RESEARCH ARTICLE

Poly-victimization of autistic adults: An investigation of individual-level correlates

Vicki Gibbs[1] [ORCID] | Jennifer L. Hudson[2] | Elizabeth Pellicano[1,3]

[1]Macquarie School of Education, Macquarie University, Macquarie Park, New South Wales, Australia

[2]Black Dog Institute, Randwick, New South Wales, Australia

[3]Department of Clinical, Educational and Health Psychology, University College London, London, UK

Correspondence
Vicki Gibbs, Macquarie School of Education, Macquarie University, Balaclava Road, Macquarie Park, NSW 2109, Australia.
Email: vicki.gibbs@hdr.mq.edu.au

Abstract

Autistic people experience high rates of violence and victimization which is largely due to structural injustices, including stigma and social attitudes. Identifying and addressing systemic and structural factors is vitally important, however effecting change in embedded social structures is likely to take some time, even with concerted efforts. In the meantime, it is important to understand whether there are other individual-level factors that may assist in developing preventative and protective strategies for autistic people. The current study investigated the role of individual-level risk factors in the victimization of autistic people. Specifically, we examined whether characteristics that are common among autistic people that is, lower social competence, higher compliance and emotion regulation difficulties or more ADHD features (inattention, impulsiveness and hyperactivity) were associated with poly-victimization in a community sample of 228 adults (118 autistic, 110 non-autistic). Our results show that only ADHD features were predictive of poly-victimization once socio-demographic background variables (age, sexual orientation) were adjusted for. Group status was not a significant predictor in the model and there were no interaction effects between any of the characteristics and group status. These findings suggest that, regardless of whether a person is autistic, ADHD features may place individuals at higher risk of experiencing multiple forms of violence in adulthood. Further research using longitudinal designs and larger, diverse samples is needed. Furthermore, the regression model only accounted for about one-third of the variance in poly-victimization which highlights the importance of looking beyond individual-level risk factors to structural and systemic factors that contribute to disproportionate victimization of autistic people.

Lay Summary

This study explored whether individual-level factors are associated with experiencing multiple types of violence for autistic adults. We asked 118 autistic adults and 110 non-autistic adults to complete measures of ADHD features, social competence, emotion regulation, compliance, and experiences of violence. For both groups, only ADHD features predicted multiple types of violence once sexual orientation and age were taken into account. However, these factors only provide a partial explanation for why victimization is so commonly experienced by autistic people. Broader societal factors are likely to be much more important. Future research should concentrate on how we can make autistic people's homes, workplaces and communities safer.

KEYWORDS
ADHD, autism, poly-victimization, victimization, violence

INTRODUCTION

Autistic children and young people are at higher risk of peer victimization, and physical, emotional and sexual abuse compared to their non-disabled counterparts (Carter, 2009; Mandell et al., 2005; McDonnell et al., 2019; Paul et al., 2018; Pfeffer, 2016; Sullivan & Knutson, 2000). Recent research indicates that an increased risk for victimization, including physical and sexual violence, extends well into adulthood for autistic people (Brown et al., 2017; Brown-Lavoie et al., 2014; Gibbs et al., 2021; Griffiths et al., 2019; Reuben et al., 2021; Rumball et al., 2020). Experiencing multiple types of violence (commonly termed poly-victimization; Finkelhor et al., 2007) is unfortunately also more common among autistic people (Gibbs et al., 2022; Hellström, 2019; Pfeffer, 2016) and has been shown in the general population to have even greater negative impacts than multiple events of a single type of victimization (Sabina & Straus, 2008). These negative life experiences are likely to be a contributing factor to the high rates of co-occurring mental health conditions, including post-traumatic stress disorders (Haruvi-Lamdan et al., 2017; Kerns et al., 2015; Rumball, 2019), and lower life satisfaction among autistic people (Griffiths et al., 2019; Taylor & Gotham, 2016).

Factors associated with disproportionate victimization

Social and structural factors

This alarmingly disproportionate victimization of autistic people is most likely largely due to structural injustices, such as discrimination, stigma, and pervasive negative social attitudes. Autistic adults are often unemployed or underemployed (Baldwin et al., 2014; Hedley et al., 2017; Roux et al., 2013), are more likely to be financially disadvantaged (Cai et al., 2022) and are at increased risk of homelessness (Campbell & Winn, 2015; Stone, 2019) than non-autistic adults—all forms of disadvantage that have been linked to an increased risk of victimization (Capaldi et al., 2012; Gannon & Mihorean, 2005; Nazaretian & Fitch, 2021; Romans et al., 2007). Autistic people also often report experiencing stigma (Botha et al., 2022) which may be due, at a group level, to stereotypes associated with autism (Dickter & Burk, 2021; Russell & Norwich, 2012) and, at an individual level, from negative perceptions arising from differences in social behaviors (Sasson et al., 2017; Sasson & Morrison, 2019). Some stereotypes and negative perceptions revolve around inferiority (Sasson et al., 2017), infantilization (Akhtar et al., 2022; Stevenson et al., 2011) and false assumptions of asexuality (Mackenzie, 2018), which may contribute to dehumanizing interactions and treatment of autistic people (Cage et al., 2019), such as interpersonal violence.

This public stigma can also be internalized by autistic people (Han et al., 2022), impacting self-esteem and confidence, which in turn can increase vulnerability to abuse and victimization.

It is vital that researchers begin to examine ways in which structural and systemic disadvantage for autistic people can be addressed. However, even with concerted efforts by researchers and policy makers, there is still likely to be a considerable gap between such research and its translation, due to the embedded nature of the social structures that underpin such inequalities. In the meantime, given the elevated rates of violence victimization among autistic people (Brown et al., 2017; Brown-Lavoie et al., 2014; Gibbs et al., 2021; Griffiths et al., 2019; Reuben et al., 2021; Rumball et al., 2020) and the broad range of debilitating and adverse outcomes often associated with such experiences (Dworkin et al., 2017; Lagdon et al., 2014; Pearson, Rees, & Rose, 2022), it is also important that research focuses on what autistic people and their families and communities/allies can do in their own lives to minimize risk where it is possible or desirable to do so.

The social ecological model (Bronfenbrenner, 1977; Messman-Moore & Long, 2003) is the most widely used theoretical approach to understanding violence. This model emphasizes the importance of considering a range of risk factors across individual, relational, community and societal levels, and their interactions, in order to understand why some people may be more likely to be victimized, and what can be done to minimize victimization and provide support. Examining personal characteristics that may heighten vulnerability within this approach is done so with the aims of proactively identifying individuals who are at higher risk, developing targeted preventative strategies or programs and facilitating recognition and support for those who have been victimized in order to reduce harmful secondary effects and decrease the likelihood of re-victimization.

Individual characteristics

A number of studies have investigated whether individual characteristics such as autistic traits are associated, at least in part, with violence victimization. Some have found that autistic traits, typically measured using a single scale, such as the Autism Quotient (Baron-Cohen et al., 2001), increase the risk of victimization (Gibbs et al., 2021; Roberts et al., 2015) while others have found no such relationship (Trundle et al., 2022; van Schalkwyk et al., 2018). It is possible that some aspects of being autistic are more strongly associated with violence risk than others but are not currently captured sufficiently by these broad scales. One such aspect is social competence—that is, the active, skillful coordination of a range of abilities and behaviors to meet the social demands of a particular situation (Iarocci et al., 2007).

Social competence has been shown to be significantly associated with victimization among people with intellectual disability and mental illness (Chapple et al., 2004; Fisher et al., 2012, 2013; Nettelbeck & Wilson, 2002; Wilson et al., 1996). Accounts of perceived risk factors for violence from autistic adults themselves point to social competence as potentially contributing to increased risk. For example, autistic adults have suggested difficulties reading others' intentions and non-verbal social cues, a yearning for acceptance due to few friendships, lack of awareness of social rules, and being overly open and trusting of others may leave them open to being abused or taken advantage of (Bargiela et al., 2016; Fardella et al., 2018; Pearson, Rees, & Forster, 2022; Sedgewick et al., 2019). Differences in social competence might mean, for example, that autistic people miss contextual cues that indicate inappropriate or dangerous behavior. They might also find it difficult to distinguish between "safe" and "unsafe" behaviors and social contexts and may be less likely to recognize the negative intentions of others leaving them vulnerable to exploitation. This may also be exacerbated by the mismatch in communication styles that can arise between autistic and non-autistic people (Crompton et al., 2020; Milton, 2012), which can result in autistic people being viewed more negatively (Alkhaldi et al., 2021; Sasson et al., 2017), and make autistic people more attractive targets for perpetrators (Pearson, Rees, & Forster, 2022).

Emotion regulation difficulties and attention deficit hyperactivity disorder (ADHD) have also been associated with violence victimization (Marx et al., 2005; Messman-Moore et al., 2013; Snyder, 2015). Autistic people often experience emotion regulation difficulties (Cibralic et al., 2019; Samson et al., 2014) and ADHD is the most frequent co-occurring condition among autistic children and adults (Lugo-Marin et al., 2019; Rong et al., 2021). In fact, the overlaps in social, psychological and cognitive profiles found among autistic people and those with ADHD (Baribeau et al., 2015; de Boer & Pijl, 2016; Karalunas et al., 2018) and the association between ADHD features (inattention, impulsiveness and hyperactivity) and autistic traits (Panagiotidi et al., 2018) have led some researchers to view ADHD and autism as related, albeit distinct, conditions (Antshel & Russo, 2019).

Some studies have also found heightened compliance in autistic adults (Chandler et al., 2019; North et al., 2008), and passive behaviors have also been shown to be related to victimization risk (Chandler et al., 2019; Fisher et al., 2013). From their own accounts, autistic women themselves have described how a tendency to passivity and acquiescence may lead to vulnerability, particularly in close relationships (Bargiela et al., 2016; Sedgewick et al., 2019). In a larger qualitative study investigating experiences of interpersonal victimization, heightened compliance was highlighted by many of the autistic adults as a contributing factor in their experiences (Pearson, Rees, & Forster, 2022; Pearson, Rees, & Rose, 2022). Individual characteristics such as compliance and passivity may be shaped by broader social factors such as pressure to conform, unequal power dynamics in relationships and experiences of social exclusion.

To our knowledge, there is only one quantitative study investigating the possible role of specific individual risk factors for violence experienced by autistic adults. Contrary to expectations, Weiss and Fardella (2018) found no significant relationships between social competence or emotion regulation and autistic adults' victimization experiences in childhood and adulthood. These results were based on a relatively small sample size ($n = 45$) without controlling for demographic variables, such as age, gender or socio-economic status, which are known to affect violence risk in the general population (Fedina et al., 2020; Lauritsen & Carbone-Lopez, 2011; Macmillan, 2001; Morgan & Oudekerk, 2019; US Department of Justice, 2019). The possible contribution of other individual factors, including ADHD features and compliance to violence risk, have not yet been examined in an autistic population.

The characteristics and correlates of violent victimization experiences of autistic adults have received little attention until recently. In fact, most of the research to date has focused on perpetration of violence among autistic people, despite little evidence of higher prevalence of offending behavior (Bowden et al., 2021). To address this gap, we surveyed both autistic and non-autistic adults, obtaining socio-demographic data, measures of each of the variables of interest outlined above and asking about their experiences of a range of violence types. We have previously reported on the comparison of rates of violence and gender patterns across the autistic and non-autistic groups and contextual factors of violence experiences for the participants who took part in this survey (Gibbs et al., 2022). We found that autistic adults reported alarmingly high rates of poly-victimization relative to non-autistic adults. In the absence of structural or systemic changes to address the ongoing marginalization of autistic people, understanding individual factors may provide important information for self-advocates, families and clinicians and assist in targeting preventative and protective efforts.

The current study

The aim of the current study was to identify any such individual factors, in particular, characteristics that are common among autistic people, which may place people at greater risk of experiencing victimization. Specifically, we examined whether lower social competence, higher compliance and emotion regulation difficulties and more ADHD features were associated with poly-victimization after adjusting for any significant socio-demographic variables and group status (autistic/non-autistic).

METHODS

Design and procedure

To investigate the relationship between individual-level correlates and poly-victimization we employed a cross-sectional study design comparing autistic individuals to a non-autistic comparison group. Ethical approval was obtained from the Human Research Ethics Committee (HREC; approval number 5205059192411 at Macquarie University. To be included, participants needed to be 19 years or older and able to read and write in English. To minimize any confounding effects of individual characteristics other than those that were the focus of this study, we excluded individuals who reported a previous diagnosis of intellectual disability, schizophrenia, bipolar disorder, or other delusional disorder. Recruitment for both autistic and non-autistic participants occurred via online flyers distributed via email and social media to autism-specific organizations, Facebook groups, and personal networks in Australia and overseas. Snowball sampling methods were also introduced to boost recruitment, with participants asked to share the researcher's contact details via their networks. Interested individuals contacted the researcher via email and were sent a survey link to the online version on Qualtrics (https://qualtrics.com). An additional 34 non-autistic adults were recruited via a crowd-sourcing platform for online research (https://prolific.co). All participants provided informed consent prior to taking part in the survey.

Measures

Demographic and diagnostic history

We asked participants to report demographic characteristics including age, gender, sexual orientation, ethnicity, education level, employment status and whether they had a professional diagnosis of autism or self-identified as autistic.

Screening for autism group status

The Autism Quotient Short Form (AQ-S) is an abridged version of the 50-item Autism Quotient (AQ) (Baron-Cohen et al., 2001) and is a screening instrument for autistic traits (Hoekstra et al., 2011). Each of its 28 items (e.g., "I prefer to do things the same way over and over again"; "I usually notice car number plates or similar strings of information"; "I find social situations easy") are rated on a 4-point scale ranging from 1 (definitely agree) to 4 (definitely disagree). Higher scores indicate higher autistic traits. Very high Pearson's correlations ($r = 0.93–0.95$) have been reported between the full AQ and AQ-S (Hoekstra et al., 2011). Kuenssberg et al. (2014) confirmed good fit of the AQ-S structure in a sample of autistic individuals without intellectual disability, whereby total AQ-S mean scores yielded good internal consistency (Cronbach's α of 0.84). In the current sample, internal consistency ranged from good to excellent with Cronbach alpha coefficients of $\alpha = 0.94$ for the full sample, $\alpha = 0.85$ for the non-autistic and $\alpha = 0.79$ for the autistic groups. Excellent test accuracy (Area Under the Curve $= 0.97$) for distinguishing latent traits in autistic and non-autistic participants has been demonstrated (Hoekstra et al., 2011).

Individual characteristics

Social competence

Socio-communicative competence was measured with the self-report version of the Multidimensional Social Competence Scale (MSCS) (Yager & Iarocci, 2013). The MSCS is a self-report test of social competence designed for autistic and neurotypical adolescents and adults. The MSCS measures seven domains of social competence: social motivation, social inferencing, demonstrating empathic concern, social knowledge, verbal conversation skills, nonverbal sending signals and emotion regulation. Participants are required to a series of statements about their behavior in social situations on a scale ranging from 1 (Not true or almost never true) to $5 =$ (Very true or almost always true). Examples include "I stay in the background in group social situations," "My facial expressions are easy to read" and "I can tell when people are joking". The MSCS has been shown to demonstrate good internal consistency for the full scale ($\alpha = 0.80$), and the seven domains and full scale of the MSCS range from acceptable, $\alpha = 0.74$ to good, $\alpha = 0.83$ (Trevisan et al., 2018). In the current study, internal consistency was excellent: Cronbach's $\alpha = 0.97$ for the full sample, $\alpha = 0.95$ for the non-autistic and $\alpha = 0.93$ for the autistic groups.

Emotion regulation

We measured emotion regulation with the Difficulties in Emotion Regulation Scale-16 (DERS-16) (Bjureberg et al., 2016), a short 16-item version of the original 36 item DERS (Gratz & Roemer, 2004). In a previous study, the DERS-16 was found to have high internal consistency ($\alpha = 0.92$) and a significant and positive correlation with another measure of emotion regulation demonstrating validity (Bjureberg et al., 2016). Example items included "I have difficulty making sense of my feelings" and "When I am upset I become out of control". In the current study, estimates of internal consistency were high, with Cronbach alpha coefficient of 0.96 for the full sample, $\alpha = 0.95$ for the non-autistic and $\alpha = 0.94$ for the autistic groups.

ADHD features

The World Health Organization Adult Attention-Deficit/Hyperactivity Disorder Self-Report Screening Scale for DSM-5 (ASRS-5) (Ustun et al., 2017) was used to assess for ADHD features. It is a six-item checklist that includes both inattentive and hyperactive/impulsive symptoms on a 5-point scale ranging from 0 (never) to 5 (very often). The ASRS-5 has been shown to have good-to-excellent psychometric properties (sensitivity ranging from 91.4% to 91.9%; specificity 74% to 96%; Area Under the Curve, 0.83 to 0.95 and Positive Predictive Value, 67.3% to 82.8%). In this sample, internal consistency was more than adequate for the full sample with a Cronbach alpha coefficient of 0.78 but notably only moderate in each group separately (non-autistic group: $\alpha = 0.66$: autistic group: $\alpha = 0.69$).

Compliance

Gudjonsson Compliance Scale (GCS). The Gudjonsson Compliance Scale Form D (GCS) (Gudjonsson, 1989) is a 20-item self-report questionnaire measuring the tendency of people to conform to requests made by others, particularly people in authority, to please them or to avoid conflict and confrontation. Example items included "I find it very difficult to tell people when I disagree with them" and "I tend to go along with what people tell me even when I know they are wrong." Responses are in true/false format. Scores range from 0 to 20; higher scores representing higher levels of compliance. The GCS has been used to measure compliance in autistic adults in three prior studies (Chandler et al., 2019; Maras & Bowler, 2012; North et al., 2008). The GCS has been shown to have acceptable internal consistency ($\alpha = 0.71$) and test–retest reliability of 0.88 (Gudjonsson, 1989). In this sample, internal consistency was good (full sample: $\alpha = 0.85$; autistic group: $\alpha = 0.87$; non-autistic group: $\alpha = 0.81$).

Poly-victimization

We gathered information about sexual harassment, stalking and harassment, sexual violence and physical violence since the age of 15, based on questions from the Australian Bureau of Statistics' (ABS) Personal Safety Survey (ABS, 2016). Participants were asked whether they had experienced any of the following forms of violence using a yes/no response format:

- *Sexual harassment*, including someone exposing himself/herself to them, making them uncomfortable by making inappropriate comments about their body or their sex life or sending them indecent texts or emails;
- *Stalking and harassment*, including someone following them or watching them, interfering with or damaging their property, loitering or hanging around their home, workplace or where they socialize, hacking their online account or social media without their consent;

- *Sexual violence*, anyone including relationship partners, ever forcing them or trying to force them into sexual activity against their will; and
- *Physical violence*, including anyone pushing, shoving, hitting, kicking, throwing things at them, or attacking them with an object.

For analysis purposes, we created a dichotomous dependent variable where those participants who reported two or more forms of violence were placed into the category of poly-victim (0 = no or single type of violence, 1 = poly-victim).

Data analysis

Data analysis was conducted using SPSS Statistics Version 25. There were no missing data on any items measuring individual characteristics or outcome measures. Preliminary tests of normality were conducted using the Kolmogorov–Smirnov statistic; subsequent analysis was determined by the normality results for each variable. To begin, we report the descriptive statistics for the numbers of violence types reported. We then conducted Mann Whitney U tests to compare autistic adults and non-autistic adults, as well as poly-victims and non-poly-victims, on the four measures of individual characteristics (social competence, emotion regulation, ADHD features and compliance). Finally, we conducted a hierarchical logistic regression to estimate the effects of individual characteristics on poly-victimization after controlling for group (autistic, non-autistic) and any sociodemographic variables with a p value < 0.05 in the preliminary bivariate analysis. Including all participants in the same model increased statistical power and allowed us to test for an interaction between group and individual characteristics/sociodemographic variables.

Participants

In total, 228 adults, aged between 19 and 70 years ($M = 36.43$ years, $SD = 12.74$) completed the survey, including 118 autistic and 110 non-autistic adults (see Table 1). Full details regarding participant demographics is described in Gibbs et al. (2022). Of the 118 autistic adults, 104 self-reported a professional diagnosis of autism, while the remaining 18 self-identified as autistic but did not have a professional diagnosis. We included self-identified individuals in the autistic group to account for the "lost generation" of people who may have been excluded from receiving a formal diagnosis due to practical or individual reasons (e.g., lack of access to affordable assessment services or appropriately skilled clinicians) (Lai & Baron-Cohen, 2015). An additional 22 participants took part, including 18 non-autistic participants who were excluded from analyses because they scored above the cut-off of 65 (range = 66–81) on the Autism

TABLE 1 Participant demographics.

	Autistic (n = 118) n (%)	Non-autistic (n = 110) n (%)
Age		
Mean	35.79 (SD = 13.33)	37.13 (SD = 12.19)
Range	19–70	19–66
Gender		
Men	25 (21.2%)	25 (22.7%)
Women	77 (65.3%)	84 (76.4%)
Other	15 (12.7%)	1 (0.9%)
Prefer not to say	1 (0.8%)	0
Sexual orientation		
Heterosexual	55 (46.6%)	97 (88.2%)
Gay/Lesbian/ Homosexual	12 (10.2%)	6 (5.5%)
Bisexual	13 (11.01%)	6 (5.5%)
Pansexual	9 (7.62%)	0
Asexual	6 (5.08%)	0
Queer	5 (4.23%)	0
Questioning	2 (1.69%)	0
Other (not specified)	9 (7.62%)	0
Prefer not to say	7 (5.9%)	1 (0.9%)
Country		
Australia	64 (54.2%)	63 (57.3%)
United Kingdom	20 (16.9%)	29 (26.4%)
USA	25 (21.2%)	12 (10.9%)
New Zealand	2 (1.7%)	1 (0.9%)
Canada	5 (4.2%)	0
Other	2 (1.7%)	5 (4.5%)
Ethnicity		
White	102 (86.44%)	81 (73.6%)
Asian or Asian Indian	7 (5.93%)	18 (16.4%)
Other	9 (7.62%)	11 (10%)
Highest education level		
University	75 (63.6%)	70 (63.7%)
Vocational or Trade certificate	25 (21.2%)	12 (10.9%)
High school	14 (11.9%)	23 (20.9%)
Did not complete high school	3 (2.5%)	3 (2.7%)
Prefer not to say	1 (0.8%)	2 (1.8%)
Currently employed	68 (57.6%)	71 (64.5%)
AQ-S scores		
Mean (SD)	87.78 (SD = 9.58)	56.20 (SD = 8.69)
Range	63–108	30–65

Note: AQ-S scores are derived from the Autism Quotient-Short Form (Hoekstra et al., 2011) with higher scores indicating greater autistic traits. This participant data has also been reported in Gibbs et al., 2022.

Quotient-S (AQ-S; Hoekstra et al., 2011). The remaining four were self-identified autistic participants who were excluded because they scored below the cut-off of 65 (range = 55–64) on the AQ-S. All autistic participants reporting a professional autism diagnosis were included regardless of AQ-S score.

As shown in Table 1, there were no significant group differences in age, $U = 6170$, $z = -0.64$, $p = 0.52$, proportion of men and women, $X^2 (1, 211) = 0.07$, $p = 0.78$, proportion who were employed, $X^2(1, 223) = 1.42$, $p = 0.23$, or had completed tertiary qualifications, $X^2(1, 225) = 3.31$, $p = 0.07$, $\varphi = -0.121$. There was a significantly higher proportion of autistic participants who were of white ethnic background, $X^2(1, 228) = 5.89$, $p = 0.015$, $\varphi = 0.161$, non-heterosexual $X^2 (1, 220) = 40.06$, $p < 0.001$, $\varphi = -0.427$. and who identified as gender other than man or woman, $X^2 (2, 277) = 12.35$, $p = 0.002$, $\varphi = -0.233$, compared to the non-autistic group. As expected, autistic adults' mean AQ-S scores was significantly higher than for non-autistic adults, $U = 90$, $z = -12.86$, $p < 0.001$, $r = 0.85$.

RESULTS

Poly-victimization

Of the 228 participants, 141 (61.8%) reported experiencing more than one type of violence. Approximately 80% ($n = 90$, 79.6%) of autistic adults were poly-victims compared to just under half ($n = 51$, 47.7%) of non-autistic adults (see Gibbs et al., 2022 for between-group comparisons of rates of violence). Almost one-third of autistic adults (27.1%, $n = 32$) reported experiencing all four forms of violence compared to just 4.5% ($n = 5$) of non-autistic adults (see Table 2).

Individual characteristics of autistic and non-autistic adults

As expected, autistic adults had significantly lower scores on the self-reported measure of social competence and higher scores on measures tapping ADHD features, emotion regulation difficulties and compliance relative to non-autistic adults (see Table 3).

Association between individual characteristics and poly-victimization

As shown in Table 4, social competence, emotion regulation difficulties, ADHD features, and compliance were significantly associated with poly-victimization. Those who had reported experiencing more than one type of

TABLE 2 Rates of poly-victimization.

	Full sample (n = 228) n (%)	Autistic adults (n = 118) n (%)	Non-autistic adults (n = 110) n (%)
Poly-victimization	141 (61.84%)	90 (79.6%)	51 (47.7%)
Number of victimization types among poly-victims			
Two	51 (22.4%)	24 (20.3%)	27 (24.5%)
Three	53 (23.2%)	34 (28.8%)	19 (17.3%)
Four	37 (16.2%)	32 (27.1%)	5 (4.5%)

TABLE 3 Individual characteristics of autistic and non-autistic adults.

	Full sample (n = 228) Mean (SD) range	Autistic adults (n = 118) Mean (SD) range	Non-autistic adults (n = 110) Mean (SD) range	Between groups comparison
Social competence (MSCS)	267.43 (51.59) 146–376	228.67 (32.93) 146–325	309.03 (32.05) 200–376	$U = 564$, $z = -0.11.91$, $p < 0.001$
Emotion regulation (DERS)	42.18 (17.69) 16–80	52.36 (15.21) 16–80	31.27 (12.80) 16–69	$U = 1918$, $z = -9.19$, $p < 0.001$
ADHD features (ASRS-5)	11.14 (4.97) 0–24	13.84 (4.45) 4–24	8.24 (3.73) 0–22	$U = 2092$, $z = -8.86$, $p < 0.001$
Compliance (GCS)	11.39 (4.81) 1–20	12.55 (5.01) 1–20	10.15 (4.28) 1–20	$U = 455$, $z = -3.91$, $p < 0.001$

Note: MSCS, Multidimensional Social Competence Scale (Yager & Iarocci, 2013): higher scores indicate higher social competence; DERS, Difficulties in Emotion Regulation Scale (Bjureberg et al., 2016): higher scores indicate more emotion regulation difficulties; ASRS-5, ADHD Self Report Screening Scale for DSM-5 (Ustun et al., 2017), higher scores indicate higher number of ADHD features; GCS, Gudjonsson Compliance Scale (Gudjonnson, 1989), higher scores indicate higher tendency to be compliant.

TABLE 4 Individual characteristics of poly-victims and non-poly-victims.

	Poly-victims (n = 141) Mean (SD) range	Non-poly-victim (n = 90) Mean (SD) range	Between groups comparison
Social competence (MSCS)	253.6 (50.29) 146–366	292.23 (45.02) 197–376	$U = 3656.5$, $z = -0.5.12$, $p < 0.001$
Emotion regulation (DERS)	46.81 (17.22) 16–80	33.42 (15.14) 16–80	$U = 3678$, $z = -5.08$, $p < 0.001$
ADHD features (ASRS-5)	12.62 (4.64) 2–24	8.5 (4.43) 0–20	$U = 3359$, $z = -5.75$, $p < 0.001$
Compliance (GCS)	11.98 (4.98) 1–20	10.44 (4.44) 1–20	$U = 4965$, $z = -2.42$, $p = 0.016$

Note: MSCS, Multidimensional Social Competence Scale (Yager & Iarocci, 2013): higher scores indicate higher social competence; DERS, Difficulties in Emotion Regulation Scale (Bjureberg et al., 2016): higher scores indicate more emotion regulation difficulties; ASRS-5, ADHD Self Report Screening Scale for DSM-5 (Ustun et al., 2017), higher scores indicate higher number of ADHD features; GCS, Gudjonsson Compliance Scale (Gudjonnson, 1989), higher scores indicate higher tendency to be compliant.

violence had higher ADHD features, emotion regulation difficulties and compliance and lower social competence than those who did not.

Predictors of poly-victimization

Bivariate tests were performed on demographic variables to examine their relationships with poly-victimization. Demographic variables with a *p* value < 0.05 were included in the subsequent regression analyses along with the individual characteristic variables. Poly-victims were significantly older than non-poly-victims (poly-victims, $M = 37.72$, $SD = 12.49$; non-poly-victims, $M = 34.34$, $SD = 12.93$; $U = 5070$, $z = -2.19$, $p = 0.028$) and were more likely to report a sexual orientation other than heterosexual (X^2 (1,220) = 20.94, $p < 0.001$, $\varphi = 0.309$). There was no relationship between poly-victimization and gender (X^2 (1,211) = 0.89, $p = 0.356$), education level (X^2 (1,225) = 1.067, $p = 0.302$), or employment status (X^2 (1,228) = 0.647, $p = 0.421$).

We conducted a hierarchical logistic regression to assess the impact of social competence, emotion regulation, ADHD features and compliance on the likelihood

T A B L E 5 Hierarchical logistic regression predicting poly-victimization.

Variable	R^2	Coefficient (b) (SE)	Wald	Sig.	Adjusted odds ratio	95% confidence interval
Step 1	0.125					
Group		1.313 (0.289)	20.685	<0.001	3.718	2.111–6.549
Step 2	0.236					
Group		0.965 (0.326)	8.769	0.003	2.625	1.386–4.972
Age		0.038 (0.013)	9.062	0.003	1.039	1.013–1.065
Sexual Orientation		1.494 (0.413)	13.051	<0.001	4.454	1.980–10.015
Step 3	0.360					
Group		0.045 (0.523)	0.007	0.932	1.046	0.375–2.913
Age		0.053 (0.015)	12.912	<0.001	1.055	1.024–1.086
Sexual Orientation		1.431 (0.463)	9.554	0.002	4.184	1.688–10.368
Social Competence		0.014 (0.010)	2.021	0.155	1.014	0.995–1.033
Emotion Regulation		0.021 (0.023)	0.872	0.351	1.021	0.977–1.067
ADHD features		0.272 (0.086)	9.984	0.002	1.312	1.109–1.554
Compliance		−0.029 (0.056)	0.273	0.601	0.971	0.871–1.083
Social competence × group		0.020 (0.014)	2.193	0.139	0.980	0.954–1.007
Emotion regulation × group		−0.003 (0.028)	0.008	0.930	0.997	0.943–1.055
ADHD features × group		−0.164 (0.115)	2.020	0.155	0.849	0.678–1.064
Compliance × group		0.068 (0.078)	0.757	0.384	1.071	0.918–1.248

of experiencing poly-victimization, while taking into account group status (autistic, non-autistic) and demographic factors (age and sexual orientation). As shown in Table 5, when group status was entered at Step 1, the model predicted 12.5% of the variance in poly-victimization. Autistic adults were three times more likely to report poly-victimization than non-autistic adults (odds ratio of 3.718, $p < 0.001$). When demographic variables (age and sexual orientation) were added in Step 2, both were significant predictors of poly-victimization yielding odds ratios of 1.039 and 4.454 respectively. Group status also remained significant (odds ratio of 2.265, $p = 0.003$). This model accounted for an additional 11% of the variance in poly-victimization. In Step 3, we added social competence, emotion regulation, ADHD features and compliance, as well as the interaction terms with group for each of these variables. The final model was significant, X^2 (11, 228) = 67.68, $p < 0.001$, and explained 36% of the variance in poly-victimization. Sexual orientation, ADHD features and age were the strongest predictors, yielding odds ratios of 4.184, 1.312, and 1.055, respectively. Scores on measures of social competence, compliance and emotion regulation and group status were no longer significant predictors in this model and there were no significant interaction effects with group on any of the four variables of interest.

DISCUSSION

Previously, we reported higher rates of poly-victimization in adulthood for autistic adults compared to non-autistic adults (Gibbs et al., 2022). This study used the same dataset to investigate to what extent individual factors, specifically characteristics that are common among autistic people, accounted for these group differences in poly-victimization. As expected, autistic adults reported significantly lower social competence and higher ADHD features, emotion regulation difficulties and compliance compared to non-autistic adults. Nevertheless, individual differences in most of these variables were not predictive of poly-victimization in the full regression model. Only ADHD features predicted poly-victimization once socio-demographic background variables were adjusted for. There was no interaction between any of the variables of interest and group status in the model, indicating that the relationship between all variables of interest and poly-victimization was consistent across both autistic and non-autistic adults. Furthermore, group status (autistic/non-autistic) was not significant in the final regression model suggesting that the group differences in poly-victimization in this sample is largely attributable to ADHD features. These findings are consistent with a Swedish population-based longitudinal study which found that ADHD, but not other neurodevelopmental conditions (autism or intellectual disability), predicted violent victimization after controlling for familial factors and externalizing problems (Ghirardi et al., 2023).

Consistent with our findings of an association between ADHD features and poly-victimization, prior research has found higher rates of a range of violence types reported by children and adults with ADHD (Snyder, 2015; Wiener & Mak, 2009) and a correlation between ADHD features and violence victimization in

general population samples (White & Buehler, 2012). Inattentiveness and/or hyperactivity may make it difficult for a person to detect risk. In addition, potential perpetrators may view these characteristics as suggesting a degree of detachment or lack of awareness of their surroundings, making them appear as "easy targets." It is important to note that although our findings suggest that ADHD features contribute to higher rates of poly-victimization, it may be a bidirectional relationship in which experiencing multiple forms of trauma results in cognitive or emotional disruptions that overlap with ADHD features (e.g., difficulty concentrating, hyperarousal) or exacerbates attentional difficulties. Given the relatively poor reliability estimates on the ADHD measure for the autistic group, it will be also important to replicate this finding in another sample. Further research using longitudinal designs should enhance our understanding of the relationship between ADHD features and poly-victimization.

Age and sexual orientation were the only sociodemographic variables associated with poly-victimization. As violence was measured since the age of 15, the significance of age in the predictive model likely relates to the increased opportunities to being exposed to violence over a longer duration of time rather than any particular risk associated with being older. The association between sexual orientation and poly-victimization is, however, consistent with a substantial body of previous research that has shown that individuals identifying with non-heterosexual sexual orientations experience victimization at higher rates than the general population (Blondeel et al., 2018; Walters et al., 2013). In fact, sexual orientation other than heterosexual was the strongest predictor of poly-victimization in the regression model. These findings suggest that, regardless of whether a person is autistic, having a minority sexual orientation and higher ADHD features may place individuals at higher risk of experiencing multiple forms of violence in adulthood. However, autistic people are much more likely than non-autistic people to identify as being gay, lesbian, bisexual or asexual (George & Stokes, 2018; Rudolph et al., 2018) and have high rates of co-occurring ADHD (Rong et al., 2021). Considered within an intersectionality framework (Crenshaw, 1991), multiple marginalized identities of disability and minority sexual orientation may multiply the risk of violence victimization for autistic people.

Importantly, our results suggested that potentially distinctive, autistic characteristics, such as social competence, heightened compliance and emotion regulation difficulties, were not predictive of poly-victimization. Furthermore, the regression model only accounted for, at most, about one-third of the variance in poly-victimization. The fact that the majority of the variance remained unexplained emphasizes the need to examine the structural and systemic factors that contribute to violence victimization, especially within a social ecological model (Bronfenbrenner, 1977). This approach is consistent with the concept of "minority stress" which posits that members of minority groups in society are at higher risk of distress and negative life events, not because of any intrinsic "flaws" but because of social stress due to stigma, prejudice and discrimination (Meyer, 2003). Research using the minority stress framework has demonstrated a relationship between minority stressors such as discrimination, internalized stigma and expectation of rejection with mental health and well-being among autistic adults (Botha & Frost, 2020). Further research should examine whether minority stressors are associated with the incidence and impact of interpersonal violence for autistic adults and whether there are any protective factors, such as social support, which may buffer the relationship between stressors and negative outcomes.

Given the high rates of poly-victimization experienced by autistic people and the detrimental impacts of such experiences, there is an urgent need to develop prevention and support programs and policies. The mechanisms that underlie the disproportionate rates of poly-victimization are complex and our findings indicate that they extend beyond individual risk factors to structural and systemic factors such as stigma and discrimination. Although addressing such systemic factors should be a priority, shifting societal attitudes is a difficult and lengthy process and until such change occurs it is necessary to take steps to improve the personal safety of autistic people and help them navigate potentially risky situations. It is important that clinicians and other professionals working with autistic people screen for violence exposure, particularly among those who are non-heterosexual or have co-occurring ADHD, so that appropriate supports can be put in place in order to reduce detrimental mental health impacts and likelihood of further poly-victimization exposure. Our finding that ADHD features rendered the group effect non-significant suggests that this heightened vigilance should potentially extend to people with ADHD. Programs that incorporate activities that address aspects of ADHD that may increase vulnerability to poly-victimization such as improving the ability to attend to and retain important information, filter out unnecessary elements and to plan and organize effectively without becoming overwhelmed, especially in potentially dangerous situations, may be beneficial.

Limitations and future directions

This study has a number of limitations. First, our sample size was small, especially in the context of the number of variables measured which potentially precluded the possibility of detecting effects. Second, the sample was predominantly white and comprised of those who had completed tertiary study and may not be representative of the broader population. Third, the majority of the sample were women with low numbers of men and individuals identifying as gender other than man or woman.

Risk factors for violence may be different for men and women and people of minority gender may be at particular risk (Coulter et al., 2017; Kammer-Kerwick et al., 2021), however our sample size may have been too small to detect these effects. Fourth, the cross-sectional nature of this study means that it was not possible to determine the direction of causality of the relationships between individual factors and victimization. Longitudinal studies examining individual and broader social factors with representative samples of autistic and non-autistic people are needed to tease apart the extent and nature of the relationships. Finally, although we combined both autistic and non-autistic adults for our analysis, the pathways to poly-victimization may be different for autistic people. Given these study limitations, the results should be reviewed as preliminary and further research including longitudinal studies with larger and more diverse samples is needed to substantiate our findings. Qualitative studies with autistic adults who have experienced poly-victimization may also shed further light on pathways that lead to poly-victimization for autistic adults.

CONCLUSION

Autistic adults are at considerable risk for experiencing poly-victimization during adulthood. This study provides some indication that ADHD features may be associated with poly-victimization for both autistic and non-autistic adults, however further research is needed to confirm these findings and the direction of any effects. Our findings also point to the importance of looking beyond individual-level factors to the broader social and structural aspects in order to address the disproportionate victimization of autistic people.

Community involvement statement

This project received input from an advisory group consisting of three autistic adults, who were paid for their time and expertise. The first author met with the advisory group on two occasions to gain their opinions on the research questions and review the bespoke poly-victimization questionnaire items to check for accessibility and acceptability. Based on their input, we modified the language used for the questions and specific examples for some items were added. They also participated in a group meeting where the results were presented and the interpretation of the findings were discussed. They were subsequently provided with a copy of the manuscript and invited to make any additional comments on the authors' interpretations. All three members of the advisory group advised that the final manuscript was consistent with the input and interpretations they had previously provided and no changes were requested.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

This study was approved by the Macquarie University Human Ethics Research Committee. Informed consent was obtained from all individual participants and the study was conducted in accordance with the Australian National Statement on Ethical Conduct in Human Research.

ORCID

Vicki Gibbs https://orcid.org/0000-0001-5058-5164

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