16 Different presentations and behaviours in these situations can have significant impact on
17 whether someone gets the best support and outcomes, and so research should work to provide
18 an evidence base for understanding the best practice for working with autistic people of all
19 genders.

20

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1 Table 1. *Demographic characteristics by group (autistic, non-autistic).*
 2

	Autistic (n = 531)	Non-autistic (n = 399)
Age		
Range	18.12 – 71.53	18.15 – 81.29
M (SD)	34.06 (10.86)	32.67 (11.25)
Gender		
Male	71 (13.37%)	54 (13.53%)
Female	317 (59.69%)	327 (81.95%)
Non-binary	143 (26.93%)	18 (4.51%)
Ethnicity		
White	393 (74.01%)	307 (76.94%)
Asian	10 (1.88%)	25 (6.26%)
Black	4 (0.75%)	4 (1.01%)
Latinx	5 (0.94%)	2 (0.50%)
Mixed	29 (5.46%)	13 (3.26%)
No Answer	90 (16.95%)	50 (12.52%)
Education Level		
None	23 (4.33%)	2 (0.50%)
GCSE	20 (3.76%)	5 (1.25%)
A-level	83 (15.63%)	35 (8.77%)
Diploma/BTEC	62 (11.67%)	15 (3.76%)
Bachelors degree	205 (38.61%)	170 (42.61%)
Masters degree	111 (20.90%)	133 (33.33%)
PhD	24 (4.52%)	37 (9.27%)
No Answer	3 (0.56%)	2 (0.50%)
Employment Status		
Full-time	135 (25.42%)	210 (52.63%)
Part-time	67 (12.62%)	36 (9.02%)
Student	109 (20.53%)	108 (27.07%)
Self-employed	57 (10.73%)	17 (4.26%)
Unemployed	101 (19.02%)	14 (3.51%)
Retired	11 (2.07%)	4 (1.01%)
Other	48 (0.87%)	10 (2.50%)
No Answer	3 (0.56%)	2 (0.50%)
AQ score		
Range	4 – 28	0 – 20
M (SD)	21.03 (3.83)	8.97 (4.38)
EDE-Q score		
Range	0.00 – 5.73	0.00 – 5.95
M (SD)	1.99 (0.42)	1.67 (0.28)

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Table 2. Table showing mental health scores and test statistics by group (autistic, non-autistic) and gender (male, female, NBT)

	Autistic			Non-autistic			Test statistic, p-value
	Female	Male	NBT	Female	Male	NBT	
HADS Anxiety M (SD)	12.88 (4.25)	11.33 (5.37)	12.22 (4.49)	8.36 (4.70)	6.75 (3.93)	10.83 (4.74)	Autism-status: F(1) = 187.81, p < 0.001 Gender: F(2) = 5.37, p = 0.005 Autism-status x Gender: F(2) = 2.81, p = 0.060
HADS Depression M (SD)	7.91 (3.96)	7.76 (4.55)	7.46 (4.04)	4.55 (3.89)	4.56 (3.14)	7.78 (4.78)	Autism-status: F(1) = 126.78, p < 0.001 Gender: F(2) = 0.07, p = 0.936 Autism-status x Gender: F(2) = 6.01, p = 0.003
EDEQ Total score M (SD)	2.30 (1.60)	1.80 (1.37)	1.88 (1.39)	2.01 (1.45)	1.38 (0.99)	1.70 (1.13)	Autism-status: F(1) = 8.74, p = 0.003 Gender: F(2) = 9.00, p < 0.001 Autism-status x Gender: F(2) = 0.14, p = 0.870
ED diagnosis N (%)	190 (36.1%)			83 (20.0%)			Autism-status: Z = -5.44, p < 0.001
	AN 74 (14.1%)			AN 52 (12.4%)			
	BN/BED 45 (8.6%)			BN/BED 26 (6.2%)			
	EDNOS/OSFED 36 (6.8%)			EDNOS/OSFED 8 (1.9%)			
	ARFID 11 (2.1%)			ARFID 0 (0.0%)			
	Orthorexia 5 (0.9%)			Othorexia 3 (0.7%)			
	Other ED 15 (2.9%)			Other ED 5 (1.2%)			

NBT = Non-binary/Transgender; HADS = Hospital Anxiety and Depression Scale; EDEQ = Eating Disorder Examination Questionnaire; ED = Eating Disorder; AN = anorexia nervosa; BN = bulimia nervosa; BED = binge eating disorder; EDNOS = eating disorder no otherwise specified; OSFED = other specified feeding or eating disorder; ARFID = avoidant/restrictive food intake disorder; M = mean; SD = standard deviation. Note: the number of specific diagnoses reported by participants does not add up to the total number of people reporting having an eating disorder as these numbers include past and present diagnoses the person has received.