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Social Identity, Self-Esteem, and Mental Health in Autism

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Abstract

We investigated *Autism social identity* and mental health in autistic people. Autistic people have social and communication deficits, and experience social stigma - factors that could interfere with the development of positive social identity. Indeed, autistic participants ($N=272$) had significantly lower personal self-esteem, and higher levels of depression and anxiety than typically developing controls ($N=267$). Autism social identification was positively associated with personal self-esteem, and this relationship was mediated by collective self-esteem (perceived positivity of Autism identity). Furthermore, there were significant negative indirect effects between Autism identification and anxiety, and between Autism identification and depression, through increases in collective self-esteem and personal self-esteem. Thus, while autistic participants reported poorer mental health than average, having a positive Autism social identity appeared to offer a protective mechanism. This implies that to improve mental health in the Autism population, clinical approaches should aim to facilitate development of positive Autism identities.

Keywords: Autism Spectrum Disorder, Social Identity, Self-Esteem, Anxiety, Depression

Social Identity, Self-Esteem, and Mental Health in Autism

Anxiety and depression are common mental health problems, with mixed depression and anxiety affecting 9.7% of the UK population, depression 2.6%, and anxiety 4.7% (Health & Social Care Information Centre, 2009). These problems are yet more common in autistic people (including Autism Spectrum Disorder and Aspergers Syndrome)¹, with a 53% lifetime rate of mood disorders and 50% lifetime rate of anxiety in autistic adults (Hofvander, et al., 2009). These mental health outcomes are also associated with lower personal self-esteem (an individual's perception of their personal self-worth; Baumeister, Campbell, Krueger, & Vohs, 2003; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel 2004),

There are a number of factors likely to contribute to the increased rates of mental health problems in this population. Research has tended to focus on biological mechanisms (e.g., Juranek et al., 2006), but social-psychological mechanisms such as societal stigma and its negative impact on self-esteem may also contribute to poor psychological well-being in autistic people (Gray, 2002). However, while some autistic individuals see the condition negatively and attempt to distance themselves from the Autism label (MacLeod, Lewis, & Robertson, 2013), others focus on the strengths of their condition (Hurlbutt & Chalmers, 2002). This suggests that some autistic people are able to leverage their condition for more positive mental health outcomes. In this article, we suggest that a *positive Autism social identity* might provide a mechanism by which autistic people can achieve psychological wellbeing (in terms of reducing depression and anxiety, and enhancing personal self-esteem). In so doing, this paper applies social identity principles to autistic people, a clinical population who have social and communication deficits, and face social stigma - factors that could interfere with the development of positive social identity. We assert that the social and health benefits of social identity processes are highly pertinent to this population, and have significant implications for clinical practice.

Autism Social Identity

We propose that the social identity approach (which includes both social identity theory, SIT; Tajfel and Turner, 1979, and self-categorization theory, SCT; Turner, Hogg, Oakes, Reicher & Wetherell, 1987) provides a helpful theoretical framework with which to consider *Autism identity*. We define Autism identity as a type of social identity. According to SIT, an individual's self-concept comprises not only personal characteristics that define the individual (their *personal identity*), but also characteristics shared with members of the various groups to which they may belong (their *social identities*). We suggest that Autism identity is one of many social identities that can be integrated into an individual's self-concept. Social identification with other autistic people (*Autism identification*) is defined as a feeling of psychological connection to the group, such that it is internalized within the individual's sense of self. It thereby has a range of cognitive, emotional and behavioural consequences, such that the individual feels and acts as a member of the same group as other autistic people.

Social identity research has suggested that group membership can improve physical and psychological well-being (Jetten, Haslam, & Haslam, 2012). This relationship between group identity and psychological well-being has been demonstrated in a range of social groups, for example in lesbian, gay and bisexual youth (Detrie & Lease, 2008) and people from ethnic minorities in the Netherlands (Verkuyten & Lay, 1998). In an attempt to understand the mechanisms underlying this relationship, Greenaway, Cruwys, Haslam, and Jetten (2015) demonstrated that increases in social identification over time were related to lower depression scores to the extent that psychological needs were satisfied, increasing an individual's sense of meaning, control and self-esteem. Jetten et al. (2015) provided evidence that the number of social groups an individual belongs to is positively related to personal self-esteem to the extent that those groups contribute to collective self-esteem, suggesting that

social identification improves personal self-esteem because people are proud of their (positive) group memberships.

While research has shown that social identities can be positive for mental health, having a diagnosis of autism, and being categorized into a group with other autistic people is not necessarily regarded as positive: indeed, this group membership carries stigma (MacLeod et al., 2013). Therefore, members of this group may find it difficult to derive a feeling of pride and satisfaction from their association with other members. Compounding this, as we explain below, there are social and communication deficits associated with autism that may interfere with social identity processes, and make it more difficult for autistic people to develop a sense of identification. In light of these considerations, in this research we explore whether social identification with other people with diagnoses of autism can offer psychological benefits for autistic people.

Social Identity Processes in Autistic People

Having autism is likely to negatively impact on an individual's ability to develop a positive social identity, thereby reducing psychological well-being. For example, autistic people face the challenge of maintaining a positive sense of self despite their membership in a stigmatized group. This may be resolved through using *identity management strategies* (Blanz, Mummendey, Mielke, & Klink, 1998) such as developing a sense of positive distinctiveness for the group, or focusing on the way in which group members have strengths compared to outgroup members. This is likely to be associated with collective self-esteem, or a positive representation of the group, without which, group members are at risk of poor psychological well-being. Crabtree, Haslam, Potmes & Haslam (2010) investigated group identity in people with mental health problems and found that group identity had both positive and negative implications for self-esteem. While group membership was negatively related to self-esteem, this was buffered by the positive effect of collective coping strategies

such as social support and stigma resistance. A similar buffering effect of social identification and in-group support was found in students with mental health problems (Elliott & Doane, 2015), while another study has found the opposite in people with depression, with group membership magnifying the negative relationship between stigma and well-being (Cruwys & Gunaseelan, 2016). As autism is a neurodevelopmental disorder with a unique cognitive profile, it is unclear whether the same processes would be apparent in this group as have been found in people with mental health problems.

Existing research has produced mixed results regarding the impact of having an identity as an autistic person. One qualitative study found that students with Asperger Syndrome made efforts to distance themselves from their Autism identity, defining themselves by other, more socially accepted identities (MacLeod et al. 2013). In contrast, studies investigating the opinions of autistic adults uncovered individuals with significant collective self-esteem who were proud of their Autism identity, arguing that it gives them a unique and important worldview (Hurlbutt & Chalmers, 2002). Thus far, it is unclear why individuals respond differently to their Autism identity. It is likely that a number of factors contribute to this response, including social stigma, family response to diagnosis, existing knowledge of the condition, cognitive processes, and assimilation of the diagnosis into one's self-concept.

A second set of complications that could negatively affect development of a positive Autism social identity are the social communication difficulties experienced by members of this group. In the typically developing population, social identities form through validating, consensual social interaction (Haslam, Eggins, & Reynolds, 2003; Smith, Amiot, Callan, Terry, & Smith, 2012; Smith, Amiot, Smith, Callan & Terry, 2013; Smith, Thomas, & McGarty, 2015). This can enhance attachment between individuals, increase their ability to provide social support to one another, and promote a shared sense of collective self-esteem

(Turner, 1991). However, autistic people by definition have deficits in social communication, along with restricted, repetitive patterns of behaviours, interests, and activities (according to The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013). Unsurprisingly, these difficulties with social communication can have a significant impact on an individual's social functioning. As one autistic woman observed, "As an adult, people often ask if I am ok. I really don't know what my face is saying." (Hendrickx, 2015, p128), and as another noted, "I've been told I'm very blunt and direct, and I often offend people without meaning to" (Hendrickx, 2015, p129). These are examples of impairments in understanding fundamental social communication cues that provide the basis for understanding and forming social relationships. Accordingly, these deficits may hinder the capacity of autistic people to develop social identification through social interaction

Alongside the general social communication difficulties found in autism, there are specific cognitive differences that may contribute to difficulties in forming an Autism social identity. For example, social and self-categorization skills are key to identifying members of an in-group prior to forming affiliations with the group. A recent study conducted by Skorich and colleagues (2016) found that people with autism spectrum traits are more likely to process social information at a localized rather than a global level, and that this affects mental state inference skills. This evidence suggests that the more localized social categorization found in autistic people contributes to their deficits in understanding others' thinking. Such difficulties in social categorization could lead to a reduced sense of belonging to a particular social group, thereby reducing social identification amongst autistic people.

Furthermore, autistic people have autobiographical memory deficits, which means that they struggle to remember details of key events in their lives (Crane & Goddard, 2008). This reduced capacity to remember life events leads to lower clarity of the self-concept,

making communication of social identity markers (e.g., participation in in-group events) more difficult. This relationship between autobiographical memory and self-concept clarity was mediated by the ability to make meaning from memories, that is, to gain knowledge about the self by reflecting on life events (Berna et al., 2016). For example, an autistic individual may struggle to remember a life event such as the birth of a sibling, and to reflect on the significance and meaning of this event to themselves, and this could affect the clarity of their identity as a family member. Indeed, autistic people use fewer, and more abstract, trait linked self-statements than typically developing controls, such as “I am hard-working” rather than specific social categories such as “I am a parent” (Tanweer, Rathbone & Souchay, 2010). This failure to retain specific autobiographical memories, to make meaning from these memories, and to define the self through social categories could affect the ability to develop a shared social identity and collective self-esteem through group membership.

Finally, being autistic could affect social identity processes through reduced social support. Research shows that people who belong to more groups have more opportunities to give and accept help within their networks of social support, increasing well-being (Jetten, et al., 2012). However, autistic people are likely to have fewer social group memberships (e.g., are less likely to be employed and/or attend higher education; both rich sources of social groups), and therefore have smaller support networks (Howlin, Goode, Hutton & Rutter, 2004). At the same time, autistic people face greater stigma because of their diagnoses – meaning, amongst other things, that they experience high levels of bullying (Humphrey & Hebron, 2015) - and therefore have a greater need for social support and the collective self-esteem it can provide.

Despite the clear social and cognitive disadvantages that autistic people have in developing positive, shared social identities, we propose that social identity processes could still provide an important way in which to improve the mental health of autistic people. The

cornerstone of our argument is that there are ways in which autistic people can overcome the aforementioned social and cognitive barriers to developing shared social identification, and that by doing so they could experience the benefits associated with having positive social identities. For example, many autistic people prefer to communicate via the internet rather than face-to-face, because face-to-face interactions include ambiguous social information that autistic people will find difficult to interpret. As one autistic individual stated, “Currently, I have many friends on Facebook and for me this is an ideal medium as it saves me the awkward personal interactions” (p148, Hendickx, 2015). Online communication enables mutual disclosure of Autism diagnoses, and exchange of positive information about life as an autistic person, that could provide a basis for shared self-definition and positive, collective self-esteem (see for example, Brownlow & O'Dell, 2006).

To date, no research has investigated the relationship between Autism identification, collective self-esteem, and psychological well-being in autistic people. The present study therefore aimed to measure these constructs in autistic adults and typically developing controls, and capture the common mental health problems, depression and anxiety (Health & Social Care Information Centre, 2009) to provide an indication of psychological well-being.

Hypotheses. We proposed that to the extent that an Autism identity was perceived to be positive, Autism identification would have positive effects on wellbeing through increasing personal self-esteem, and in turn, would reduce depression and anxiety. More specifically, we hypothesized that autistic people would have lower psychological well-being (lower personal self-esteem and higher levels of anxiety and depression) than people without Autism (H1). However, we proposed that to the extent that Autism identification positively contributed to collective self-esteem, it would be positively associated with psychological wellbeing (higher personal self-esteem and lower levels of anxiety and depression) (H2).

Method

We used a cross-sectional survey to measure Autism social identification and collective self-esteem in autistic people, and self-esteem, anxiety, and depression in autistic people and a typically developing (TD) control sample.

Participants

Participants ($N=539$) were over the age of 16 years and without known or suspected intellectual disability. Autistic participants ($n=272$) identified themselves as having a diagnosis of any Autism Spectrum Condition (ASC) i.e., Asperger's Syndrome, High Functioning Autism, Autism, Atypical Autism, Pervasive Developmental Disorder (PDD) and PDD-Not otherwise specified. Of these, 81% said that they had received a formal diagnosis from a professional. We recruited participants from a variety of sources such as online forums for autistic people, through the National Autistic Society (NAS) website and local NAS groups. We recruited participants without Autism (TD participants; $n=267$) online, through forums at the University where the research was conducted.

The average age of autistic participants was 32.7 ($SD=12.6$), and TD participants was 34.2 ($SD=12.2$). Of the autistic participants, 47% were women, compared to 53% of TD controls. In terms of education status, 52% of autistic participants were graduates, compared to 79% of TD participants. Regarding mental health status, 63% of autistic participants reported receiving a mental health diagnosis, compared to 26% of TD participants. Of the autistic participants, 50% were heterosexual compared to 82% of TD participants. There was no significant difference in age between TD and autistic participants $t(537)=-.947, p=.331$. Autistic participants were significantly less likely to be graduates $\chi^2(1, N = 539) = 76.58, p <.001$, were significantly more likely to have a mental health diagnosis $\chi^2(1, N = 539) = 73.36, p <.001$, and were significantly less likely to have a heterosexual orientation than TD controls $\chi^2(1, N = 539) = 57.10, p <.001$.

We obtained ethical approval from the University Ethics Committee (ref: 14-023). Test materials and information sheets were fully accessible to ensure that fully informed consent and accurate responses were obtained from all participants. Participants were aware of their right to withdraw their data at any point. We fully anonymized participants' data.

Materials and procedure

We used an online survey that contained standardized scales, which were preceded by an information sheet and a consent sheet. We requested relevant demographic information from each participant including their age, sex, sexuality, and education level. Two measures were given only to autistic participants; Autism identification and Autism collective self-esteem, and a measure of self-esteem was given to all participants.

Autism identification. We measured identification with Autism in autistic participants using a multidimensional scale of social identification developed by Leach et al (2008). This 14-item scale ($\alpha=.87$) has been found to be reliable across different social identities and has good construct validity. The scale has five components which fit within two broad dimensions. The first dimension is self-investment, which is made up of the components solidarity ($\alpha=.82$), satisfaction ($\alpha=.84$) and centrality ($\alpha=.78$). The second dimension is self-definition, which is made up of the components individual self-stereotyping ($\alpha=.86$) and in-group homogeneity ($\alpha=.66$). Each item was adapted for Autism identity, and the term selected was “people/person with autism”; for example: “People with Autism are very similar to each other”, and “I often think about the fact I have autism”. The questionnaire made clear to participants that this term referred to all diagnoses of Autism Spectrum Disorder (listed under ‘participants’). Items were scored from 1 “Strongly disagree” to 7 “Strongly agree”.

Autism collective self-esteem. The private and public collective self-esteem subscales (Luhtanen & Crocker, 1992) were adapted to measure collective self-esteem of

Autism identity in autistic participants. These measures capture beliefs about how positively a social group is viewed by society (public self-esteem) and how positively the social group is viewed by the individual (private self-esteem). This measure has been found to be reliable and valid, with reported subscale alphas in the range of 0.7 to 0.8. For the purpose of this study, two of the four subscales which measure private and public collective self-esteem were used, resulting in an eight-item scale ($\alpha = .69$). Items included: “In general, others respect my Autism” and “Most people consider people with autism, on the average, to be more ineffective than other groups” (reverse scored). Participants responded to the items on a 7-point Likert-type scales from 1 “Strongly disagree” to 7 “Strongly agree”.

Personal self-esteem. Personal self-esteem was measured in all participants using Rosenberg’s (1965) ten item scale ($\alpha = .91$). Personal self-esteem differs from collective self-esteem as it reflects an individual’s view of themselves rather than their group membership. The properties of this scale have been extensively investigated and it has been found to have good reliability (Schmitt & Allik, 2005) and validity (Sinclair et al., 2010). While the scale has been previously used with autistic people (e.g., Mawhood & Howlin, 1999) to the authors’ knowledge it has not been validated for this population. Example items are, “I feel that I have a number of good qualities”, and “On the whole, I am satisfied with myself”. Items were scored from 1 “Strongly Disagree” to 4 “Strongly agree”.

Anxiety. All participants were given the trait section of the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983), a 20-item scale ($\alpha = .939$). The reliability of the scale has been comprehensively researched, and found to have good consistency and reliability in a general population (Barnes, Harp, & Jung, 2002), however to the authors’ knowledge it has not been used or validated with autistic adults. An example item is “I feel nervous and restless”, and items were scored from 1 “Almost never” to 4 “Almost always”.

Depression. A trait measure of depression was given to all participants. The trait

depression scale (T-Dep; Spielberger et al., 2003) is a 20 item scale ($\alpha=.947$), which has good validity and reliability (Vera Villarroel et al., 2008), although to the author's knowledge it has not been used or validated with autistic adults. An example item is "I feel low", and items were scored from 1 "Almost never" to 4 "Almost always".

Control variables. We measured and controlled for three variables that are commonly associated with differences in mental health outcomes in the general population: sex (Eaton et al., 2012), sexuality (Semlyen, King, Varney & Hagger-Johnson, 2016), and education (Araya, Lewis, Rojas & Fristch, 2003).

Analytic Strategy

An a priori power analysis was conducted (Gpower3: Faul, Erfelder, Lang & Buchner, 2007) for the hypothesised indirect path model, which had five paths. In order to power at an 80% level, 253 participants were needed to detect significance (defined as $p<0.05$).

We conducted multivariate analysis of variance (MANOVA) to investigate group differences in each measure between autistic and TD participants, controlling for the three potentially confounding variables (sex, sexuality, and education level). We then explored the associations between Autism identification, collective self-esteem, personal self-esteem, anxiety, and depression via partial correlations, also controlling for the above extraneous variables. Next, we conducted path analyses on the data from autistic participants to examine the fit of the hypothesized model using the Maximum Likelihood procedure in AMOS v.18.0 (Byrne, 2009). This enabled us to examine the indirect relationships between Autism social identification and mental health outcomes through collective self-esteem and personal self-esteem, controlling for sex, sexuality and education level. Scores were centered, as recommended by Aiken, West and Reno (1991). We calculated the standardized bias-corrected bootstrap confidence intervals in AMOS 18.0 (for details of this bootstrapping

procedure, see Lau & Cheung, 2010), using the unbiased estimates of mediation effects provided by the path model. The models' goodness of fit was tested using the chi-square ratio, the comparative fit index ([CFI; Bentler, 1990](#)), the goodness of fit index (GFI; Tanaka & Huba, 1985), the root mean square error of approximation ([RMSEA; Browne & Cudeck, 1993](#)), and standardized RMR (Hu & Bentler, 1999).

Results

Preliminary Analyses

Sample differences. We conducted a MANOVA to investigate group differences on personal self-esteem, depression and anxiety between autistic people and TD controls, controlling for sex, sexuality, and education level (see Table 1). There was a significant effect of sex on personal self-esteem $F(1, 527)=5.16, p<.05$, whereby women ($M=25.21, SD=.58$) had lower personal self-esteem than men ($M=25.73, SD=.48$); but not on anxiety or depression. There was a significant effect of sexuality on anxiety $F(1, 527)=3.88, p<.05$, with heterosexual people ($M=50.1, SD=1.1$) experiencing lower anxiety than people with other sexualities ($M=54.62, SD=1.04$), but there was no effect on personal self-esteem or depression. There was a significant effect of education on depression $F(1, 527)=4.70, p<.05$, with those who were more highly educated ($M=40.18, SD=1.11$) having lower depression scores than the less educated ($M=48.72, SD=3.45$). There was a similar significant effect of education on personal self-esteem $F(1, 527)=15.21, p<.001$, with the more highly educated ($M=28.1, SD=.62$) having higher self-esteem than the less educated ($M=23.6, SD=1.4$). There was not a significant effect of education on anxiety. Therefore, these three variables were controlled for as significant covariates. Autistic people had significantly lower personal self-esteem than TD controls $F(4, 527)=29.34, p<.001$. Autistic people also had significantly higher levels of depression $F(4, 527)=38.77, p<.001$ and anxiety $F(4, 527)=46.20, p<.001$ than TD controls. We conducted this MANOVA twice, first comparing all participants with

self-reported Autism to TD controls, and then excluding participants who did not have a formal diagnosis of autism. The lack of formal diagnosis did not substantively affect the results³ and therefore all participants' data were included in the subsequent analyses.

Correlations. We calculated partial Pearson correlation coefficients to assess the relationship between Autism identification, collective self-esteem, personal self-esteem, anxiety, and depression in autistic people, controlling for sexuality, sex, and education level (Table 1). We found significant positive partial correlations between Autism identification and Autism collective self-esteem $r(263)=.430$, $p<.001$, and Autism identification and personal self-esteem $r(263)=.158$, $p=.01$. Significant correlations were also found between Autism collective self-esteem and personal self-esteem $r(263)=.391$, $p<.001$, Autism collective self-esteem and depression $r(263)=-.280$, $p<.001$, and Autism collective self-esteem and anxiety $r(263)=-.253$, $p<.001$.

Main Analyses

Fit indices for the hypothesized indirect model³ (controlling for sex, sexuality, and education) were, $\chi^2(2) = 3.56$, $p = .17$, GFI = .997, NFI = .995, IFI = .998, CFI = .998, SRMR = .02 (indicating excellent fit; Hu & Bentler, 1999) RMSEA = .05 (suggesting good error of approximation, Browne & Cudeck, 1993). This indicated that the hypothesized relationships explained a significant amount of variance in the data. There was a significant positive relationship between Autism identification⁴ and collective self-esteem, $\beta=.43$, $p<.001$. There was also a significant positive relationship between collective self-esteem and personal self-esteem, $\beta=.41$, $p<.001$, and between anxiety and depression, $\beta=.68$, $p<.001$. There was a significant negative relationship between personal self-esteem and anxiety, $\beta=-.79$, $p<.001$, and between personal self-esteem and depression, $\beta=-.16$, $p=.004$.

There were some significant relationships between the control variables and the model variables. Sexuality was positively related to Autism collective self-esteem, $\beta = .16$,

$p=.004$, indicating that being heterosexual was associated with a greater feeling that the Autism identity was positive. Education was positively related to personal self-esteem, $\beta = .18, p=.001$, suggesting that attaining a higher level of education was beneficial to personal self-esteem. Finally, sex was related to depression, whereby women had higher depression scores than men, $\beta = -.11, p=.004$. No other relationships between the control variables and the model variables were significant.

Insert Figure 1 about here

The results of bias-corrected bootstrapping with 2000 samples (Table 2) indicated that the standardized bootstrapped indirect relationship between Autism identification and personal self-esteem was 0.17 (95% CI = 0.11, 0.24), suggesting that collective self-esteem mediated this relationship. There were also significant negative indirect relationships between collective self-esteem and anxiety through personal self-esteem $\beta = -.32, (95\% \text{ CI} = -0.42, -0.23)$. There was a significant negative relationship between collective self-esteem and depression through personal self-esteem $\beta = -0.26, (95\% \text{ CI} = -0.36, -0.16)$. Most importantly, there were significant negative indirect paths from Autism identification to both anxiety $\beta = -.10, (95\% \text{ CI} = -0.20, -0.001)$, and depression $\beta = -.11, (95\% \text{ CI} = -0.20, -0.02)$, through collective self-esteem and personal self-esteem.

Insert Table 2 about here

Next, to examine the strength of the hypothesized indirect paths with all of the direct paths present, we ran the model depicted in Figure 1. In this model, the path between anxiety

and depression was constrained to 1 to provide a degree of freedom. Fit indices for the model were good, $\chi^2(1) = 39.25$, $p < .001$, GFI = .97, NFI = .95, IFI = .95, CFI = .94, RMSEA = .38, SRMR = .02 (Figure 1). Importantly, with the exception of the indirect effect of Autism identification on depression, each of the hypothesized paths and the indirect effects reported in Table 2 remained highly significant; even when the direct paths were also present. Furthermore, none of the direct paths were significant, suggesting that the hypothesized indirect processes represented full (rather than partial) mediation.

Discussion

In this study, we aimed to investigate the role of Autism identification in the mental health of autistic people. As predicted, autistic people had significantly lower personal self-esteem, and higher depression and anxiety, than TD controls. Whilst prior research has demonstrated that autistic people have poorer mental health than typically developing populations, to our knowledge this is the first study that demonstrates that autistic people report significantly lower levels of personal self-esteem than controls. This finding is particularly relevant to the social identity literature, which observes that personal self-esteem is positively associated with social identification. Indeed, we found that Autism identification was positively related to personal self-esteem to the extent that it provided a sense of collective self-esteem. In this way, our findings suggested that social identity processes are highly relevant to the population of autistic people, and therefore potentially amenable to clinical intervention.

Autism Identity and Psychological Well-being

Autism identification was positively associated with personal self-esteem through its association with collective self-esteem, and in turn it was negatively associated with depression and anxiety. These findings are in line with previous research, which has observed positive links between group membership and personal self-esteem (e.g., Jetten et al., 2015;

Greenaway et al., 2015). It is important to highlight the difference between personal self-esteem, or self-worth, and collective self-esteem, a facet of one's social identity, defined as how positively one sees an in-group (its social worth). The former construct is individualistic, while the latter relates to a group identity. Here, we demonstrate that self-worth is intertwined with social worth for autistic people. Thus, the two 'types' of self-esteem are inter-related, but they tap into different constructs; personal vs group worth.

Our findings are significant in that they demonstrate the expected relationship between social identity, collective self-esteem and psychological well-being, despite evidence of differences in social categorisation (Skorich et al., 2016), deficits in communication, and autobiographical memory and self-concept formation in autistic children (Lee & Hobson, 1998) and adults (Berna et al., 2016). This suggests that social identity processes are applicable to autistic people, despite differences in their social communication as compared to typically developing groups.

Significantly, our hypothesized indirect model was a more appropriate fit for the data than the direct model. Therefore, we found evidence of full mediation, rather than partial mediation. That is, Autism identification was not directly associated with depression and anxiety. It was indirectly (negatively) associated with depression and anxiety through collective self-esteem and personal self-esteem, a similar finding to that of Crabtree et al. (2010). This provides further support for our proposition that it is through the social identity mechanism of collective self-esteem, which increases personal self-esteem, that Autism identification is related to better mental health.

In terms of practical implications, these findings suggest that opportunities for autistic people to increase their collective self-esteem are crucial to their personal self-esteem, and by extension, their psychological well-being. Given that we found significantly lower personal self-esteem in autistic people compared to controls, it is imperative that interventions target

collective self-esteem in this group. A number of strategies could help autistic people define their identity positively and increase collective self-esteem. In terms of those led by autistic people, Brownlow and O'Dell (2006) described the positive online community support which can help autistic individuals to focus on the positive traits associated with Autism. Further, support and advocacy groups such as those offered by the National Autistic Society can provide an opportunity for individuals to socialise face-to-face and focus on strengths of their identity. Nevertheless, recent cutbacks to Autism support services (Salman, 2010) reduce opportunities for autistic people to develop collective self-esteem arising from shared discussions and contact with skilled, supportive advocates, and the present findings would suggest that this will reduce opportunities for autistic people to improve their psychological well-being. Given the high proportion of autistic people who feel they face many problems due to not being understood by the general public (Beardon & Edmonds, 2007), educational interventions aimed at reducing stigma and peer victimisation towards autistic people may also be of benefit.

In terms of strategies linked to services and professionals, post-diagnostic education and support is an avenue for developing collective self-esteem. An example of this would be the PEGASUS post-diagnostic psychoeducational group, which increased the number of strengths that autistic children could remember regarding their Autism identity (Gordon et al., 2015) following attendance. The terminology used to describe Autism may also contribute to collective self-esteem in autistic people, although there is not a clear consensus on preferred terminology. Kenny et al. (2015) found that while professionals prefer 'person first' terminology, i.e. "person with autism", autistic people preferred 'disability-first' terminology, i.e. "autistic person", which is thought to indicate that Autism is not a negative identity to be distanced from. Clearly, use of language that autistic people experience as negative is likely to contribute to negative collective self-esteem for this group. Accordingly, professionals

should consider their use of language carefully.

Another important way to foster collective self-esteem is the provision of opportunities for employment. Today in the UK, just 15% of autistic adults are in employment (Reid, 2006), and a 2012 National Autistic Society survey found that 35% of autistic adults had faced bullying or discrimination at work. Positive experiences of being valued and skilled at work could have a positive impact on identity. It has been reported that some employers do indeed benefit from the reliability and trustworthiness characteristic of autistic workers (Hendricks, 2010), and if such individuals were made aware of this it could well have positive implications for their Autism identity. Furthermore, having an identity as an employee will increase the number of identities an individual has, and higher number of social identities is known to be a protective factor against a range of physical and mental health problems (Jetten et al., 2012).

Strengths, Limitations, and Future Directions

While we found positive associations between Autism identification and psychological well-being, our study used a cross-sectional design and therefore our findings cannot provide conclusive evidence for any particular causal pathway. Indeed, the relationships we have identified are likely to be reciprocal. Furthermore, participants self-identified as having autism, and while other large online studies have used this strategy (i.e., Kenny et al., 2016), and the results were not significantly affected by the removal of this group, it is not necessarily the case that all participants in the Autism group would meet full diagnostic criteria for an Autism Spectrum Disorder. Despite these caveats, this research has provided the first exploration of the importance of social identity processes for autistic people. Moreover, we would suggest that this clinical population has a particular need for insight from social identity research, given the difficulties associated with the condition. To gain clarity regarding the direction of the relationships, our findings should be leveraged as a

conceptual starting point for longitudinal studies investigating the relationship between Autism identification and personal self-esteem over time, or experimental studies manipulating collective self-esteem and measuring its impact on psychological wellbeing.

This study therefore offers a unique view and test of social identity processes, demonstrating that the assumptions of the social identity approach can be usefully applied to autistic people as a social and psychological group. However, other research has demonstrated that some of the cognitive and social abilities needed to self-identify and create social cohesion are impaired in this group (e.g., Skorich et al., 2016, Berna et al., 2016). The current results do not explain how social identity processes prevail in autistic people despite significant barriers in terms of social cognitive abilities. Need satisfaction, such as the sense of purpose, meaning and control derived from group membership, is known to contribute to collective self-esteem and increase psychological well-being in typically developing people (Greenaway et al., 2015). It is likely that these factors are also relevant to Autism identity, and further studies could explore their role in autistic people. Future research should also expand upon the current study by exploring the content of Autism identity to increase understanding of social identity as defined by autistic individuals.

Conclusion. This study contributes to both the social identity and Autism literatures in two key ways. Firstly, by demonstrating lower personal self-esteem in autistic people compared to the general population, a finding that has often been assumed but not explicitly investigated. Secondly, by providing evidence of the relationship between Autism identity and psychological well-being, through personal self-esteem and collective self-esteem. As predicted by social identity theory, our findings highlight the critical role of *positive* Autism identity in mental health. We hope that this seminal knowledge will highlight the importance of supporting autistic people to adjust positively to their identity.

Notes

¹In the current study, we refer to individuals with autism as “autistic people”, as this was a term endorsed by 61% of 502 autistic people in a recent study, compared to 18% who would use “person with autism” (Kenny et al., 2016).

² Autistic people who reported a formal diagnosis had significantly lower self-esteem than TD controls $F(4, 483)=53.088, p<.001$. Autistic people with a formal diagnosis also had significantly higher levels of depression $F(4, 483)=100.79, p<.001$ and anxiety $F(4, 483)=111.27, p<.001$ than TD controls.

³ We ran two conceptually plausible alternative models, in which we varied the order of variables in the model. The first of these alternative models tested a model in which collective self-esteem was the independent variable, predicting mental health outcomes through Autism identification and personal self-esteem. Autism identification was located as the mechanism linking collective self-esteem to personal self-esteem. Personal self-esteem was then directly related to the mental health outcomes. We found no significant path between Autism identification and personal self-esteem. Therefore collective self-esteem was not indirectly related to mental health outcomes through increases in identification and personal self-esteem. However, there was an indirect relationship between collective self-esteem and mental health outcomes through personal self-esteem, bypassing Autism identification (anxiety: $\beta = -.28$ (95% CIs $-.37, -.19$) and depression: $\beta = -.21$ (95% CIs $-.31, -.11$)). In the second alternative model, personal self-esteem was connected to mental health outcomes through collective self-esteem and Autism identification. Autism identification was then directly connected to the mental health outcomes. However, we did not find significant paths between Autism identification and the mental health outcomes. Therefore, there were no indirect relationships between the independent and process variables and the outcomes.

⁴To examine whether one of the subscales of identification is more critical to the relationship between Autism identification and collective self-esteem than others, we conducted sensitivity analyses. We ran a model in which Autism identification was a latent factor, with the five subscales from Leach et al. (2008) as observed variables (solidarity, centrality, satisfaction, homogeneity, self-stereotyping), $\chi^2(33) = 230.99, p < .001$, GFI = .89, NFI = .81, IFI = .83, CFI = .83, RMSEA = .15, SRMR = .09. Each of the subscales significantly and positively contributed to the latent factor (β ranged from .57 to .73, all $p < .001$). We then systematically removed each subscale from the identification latent factor. On removal of centrality, the model was unidentified. On removal of homogeneity, the path between identification and collective self-esteem remained significant $\beta = .69, p < .001, \chi^2(23) = 139.20, p < .001$, GFI = .91, NFI = .69, IFI = .89, CFI = .88, RMSEA = .14, SRMR = .09. On removal of solidarity, the path between identification and collective self-esteem remained significant $\beta = .27, p < .001, \chi^2(23) = 203.61, p < .001$, GFI = .90, NFI = .81, IFI = .83, CFI = .82, RMSEA = .17, SRMR = .09. On removal of satisfaction, the path between identification and collective self-esteem remained significant $\beta = .22, p < .001, \chi^2(23) = 56.54, p < .001$, GFI = .96, NFI = .94, IFI = .96, CFI = .96, RMSEA = .07, SRMR = .09. Finally, on removal of self-stereotyping, the path between identification and collective self-esteem remained significant $\beta = .22, p < .001, \chi^2(23) = 139.15, p < .001$, GFI = .91, NFI = .87, IFI = .89, CFI = .89, RMSEA = .14, SRMR = .09. These analyses suggested that global Autism identification is related to collective self-esteem, and that the relationship is not reducible to one particular subcomponent of identification.

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Table 1

Means and Standard Deviations (SD) for Typically Developing Control Sample ($n=267$) and Autistic participants ($n=272$) and Partial Correlations for whole sample ($n=539$)

	Autism		TD		1.	2.	3.	4.	5.	6.	7.
	<i>M</i>	SD	<i>M</i>	SD							
1. Autism identification	4.26	0.90			(.87)						
2. Autism collective self-esteem	15.00	3.39			.43***	(.69)					
3. Personal self-esteem	24.30 _a	6.03	29.11 _b	5.70	.16**	.39***	(.91)				
4. Anxiety	56.18 _a	10.30	44.18 _b	11.09	-.037	-.25***	-.76***	(.94)			
5. Depression	47.72 _a	10.01	37.28 _b	9.86	-.046	-.28***	-.70***	.82***	(.95)		
6. Sex					.00	-.016	-.065	.033	-.021		
7. Sexuality					.024	.147*	-.193***	.247***	.191***	.119**	

8. Education	.107	.018	.280***	-.237***	-.245***	.054	-.153***
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* $p < .05$, ** $p < .01$, *** $p < .001$ Means on rows with different subscripts differ at $p < .05$.

Cronbach's alphas are in parentheses.

Sexuality was coded: 1= not heterosexual, 0 = heterosexual

Sex was coded: 1 = female, 0 = male

Education was coded: 0=No qualifications, 1=GCSEs, 2=A Levels, 3=Graduate 4=Post-Graduate, with a higher number indicating a higher educational level

Table 2

Standardized Bias-Corrected Bootstrap Confidence Intervals for Indirect Effects

Indirect Effect	Mean	95% confidence interval
Autism identification → Collective Self-Esteem → Personal self-esteem	.17* (.17*)	.11, .24 (.11, .24)
Collective Self-Esteem → Personal self-esteem → Anxiety	-.32* (-.32*)	-.42, -.23 (-.41, -.22)
Collective Self-Esteem → Personal self-esteem → Depression	-.26* (-.28*)	-.36, -.16 (-.38, -.18)
Autism identification → Collective Self-Esteem → Personal self-esteem → Anxiety	-.10* (-.11*)	-.20, -.001 (-.22, -.02)
Autism identification → Collective Self-Esteem → Personal self-esteem → Depression	-.11* (-.07*)	-.20, -.02 (-.18, .03)

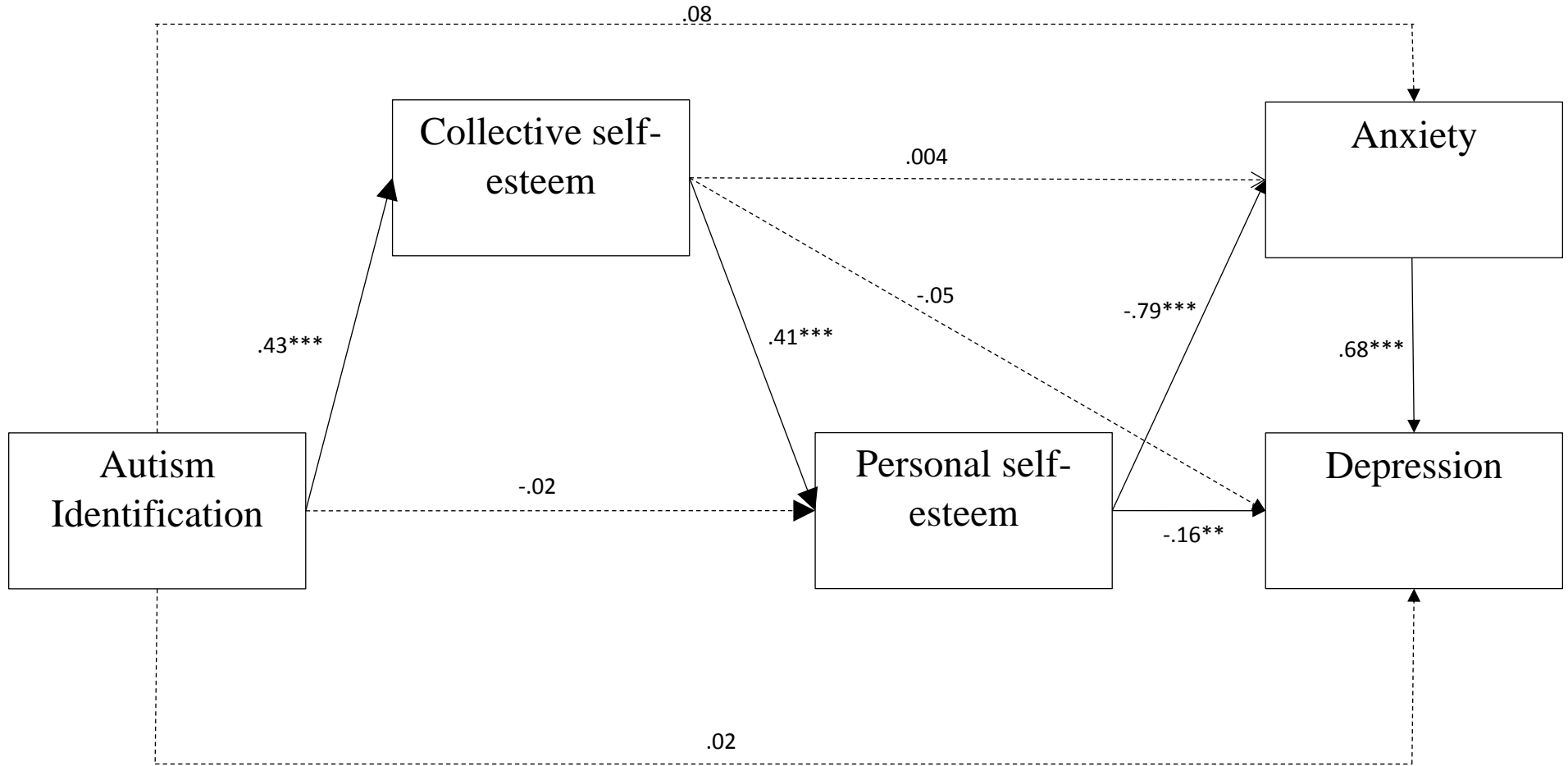
Number of samples = 2000

* $p < .05$

These results control for sex, sexuality, and educational level

Results in parentheses are the indirect effects controlling for the direct paths in Figure 1

Figure 1
Standardized Coefficients for Model with both Direct and Indirect Paths



* $p < .05$; *** $p < .001$; standardized regression coefficients appear on each path.
This model controls for sex, sexuality, and educational level.