Predicting the financial wellbeing of autistic adults: Part I

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Abstract

Many autistic adults are likely to experience poor financial wellbeing and hardship due to unemployment and under-employment. Research in the general population demonstrates that subjective financial wellbeing – how people perceive their financial situation – influences quality of life. There is no research, however, examining the subjective financial wellbeing of autistic people. The current study therefore aimed to (1) understand the subjective financial wellbeing of a sample of autistic adults living in Australia compared to a general Australian population sample and (2) identify the predictors of subjective financial wellbeing in this sample of autistic adults. To this end, 191 autistic adults aged 18 to 83 years (M = 39.28, SD = 11.74) completed an online survey about their economic status, financial wellbeing, financial behaviors, confidence in money management skills, and anxiety and depression symptoms. Almost half of our sample felt it was a struggle to make ends meet, whereas only one-third of the general Australian population felt this way. Similar to the general population, autistic people's income and their financial behaviors (specifically, saving and not borrowing for everyday expenses) predicted their sense of financial wellbeing. Our findings have implications for both research and practice.

There is much heterogeneity in the life outcomes of autistic youth and adults (Howlin & Magiati, 2017; McCauley et al., 2020; see Pellicano et al., 2022, for discussion). Nevertheless, findings from the United States (US), United Kingdom (UK), and Australia have consistently demonstrated a striking pattern of unemployment or under-employment (people employed in jobs below their level of qualification) among autistic people with and without intellectual disability (ID; Baldwin et al., 2014; Office for National Statistics, 2021; Shattuck et al., 2012). Being unemployed and under-employed are robust predictors of financial disadvantage and hardship in the general population (Crowe & Butterworth, 2016). For example, in Australia, the context of the current research, almost two-thirds of autistic people are unemployed (Australian Bureau of Statistics, 2019), which means they are likely to rely on a disability support pension (AUD$25,155 per annum; Services Australia, 2022a) or the unemployment benefit (AUD$16,367 per annum; Services Australia, 2022b) as their primary source of income. These are 3.6 and 5.6 times lower than the average full-time earnings (AUD$90,917 per annum; Australian Bureau of Statistics, 2022) and are just over or sit significantly under the Australian poverty line, respectively (AUD$23,764 per annum; Davidson et al., 2020). Studies from other countries corroborate this view, indicating that being financially disadvantaged is a pervasive issue among autistic people (Roux et al., 2013; Zwicker et al., 2017).

Financial wellbeing and its predictors

Financial wellbeing is an indicator of financial health that plays a crucial role in most people's quality of life (Netemeyer et al., 2017). Financial wellbeing has been widely studied by researchers in various fields, including economics, consumer decision-making, financial counseling and planning, and psychology (Brüggen et al., 2017). Such research has demonstrated that financial wellbeing comprises three main components: meeting financial obligations, having enough money left over to enjoy life, and having the financial resilience to cope with unexpected expenses (Kempson et al., 2017).

Although research on financial wellbeing is still in its infancy (Brüggen et al., 2017), there are some noteworthy findings. First, researchers have identified essential predictors of financial wellbeing. The Australia and New Zealand Banking Group (ANZ), in collaboration with UK and Australian researchers, surveyed a representative sample of 3,578 Australian adults about their subjective financial wellbeing and other domains, including financial knowledge and experience, financial behaviors, and psychological factors (ANZ, 2018a). The top predictors of subjective financial wellbeing were income, financial behaviors (specifically, active saving and not borrowing for everyday expenses), and confidence in money management, which accounted for a significant proportion of the variance in people's financial wellbeing. Other studies have also demonstrated a strong connection between financial wellbeing and income and financial behaviors (Comerton-Forde et al., 2018; Consumer Financial Protection Bureau (CFPB), 2017; Muir et al., 2017). More recently, ANZ (2021a) conducted a new survey and used an updated modeling approach, which identified additional socio-economic factors as predictors of financial wellbeing, including mental health, unemployment, and earning potential.

Second, financial wellbeing is related to age, gender, and other life outcomes. Research has consistently demonstrated that financial wellbeing is not associated with age for people under 65 years but improves only for older individuals (people aged >65 years; CFPB, 2017; Haisken-DeNew et al., 2018) – perhaps because a higher proportion of older people own their homes outright, have more savings or investment balances, and have higher superannuation/pension balances compared to younger people (ANZ, 2018b). There is still a significant number of older people, however, who do not own their homes, especially older women, rendering the relationship between age and financial wellbeing non-linear and complex. Most findings related to gender indicate that men have higher financial wellbeing than women (ANZ, 2018a; ANZ, 2021a; Haisken-DeNew et al., 2018), with only one report showing that women and men have similar levels of subjective financial wellbeing (CFPB, 2017). In addition to age and gender, people with lower financial wellbeing report more

mental distress and poorer physical or mental health (ANZ, 2021a; Arber et al., 2014; Haisken-DeNew et al., 2018), while being employed and having higher education levels are associated with better financial wellbeing (ANZ, 2021a; CFPB, 2017; Haisken-DeNew et al., 2018).

Financial experiences of autistic people

Unfortunately, many autistic people have life circumstances – including unemployment, under-employment and poor mental health – associated with poor financial wellbeing. Yet, to our knowledge, there is no peer-reviewed research on autistic people's financial wellbeing. This absence of research means we know strikingly little about the financial status of autistic people, and what we do know is rather bleak. Cai and colleagues (2022) examined the self-reported income, savings, and debt levels of a small sample of autistic adults (including only a handful of participants with ID) and found that the mode income levels of autistic adults were considerably lower than the average annual full-time income of the general population. In addition, employed autistic people were four times more likely to have a higher income than unemployed autistic individuals.

A few white papers have made some efforts to address the gap in the financial wellbeing literature. First, in 2017, ANZ funded a project to examine the financial lives of Australian people with a disability. The research also reviewed the financial capability outcomes for disabled people (including some autistic people and people with ID) who had participated in ANZ's flagship financial education program, MoneyMinded (Russell et al., 2017a), and found the greatest barriers to financial wellbeing were low levels of income and employment. Poor digital inclusion contributed to difficulties for disabled people in meeting banking needs, achieving independence, and self-managed support through Australia's National Disability Insurance Scheme (NDIS)[1]. Further analysis of ANZ's 2021 financial wellbeing survey focusing specifically on Australians with a disability or

[1] The NDIS, funded by the Australian Government, provides no-fault insurance cover for Australians (aged <65 years), who are born with or acquire a permanent and significant disability. It provides disability funding for support and services directly to individuals and is designed to give them more choice and control over their care. Those not in receipt of the NDIS funding accessed services and supports through other means, including government, charitable, and private provision.

long-term health condition found that working-aged people with disabilities or health conditions reported having poorer mental health and experienced reduced earning potential and employment opportunities (ANZ, 2022).

A separate component of the MoneyMinded project focused on understanding the financial wellbeing of sixteen autistic people via focus groups (one participant had co-occurring ID; see Russell et al., 2017b). Most participants' understanding of financial wellbeing aligned with the definition provided by Kempson et al. (2017). However, financial hardships were commonly experienced. Consistent with Russell et al.'s (2017a) findings with disabled people more broadly and with studies in general population samples (ANZ, 2018a; Comerton-Forde et al., 2018; CFPB, 2017; Muir et al., 2017), the primary drivers of financial hardship for autistic people appeared to be limited employment opportunities and low levels of income.

The current study

The current study extended Russell et al.'s (2017b) qualitative work by conducting a two-phase mixed-method study, using a sequential explanatory design (participant selection model) (Ivankova et al., 2006), to understand autistic adults' subjective financial wellbeing. Phase 1 – reported herein – sought to elucidate the financial wellbeing levels, and their predictors, by conducting a larger survey of Australian autistic adults. These findings directly informed the nature of the Phase 2 qualitative study. In this second phase, we purposively sampled autistic adults on the basis of their financial wellbeing scores (low and high) from Phase 1 to understand their subjective experiences in greater depth. Following Strange and Crabtree (2006), these Phase 2 data are reported elsewhere (Pellicano et al., 2023).

Our Phase 1 survey included economic and financial questions modeled on the ANZ's (2018a) general population survey, as well as a range of demographic, economic, and financial factors demonstrated to play an important role in non-autistic people's financial wellbeing. These methods allowed us to address the following research questions: 1) How do the financial wellbeing

scores of our sample of autistic adults compare to those from the general Australian population (using the ANZ Roy Morgan Financial Wellbeing Indicator; ANZ, 2021b)? and 2) What are the predictors of autistic adults' subjective financial wellbeing?

Based on data on the employment status of Australian autistic people, we expected autistic adults to show lower financial wellbeing scores than the general population. Furthermore, and consistent with existing findings in general populations and people with disabilities (ANZ, 2018a; ANZ, 2021a; ANZ, 2022; Arber et al., 2014; CFPB, 2017; Haisken-DeNew et al., 2018), we hypothesized that higher income, being employed, higher education levels, lower levels of anxiety and depression symptoms, better financial behaviors (active saving and not borrowing for everyday expenses), and higher money management confidence would be positively associated with autistic adults' financial wellbeing.

Methods

Participants

To be eligible, participants needed to have a formal diagnosis of autism or self-identify as autistic (to account for the often-significant delays in gaining a clinical diagnosis; Lai & Baron-Cohen, 2015), be aged 18 years or above and live in Australia. Two-hundred-and-seventy people responded to the survey. Seventy-seven responses were excluded due to partial survey completion. We excluded the responses of two participants who identified as autistic because they either fell well below the cut-off of 65 on the Autism Spectrum Quotient–Short (AQ-Short; Hoekstra et al., 2011; n=1) or provided inconsistent information about their autism diagnosis (n=1).

The final sample consisted of 191 autistic adults aged 18 to 83 years (M_{age} = 39.28, SD_{age} = 11.74), including 147 (77%) who identified as a woman, 27 (14%) as a man, and 12 (6%) as non-binary/other (n=5; 3% did not disclose gender). Of the 191 participants, 161 (84%) reported receiving a formal, clinical diagnosis of autism, including Autism Spectrum Disorder (n=101; 53%), Asperger's Syndrome (n=38; 20%), Autism (n=21; 11%), and Pervasive Developmental Disorder-

Not Otherwise Specified (*n*=1; 1%), at a mean age of 32.21 years (*SD* = 13.83; range: 3 – 82). The remaining 30 participants (16%) self-identified as autistic. All participants – including those with and without a formal diagnosis – scored above the cut-off score on the AQ-Short, except four adults who reported a clinical diagnosis but scored just below threshold (scores between 62 and 65). There was no significant difference in the AQ-Short scores between participants who reported a formal diagnosis (*M* = 87.52; *SD* = 10.18; range: 62 – 110) and those who did not (*M* = 89.93; *SD* = 8.49; range: 73 – 104), $t(189) = 1.22$, $p = .22$. Only five people (3%) self-reported a diagnosis of intellectual disability (ID; see Table 1 for other demographic information).

Most participants reported having received multiple diagnoses of mental health and/or physical conditions (Table 1). Most strikingly, almost three-quarters of participants reported co-occurring diagnoses of depression (*n*=142; 74%) or anxiety (*n*=139; 73%). The most common physical health conditions were sleep (*n*=78; 41%) and gastrointestinal issues (*n*=63; 33%). Eighty-five participants had children (45%), of which 69 (36%) had at least one autistic child.

INSERT TABLE 1 ABOUT HERE

Procedure

Ethics approval was obtained from the Macquarie University's Human Research Ethics Committee (Reference number: 52019572512775) and all participants gave informed consent before participating. Participants were recruited through various channels, including through social media, state-based autism support organizations such as Autism WA and AMAZE, university partners of Autism CRC, and the researchers' community networks. Individuals interested in the study were directed to the online survey (powered by Qualtrics). Although there were no direct benefits to participating in this project, the researchers donated $5 to a charity for every participant who

completed the online survey (participants could choose between Sacred Heart Mission, Beyond Blue, or Australian Wildlife Conservancy).

Recruitment for the study began on 3rd February 2020. It halted soon after that when the first lockdown occurred in Australia due to the COVID-19 pandemic (in April 2020), given the possibility that the government restrictions impacted people's financial experiences and wellbeing. We re-opened the survey on 25th February 2021 and closed it again on 31st May 2021, during which there were no COVID-19-related restrictions, and most Australian citizens had not undergone lockdown since November 2020. To check whether the survey completion time (pre-COVID-19; *n*=31 vs. during-COVID-19; *n*=160) affected the results, we conducted the relevant tests (Mann–Whitney U or t-test) on the financial wellbeing scores, income, savings and investments, home loan amount, and other loan amount. There were no significant group differences on these variables (all *p*s >.09). All participants were therefore included in subsequent analyses.

Measures

The online survey included questions about participants' demographic information, including physical and mental health conditions. The following measures also formed part of the survey.

Autistic traits. Autistic traits were measured using the 28-item AQ-Short (Hoekstra et al., 2011), an abbreviated version of the full 50-item questionnaire (Baron-Cohen et al., 2001). Each item is rated on a 4-point Likert scale ranging from *definitely agree* (score of 1) to *definitely disagree* (score of 4). Sample items include "I find social situations easy" and "I am fascinated by numbers." Correlation with the 50-item AQ is very high, with *r* ranging from 0.93 to 0.95, with comparable estimates of sensitivity (0.97) and specificity (0.82) for autism (using an AQ-Short cut-off score of 65). In this sample, Cronbach's alpha was high ($\alpha = .82$).

Anxiety symptoms. Anxiety symptoms were assessed using the Diagnostic and Statistical Manual of Mental Disorders-5 Generalized Anxiety Disorder Dimensional Scale (DSM-5 GAD-D; Knappe et al., 2013). The self-reported scale is norm-referenced and consists of 10 items, with each

item being rated on a 5-point Likert scale ranging from *never* (score of 0) to *`ll of the time* (score of 4). Sample items are "During the past month, I have avoided, or did not approach or enter, situations that made me anxious" and "During the past month, I have felt anxious, worried, or nervous." Items are summed to obtain total scores ranging between 0 and 40. The current sample had excellent internal consistency (Cronbach's $\alpha = .91$).

Depression symptoms. The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) was used to examine depression symptoms, a 9-item norm-referenced scale designed to screen for depression. All items are rated on a 4-point Likert scale ranging from *not at all* (score of 0) to *nearly every day* (score of 3). Questions focus on participant experiences over the past two weeks. Sample items include "Little interest or pleasure in doing things" and "Poor appetite or overeating." Items are summed to obtain total scores ranging between 0 and 30. Cronbach's alpha was high in the current sample ($\alpha = .88$).

Economic status. Following ANZ (2018a), we asked participants about their main source of income, total annual income before tax, total amount of savings and investments, home loan amount, and other loan amount to capture participants' current financial situation (see Supplementary Materials for list of questions).

Financial wellbeing. We measured autistic participants' subjective financial wellbeing using ANZ's (2018a) single measure of financial wellbeing. This measure consists of 11 questions that encompass three components of financial wellbeing (Kempson et al., 2017), including 1) the ability to meet financial commitments such as loan payments and bills (three items); 2) the extent to which people feel comfortable about their current and future financial situation, and allow them to enjoy life (four items); and 3) financial resilience for the future and ability to cope with unexpected future expenses (four items; see Supplementary Materials). Sample items include "How often do you have any money left over, after you've paid for food and other regular expenses?" and "How well do you think this statement fits you? My finances allow me to do the things I want and enjoy life."

Participants received a score out of 100 for each component, and the average of the three subscale scores formed the total subjective financial wellbeing score, which ranged between 0 and 100. Higher scores indicate better financial wellbeing. Cronbach's alpha was moderate in the current sample ($\alpha = .79$).

The ANZ Roy Morgan Financial Wellbeing Indicator (ANZ, 2021b) produces a proxy for financial wellbeing scores to the ANZ financial wellbeing measure for the general Australian population. This indicator was used to address our first research question, to compare the financial wellbeing of our autistic adults with the general Australian population in the same period. To facilitate comparison with ANZ Roy Morgan Financial Wellbeing Indicator, we used the ANZ (2018a) classification of financial wellbeing and classified autistic participants' total financial wellbeing scores into the following four categories: 1) no worries (scores >80); 2) doing OK (scores between 51 and 80); 3) getting by (scores between 31 and 50); and 4) struggling (scores <=30).

Financial behaviors. We measured two types of financial behaviors using questions designed by ANZ (2018a), based on Kempson et al.'s (2017) conceptual model of financial wellbeing. To measure *active saving*, we first asked participants: How often do you save money so that you could cover major unexpected expenses or a reduction in income? This question was rated on a 5-point Likert scale ranging from *always* (score of 100) to *never* (score of 0). The possible scores were: 0, 25, 50, 75, 100. The second, active saving question consisted of three items and asked participants to indicate how well these statements are true for them: 1) I try to save money to have for emergency use in the future; 2) I try to save some money regularly even if it is only a small amount; and 3) I always make sure I have money saved for bad times. Items were rated on a 5-point Likert scale ranging from *extremely true* (score of 100) to *not true at all* (score of 0). Participants could report 'Don't know' for any of these items (and were given a score of 50).

We also measured participants' *borrowing behaviors for every day expenses* through three questions: 1) How often do you have to borrow money or go into debt to buy food or to pay daily

expenses, because you don't have enough money?; 2) How often do you have to borrow money to pay off debts?; and 3) How often do you tend to overdraw or go into negative balance (where your account is below $0) on your everyday transaction account? The first two items were rated on a 5-point Likert scale ranging from *always* (score of 0) to *never* (score of 100). The third item was rated on a 5-point Likert scale ranging from *This happens to me most months* (score of 0) to *This has never happened to me* (score of 100). Participants could report 'Don't know' (score of 50) and, for the third item, they could also report 'Not applicable' (score of 0).

Participants received a score out of 100 for each financial behavior question, which were averaged within each type of financial behavior to yield 'total active saving' or 'total not borrowing' scores, for each participant (ranging between 0 and 100). Higher scores indicate higher active saving and reduced borrowing for everyday expenses, respectively. Cronbach's alpha estimates for active savings and borrowing behaviors in the current sample were .94 and .76, respectively.

Confidence in money management skills. Finally, we measured confidence in money management using three questions designed by ANZ (2018a) based on the Kempson et al.'s (2017) model. Participants were asked to rate how confident they were about their ability in the following aspects of their budgeting: 1) managing money day-to-day; 2) planning for financial future; and 3) making decisions about financial products and services. Items were rated on a 5-point Likert scale ranging from *very confident* (score of 100) to *not confident at all* (score of 0). Participants could report 'Don't know' for any of these items (score of 50). Participants received a score out of 100 for each item, averaged to form the 'total confidence score' (ranging between 0 and 100). Higher scores indicate higher confidence. Cronbach's alpha was high in the current sample ($\alpha = .87$).

Data analysis

To begin, we examined descriptive statistics for our autistic participants' economic status and examined the relationships between economic status and other background variables. In so doing, we

created one new demographic variable, living alone or with partner/spouse (nominal), which was used in subsequent analyses.

Next, to address our first research question (*How do the financial wellbeing scores of our sample of autistic adults compare to those from the Australian general population?*), we first calculated the descriptive statistics of the financial wellbeing scores. We then reported the proportion of autistic participants falling within the four subjective financial wellbeing segments on the ANZ financial wellbeing measure.

For our second research question (*What are the predictors of autistic adults' subjective financial wellbeing?*), we first examined the relationships between financial wellbeing scores and economic status data (income, savings and investments amount, home loan amount, other loan amount) with demographic variables (age, anxiety symptoms, depression symptoms, highest level of education, hours of work for those who worked), financial behaviours and confidence using Spearman Rank Order correlations (Bonferroni adjustment). In addition, we examined group differences (gender, education status, employment status, source of income, living arrangement – with partner or alone) on financial wellbeing measures using Mann–Whitney U or Kruskal–Wallis tests. Next, we examined the potential predictors of participants' financial wellbeing using multiple hierarchical analysis. To minimize the number of variables into the model, we entered only those variables that were significantly correlated with participants' financial wellbeing scores.

Pre-regression analyses showed no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Missing items (0.12%) were addressed by excluding cases pairwise (correlations) or listwise (regression) during analyses. We used SPSS Statistics version 21 for Mac for all statistical analyses.

Community involvement

We adopted a participatory approach throughout the project life cycle through co-designing and implementing the study with an Autistic advocate and researcher (GH), who was paid for her

time and who was actively involved from the start of the study until the final write-up of findings. This resulted in collaborative decisions being made that improved the relevance, clarity and accessibility of survey materials, and the interpretation of the findings.

Results

Preliminary findings on the economic status of autistic adults

Table 2 shows our sample's economic status. Autistic adults' main sources of income were wages or salary (*n*=73; 38%) and government benefits or allowance (*n*=69; 36%), and some (*n*=13; 7%) reported no income at all. A substantial proportion of our autistic adults (*n*=80; 42%) had total annual income before tax below AUD$25,000, with only 40 participants (21%) with income above AUD$75,000. These data contrast significantly with those from the general population: 63% of the general population report employee income as their main sources of income, followed by 23% on government benefits (Australian Bureau of Statistics, 2021a), with the average Australian employee annual income of AUD$66,576 (Australian Bureau of Statistics, 2021b). A substantial proportion of our autistic participants (38%) had less than AUD$1,000 in savings, which is higher compared to the general population (28%; ANZ, 2018a).

INSERT TABLE 2 ABOUT HERE

Participants' income was positively associated with highest level of education and hours of work (Table 3). Income was also significantly related to employment status and source of income, but not gender, education status, or living arrangement (with partner or alone). People who were employed had significantly higher income than those who were unemployed ($U = 1337$, $z = -8.36$, $p < .001$, $r = .62$). Autistic people's income also varied significantly according to source of income ($\chi^2 = 86.59$, $p < .001$). Specifically, people on government benefits had significantly higher income than those with no income ($U = 396$, $z = -2.82$, $p = .005$, $r = .31$), while people on government benefits

had significantly lower income than those who had wages or salary (U = 625, z = -7.67, p < .001, r = .66) or were self-employed (U = 168, z = -4.74, p < .001, r = .52). Savings and investments amount was significantly related to employment status and source of income, but not gender, education status, or living arrangement (with partner or alone). People who were employed had significantly higher savings amount than those who were unemployed (U = 3456, z = -2.92, p = .004, r = .21).

INSERT TABLE 3 ABOUT HERE

Comparing autistic adults' subjective financial wellbeing with general population data

The financial wellbeing scores of our sample of autistic adults ranged between 1 and 100 (M = 52.42; SD = 26.80). The proportion of participants falling under the four subjective financial wellbeing segments were: 1) no worries (n = 47; 25%); 2) doing OK (n = 56; 29%); 3) getting by (n = 48; 25%); and 4) struggling (n = 40; 21%). As shown in Table 4, almost half of the autistic adults in our study fell within the lower range of the financial wellbeing indicator ("getting by" and "struggling"), compared with only one-third of people in the general population sample (ANZ Roy Morgan Financial Wellbeing Indicator; ANZ, 2021b).

INSERT TABLE 4 ABOUT HERE

Statistical predictors of subjective financial wellbeing

Correlational analyses. As expected, participants' financial wellbeing scores were positively correlated with income, highest level of education, active saving, not borrowing for everyday expenses, and money management confidence, and negatively correlated with symptoms of anxiety and depression (Table 3). Financial wellbeing was also significantly positively correlated with savings and investments amount, home loan amount, and negatively correlated with other loan

amount. Also, as predicted, people who were employed had significantly higher financial wellbeing ($U = 2798$, $z = -4.10$, $p < .001$, $r = .30$). In addition, financial wellbeing varied significantly across sources of income ($\chi^2 = 16.08$, $p = .007$), but not gender ($\chi^2 = 0.64$, $p = .727$), education status ($U = 3288$, $z = -1.05$, $p = .296$), or living arrangement (with partner or alone; $U = 2391$, $z = -1.31$, $p = .190$).

Regression analysis. Hierarchical multiple regression was used to identify the predictors of participants' financial wellbeing. When background/demographic variables (anxiety symptoms, depression symptoms, highest level of education) were entered at Step 1, the model explained 27% of the variance in financial wellbeing scores (Table 5), with depression symptoms ($\beta = -1.71$, $p < .001$) and the highest level of education ($\beta = 3.87$, $p = .022$) being significant predictors. Economic status variables (income, savings and investments amount, home loan amount, other loan amount) entered at Step 2 accounted for an additional 8% of the variance in financial wellbeing scores. At Step 3, the financial behaviors (active saving, not borrowing for everyday expenses) and money management confidence explained a further 36% of variance in financial wellbeing, with depression symptoms ($\beta = -.19$, $p = .004$), income ($\beta = .15$, $p = .002$), other loan amount ($\beta = -.09$, $p = .040$), active savings ($\beta = .23$, $p < .001$), and not borrowing ($\beta = .46$, $p < .001$) being significant predictors. That is, those participants who had higher income, were actively saving, were not borrowing for everyday expenses, and had fewer depressive symptoms were the ones reporting higher subjective financial wellbeing. The final model was significant, $F(10, 167) = 41.46$, $p < .001$, explaining a total of 71% of variance in financial wellbeing.

Discussion

Having adequate financial wellbeing is critical for people's quality of life (Netemeyer et al., 2017) – including autistic people. Indeed, echoing previous research in other countries (Roux et al., 2013; Zwicker et al., 2017), the objective reality of many of our participants' financial situations was bleak: fewer autistic adults reported their main source of income from employment compared with

general population data, which meant that a substantial proportion of people relied on allowances from the Australian government – which are already extremely low when compared with the average full-time salary and sit at, or under, the Australian poverty line. Our study went further, however, to show how much money matters in autistic people's lives. Almost half of our sample (46%) felt it was a struggle and challenge to make ends meet (as indicated by their financial wellbeing scores falling within the "struggling" or "getting by" segments), whereas only one-third of the general Australian population (32%; ANZ, 2021b) felt this way. These findings are not surprising in the context of their financial circumstances. Almost half of participants revealed that their annual income was less than AUD$25,000 –with many being below the Australian poverty line. Lower incomes can constrain people's ability to meet basic expenses and to save for the future.

In line with results from samples of the general population and people with disabilities (ANZ, 2018a; ANZ, 2021a; ANZ, 2022; Arber et al., 2014; CFPB, 2017; Haisken-DeNew et al., 2018), our results identified similar demographic, economic, and financial factors that play an important role in autistic adults' financial wellbeing. Specifically, in our sample, autistic people's sense of financial wellbeing was related both to how much income they have at their disposal and the ways in which they were able to use that income (their financial behaviors). Supports and capabilities beyond income itself made a substantial contribution to autistic adults' financial wellbeing scores. The more that people were able to save and the less that they had to borrow for everyday expenses, the greater their financial wellbeing – akin to ANZ's (2021a) findings, who reported these as the top three predictors of variance in financial wellbeing in the general Australian population.

While the predictors of financial wellbeing in our autistic sample look broadly similar to those in the general population (ANZ, 2018a; ANZ, 2021a; Arber et al., 2014; CFPB, 2017; Haisken-DeNew et al., 2018), autistic people are more likely to be seriously disadvantaged due to their differing financial starting points, such as reduced earning potential and employment opportunities that have been similarly observed in people with disabilities or long-term health

conditions (ANZ, 2022). As demonstrated here, autistic people tend to have lower income due to limited employment success. For many autistic people, the absence of a stable income that is sufficient to meet expenses and have some money leftover means that (a) they are unlikely to have any money to be able to save beyond what is needed to cover day-to-day costs and (b) they could be at greater risk of unhealthy financial behaviors (use of credit cards and loans to cover day-to-day costs) if they are unable to cover such costs. Indeed, our analysis suggests that it is variation in these financial behaviors that makes a substantial contribution to autistic people's financial wellbeing.

Furthermore, we found that both anxiety and depression symptoms were negatively associated with financial wellbeing, with depression being a significant predictor. These findings align with research in the general population that showed significant associations between financial wellbeing and hardship, burden and mental health outcomes, such as having a mental illness and experiences of high stress (ANZ, 2021a; Hassan et al., 2021). The cross-sectional nature of these studies (including our own) makes it difficult to determine the causal relationships between these variables. It is plausible that poor mental health will impact upon financial wellbeing. For example, people with depression plan their finances over a shorter horizon (Choung et al., 2022), which is likely to impact their future financial wellbeing. Similarly, poor financial wellbeing is likely to impact upon mental health: the stress of managing low income, often with limited support, can cause ill health (e.g., Esan et al., 2012; Furey et al., 2016; see Benzeval et al., 2014). In reality, a bi-directional relationship is likely to exist (Heartward Strategic, 2022). In any case, the fact that autistic people are at much greater likelihood of having co-existing mental health conditions compared with non-autistic people (Hollocks et al., 2019; Wigham et al., 2017) – including almost three-quarters of the current sample – is deeply concerning. Future research will need to conduct longitudinal studies to understand the complex nature of these relationships.

Although our data cannot speak to the causal relationships between these variables, it is nevertheless worthwhile considering how we might be able to improve autistic people's financial

wellbeing. Given that income is one of the strongest predictors of financial wellbeing, raising autistic adults' income is an obvious critical step. There are at least two potential ways of raising income: increase government allowances for unemployed people and improve autistic people's participation in the workforce, especially for those who wish to and can work. The first of these is enormously challenging to shift. Prior to the start of the COVID-19 pandemic, unemployment benefit rates in Australia had not increased in real terms (i.e., above inflation increases) since 1994 (Arthur, 2018). During the pandemic, the government temporarily increased various government benefits to support people through the difficult period, although these rates have now been reverted. Even at the increased rates, unemployment benefits are substantially under the Australian poverty line, and the disability support pension is only martially above it. Hence, the income levels of a large proportion of unemployed autistic adults are likely to be low, and their financial circumstances are unlikely to change soon due to systemic constraints. Providing assistance to the minority of autistic people with no income at all to at least access these benefits should go some way to improving this group's financial wellbeing.

The second way of improving autistic people's employment success may be effective. Research on employment in autistic people has been steadily increasing in recent years, with much research examining the support needs and enablers of successful employment (Cameron & Townend, 2021; Dreaver et al., 2020; Hayward et al., 2019; Scott et al., 2019). Environmental and contextual/situational factors important for job success, which may have the greatest impact on employment success (Black et al., 2019; Nicholas et al., 2018), include matching the job to the autistic individual using a strengths-based approach, improving employer and colleagues' understanding of autism, improving interactions with other people, and implementing workplace accommodations and adjustments (Dreaver et al., 2020; Hayward et al., 2019; Scott et al., 2019). Unfortunately, Scott et al. (2019) found that employment interventions are primarily individual-focused – that is, interventions tended to target autistic characteristics or 'impairments' with little

consideration of contextual factors. While it is encouraging to see corporations such as DXC Technology, SAP, JP Morgan, Deutsche Bank and ANZ partnering with universities and support organizations to implement autism-specific employment programs that focus on hiring and supporting autistic employees in these industries, we need similar programs in other industries to cater for the diverse interests, needs and preferences of autistic people.

Other than improving employment outcomes (and thus income), increasing the frequency of financial behaviors such as active saving and not borrowing for everyday expenses via financial education is also likely to help enhance autistic people's financial wellbeing. We identified not borrowing for everyday expenses as the strongest predictor of financial wellbeing. Although we found that more than half of our participants did not have loans other than home loans (59%), many people (41%) nevertheless reported securing such loans. Educating autistic people, especially those who have taken out loans in the past, about the risks of signing up for loans with high-interest rates (such as payday loans) may be especially important. Given that research in non-autistic samples showed that financial behaviors and capabilities can be enhanced through financial education (Prawitz & Cohart, 2014; Xiao & O'Neill, 2016), formal financial training for autistic people should also lead to improvements in financial behaviors. Formal financial training in schools and colleges is especially relevant for autistic youth due to their lack of financial management skills and desire for skill improvements (Cheak-Zamora et al., 2017). Workplace financial wellbeing training is also an excellent opportunity to teach employees skills required for money management (Bousfield, 2021).

Limitations and future directions

Our study is not without its limitations. First, our autistic participants reported themselves to be predominantly well-educated and of white background, and there were a greater proportion of people in employment than Australian population-based statistics would suggest (Australian Bureau of Statistics, 2019). The degree of financial wellbeing reported herein is, therefore, likely to be an *underestimate* of the broader autistic population, particularly those from more diverse intersectional

backgrounds, who are seldom heard and likely to be multiply disadvantaged. Second, and relatedly, the very limited inclusion of autistic people with ID in our study (only 3%) means that our findings cannot be generalized to autistic adults in this group. Research has shown that people with ID have greater challenges with financial decision-making than those without ID (Suto et al., 2005; Willner et al., 2010) and generally show a poor understanding of financial concepts (Mansfield & Pinto, 2008). It is possible that autistic adults with ID may experience less financial wellbeing than those without ID. That said, such individuals often live with parents and caregivers, and hence their financial wellbeing might be merged with those of their caregivers. Future research should examine the financial wellbeing and its predictors of autistic adults with ID specifically. Finally, this study reported solely on individual factors related to autistic people's subjective financial wellbeing. Our Phase 2 qualitative work demonstrates the role of broader systemic and structural factors and also highlights the various ways in which poor financial wellbeing might limit autistic adults' opportunities to lead flourishing lives (Pellicano et al., 2023).

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Authorship confirmation statement

EP and RC secured funding for the project. EP, RC and GH devised the battery of questionnaires. RC and GH recruited the participants. RC and EP analysed the data. RC drafted the manuscript. All authors commented on and edited the manuscript prior to submission.

Authors' disclosure statements

The authors have no competing interests of which they are aware.

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Table 1. Participant demographics and reported mental and physical health conditions

	n	%
Ethnic background		
White European	167	87%
White Other	12	6%
South Asian	2	1%
South-East Asian	2	1%
Hispanic	2	1%
Aboriginal	1	1%
Other	4	2%
Did not specify	1	1%
Living arrangement		
With other people	151	79%
With a spouse or partner	86	45%
With child/children	65	34%
With parent(s)	28	15%
With friends or housemates	13	7%
With other relatives	9	5%
With others (university accommodation and lived alone with daily support from ex-partner)	2	1%
Alone	40	21%
Highest level of education		
Some of high school	6	3%
All of high school	15	8%
Certificate or trade course	62	32%
Undergraduate or postgraduate degree	108	57%
Studying and employment		
Studying (part or full time)	59	31%
Employed (in any form)	102	53%
Mental health conditions		
Depression	142	74%
Anxiety disorder	139	73%
Post-traumatic stress disorder	63	33%
Obsessive compulsive disorder	27	14%
Personality disorder	18	9%
Bipolar disorder	12	6%
Schizophrenia	4	2%
Other (e.g., Anorexia Nervosa)	14	7%
Physical health conditions		
Sleep issues	79	41%
Gastrointestinal issues	63	33%
Joint issues	46	24%
Eating disorder	42	22%
Chronic pain	40	21%
Chronic allergies	36	19%
Obesity	33	17%
Immune conditions	29	15%
Polycystic ovary syndrome	29	15%

Fibromyalgia	26	14%
Hypertension	24	13%
Chronic fatigue syndrome	21	11%
Thyroid problems	18	9%
Drug/Alcohol dependence	15	8%
Diabetes	12	6%
Cancer	8	4%
Epilepsy	8	4%
Hepatitis	4	2%
Stroke	4	2%
Heart disease	3	2%
Other (e.g., Graves' disease, Endometriosis, Multiple Sclerosis)	37	19%

Table 2. Descriptive summary of financial status and subjective financial wellbeing measures.

	n	%
Main source of income		
Wages or salary	73	38%
Self-employed	16	8%
Government benefits or allowance	69	36%
Superannuation/self-funded retirement	1	1%
No income	13	7%
Other	19	10%
Total annual income before tax[a]		
Under $25,000	80	42%
$25,000 to $49,000	46	23%
$50,000 to $74,999	26	14%
$75,000 to $99,999	15	8%
$100,000 to $124,999	9	5%
$125,000 to $149,000	3	2%
$150,000 or more	4	2%
Unspecified	8	4%
Total amount of savings and investments[a]		
Less than $1,000	67	35%
$1,000 to $4,999	25	13%
$5,000 to $9,999	17	9%
$10,000 to $19,999	20	11%
$20,000 to $49,999	17	9%
$50,000 to $99,999	11	6%
$100,000 to $249,999	10	6%
$250,000 to $499,999	2	1%
$500,000 to $749,999	4	2%
$750,000 to $999,999	3	2%
$1 million or more	4	2%
Unspecified	11	6%
Home loan amount[a]		
No home loan	123	64%
$5,000 to $9,999	1	1%
$20,000 to $49,999	3	2%
$50,000 to $99,999	5	4%
$100,000 to $249,999	21	10%
$250,000 to $499,999	22	10%
$500,000 to $749,999	10	5%
$750,000 to $999,999	3	2%
$1 million or more	3	2%
Other loan amount[a]		
No loans	113	59%
Less than $1,000	9	5%
$1,000 to $4,999	29	15%
$5,000 to $9,999	14	7%
$10,000 to $19,999	9	5%
$20,000 to $49,999	10	5%
$50,000 to $99,999	4	2%

$100,000 to $249,999	2	1%
$250,000 to $499,999	1	1%

Note: [a]All amounts reported in Australian dollars (AUD).

Table 3. Spearman Rank Order Correlations (r_s) between demographic variables, financial behaviors, financial confidence, and financial wellbeing.

	Economic variables				Financial wellbeing
	Income	**Savings & investments amount**	**Home loan amount**	**Other loan amount**	
Demographics					
Age	.066	.036	.335***	.297***	.096
Anxiety symptoms	-.255***	-.152*	-.191*	.085	-.394***
Depression symptoms	-.218**	-.297***	-.137	.129	-.487***
Highest level of education	.330***	.140	.107	.009	.253***
Hours of work (only for those who worked)	.716***	.104	.206*	.258*	.177
Financial behaviors and confidence					
Active saving	.100	.518***	.043	-.144*	.612***
Not borrowing for everyday expenses	.108	.498***	.103	-.226**	.735***
Money management confidence	.047	.312***	.062	-.207**	.466***
Financial wellbeing	.321***	.723***	.165*	-.197*	-

* p < .05; ** p < .005; *** p < .001 (Bonferroni adjustment)

Table 4. Proportion of people falling under financial wellbeing segments for autistic and general sample (ANZ, 2021b).

	Autistic adults n (%)	**General population %**
No worries	47 (25%)	23%
Doing okay	56 (29%)	45%
Getting by	48 (25%)	19%
Struggling	40 (21%)	13%

Table 5. Hierarchical multiple regression predicting subjective financial wellbeing in autistic adults.

	R^2	R^2 Change	*B*	*SEB*	*β*	*t*	*p*
Step 1	.270						
Anxiety symptoms			-0.19	0.31	-.06	-0.60	.546
Depression symptoms			-1.71	0.39	-.43	-4.34	.000
Highest level of education			3.87	1.67	.15	2.31	.022
Step 2	.353	.084					
Anxiety symptoms			-0.04	0.30	-.01	-0.14	.887
Depression symptoms			-1.46	0.38	-.36	-3.82	.000
Highest level of education			2.66	1.64	.10	1.62	.107
Income			3.60	1.27	.20	2.83	.005
Savings and investments amount			0.01	0.01	.06	0.97	.333
Home loan amount			0.74	0.46	.11	1.61	.110
Other loan amount			-2.72	0.78	-.23	-3.50	.001
Step 3	.713	.359					
Anxiety symptoms			-0.13	0.21	-.04	-0.62	.537
Depression symptoms			-0.77	0.26	-.19	-2.92	.004
Highest level of education			0.81	1.12	.03	0.73	.229
Income			2.72	0.86	.15	3.16	.002
Savings and investments amount			0.01	0.01	.07	1.63	.104
Home loan amount			0.32	0.31	.05	1.04	.300
Other loan amount			-1.11	0.54	-.09	-2.07	.040
Active saving			0.18	0.04	.23	4.03	.000
Not borrowing			0.48	0.05	.46	8.91	.000
Money management confidence			0.07	0.05	.09	1.58	.116