Estimating the Probability of Homelessness for Individuals on the Autism Spectrum: Known Risk factors or Specific Characteristics?

By

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List of Abbreviations

ABAS-3	Adaptive Behaviour Assessment System (Third Edition)
ADHD	Attention Deficit Hyperactivity Disorder
ADI-R	Autism Diagnostic Interview–Revised
ADOS-2	Autism Diagnostic Observation Schedule–Second Edition
AQ	Autism Spectrum Quotient
ASD	Autism Spectrum Disorder
BOSA	Brief Observation of Symptoms of Autism
BRIEF	Behavior Rating Inventory of Executive Function
DIAMOND	Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
FAS	Fatigue Assessment Scale
HDI	Highest density interval
NDIS	National Disability Insurance Scheme
RBQ-2A	Adult Repetitive Behaviours Questionnaire–2
ROPE	Region of practical equivalence
SRS-A	Social Responsiveness Adult Scale

Abstract

A number of risk factors may lead to an individual becoming homeless. Conversely, some factors offer a person protection from homelessness cycles. Certain populations may be especially vulnerable to becoming homeless, including individuals with mental health conditions, disabilities or neurodivergence, due to their unique characteristics. The link between autism and homelessness has been given little empirical attention. Yet, a recent systematic review indicated a high prevalence of autism in homeless populations, ranging from 2.8% (O'Donovan et al., 2020) to 50% (Osborn & Young, 2022; Pritchard, 2010). This study investigated whether there are specific characteristics unique to people on the autism spectrum that could increase their vulnerability to homelessness and aimed to identify both risk and protective factors for this group.

First, a systematic review was conducted, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, to develop an in-depth understanding of the existing research. After completing the PRISMA screening process on 870 articles, 17 articles were included in the review (inclusion: English, focus on Autism and homelessness; Exclusion: ambiguous measures). These reported a higher-than-average rate of autism among homeless people and found that the homelessness risk factors for autistic individuals included lack of family relationships and opportunities, as well as co-occurring conditions. The specific autistic characteristics reported as connected with homelessness included sensory sensitivities, communication differences and rigidity.

Second, to identify relevant autistic characteristics related to homelessness, qualitativedata was obtained. Five focus groups were conducted with a total of 33 participants—18 currently homeless neurotypical participants, 10 with a diagnosis of Autism Spectrum Disorder and 5 with a diagnosis of autism and prior experiences of homelessness—to identify what circumstances or behaviours contributed to homelessness. Three autistic characteristics were

identified as contributors to homelessness risk: communication differences, restricted and repetitive behaviours and sensory sensitivities. These led to people being unable to find their place in society, having problems with work, experiencing practical limitations and needing support.Family support and specialised support were considered the strongest protective factors.

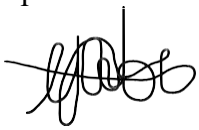
Finally, quantitative data was collected from 333 individuals based on their diagnostic and homeless status. Participants were recruited online (non-autistic/ non homeless, n=55), through autism specific services (ASD n= 117), and homeless services (homeless n=77). An online questionnaire was used to investigate the effects of known homelessness risk factors and autistic characteristics and make comparisons between autistic and non-autistic groups. Bayesian hierarchical modelling approaches demonstrated the important contribution of autistic characteristics to homelessness risk, particularly in the absence of a diagnosis, showing that the probability of homelessness increased individuals presenting with more autistic characteristics.

Both the qualitative and quantitative studies show that specific attention should be given to providing adequate services for people with autistic characteristics such as communication differences, sensory sensitivities, rigidity, attention-switching, attention to detail and imagination differences. The relationship between these factors and homelessness risk was found to be affected by social support and service provider involvement. In the absence of service support, it is most often families (particularly parents) who protect autistic individuals from homelessness through strong advocacy and ongoing housing support. A number of clinical and policy-development implications are discussed, including the importance of screening, as well as advocacy and specialised support, for those on the autism spectrum.

Key words: Autism and homelessness, Risk factors, Autistic characteristics, probability.

Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university and, to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text. Parts of this thesis have been published throughout the process of writing and developing this thesis.



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List of Publications

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Chapter 1: Introduction

1.1 Overview

1.1.1 Autism and Homelessness

The pathway to homelessness has many complexities (Crane et al., 2005; Koegel et al., 1995), an accumulation of risk factors and a lack of protective factors can lead to an individual becoming and remaining homeless (Broll & Huey, 2017; Cohen, 1999; Crane et al., 2005). The risk factors include childhood adversities, poor social support, personal factors such as mental health or disability, and structural issues (system-related difficulties and their consequences) such as poor housing availability and limited support-service resources (e.g., funding and training). While personal risk factors were previously the focus of research (Batterham, 2012; Elliott & Krivo, 1991), structural factors may also result in some individuals becoming homeless, and more attention has been given to these factors in recent years. It is now recognised that structural issues and the generic nature of support services reduce the likelihood of some groups of people getting appropriate support, resulting in these groups, who are not provided for by generic models of support, becoming homeless (Stone et al., 2019). Autism is a neurological condition that is heterogeneous in presentation, and as such the needs of each autistic individual will differ. Further, given the uniqueness of this condition[1] autistic individuals require specialised support to meet their individual needs (Murphy et al., 2016). Autistic individuals have a higher-than-average risk of homelessness (2.8%; Churchard et al., 2019), suggesting that support services are poorly supported by generic service models for homelessness prevention that do not consider their individual needs. Research to date suggests that this lack of support for autistic individuals can be attributed to a number of factors, including misunderstandings about communication and

[1] The unique nature of autism refers to the idea that the autism heterogeneous nature resulting in each individual presenting with different clusters of characteristics that vary in severity.

individual needs, as well as lack of training and resources for service providers (Casey et al., 2020). Given the greater- than-average proportion of autistic individuals in the homeless population (in developed countries) (O'Donovan et al., 2020; Pritchard, 2010), it is critical to understand what features of autism, within these unsupportive environments, might make people vulnerable to homelessness. It is possible that adaptive and executive function differences mediate the relationship between autism and homelessness; whether they do is a further unanswered question. Because there has been limited research into how autism affects homelessness risk, it is unclear whether specific characteristics of autism contribute to homelessness, which factors increase autistic individuals' chances of becoming homeless, or how service providers can support autistic individuals and reduce this risk.

It is somewhat surprising that the link between autism and homelessness has been given little empirical attention, considering autistic individual's over-representation in this population. This study investigated what autism-specific characteristics may increase autisticindividual's vulnerability to homelessness and what factors may mediate this relationship.

This thesis discusses the risk factors for homelessness for individuals on the autism spectrum and the kinds of support programs that are needed to mitigate these factors in order to preventhomelessness or minimise its duration.

A review of the literature was conducted to identify the specific factors that can contribute to the risk of homelessness in the context of developed nations such as Australia, UK and the US. This chapter will first discuss the theoretical framework of homeless risk and autistic characteristics in order to understand the broader context of risk before exploring the specific nature of homeless risk for autistic individuals[2].

1.1 Theoretical Framework for Investigating Homelessness Risk Factors

Homelessness has various definitions in the literature, with multiple theoretical

[2] This thesis has used person first language to align with the reporting guidelines set out in the Australia Society for Autism research Guidelines.

positions affecting how homelessness is measured. However, Orwin et al. (2005) operationalise homelessness using four categories:

- stable housing (e.g., own apartment, shared housing or care facility)
- institutional housing (e.g., residential treatment facility, hospital or jail)
- marginal homelessness (e.g., hotel room, someone else's apartment, transitional housing)
- literal homelessness (e.g., roofless, car, emergency shelter).

This is a robust definition of homelessness that is well-cited in previous research(Eyrich-Garg et al., 2008; Iaquinta, 2016; Lincoln et al., 2009). Due to the complexity of the analyses presented in chapter 4, the literal definition of homelessness will be used in this thesis.

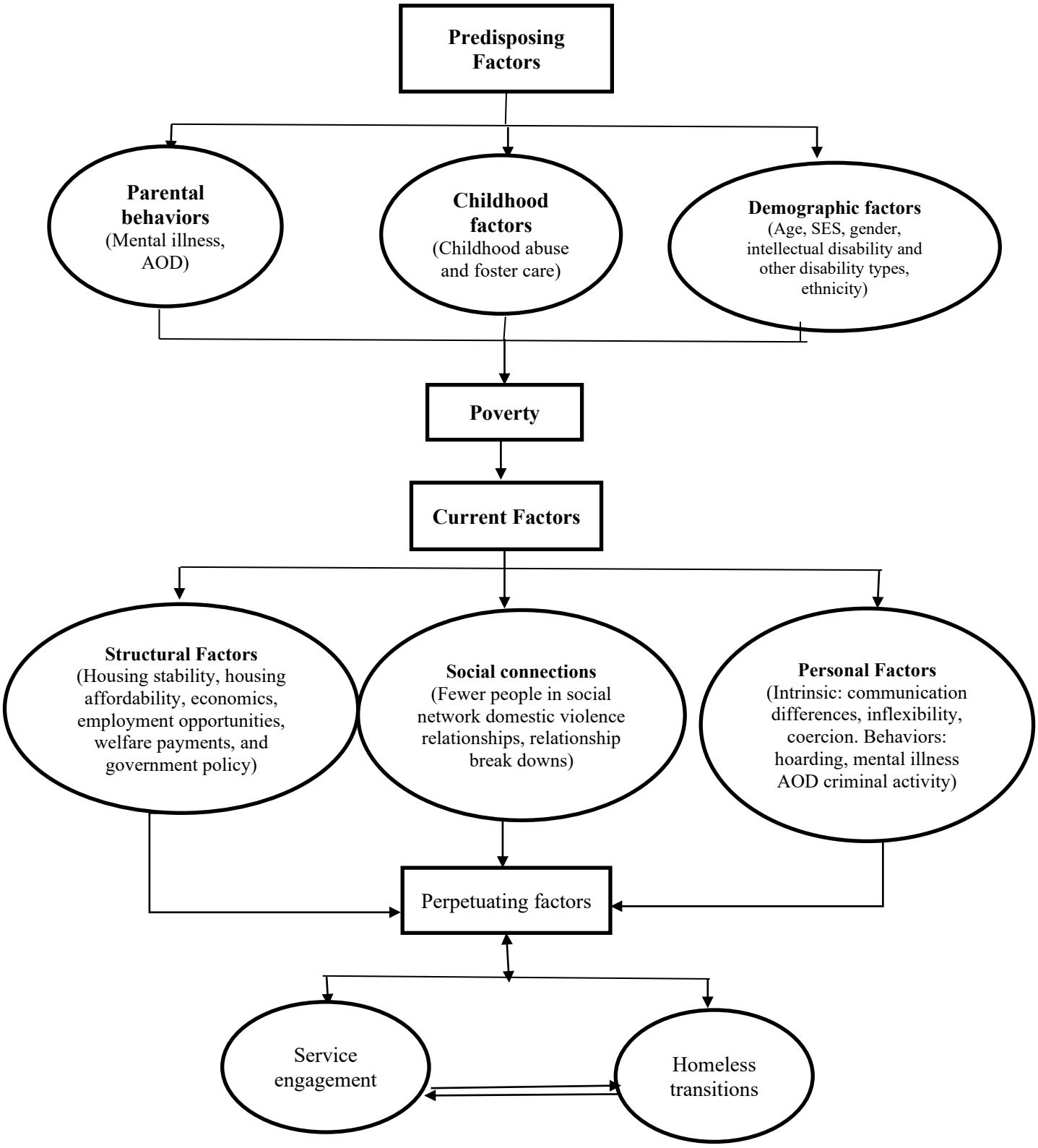
1.2.1 The Structure of Homelessness Risk

Isolated events rarely explain homelessness; rather, a combination of factors have been reported to lead to an increased incidence, frequency and duration of homelessness episodes (Broll & Huey, 2017; Cohen, 1999; Crane et al., 2005; Haber & Toro, 2004; Heffron et al., 1997; Kim et al., 2011). The literature shows that the risk factors for homelessness occur in three interconnected stages: predisposing, current and perpetuating factors. These are shown in Figure 1.1, which depicts the complex pathway to homelessness. The predisposing risk factors increase the likelihood of poverty, which increases the probability of the presence of the current factors that trigger episodes of homelessness (Shelton et al., 2009). Perpetuating factors then sustain the duration and frequency of homelessness (Anderson & Collins, 2014). At each stage, protective factors may lessen the risk of homelessness (Bassuk et al., 1997)[3].

Figure 1.1

Homelessness Risk Factors: Conceptualisation Model

[3] The risk factors of homelessness will be considered first with homeless research that considers an unselected sample and later in the chapter these factors will be considered in the context of an autism specific sample.



1.2.1.1 Note: SES = socio-economic status; AOD = alcohol or other drugsPredisposing Factors

Predisposing factors are early life experiences that pre-empt an experience of homelessness later in life. Three predisposing risk factors for homelessness are discussed in the literature. Theseare parental psychopathology; childhood experiences such as abuse or neglect, out-of-home placement (e.g., forcible removal), and economic disadvantage or housing instability in the family; and demographic factors (as reflected in Figure 1.1). Together, these life experiencesand conditions are considered to increase the chances of future episodes of homelessness (Heffron et al., 1997; Huntington et al., 2008; Kim et al., 2011; Koegel et al., 1995; Shelton et al., 2009).

1.2.1.1.1 Parenting and Life Experiences

Longitudinal studies have indicated that particular demographic groups are susceptible to homelessness episodes (Caton et. al. 2005; Van den Bree et. Al, 2009). As modelled in Figure 1.1, factors such as poor parenting practices, parental psychopathology, negative childhood experiences, abuse, foster care, parental addiction and parental criminal history increase the risk of homelessness through the mediating factor of poverty (Bassuk et al., 1997; Blankertz et al., 1993; Kim et al., 2011)—and parental psychopathology and adverse childhood events may be more prevalent among individuals with certain demographic markers (Frank et al., 2018).

1.2.1.1.2 Demographic Factors

A number of demographic factors increase the risk of homelessness. These include increasing age, low socio-economic status, certain ethnic backgrounds, non-cis male gender, poor education, and disability (Backer & Howard, 2007; Haber & Toro, 2004; Huntington et al., 2008; Nooe & Patterson, 2010). The presence of any of these demographic markers increases the chance of poverty occurring during a person's lifespan (Frank et al., 2018).

Poverty is a recognised risk factor, often cited in the literature, that combined with the above-mentioned predisposing factors increases the chance of experiencing the current factors of homelessness and ultimately episodes of homelessness (Crane et al., 2005; Haber

& Toro, 2004; Johnson et al., 1997; Koegel et al., 1995).

1.2.1.2 Current Factors

The current factors are considered the immediate trigger before experiencing homelessness; these include structural,personal and social support factors. Structural factors that may impact homelessness include, system-related difficulties such as: limited housing affordability, economic insecurity, social policies, and their consequences such as discrimination (Batterham, 2012; Elliott & Krivo, 1991), with social policies and government support informing the nature of service provision. Organisations providing homeless people with westernised services[4](Australia, US and UK) are often underfunded and under-resourced, and their staff are often inadequately trained (Hoff et al., 1992; Marçal et al., 2021). They are frequently overstretched due to high demand (Bennett- Daly et al., 2022). According to one report, between 2020-21 approximately 114 000 (an increase of 19 000 from 2016-17) individual requests for assistance to homelessness serviceproviders across Australia were not caried out (Productivity Commission, 2022). In addition, service providers are restricted by government stipulations reducing their ability to provide flexible support programs (Paquette & Pannella Winn, 2016). This inability to meet demandmay result in some individuals being unable to access the services they need (Paquette & Pannella Winn, 2016). Further to this, homeless services often have strict criterion based on interpretation of these government stipulations; such as exclusion of migrant groups, individuals diagnosed with mental illness; length of homelessness, urgency of the request and whether staff determined their homeless status ‘intentional’ (Chard,Faulkner, & Chugg, 2009; Black et al, 2018; Boesveldt, 2019). These structural issues that impact organisations and service deliveryadd an additional barrier to

[4] [1] Westernized services refer to countries that use the DSM-5/ICD criteria for diagnosticassessment and provide housing support.

successful housing outcomes for disadvantaged populations(Casey et al., 2020; O'Donovan et al., 2020).

Disadvantaged populations (e.g., Neurodiverse, intellectual disabilities, mentally ill, low SES) are less likely to have their particular needs met by service providers, due to the lack of resources addressing the underlying needs of each individual (Casey et al., 2020; O'Donovan et al., 2020). Some of these underlying needs relate to personal risk factors for homelessness, including both behavioural factors, such as criminal history, hoarding or substance misuse, and intrinsic factors, such as poor mental health, disabilities, inflexibility, vulnerability to coercion, sensory sensitivities, poor executive and adaptive function, and poor decision-making or communication abilities. These factors all increase people's needs for specialised support, and these needs often cannot be met by service providers (Crane et al., 2005; Kim et al., 2011; Olfson et al., 1999; Rodriguez et al., 2012; Vaughn, 2013). It may be inferred that the negative consequences of personal risk factors—in particular, increased symptoms of poor mental health—may lead to difficulties engaging with other people. This may lead to homeless outcomes due to lack of ability to engage with service providers and social supports.

Homelessness is often a consequence of limited and/or depleted social supports. This circumstance can have various causes, including family or friendship breakdown, loss of support, negative or violent relationships, and divorce (Haber & Toro, 2004; Hier et al., 1990; Johnson et al., 1997). Once homeless, individuals are likely to seek the companionship of like-minded people experiencing the same disadvantages, and this often reduces their ability to recover from homelessness. These like-minded groups are more likely to engage in risk-taking behaviours, such as unsafe sexual encounters or alcohol or other drug abuse, that are detrimental to their physical and mental wellbeing (Wenzel et al., 2012). However, it is important to note that risky behaviours, in isolation, do not cause homelessness; rather, a combination of the abovementioned current factors, including structural, personal and social

support factors, increase a person's likelihood of falling into a cycle of homelessness (Figure 1.1).

1.2.1.3 Perpetuating Factors

Two factors have been identified in the literature as increasing the duration and frequency of homelessness: homeless transitions and service engagement. 'Homeless transitions' refers to the duration and frequency of a person's episodes of homelessness. Considerable effort has been made to investigate the factors underlying longer and more frequent episodes of homelessness (Anucha, 2005; Barber et al., 2005; Caton et al., 2005; Hyde, 2005; McNaughton, 2008). Those who have experienced longer, or more frequent periods of homelessness are more likely to become homeless again after being housed, which may be due to a number of factors, including such people having a sense of belonging within a homeless community (Haber & Toro, 2004; Johnson et al., 1997).

According to Black and colleagues (2018) a lack of service engagement amongst homeless individuals has been considered a barrier to regaining housing. Homeless individuals avoid engaging with services due to prior negative experiences, lack of awareness and difficulties with accessibility (ie. long travel times, eligibility requirements) (Black et al., 2018).

1.2.1.4 Prior Research Related to The Predictive Power of all Known Risk factors.

The individual predictive power of each of these risk factors has been investigated in a number of homeless populations (Caton et al., 2005; Shelton et al., 2009). In particular, a six-year longitudinal study of 14,888 young people was conducted by Shelton et al. (2009) using an in-home adolescent interview to measure risk factors of homelessness. The results highlighted seven key factors that predicted homelessness outcomes for this demographic. These were increasing age, ethnicity, levels of childhood-related risk factors, socio-economic status, the presence or absence of addiction, whether or not a person had been diagnosed with a mental health condition, and the presence or absence of service support (Shelton et al.,

2009). The presence of service support significantly reduced a person's long-term risk of homelessness (Shelton et al., 2009). Some populations are at greater risk of homelessness due to a lack of opportunity for individualised support (Casey et al., 2020; Evans et al., 2016; Hurley et al., 2018; Kargas et al., 2019;Pritchard, 2010)).

Taken together, a number of factors increase a person's chance of homelessness, in the manner modelled in Figure 1.1. Individuals from some groups are more likely to need, butbe unable to access, individualised support. Without this support, these individuals are likely to become homeless. Over 20 years of research into support programs has had varied success in supporting these groups to avoid or recover from homelessness, as evidenced by the increase in homelessness in Australia (Australian Bureau of Statistics, 2016). Researchers have thus turned their attention to trying to prevent homelessness by identifying factors that might minimise the risk of becoming homeless.

1.2.1.5 Protective Factors

It is recognised in the literature that developed countries possess enough resources to solve the problem of homelessness (Culhane et al. 2008). This knowledge has led researchersto focus on developing and implementing proactive approaches that reduce the risk of homelessness before it occurs, since resource availability makes such strategies particularly advantageous (Evans, Sullivan, & Wallskog, 2016). These strategies aim to enhance the strengths and resources of each individual to increase their access to services and support thatcan protect them from homelessness (Bassuk et al., 1997; Heerde et al., 2020). Specifically, protective factors include family involvement, social supports and individual factors (e.g., drug and alcohol addiction, mental health diagnosis). Positive family involvement has been shown to reduce homelessness risk (Rew et al., 2001; Shelton et al., 2009) by increasing people's capacity to form meaningful social relationships. The nature of social factors is linked to two important considerations: first, those with more social support (such as supportive friends and community connections) endure shorter episodes of

homelessness (Bassuk et al., 1997; Bearsley-Smith et al., 2008); second, those with better social skills are able to maintain healthy relationships, reducing their likelihood of remaining in a cycle of homelessness (Bearsley-Smith et al., 2008). Protective factors against homelessness, such as social supports and service supports,reduce the likelihood and duration of homelessness episodes, leading to an increase in housing stability (Rew et al., 2001). Thus, it is each individual's particular combination of absent risk factors and present protective factors that can lead to housing stability.

The model that has been described here outlines the nature of the risk factors and protective factors relating to homelessness. Although anyone can become homeless and it can affect people of any background, certain groups are more susceptible given that they present with an increase in risk factors. Neurodivergent individuals and those with disabilities or mental health issues, are more vulnerable as they are less likely to experience the protective factors, or the support provided by service organisations. Those with mental health issues, neurological differences, or disabilities are considered at greater risk of homelessness and are less likely to recover (Stone et al., 2019). Studies have reported that this is caused by difficulties in advocating for oneself, problems accessing services (due to not meeting the criteria), and service providers' misunderstandings of these people's needs (due to staff lacking education or questioning a client's diagnosis) (Spence et al., 2004; Stone et al., 2019; Stubbs et al., 2020). As outlined above, those with neurodivergence are considered to be at greater risk of homelessness due to lack of employment and educational opportunities and the presence of risk factors. Neurological differences include learning disabilities, traumatic brain injuries, Attention Deficit Hyperactivity Disorder (ADHD) and autism. Research has begun to provide evidence about the specific ways some of these conditions relate to homelessness, yet others have received little focused attention. For example, a number of studies have investigated the prevalence of higher risk of homelessness among neurodivergent groups such as people with ADHD, intellectual disability and traumatic brain injury (Murillo et al.,

2016; Salavera et al., 2014; Stone et al., 2019; Van Rooy, 2008). However, autism has received little specific attention. Given that autism and ADHD share a commonality for incidence and that autistic individuals have been found to be over-represented in the homeless population (Churchard et al., 2019), it is likely that autism increases the risk of homelessness and warrants attention. The prevalence of autism in the homeless populations in developed countries (US and UK) has been estimated around 12.8% much higher than the general population's rate of .7%-2.5% (Australian Bureau of Statistics, 2016;Randal et al, 2016; Brugha et al., 2011; O'Donovan et al., 2020; Osborn & Young, 2022;Pritchard, 2010) .

Given their over-representation in the homeless population, it is somewhat surprising that the homelessness risk for autistic individuals has not been well investigated.

1.3 Autistic Individuals May Be at Risk of Homelessness.

Autism is a neurodevelopmental condition characterised by communication and social interaction differences as well as repetitive behaviours. It also tends to involve specific features such as self-injury, fear, characteristic behaviours (rocking or stimming) and emotional dysregulation (Ando & Yoshimura, 1979; Baudewijns et al., 2018). These characteristics may be viewed as negative (e.g., Seen as rude, disrespectful or antisocial) by those who lack training or do not understand the underlying cause (Casey et al., 2020). Autistic characteristics may persist throughout a person's life, necessitating support to reduce the likelihood of disadvantages and negative outcomes (George & Stokes, 2018; Matson et al., 2003), including homelessness. While autistic individuals have many strengths and abilities, these are often unrecognised in the wider community, resulting in various negative consequences, such as discrimination, lack of opportunity and social isolation (Robertson, 2009). Some autistic characteristics may cause difficulties in engaging with the community and accessing support (Robertson, 2009). The following section will first discuss how an interaction between autistic characteristics and the environment can contribute to the risk of

homelessness, then consider how they relate to the known homelessness risk factors. It is unclear from the existing research whether characteristics unique to autism increase the chance of homelessness or whether autisticindividual's higher risk is caused by a greater presence of the known risk factors.

1.3.1 Unique Autistic Characteristics May Contribute to Homelessness

Certain characteristics of diagnostic significance may increase an autistic person's risk of homelessness. These include restricted and repetitive characteristics (such as, rigid routines, hoarding), communication differences (such as, poor communication skills, vulnerability to coercion), imagination differences, attention to detail, and sensory sensitivities (De Alwis et al., 2014; Frazier et al., 2014; Grant, 2017).

These factors contribute to greater prevalence of the known homelessness risk factors; for example, limited friendships may decrease a person's sense of belonging and social connectedness (Haber & Toro, 2004; Hier et al., 1990; Johnson et al., 1997). However, some autistic characteristics may contribute to homelessness in a way that cannot be explained by the factors presented in the abovementioned model. These include limited eye contact and characteristic repetitive behaviours such as hand flapping (Spaniol, 2018; Honey et al., 2012). It is considered that these types of behaviours (communication differences, restricted and repetitive behaviours, imagination differences, attention to detail) may impact an individuals'ability to engage with employment, develop social supports and maintain housing, thus leading to homelessness (Campbell, 2015; Stone, 2019). Little empirical attention has been given to the particular autistic characteristics that may relate to homelessness, each will be discussed in turn below.

1.3.1.1 Communication Differences

Autism is characterised by variable skill sets in social-emotional reciprocity. Varied ability for initiating and maintaining reciprocal conversation may make it hard for an autistic person to develop social supports and seek help (Locke et al., 2010). Also, differences in non-verbal

communication, such as lack of eye contact, could be perceived as disengagement or disinterest (Spaniol, 2018). These characteristics may limit the person's ability to maintain relationships. Social skill differences (such as lack of motivation, blunt affect and direct communication) may also constrain this ability (Locke et al., 2010). All these communication differences can make it difficult for autistic individuals to access services, support, housing or employment (Campbell, 2015; Casey et al., 2020; Churchard et al., 2019; Grant, 2017; O'Donovan et al., 2020) and thus mean they are more likely to become homeless (Campbell, 2015; Casey et al., 2020; O'Donovan et al., 2020). Indeed, communication differences have received the most attention in the literature about autistic individual's homelessness risk (Casey et al., 2020; Grant, 2017; Stone, 2019; Stone et al., 2019; Yeo & Teng, 2015). In particular, if service providers and support staff do not provide autistic individuals with clear and direct communication, misunderstandings and frustrations can result (Casey et al., 2020; Grant, 2017; Stone, 2019; Stone et al., 2019; Yeo & Teng, 2015), and these may cause carers and service organisations to stop trying to help autistic individuals.

1.3.1.2 Restricted and Repetitive Behaviours.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria, the restricted and repetitive behaviours associated with autism spectrum disorder (ASD) include characteristic motor movements, echolalia, insistence on sameness, inflexible routines and difficulties with transitions (Spaniol, 2018) as well as restricted interests and sensory sensitivities (Schulz & Stevenson, 2020). Rigidity and insistence on sameness can result in a lack of willingness to engage with service providers, especially when connecting with government organisations, as autistic individuals may struggle to cope with new staff (Factor et al., 2016). Further, inflexibility and a lack of support to implement new routines may contribute to homelessness in a number of ways, for example failure to attend appointments and inconsistency in taking prescribed medications (Campbell, 2015;

Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019). Another consideration is that autistic individuals may develop maladaptive routines that create barriers to accessing services and support (Grant, 2017). For example, an individual might always go to bed at 6:00 a.m. and wake at 3:00 p.m., which would not be conducive to accessing services or support programs that operate within business hours. Moreover, if an autistic person becomeshomeless, they may be more likely than others to develop a routine centred around the homeless lifestyle (Garratt & Flaherty, 2021), further increasing their anxiety and inflexibilityabout exiting homelessness into housing (Campbell, 2015). Finally, housing providers' inability to accommodate an autistic individual's sensory needs may result in that individual having difficulties accessing and maintaining housing (Campbell, 2015; Friedman et al., 2013). Homeless autistic individuals may struggle to cope in homeless shelters, which are often sensory-rich environments that do not accommodate the sensory needs of the individual(Park, 2015; Rybski & Israel, 2018). Sensory-rich environments may result in physiological arousal, pain and overwhelm, leading to maladaptive behaviours, such as aggression (Nagib & Williams, 2017).

1.3.1.3 Imagination Differences

Imagination differences are an under-researched characteristic of autism, although this characteristic is included in popular screening tools (Crespi et al., 2016). Imagination differences encompass a range of ability differences in perspective taking, creativity and empathy that result in a number of difficulties (Davis, 2018). For example, imagination differences in autistic individuals have been linked to difficulties with solving problems, evaluating past actions and imagining future selves (Crespi et al., 2016). Problem-solving and creating future-oriented goals may be critical for achieving positive housing outcomes (O'Shaughnessy & Greenwood, 2020). For example, when searching for, applying for and obtaining a house, a person may need to solve problems. Also, once housed, a tenant may experience conflicts with landlords or other tenants. People on the autism spectrum may lack

the ability to deal with these problems and conflicts. Hence, without support to navigate the process of obtaining housing and to resolve domestic conflicts, autistic individuals may be at greater risk of homelessness (Crespi et al., 2016).

1.3.1.4 Attention to Detail

Autistic individuals have been found to be more likely to attend to specific details rather than global information (Baron-Cohen et al., 2001). Attention to detail has been linked to a number of other autistic characteristics, including cognitive flexibility and the systematic application of rules (Baron-Cohen et al., 2001). If misunderstood by service providers, employers or support staff, this extreme focus on details may cause various difficulties related to maintaining housing. For example, when individuals attend to particular information, they may have less cognitive capacity to remember other details, such as the need to pay bills. Difficulty paying bills is clearly likely to increase the risk of homelessness. It is critical for service providers to understand this uneven ability profile (extreme focus combined with inattention) if they are to develop appropriate support services. In the absence of such support, autistic individuals are more likely to become homeless.

1.3.1.5 Attention Switching

Autistic individuals demonstrate a reduced ability to switch attention between multiple stimuli, related to difficulties with executive function and communication within a social setting (Reed & McCarthy, 2011). Although many autistic individuals view attention switching as a strength, it can also be linked to a number of challenges with job, education, relationships, and independent living (Hendricks, 2010). Some autistic individuals find it difficult to transition from these enjoyable jobs to other boring tasks in work environments, which reduces their capacity to finish projects (Kapp et al., 2011). This problem makes it tough to keep a job if employers don't understand these attention difficulties. Additionally, attention switching can make it more difficult for people to managea home because autistic individuals find it difficult to switch between fun activities and

chores. Attention difficulties also make it harder for autistic individuals to learn new skills that are unrelated to their hobbies and or interests, resulting in gaps in knowledge that can cause difficulties with maintaining a home. For example, not learning how to mow the lawns, clean or pay bills. This lack of skills may increase conflict with landlords and result in difficulties maintaining rental properties. It can be inferred how these difficulties within employment and maintaining housing may increase the chance of homelessness.

1.3.1.6 Sensory Sensitivities

Sensory sensitivities might include exceptionally high or low sensitivity to stimuli, (for example auditory, visual, textural, olfactory, and taste stimuli) that result in sensory overload. Meltdowns and shutdowns are two outcomes of sensory overload. One study (Davidson, 2007) highlighted that sensory sensitivities not only cause distress but result in isolation and reduced ability to engage meaningfully in the community. According to research, sensory overload and exhaustion can make it difficult for autistic individuals to live in particular types of housing, share a home with others, and work full-time because so few workplaces and shared homes are configured to meet their needs (Mantzalas et al., 2022; Osborn & Young, 2021; Raymaker et al., 2019). Autism may increase the likelihood of homelessness due to a lack of sensory-friendly jobs and accommodation.

Anecdotally, it appears that lack of understanding of these behaviours (communication differences, restricted and repetitive characteristics, imagination differences, attention to detail, attention switching and sensory sensitivities), combined with lack of support focused on those factors, can limit autistic individual's ability to retain accommodation (Backer & Howard, 2007; Grant, 2017; Ryder, 2017). Associated differences in executive and adaptive function, which are common among autistic individuals, may likewise contribute to homelessness (Pugliese et al., 2016). Although these factors are not diagnostic features, they are important to consider.

1.3.1.7 Executive Function Differences

Executive function differences are related to a number of core skills important for brain functioning, including memory, flexibility and self-control (Diamond, 2013). Differences in executive function affect an individual's ability to absorb and interpret information and make decisions based on it (Diamond, 2013). While executive function difficulties are not unique to autistic individuals, these characteristics are highly prevalent in this group, and the link between executive function differences and autism is well established (Clark et al., 2002; Pugliese et al., 2016; Wallace et al., 2016).

Executive function differences in childhood have been linked with a number of adverse outcomes in autistic individuals' adult lives (Clark et al., 2002; Davids et al., 2016; Ghanouni et al., 2021; Johnston et al., 2019; Pugliese et al., 2016; Wallace et al., 2016). These include higher susceptibility to mental illness, lower educational levels, poorer adaptive function and lesser ability to live independently (Davids et al., 2016; Ghanouni et al., 2021). Hence, executive differences may limit the independent living options available to autistic individuals, resulting in more individuals becoming homeless.

1.3.1.8 Adaptive Function Differences

Adaptive function is the ability to cope with everyday environments. It includes a broad range of skills needed for self-care, independence, community engagement and socialisation (Mitchell, 2018). While adaptive function difficulties are not unique to autism, researchers have suggested that these characteristics are highly associated with this diagnosis (Farley et al., 2009; Tillmann et al., 2019). Differences in adaptive function have been associated with negative educational outcomes leading to failure to secure employment which can limit an individual's ability to achieve independence (De Bildt et al., 2005; Paul et al., 2004). Lack of independence may result in homelessness because it involves low levels of skills that are important for retaining a home. For example, cooking, cleaning and basic maintenance skills (such as unblocking a sink). Indeed, homelessness was associated with low adaptive function in a study that found that low adaptive function led to poor decision-

making and lack of flexibility in accepting alternatives, resulting in an inability to remain housed (Johnson, 2001). Moreover, a recent review of support programs that were focused on adaptive skill development reported promising results. These programs not only reduced the duration of homelessness but also improved the emotional wellbeing of homeless individuals (Thomas et al., 2011).

Similarly, another study found that autistic individuals benefited from support programs related to differences in adaptive and executive function. Change was facilitated most effectively by specialised services implementing evidence-based programs (Palmen et al., 2012).

1.3.2 Autistic Characteristics and the Impact on Service Provision and Homeless Risk

Specialised services, such as therapeutic services, provide a safety net for autistic individuals to allow them to engage successfully with neurotypical society (Murphy et al., 2016). Murphy et al. (2016) found services that were provided by trained professionals and used a multidisciplinary approach based on needs assessments and individuals' feedback the most advantageous. However, some organisations, such as housing and government organisations, are ill-equipped to provide the kinds of flexible services and support that address the specific needs of autistic individuals (Campbell, 2015). This may be due to the heterogenous nature of autism that can result in difficulties with identification and diagnosis, as well as designing and implementing interventions once diagnosed (Casey et al., 2020). Beyond this, services and staff members lack of training about autism, lack of funds, or poorly resourced systems can result in lack of support (Casey et al., 2020). Thus, autistic individuals may be at risk of homelessness because it is not possible for them to access appropriate services and support (Hoff et al., 1992; Marçal et al., 2021). This risk is exacerbated by limited housing availability because unless they have both sufficient support and adequate housing options, autistic individuals are more likely to become homeless (Campbell, 2015; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019). However,

existing research has not indicated the exact nature of the contribution of autistic characteristics to the risk of homelessness.

It is important to consider to what extent autistic characteristics are, in themselves, homelessness risk factors rather than simply making autistic individuals more likely to experience already-known risk factors. Like non-autistic individuals, autistic individuals may experience the predisposing, current and perpetuating risk factors discussed in Section 1.2.1. This, and lack of protective factors, may limit their access to support that could help them avoid homelessness. While people on the autism spectrum are more likely than others to live with their parents or in supported accommodation, even in those situations, they can become homeless due to relationship breakdown, death of family members or exclusion from services (Eaves & Ho, 2008). Moreover, once homeless, autistic individuals tend to endure longer periods of homelessness and are less likely to recover from it (Pritchard, 2010)). Research has not shown whether this is due to autistic characteristics alone rather than to their making already-known risk factors more prevalent. The following sections discuss the predisposing, current and perpetuating risk factors and protective factors for homelessness and how commonly they occur in autistic populations compared to general populations[5].

1.3.3 Predisposing Factors amongst autistic individuals

As shown in Figure 1.1, demographic factors, childhood abuse and parental behaviours are important risk factors for homelessness. These may be over-represented among autistic individuals. Studies have found that individuals on the autism spectrum have greater exposure to childhood abuse and neglect than other children with disabilities (Bleil Walters et al., 2013; Brenner et al., 2018). Parents are often the sole or primary providers of support and advocacy for autistic individuals; thus, parents who lack the education and skills to adequately support their children can experience mental health problems, distress, and frustration, which can lead to carer burnout (Ault et al., 2021; Da Paz & Wallander, 2017;

[5] The research presented in the following section include data collected from neurodiverse populations.

Montes & Halterman, 2007; Totsika et al., 2011). Together these predisposing risk factorsincrease the chance of autistic individuals becoming homeless.

1.3.3.1 Current Factors

Via a relationship mediated by poverty, those on the autism spectrum can also be subject to the current risk factors of homelessness (see Figure 1.1). These include structural, social and personal factors.

Autistic individuals' susceptibility to structural risk factors has been noted in the literature; people on the autism spectrum may, as well as being economically disadvantaged, find it difficult to independently obtain welfare support or community housing (Grant, 2017). In developed countries, structural factors are considered to have a significant effect on autistic individuals' homelessness risk, and access to appropriate services and affordable housing has been the focus of support programs (Apicello, 2010; Batterham, 2012; Buck-McFadyen, 2022; Cronley, 2010; Parsell & Marston, 2012). Service organisations may lack the appropriate training and support to provide the individualised support required by autistic individuals, and this may limit their employment and educational opportunities, increasing their risk of homelessness (Hoff et al., 1992; Marçal et al., 2021).

Autistic individuals may have fewer opportunities for ongoing employment and education. In two reports, unemployment was found to be a major contributing factor to autistic individual's becoming homeless (Campbell, 2015; Stone, 2019). When compared to those diagnosed with other conditions (such as intellectual disability, down syndrome and other neurological conditions) autistic individuals are up to 50% less likely to seek and obtain employment after high school (Roux et al., 2013). The barriers to employment include staff at employment services and workplaces lacking training and knowledge regarding autism (Casey et al., 2020). This may lead to a lack of accommodation and understanding in the workplace. Without employment or education, autistic individuals may become reliant on government support and may have to apply for social or community housing that is

affordable and accessible (Knapp et al., 2007). Moreover, lack of financial stability, lack of education, varied organisation and daily living skills may cause autistic individuals to rely heavily on others, resulting in up 80% of autistic individuals residing with family and in organisations rather than independently (Eaves & Ho, 2008; Frank et al., 2018; Howlin et al., 2004; Hume et al., 2014).

Moreover, autistic individuals may be unable to find housing that suits their needs (Campbell, 2015). They may have specific or unique housing requirements, such as sensory needs, or need live-in support staff who cannot be accommodated in housing services due to the lack of affordable housing options (Casey et al., 2020; Ghanouni et al., 2021; Marcotteet al., 2022). The lack of affordable housing in Australia has led to stringent policies and criteria that restrict access (Berry, 2003). If housing does not meet the needs of an autistic individual, they may refuse to take it, which is likely to exclude them from further offers of housing or other support (Campbell, 2015)[6]. This exclusion has been attributed to misunderstanding of autism and individual needs (Campbell, 2015). Also, service providers' lack of knowledge of individual needs related to autism may result in negative experiences. Campbell (2015) stated that over 50% of autistic individuals who engaged with services had negative experiences and that in the absence of support, such individuals are likely to become homeless.

This is problematic given that previous research has indicated that without support programs and specific intervention, some autistic individuals are less likely to develop the skills they need to establish and maintain social connections (Bellini et al., 2007; Frye, 2018; Holloway et al., 2014).

A breakdown in social supports may contribute significantly to an autistic individual's becoming and remaining homeless. Individuals on the autism spectrum are highly reliant on social support to function in society (Hong et al., 2013). Other homeless groups demonstrated

[6]articip

a heavy reliance on peers for social support, with 75% reporting the presence of at least one friend to offer social support (Johnson & Johnson, 2005) compared to 12% who reported the presence of a family member (Tyler, 2008). However, autistic individuals are less likely to have a large social support group, and they often rely on family for support (Hong et al., 2013).[7] Eaves and Ho (2008) found that 59% of autistic adults lived with their parents and 35% lived in supported accommodation. 15% of this sample attributed this lack of autonomy to autism traits such as; rigidity, repetitive behaviours and concrete views of the world (Eaves & Ho, 2008). Parents who have children on the autism spectrum are at higher-than-average risk of mental illness, decreasing their ability to cope with daily life and manage the demands of caring for their adult autistic child (Bader, 2012). The need to keep caring for an adult who remains dependent on the family places further strain and emotional toll on these relationships in the family. This may lead to problems such as increased family conflict, divorce, or breakdown in the family's support for the autistic person (Bader, 2012), all of which may lead to those individuals becoming homeless.

Personal factors will now be discussed. For autistic individuals, mental health diagnoses or increased mental health symptoms may contribute to homelessness. The effects of individual co-occurring conditions and coping capacity should also be considered. Autism has been associated with higher-than-average rates of co-occurring mental illness, intellectual disability (ID) and alcohol and drug use (Baudewijns et al., 2018; De Alwis et al., 2014; Goodman, 1991; Toohey et al., 2004). Co-occurring conditions among neurodivergent populations increase their need for individualised support from highly trained multidisciplinary teams, and due to service providers being unable to meet this need, neurodivergent people are likely to be unable to access services, resulting in homelessness (Casey et al., 2020; Evans et al., 2016; Hurley et al., 2018; Kargas et al., 2019; Pritchard, 2010).

[7] Whilst it is recognized that many autistic individuals may choose to develop one strong positive relationship, social capital is important in programs such as shelter divergence schemes that aim to prevent homelessness that were discussed above.

Research into alcohol and drug use among autistic individuals currently experiencing homelessness has produced conflicting results. While some studies found that autistic individuals were less likely than non-autistic individuals to engage in substance misuse (Campbell, 2015; Davidson, 2007; Grant, 2017; Vana, 2020), others suggest that they are more likely to misuse drugs (Casey et al., 2020). These varied findings related to drug misusefor autistic individuals differ from general homeless populations that have demonstrated an increased chance of homelessness related to drug misuse. In 2022, over 43% of the homeless population in Australia reported alcohol and drug use problems (Australian Institute of Health and Welfare, n.d.). a higher rate compared to 16.4% in the general Australian population surveyed in 2019 (National Drug Strategy Household Survey, 2019). homelessness risk is very important, and the factors that provide protection fromhomelessness for autistic individuals may differ from those of other populations.

1.2.3.2 Protective Factors

Various factors can provide protection from homelessness for autistic individuals. In particular, the importance of social support from families and service organisations has been indicated throughout the literature (Burke et al., 2018; Ewles et al., 2014). Although negative experiences with service organisations have been linked to negative outcomes, specialised support has been shown to be an important protective factor against homelessness (Evans, Sullivan, & Wallskog, 2016). The use of advocates to identify and communicate individuals' specific needs can compensate for gaps in service staff's autism-related knowledge or training (Casey et al., 2020; McCoy et al., 2020).

Moreover, for autistic individuals to access the right types of support, diagnosis in adulthood iscritical. Diagnosis has been demonstrated to lead to various positive outcomes for autistic individuals, including better communication skills, increased ability to engage in mainstream education programs, prosocial behaviours and less need for ongoing support programs in the future (Clark et al., 2018). There is evidence that diagnosis during early

childhood, leads to autistic individuals demonstrating greater cognitive flexibility and increased ability to learn skills such as problem-solving and identifying needs, as well as social and communication skills (Clark et al., 2018). Indeed, diagnosis provides positive outcomes by giving the person access to ongoing services and support that rely on government funding (Bhat et al., 2014; Oosterling et al., 2010). This type of early support improves educational and employment outcomes. It has also been associated with greater self-efficacy, coping skills and independence (First et al., 2016; Hall & Graff, 2012). Hence, if they have been diagnosed with ASD, a person on the autism spectrum is more likely to obtain the specialised support required to prevent homelessness.

The above-mentioned protective factors of homelessness for autistic individuals are support from parents and autism specific services (Backer & Howard, 2007). Indeed, parental support is critical in improving autistic individuals' life outcomes in a number of domains, including quality-of-life and therapeutic outcomes (Casagrande & Ingersoll, 2017; Rutherford et al., 2019; Tarver et al., 2019).

1.2.4 Mediation Effects of Adaptive and Executive Function

Existing research has reported a higher prevalence of autism in the homeless population in developed countries when compared to the general population (Casey et al., 2020; Churchard et al., 2019; O'Donovan et al., 2020), showing that there is a relationship between autism and homelessness. Several aspects of this relationship have been discussed above. First, autistic individuals are likely to experience several of the known predisposing, current and perpetuating risk factors for homelessness, and without adequate service support, they are more likely to become homeless. Second, autistic individuals have unique needs that may contribute to disadvantage, lack of support and, ultimately, homelessness.

The combination of executive function differences and adaptive function differences may influence the relationship between autism and homelessness. Differences in executive and adaptive function have been closely associated with autism (Pugliese et al., 2016).

Executive function differences have been observed to predict later difficulties with adaptive function among autistic individuals, limiting their ability to live independently (Pugliese et al., 2016). The fact that adaptive function and executive function differences are common among autistic and homeless people suggests that the relationship between autism and homelessness might be mediated by levels of executive and adaptive function (Thomas et al., 2011; Pugliese et al., 2016). Those less able to solve problems, think flexibly, recall and use information and live independently may struggle to obtain employment and housing, which can increase their risk of becoming homeless. However, it seems likely that intellectual ability can moderate the effects of adaptive and executive functioning on autistic characteristics influencing homeless outcomes.

Hence, the potential mediating effect of executive and adaptive function on the relationship between homelessness and autistic characteristics should be evaluated in relation to the potential moderating factor, intellectual ability, which has been strongly linked with adaptive function, executive function and autism (De Bildt et al., 2005).

1.3 Summary and Research Questions

A number of homelessness risk factors cluster together in a complex manner. However, the unique nature of each individual's pathway to homelessness should be considered. Although the population of individuals who experience homelessness is heterogeneous, among this population, particular groups may be more vulnerable to falling into and remaining in cycles of homelessness. Scant attention has been directed to the relationship between autism and homelessness. Although, research indicates that autistic individuals may experience a number of the predisposing risk factors (e.g., childhood trauma), current risk factors (e.g., mental health, economic disadvantage) and perpetuating risk factors (e.g., difficulties with service engagement). Existing research has not shown whether people on the autism spectrum are simply more likely to have the non-autism-

specific risk factors of homelessness or whether autistic characteristics are risk factors in themselves. The potential mediating effects of adaptive and executive function differences on the relationship between autism and homelessness should also be considered. Thus, the focus of the chapters that follow is the factors that contribute to autistic individuals being more vulnerable to homelessness. These chapters will address which characteristics of autism, if any, make individuals more likely to become homeless and, importantly, which factors help prevent autistic individuals from becoming or remaining homeless.

To address these matters and, therefore, the gap in the existing research, this study aimed to investigate four specific research questions:

1. Does ASD diagnosis status predict the likelihood of homelessness?
2. What characteristics of autism are homelessness risk factors?
3. Do these characteristics predict homelessness better than other known risk factors (predisposing, current, perpetuating)?
4. Do adaptive or executive function levels mediate the relationship between autism and homelessness?
5. What are the protective factors against homelessness for autistic individuals?

In Chapter 2, through a systematic review I will address whether a diagnosis of autism predicts the likelihood of homelessness. Chapter 3 utilises focus groups to inform which characteristics of autism may contribute to homeless risk using qualitative data. This chapter answers sub questions to inform the answer to question 2. Namely, 1) What system-related and environmental factors lead to homelessness for autistic individuals? 2) Which autistic characteristics do participants perceive as contributing to experiences of homelessness? 3): What factors do participants consider to offer protection to many autistic individuals from becoming homeless? Finally, chapter four will address what characteristics predict homelessness, if these characteristics predict homelessness better than the known risk factors

and if adaptive and executive functioning mediate the relationship between autism and homelessness. Chapter 4 will also address the protective nature of social supports against homelessness for autistic individuals using quantitative data.

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Chapter 2: Autistic and without a home: A systematic review andmeta-ethnography of the presence and experiences of homelessness amongst autistic individuals[2]

Abstract

Certain populations are more vulnerable to falling into the cycle of homelessness. An emerging body of research focuses on identifying autistic individuals within the homeless community, as they are a 'hard-to-reach' sub-population. We conducted a systematic review to identify such relevant studies. Eight Internet-based databases were used,following the Preferred Reporting Items for Systematic review and Meta-Analysis guidelines.After completing the screening process on 870 articles (The inclusion criteria: Human study, clear measures or experiences of autism and homelessness, The exclusion criteria were: Not published in English and no clear measurement of autism and homelessness), 17 were included in the review with a total of 573 participants. A critical appraisal skills program (CASP, 2013) was used to evaluate the risk of bias for the included studies. Five articles estimated prevalence rates, suggesting an elevated rate of autistic characteristics in the homeless community of up to 50%. The remaining 12 (2 literature reviews and 10 qualitative or mixed method) reported that for autistic individuals, the risk factors of homelessness for autistic individuals include a lack of family relationships andopportunities, co-occurring conditions, and rigidity. Limitations include methodology and small samples, this review highlights the need for focused research with sound methodological approaches[8]..

Keywords: Autism spectrum disorder, homelessness, systematic review, presence of homelessness, experiences of homelessness

[8] [2] This chapter is a copy of a published paper (reprinted in Appendix K) due to this being published in 2019 no articles from after this time will be included. This is a co authored paper, there for term 'we' was used throughout. Some changes have been made to this manuscript

2.1 Introduction

Homelessness is defined as lacking a secure and stable housing. It can include rooflessness, couch surfing, temporary accommodation (shelters), and overcrowding (Orwin et al., 2003). Although homelessness does not discriminate, certain populations are more vulnerable to experiencing homelessness. For example, individuals with mental health conditions and disabilities may be more vulnerable to homelessness due to differing social skills, physical abilities, and social resources that contribute to maintaining housing, employment, and education (Backer & Howard, 2007). Recent research on homelessness largely focused on disability and mental health, with an emerging interest in autism spectrum disorder (ASD). It is reported that autistic individuals are more vulnerable to homelessness due to the discrimination they experience, and that the services they engage with are often ill-equipped to deal with their specific needs. Government and homeless services lack the resources, knowledge, and training to provide ongoing and adequate support to autistic individuals (Grant, 2017). This discrimination may be due to misunderstanding and a lack of autism awareness (Campbell, 2015). Homeless services often have strict criteria and service guidelines, which reduce the capacity of autistic individuals to access services to meet their needs (Grant, 2017). Moreover, autistic individuals experience longer periods of homelessness and are less likely to acquire stable housing (Pritchard, 2010). It is somewhat concerning that the inferences that can be drawn from prior research are limited due to the small numbers of studies, concentration on the outcomes of services, and lack of focus on autism in connection with homelessness; only six papers have focused on specific autistic characteristics thus far (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019).

Numerous targeted interventions have been implemented to deal with homelessness. However, its incidence continues to increase across western societies, including the US, the UK, and Australia (Minnery & Greenhalgh, 2007). In Australia, the rate of homelessness

increased 4.6% in the past five years (Australian Bureau of Statistics, 2016). According to the Australian Bureau of Statistics (2016), there are currently 51,088 individuals experiencing homelessness, 8,500 of whom sleep on the street.

The negative societal and individual implications of homelessness are far-reaching as it places an outstanding burden on societies' financial resources, targeted services are estimated to cost between $900,000 and $1.5 million AUD for each individual experiencing homelessness in Australia (Baldry et al., 2012). Homelessness is not a single experience, and there are several factors that can lead to an increased risk of the condition. Cycles of homelessness have been attributed to loss of social connections, lack of affordable housing, and individual factors, such as drug use and mental health conditions. On an individual level, homelessness has a negative impact on mental and physical health (Ayano et al., 2019; Backer & Howard, 2007; Fazel et al., 2008; Schreiter et al., 2017; Spence et al., 2004; Stone et al., 2019; Stubbs et al., 2020), and those who experience homelessness are more likely to suffer from adverse mental health conditions, physical health issues, and/or neurological differences (Broll & Huey, 2017; Spence et al., 2004; Stone et al., 2019). These complexities further engender the risk of homelessness, acting as a barrier to receiving support.

Those with mental health issues, neurological differences, and disabilities are believed to be at a greater risk of homelessness and are less likely to recover from it. This is reportedly due to differences in their ability to advocate for themselves, reduced ability to access services (not meeting the criteria), and services not understanding their needs (lack of training/awareness, questioning the diagnosis; (Spence et al., 2004; Stone et al., 2019; Stubbs et al., 2020). Neurological differences may include learning disabilities, traumatic brain injury, ADHD, and autism spectrum disorders. Previous research has obtained broad information regarding individuals with neurological differences, yet little attention is given to; the specific nature of each diagnosis received. When considering the vulnerabilities of those with neurological differences, autistic individuals are thought to be vulnerable due to

differences in social skills and sensory sensitivities (Campbell, 2015). Such autism-specific characteristics (i.e., differences in communication) may further reduce an individual's ability to engage with services, thereby resulting in ineffective assessments and interventions. Due to the heterogeneous nature of autism spectrum conditions, unidentified difficulties may lead to autistic individuals failing to meet the criteria for services and support (Casey et al., 2020). Yeo and Teng (2015) highlighted the variation in communication and social skills among autistic individuals. This makes it difficult for services to understand and provide assistance. This results in a lack of, or reduced, engagement, which service providers may misinterpret as non-compliance (Campbell, 2015), thereby decreasing the opportunities for such assistance as education, employment, and housing (Friedman et al., 2013; Müller et al., 2003). Sensory sensitivities associated with ASD constitute further barriers for autistic individuals to maintain housing, as Government-supported housing (i.e., low-income housing, supported accommodation) is often not matched to an individual's sensory needs (Campbell, 2015; Friedman et al., 2013). Indeed, 95% of autistic individuals demonstrate clinically significant sensory sensitivities (Tomchek & Dunn, 2007), which may contribute to the reduced ability to live independently and maintain housing (Friedman et al., 2013). An assessment of the housing needs of autistic adults found that 83% lived with family (Paode, 2020). This reduced ability to live independently was attributed to differences in executive functioning, particularly in dealing with new situations and processing complex information to solve problems (Friedman et al., 2013). Up to 50% of autistic individuals have an intellectual disability (Paode, 2020) and differences, difficulty in executive functioning and social skills, and sensory sensitivities that increase their risk of homelessness of, and/or impede their recovery from, homelessness (Campbell, 2015).

To date, I am unaware of any specific reviews of literature related to the presence and experiences of homelessness for autistic individuals. Therefore, the focus of this research is to conduct a review of autistic individuals and their experiences of homelessness. This

research aims to: first, to deepen the understanding of frequency of homelessness, and second, to identify specific risk factors and homeless experiences among autistic individuals. We aim to identify the gaps in knowledge and evaluate the quality of the research conducted, providing future direction to specifically focus on autistic individuals and homelessness for future research. Using the Preferred Reporting Items for Systematic Review and Meta-analysis guidelines (PRISMA), within this review we aim to: (1) summarise the research conducted thus far on autistic individuals and homelessness, (2) describe the presence of autistic characteristics in homeless communities, (3) summarise the risk factors of homelessness for autistic individuals (4) summarise the experiences of homelessness for autistic individuals. Using two approaches, findings pertaining to the prevalence rates of homeless autistic individuals will be presented independently. A synthesis will be conducted to present and collate the findings of this review regarding the risk factors and related experiences of homelessness which will be discussed in terms of the implications for services and support. Additionally, further directions for future research will be discussed.

2.2 Method

2.2.1 Search strategy

The eight internet-based databases utilised for the present review included the following: PsycINFO data base (OvidSP), PRO Quest, CINAHL, SCOPUS, ERIC, Google scholar, JSTOR, and Taylor and Francis online. Using the advanced search function and no date limits keywords such as Autism (abstract) OR autistic

(abstract) OR Asperger's (abstract) AND homeless* (abstract) OR Homeless person (abstract) OR homelessness (abstract)[3] were used to locate publications in all journals investigating autistic individuals within the homeless population.

Following the scoping search, relatively few studies were found in this area; therefore, a decision was made to take an inclusive approach to the literature by performing manual searches from studies in the reference list. Further, government agencies and media sites

within the UK, US, and Australia were searched for in grey literature, due to the comparative nature of the homeless populations in these countries. This led to the inclusion of four additional papers that have not been published in academic journals (Campbell, 2015; Evans, 2011; Pritchard, 2010; Ryder, 2017).

2.3 Study Selection

The search was conducted from 16 March 2021 to 16 April 2021. The articles went through several screening stages. First, the titles were reviewed, and duplicates were removed. Articles were then screened based on the exclusion/inclusion criteria; first by reading the abstracts and then the full text. The following were the inclusion criteria: (1) Human study population (mandatory), (2) Studies which measured autism in homeless populations or experiences of homelessness in autistic populations, (3) Qualitative narratives of autistic individual's experiences of homelessness (can meet either 2 or 3). The exclusion criteria were: (1) Not published in English and (2) Did not measure risk factors of homelessness or presence of autistic individuals and/or characteristics. No age limits were placed on the search results; children and families experiencing homelessness were included. After the screening and review process, 12 articles meeting the criteria were included in[9] this review. Manual search results (n=5) were added to database searches giving a combined total of 17 represented studies. Screening was independently completed by two reviewers for all stages and any conflicts that arose were resolved before proceeding to the next stage of screening. An interrater reliability analysis using Kappa statistics was performed to determine the consistency amongst raters. A slight interrater reliability was found for the abstract and screening stage, Kappa =0.64 ($p<.001$), after the conflicts were resolved, the interrater agreement was high.

The flowchart in Figure 2.1 (see Appendix F) outlines the process of eliminating non-relevant papers following the PRISMA guidelines. The PRISMA guidelines were developed

[9] Homelessness was included in the search terms as homeless* did not capture all articles known articles in the first search.

by an international group that consisted of experienced researchers and methodologists. The PRISMA statement contains a 27-item checklist that ensures transparent reporting in a systematic review. This directed step-by-step methodological approach provides a framework for collating previous findings into a useful synthesis in order to answer specific research questions and identify further research gaps. The search returned 870 articles; 135 were duplicates and after these were removed, a total of 735 articles remained. The abstracts of each article were screened by researchers which resulted in the removal of 370 articles, leaving a total of 365 articles. The remaining 365 articles were then put forward for full text screening; after this process, a total of 16 relevant articles remained (full details of the screening process can be found in Figure 2.1 in Appendix F). Data from the 16 relevant articles were extracted into a table with information related to the methodology and findings of the study.

2.2.2 Synthesis of findings

Meta-ethnography, a well-developed synthesis approach, was used to collate the findings and synthesise the qualitive research (Britten et al., 2002; Noblit & Hare, 1988). The seven steps outlined by Noblit and Hare (1988) were followed. Having identified, read, and reviewed the studies within the screening process (steps 1, 2, and 3), studies were translated and linked to one another in steps 4 and 5, using induction and interpretation of ideas and concepts across studies. The three different synthesis methods in meta-ethnography were followed. First, reciprocal translation was used to identify similar concepts across studies. Second, refutational synthesis was used by exploring and explaining conflicting and contradictory accounts within the studies. Third-order constructs were then developed; these constructs were developed from the second-order constructs. The line of argument synthesis was used to draw together all concepts identified into a coherent whole (step 6) before writing the synthesis (step 7).

2.2.3 Risk of bias

The 17 included studies went through a risk of bias appraisal using the Critical Appraisal Skills program (CASP, 2013. Due to the vast differences in methodological approach, studies were categorised by type and evaluated based on the 10 questions that evaluated three broad domains (i.e. are the results valid, what are the results, and will this help locally?). Studies were then evaluated based on these 10 questions for both qualitative and quantitative measures. A score of 1 was given for satisfactory information for each question with a total score of 10

Empirical studies were scored between seven and nine (n=12). Qualitative studies fell between four and eight (n=4). The lower scores were attributed to the lack of detail, small sample sizes and not providing enough information for gaining ethical approval or justification of methodology. For example, some prevalence studies estimated rates of ASD using as little as 75 participants (Kargas et al., 2019)). The generalisability to the wider population is therefore brought into question. Furthermore, participants who engaged with homeless services were recruited through one or two homeless shelters, and those living on the streets that did not engage in services were not approached or invited to participate. Grey literature were located using service websites, and all grey literature were published within the United Kingdom, particularly in England and Northern Ireland. No grey literature were located within Australia. Of these studies, two used qualitative approaches to collect quantitative data for estimating presence rates. Further, two others relied on second-hand reports from case managers regarding the presence of autistic characteristics for those experiencing homelessness. Due to unreported information on recruitment strategies, a number of papers failed to meet the criteria for this question. Likewise, any conflicts of interest between the researcher and participants were not discussed in majority of the papers.

Studies were assessed based on the information provided, and unreported information resulted in a number of studies obtaining a ‘no’ for these related questions. It is acknowledged that the reported limitations may have negatively impacted the quality ratings

of some studies; hence, it may be difficult to draw comparisons due to the different methodological approaches used. With this in mind, the ratings used across the studies were used for inclusion of the papers in the final review (See Table 2.1 in Appendix A). There was no community involved in this study. Due to the lack of relevant studies identified, direct quotations will be included within the results to provide an in depth understanding of the collated findings.

2.3 Results

A total of 17 studies (five qualitative studies, and twelve quantitative studies) focusing on investigating autistic individuals in the homeless community were identified. These studies were reviewed using three categories: frequency rates of autistic individuals in homeless communities, autistic individual's experiences, and risk factors of homelessness. The majority of the research was conducted in the UK (75%). Demographic factors reported within these studies are shown in Table 2.2, Appendix B[4]. It isnoted that most participants were adults only one study included the emerging risk of homelessness in autistic children: 8%). The implications of sensory sensitivities are discussed below.

2.2.4 Frequency

Five studies estimating the presence of autistic characteristics within homeless communities were identified in the present review. Collectively, these studies highlight a high presence of autistic characteristics within the homeless community estimated around 12.8%. This is elevated in comparison to the rate of autistic individuals in the general population, at a rate of .7%-.25% (Australian Bureau of Statistics, 2014; Randal et al, 2016; Brugha et al., 2011). Due to methodological limitations, such as small sample sizes, convenience sampling, and not using direct client observation, the prevalence rate of autistic individuals within homeless communities could not be estimated. Two studies used semi-structured interviews to obtain information from participants (Churchard et al., 2019; Pritchard, 2010), two used self-reported data, one used a structured interview with a psychiatrist and one used a

structured interview with case managers using the DSM-5 criteria (APA, 2013). The additional two studies used the WAIS III and the Autism Quotient 10 (AQ-10) as assessment tools (Kargas et al., 2019; Nishio et al., 2015).

Nishio et al. (2015) used the WAIS-III to identify the presence of intellectual abilities in the homeless community. Participants were recruited from the Sasashima support centre, a social service hub for the homeless, and were considered homeless if they were living in transitional housing (shelters). Of the 114 participants, 72 lived on the streets and 35 lived in temporary accommodation; the remaining participants did not disclose their living situation. From the results, it was determined that 16.66% participants had autistic characteristics. Due to the discrepancy in scores for three out of the 18 participants, these results should be interpreted with caution as the WAIS-III is not a diagnostic tool for identifying autistic individuals (Trammell et al., 2013).Although the discrepancies in outcome scores for the WAIS-III may be indicative of an autistic trait, the different profiles amongst WAIS-III results may be better explained by a number of diagnoses (i.e. intellectual disabilities, schizophrenia) without the presence of further information to differentiate the diagnosis. Trammell et al. (2013) recommend that these tools be used in conjunction with autistic specific measures such as the autism diagnostic interview revised (ADI-R) or the autism diagnostic observation schedule (ADOS-II). These assessments are time consuming, but it may be helpful for future research to focus on developing targeted ASD assessments that are both practical and time efficient.

In recent years, research has adapted focused approaches to identify the presence of autistic characteristics in the homeless community. Four studies were identified to specifically evaluate the presence or lack of ASD symptomology within homeless samples (Casey et al., 2020; Churchard et al., 2019; Kargas et al., 2019;Pritchard, 2010). One study conducted by Evans (2011) estimated the presence of homelessness from a community of autistic individuals. A study conducted in the UK (Kargas et al., 2019), used the AQ-10 to

investigate if there were higher levels of autistic characteristics in the homeless community, using a sample of 65 homeless people that were recruited through a homeless service providing temporary accommodation. In this study, homelessness was defined as those individuals that were rough sleeping, stayed in temporary housing, or couch surfing. Kargas et al. (2019) found that 18.5% of the homeless population in one shelter scored seven or more on the AQ-10, indicating higher rates of autistic characteristics in the homeless community. The AQ-10 is a valid and effective measure of autistic characteristics and diagnostic features, but it is not a diagnostic tool. Ashwood et al. (2016) indicated that the AQ-10 did not significantly predict an ASD diagnosis, in fact, 64% of participants received a 'false negative', indicating a diagnosis is likely to be missed when utilising only the AQ-10 for diagnosis. Therefore, this study may have underestimated the presence of autistic characteristics within homeless communities (Kargas et al., 2019).

Evans (2011) surveyed 419 autistic individuals and their families to investigate the impact ofliving with ASD and the life outcomes of living with autistic individuals in Wales. Whilst thisstudy did not meet the second inclusion criteria, it was included under the third inclusion criteria. The survey conducted by Evans (2011) indicated that 12% had experienced homelessness since leaving school. Whilst no in-depth investigation of homelessness was conducted, researchers highlighted that lower communication skills, flexible thinking, and the inability to manage relationships with property owners and landlords and neighbours contributed to housing difficulties.

Diagnostic assessments for autistic individuals typically include clinical observations paired with a structured interview for the individual as well as their family (Timimi et al., 2019). Three of these studies used structured interviews to estimate the presence rates of autistic characteristics in homeless communities. Homelessness was defined as rooflessness and those living in temporary accommodation. Churchard et al. (2019) adapted the DSM 5 criteria and implemented this with a group of 106 homeless people, with an average length of

homelessness spanning 11 years, wherein 43% were residing on the street, 19% in a homeless shelter, and the remaining were in transitional accommodation. This revealed that 12.3% of homeless participants met the criteria for ASD. Churchard et al. (2019) methodology, 106 individuals experiencing homelessness in Dublin were assessed using the DSM-5 criterion, closely aligned with diagnostic gold standards, with 2.8% meeting the criteria for ASD, and seven were thought to have some ASD characteristics (O'Donovan et al., 2020). These studies were limited in terms of generalisability as they interviewed case mangers rather than the homeless individuals themselves. Clinical observations are particularly important in the diagnosis of autistic individuals these studies relied heavily on case managers' recall rather than direct clinician observation.

In Pritchard, 2010study, a psychiatrist interviewed 14 homeless people and found that nine out of 14 had autistic characteristics. Homelessness was defined as rooflessness, staying in shelter accommodation, and temporary housing. All 14 individuals within this sample were long term rough sleepers. The chosen methodology is unclear from this report; it was clear that the lack of demographic information made these diagnostic conclusions uncertain. The lack of detail around the types of questions and assessments conducted by the psychiatrist made the evaluation of this article particularly difficult.

Despite inconsistencies in methodology, these studies suggest an elevated rate of autistic characteristics amongst the homeless community that range between 2.5–50%. In depth investigation of the risk factors and experiences of homelessness have begun to examine the unique factors associated with autistic individuals. Further studies are required before any conclusions can be drawn regarding prevalence rates. The results from these preliminary results follow.

2.3 Autistic Individuals and risk factors of homelessness

A synthesis was conducted on 12 qualitative studies including a sample pool of 222 autistic individuals who had experienced homelessness. The general characteristics of the

studies are presented in Table 2.3 (see Appendix C), including the definition and type of homelessness in Table 2.4 (see Appendix D). The results of the synthesis process can be found in Table 2.5 (see Appendix E) and is arranged in temporal sequence. The second-order constructs were given their names based on a concept that encompassed the content across papers. No conflicts arose across the studies; however, some divergence was identified across the second-order concepts. The third-order constructs focused on the factors that may contribute to becoming homeless, namely, relationship difficulties, opportunities/support, co-occurring issues, and rigidity in routines (see Table 2.5 in Appendix E).

2.3.1 Relationship difficulties

Difficulties within relationships and breakdown in relationships were presented as a common theme across the research. Seven of the 12 studies cited the presence of bullying and abuse as factors related to homelessness and a lack of social support. Communication difficulties amongst autistic individuals make relationships difficult to maintain (Casey et al., 2020).

The risk of homelessness is more prevalent when family support is not present (Backer & Howard, 2007; Popejoy, 2017). Autistic individuals may be susceptible to homelessness when living in out of care systems such as foster care. The death of a caregiver was also thought to be a significant contributor to an autistic individual becoming homeless (Backer & Howard, 2007; Ryder, 2017). Likewise, reduced support systems related to one's inability to live at home was related to homeless status (Ryder, 2017). Stone (2019) also believed that social difficulties including bullying, relationship breakdowns, and conflict were strong contributing factors to homelessness risk:

> 'She got fed up. She said that she forced me to leave because she couldn't keep me anymore, I wasn't "doing" anything'. Autistic participant (Stone, 2019, p. 170)
>
> 'A bit like my parents, because they could not understand what is going on, when people don't understand, they are not able, or they don't want to, they give up on

you'. Autistic participant (Grant, 2017, p.89)

Further, O'Donovan et al. (2020) interviewed 145 autistic individuals that were identified as homeless or at risk of homelessness (and their workers). Three participants identified that they had experienced rooflessness, others reported staying in homeless shelters, couch surfing, and utilising other forms of emergency accommodation. No information was collated about the duration of homelessness; however, 12% of the sample were on the waitlist for housing for up to 10 years. They highlighted 42.5 % of crisis admissions into homeless shelters were due to the death of a caregiver. One staff member reported:

> 'Little or no funding being made for supported housing or specialised ID services to provide housing…and this is an issue for adults with ASD that are finding themselves homeless due to the death of a carer or inability … to continue care'. Staff Member (O'Donovan et al., 2020)

Likewise, experiences of bullying and isolation led autistic individuals to feel isolated and unable to find a place within society leading to these individuals becoming homeless:

> 'It goes back to being born, where I was and rejection and the whole lot. I fell out of the home within. I didn't know what it was then but looking back on it now. I had no home within. I had a mother and father who I love to this day. I loved them very much. My mother was very cruel to me. I still love her. I had a house. They are the positives…. But there was no home. I never felt it from within. I became uneasy with myself…. I just wanted to go away. Then I would go missing from school, run away from home… It is homelessness because you have no home to go back to. You want to run forever and ever. The homelessness travelled with me. That uncomfortable feeling with myself brought with me from different places' autistic participant (Casey et al., 2020, pg. .45)

2.3.2 Opportunities/Support

A lack of understanding of the condition and its variability in presentation underpinned many of the issues experienced by autistic individuals, including inappropriate intervention, miscommunication, negative experiences by both client and provider, abuse, and bullying.

The most cited risk factors for homelessness in the qualitative data reported in the studies above are lack of social support, employment, and education opportunities. Autistic individuals highlighted stringent barriers to gaining and maintaining employment, including policies and procedures. When autistic individuals were unable to obtain employment, this made gaining government support difficult (Campbell, 2015; Stone, 2019):

> 'When you apply for unemployment, they practically give you the krypton, what do you call it, too many questions to answer, too many technicalities too much bureaucracy, it's like unemployment from a book. You can't do an application without support" autistic participant (Stone, 2019, p.171)

The importance of diagnosis was ubiquitous. Issues with gaining a diagnosis,delays in diagnosis, and adapting to the diagnosis were thought to contribute to the lack of support, ultimately leading to individuals becoming homeless:

> 'That's it you see. I have a job; therefore, I have money, and therefore I can pay rent, so I am not on the streets. But it wasn't just the money that made me homeless, it was my condition, and my inability to deal with social situations. It was the lack of support that I had in adapting to life with Autism, I think I wouldn't have been in that place if I had a diagnosis and had been given support. So, I think that the root of my homelessness can be traced back to when I was much younger, you know, and not getting the support I needed' autistic participant (Campbell, 2015, p. 10)

Access to appropriate support is critical for autistic individuals. Campbell (2015) indicated that autistic individuals had a lack of service knowledge, over 50% of those who did engage with services had negative experiences. While these experiences are not unique to

individuals with ASD, it is often reported among the homeless community that the combination of ASD and homelessness poses further risks. Kerman et al. (2019) research highlighted that homeless participants may not trust service providers enough to disclose personal information, and service providers were often seen as judgemental. This judgment within services may relate to a gap in knowledge, leading to misunderstandings and inadequate provision of services. Casey et al. (2020) interviewed 206 homeless shelter workers about their knowledge of ASD. One quarter of shelter workers felt ill-equipped to provide support to autistic individuals. In fact, 85% had received no formal training relating to ASD, and 95% indicated that no specific interventions had been implemented for these clients. This lack of understanding and targeted intervention could lead to the aforementioned negative experiences. Housing options within the sector are sparce, and when available, housing supports are often inappropriate and do not meet the client's needs (Vana, 2020). On the other hand, the navigation of services was found to be successful when homeless services were able to provide accommodations and flexible interventions that were tailored to the individual. These needs could be developed and communicated through advocates (Grant, 2017), with diagnostic status given thorough and careful consideration.

2.3.3 Co-occurring conditions

The high rate of co-occurring conditions including mental illness, drug and alcohol use, isolation, sensory differences, and suicidal ideation were thought to contribute to homelessness (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Vana, 2020). One account of the co-occurring issues highlighted the impact of isolation and sensory issues when homeless (living on the street, on and off for three years), compounding their experience:

> 'It's hard to describe the loneliness of being autistic and homeless. It's bad enough trying to deal with one's sensory overload and different reality to when one has a constant safe place. I think being homeless over those times was as close to hell as I

can imagine'. Autistic participant (Davidson, 2007, p.673)

Autistic individuals highlighted the struggles with co-occurring mental illness:

'It was probably the darkest point in my life. Everything was very black, it was like falling into a vortex, and I felt very suicidal'. Autistic participant (Campbell, 2015, p. 16)

Interestingly, there have been conflicting accounts about drug and alcohol use amongst autistic individuals experiencing homelessness. Some studies indicate a reduced likelihood of alcohol and/or drug use (Ryder, 2017), while other studies highlight struggles with addiction as a reinforcing factor in maintaining homelessness (Casey et al., 2020).

2.3.4 Routine and rigidity

Six qualitative studies outlined the experiences of homelessness for autistic individuals. It was clear from these studies that autistic individuals struggle with adjustment to homelessness which may be unique to their condition including changes and rigidity in routines (Campbell, 2015; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019). These characteristics were thought to lead to difficulties such as non-attendance when support was being offered and failure to take regular medication (Vana, 2020).

Incidental findings from one participant highlights the difficulties that autistic children who are homeless experience, particularly around maintaining routines within sheltered accommodation and on the street:

'Kids with autism love consistency typically and love schedules, so when you are moving around you don't really have consistency or a consistent schedule'. Homeless mother of autistic child (Hurley et al., 2018, p.26)

Stone (2009) indicated the importance of establishing a routine in order to regain housing after a period of homelessness (two individuals residing in a shelter):

'It's helped me sort of plan things out in a way, just provides a sort of a structure – nine o'clock you start work, five o'clock it's time to go home. Twelve, lunch and I get

back home, there is James in the kitchen that cooks food for everyone, six o'clock is dinner'. Autistic participant (Stone, 2019, p.172).

2.4 Synthesis

Autistic individuals are considered a 'hard to reach' subpopulation because their impaired ability to engage with services impedes their ability to regain stable accommodation (Campbell, 2015; Churchard et al., 2019; Stone, 2019). Lack of perceived support from services and relationship difficulties, rigidity, and co-occurring conditions have been thought to significantly contribute to the increased risk of homelessness for autistic individuals. Once homeless autistic individuals experience some unique challenges related to ASD characteristics, they tend to disengage and become disillusioned. In contrast, Stone (2019) indicated some factors of resilience that may increase the likelihood of obtaining housing after being homeless. According to Stone (2019), establishing routines and re-establishing family connections positively influences an autistic individual's difficulties with homelessness.

Whilst the varying methodology and small sample sizes limit the generalisability of these studies, they provide valuable insight into the struggles related to autistic individuals who experience homelessness. It is recognised that falling into a cycle of homelessness can be difficult and chaotic, and it may be particularly problematic for autistic individuals. The data indicates that autistic individuals struggle with change in routine and exposure to sensory rich environments. Once homeless, the data suggests that autistic individuals are less likely to engage with services and when they do, they tend to have negative experiences. This may be mostly due to the limited knowledge of autism amongst homeless shelter staff. However, no direct comparisons have been made to neurotypical homeless groups.

2.5 Discussion

It is surprising that despite the collation of research since 2011, there has been limited attention focused on ASD and homelessness. Further, six of the studies outlined above in

relation to risk factors and experiences of homelessness were grey literature and not published in academic journals (Campbell, 2015; Casey et al., 2020; Dedmore, 2013; Evans, 2011; Pritchard, 2010; Ryder, 2017). Research that were reviewed were conducted in the UK. Extending beyond focus on the UK, comparative studies in Australia and the US should also be conducted due to the comparative homeless populations. The following discussion should be considered within the scope of the above-mentioned limitations.

Emerging evidence has indicated that there was an increased presence of autistic individuals in the homeless community, with estimates around 12.8% (Churchard et al., 2019; Kargas et al., 2019; Morton et al., 2010; Morton & Cunningham-Williams, 2009; Nishio et al., 2015; Pritchard, 2010), compared to 7%-2.5% in the general population (Australian Bureau of Statistics, 2014; Randal et al, 2016).

The collation and comparison of data from these studies proved difficult due to the varying methodological approaches used. Obtaining information about the presence of autistic individuals in a homeless population was conducted with methods including self-report, AQ-10, structured interviews, and the WAIS-III (Churchard et al., 2019; Kargas et al., 2019; Nishio et al., 2015). One study gathered information about autistic characteristics from case managers alone and did not consult with the actual individuals experiencing homelessness (Churchard et al., 2019). This limits the generalisability as those conducting case management may not be privy to the depth of information needed for a diagnosis.

The gold standard assessment of ASD diagnosis for research recommends the gathering of information from multiple health professions. The systematic review on diagnosis of autistic individuals conducted by Falkmer et al. (2013) highlighted the use of some promising ASD specific measures such as the ADI-R and the ADOS-2 to shorten the process of diagnosis. It is important to note the difficulties related to these gold standard assessments; they can be lengthy and may result in disengagement from those within the homeless community. Screening tools such as the AQ-10 may be more efficient to determine

the presence of autistic characteristics before moving on to the gold standard assessment for those that have elevated characteristics of autism. Future research should continue to investigate and streamline measures to calculate the presence of autistic characteristics in homeless communities. The current systematic review has indicated that to date, previous studies have either failed to use this approach (Churchard et al., 2019) or have failed to clearly report their methodology (Pritchard, 2010). It is argued that by streamlining the methodology, the collation and comparison of data will be possible in the future. During the review process,it was discovered that none of the studies estimated the presence of autistic individuals in homeless communities using gold standard measures such as ADIR-11 and the ADOS-2 (Falkmer et al., 2013).

Several difficulties pertain to gathering prevalence data from within the homeless community. As a result, it is thought that the incidence of homelessness among this autistic community may be underestimated due to the high proportion of hidden homelessness (i.e., sleeping in cars, abandoned buildings, couch surfing). Likewise, the diagnosis of the proportion of homeless individuals that arrive in services is often not considered. Large scale research should be undertaken within services to obtain the presence of ASD and other such conditions within the homeless community. Data should also be collected from those that do not wish to engage with services (i.e., rough sleepers).

Further to the above-mentioned limitations, regarding the prevalence, the representative nature of the sample has also been brought into question. The results may not accurately reflect those with ASD within the community as a number of studies include a diverse sample, with a range of diagnoses (intellectual disabilities, cognitive disorders) (Backer, 2007; Davidson, 2007; Hurley et al., 2018; Vana, 2020). Whilst the findings within this review are focused on autism specific results, it is evident that identification and/or targeted research on ASD specifically within homeless research is required.

Given that autistic individuals are thought to hold specific risk factors and are

confronted with unique difficulties when homeless, it is suggested that further research of this nature be priortised (Backer & Howard, 2007; Campbell, 2015; Davidson, 2007; Hurley et al., 2018; Popejoy, 2017; Ryder, 2017; Stone, 2019). Two studies have discussed the possible contribution of sensory sensitivities and social skills in maintaining the cycle of homelessness. Particularly, the reduced social connections were seen as a large contributor to autistic individuals becoming homeless. Once homeless autistic individuals struggle with sensory rich environments and the inconsistency of daily routines. This is in contrast to the general homeless population, whereby substance use, mental illness, unemployment, and poverty are the largest causes of homelessness (Giano et al., 2020). This provides insight into the unique experience that autistic individuals have in relation to the cycle of homelessness. Research suggests that the experiences of autistic individuals differ from those of the general population. However, the comparison of autistic individuals and the general homeless population was not considered. Comparison between the two groups' experiences is important to identify specific interventions for autistic individuals that may be required in homeless services. It is recommended that the predictors of homelessness and autistic characteristics should be compared for autistic individuals and those without to uncover the unique contribution of autistic characteristics.

Further, those identified as being on the autism spectrum were likely to have a longer history of homelessness (Ryder, 2017), indicating, that it is difficult for autistic individuals to recover from homelessness. This may be due to several reasons including differences in executive functioning, inadequate social skills, limited employment opportunities, and discrimination.

This systematic review has identified that service providers lack understanding and appropriate training to enable them to work confidently with autistic individuals. Service providers should therefore review their current policies, provide adequate training to staff, and funding to services to implement tailored support for autistic individuals in the homeless

community. These recommendations are particularly pertinent to those within the homeless community who repor a lack of trust in service providers, which decreases the likelihoodof transparency with shared information. As previously discussed, qualitative data was collected within homeless services, therefore the generalisability is limited. It is important to conduct robust, peer reviewed research that extends beyond homeless services and into the wider community. This is particularly critical for the ASD population as research suggests these individuals are less inclined to engage with services.

Moving beyond the risk factors of homeless, the recovery of and resilience relating to homelessness are also important factors. Stone (2019) indicated that adequate service support, establishing routines, and reconnecting with family were salient factors in regaining housing for autistic individuals. Grant (2017) indicated that autistic individuals were able to navigate service provision successfully when provided advocates, flexible interventions, and accommodations within services. With the exception of this study, to our knowledge, no other studies have investigated the protective factors among autistic individuals for avoiding or recovering from homelessness. Due to the increased vulnerability of this group being 'hard to reach' and the lack of engagement with services, prevention of homelessness situations is ideal. Identifying factors that may lead to prevention may help to reduce the overall presence of homelessness.

4.9 Future directions

Several recommendations have been made based on this review. First, it is recommended that a streamlined methodological approach should be used across studies. It is recommended that the gold standard measures of ASD diagnosis be used in future research including the ADOS-2 and the ADI-R (Falkmer et al., 2013) or other equivalent gold standard measures.

Second, it is recommended that further investigation into the specific risk factors related to autistic characteristics and homelessness be conducted. This investigation should

include a comparison study investigating the risk factors of homelessness for individuals with and without autism. These recommendations will assist in providing important insights into the unique experiences of autistic individuals.

Given the lack of peer reviewed research focused on the factors that contribute to the risk of homelessness. It is also recommended to further investigation the specific autistic characteristics that contribute to homelessness from both a homeless and an ASD perspective. Further, empirical evidence must be collated when investigating the unique contributions that autistic characteristics have on homeless status when compared to known homeless risk factors. Outcomes should be compared within the population of the general homeless community and autistic individuals.

Finally, it is recommended that the protective factors for autistic individuals and resilience from homelessness should be investigated. This may lead to targeted interventions for the prevention of homelessness among autistic individuals.

4.10 Conclusion

In conclusion, this systematic review collated was based on 17 articles obtained from multiple sources such as academic journals and grey literature, including government service reports. The data consisted of both qualitative and quantitative data, measuring the presence of autistic characteristics in homeless communities, the risk factors, and experiences of homelessness among those on the autism spectrum. The systematic approach indicated that prior to 2011 there was little attention placed on homelessness in autistic individuals with research momentum after this date. From these data it is evident that autistic individuals are at an elevated risk of homelessness with estimates ranging from 2.5–50%. Preliminary research conducted within homeless services indicated that reduced social support and poor service provision, co-occurring conditions, and rigidity were large contributors that increase the risk of homelessness for autistic individuals. This review highlighted evidence to suggest that autistic individuals may be a particularly ‘hard to reach’ subpopulation due to reduced

engagement with services. Therefore, it is important to investigate the particular risk and protective factors of homelessness for autistic individuals. Future empirical investigation of these factors may strengthen our understanding of autistic individuals and the risk factors of homelessness. As we continue to investigate this vulnerable group, it is important not just to focus on the risk factors but also take a proactive approach in identifying factors that are likely to protect the group from falling into the cycle of homelessness.

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Declaration of interest

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Chapter 3: Why Am I Homeless? Autistic Characteristics and Their Contribution to the Risk of Homelessness

Abstract

Autistic individuals are more than twice as likely to be homeless than the general population. Estimates of the proportion of homeless people in developed countries (UK, US) are approximately 12.8% which compares unfavourably to the .7%-2.5% reported for the general australian population. This higher prevalence gives rise to the question of why autistic individuals have a greater risk of being homeless. Structural factors that include system-related difficulties in service organisations (lack of affordable housing, economic insecurity), along with the consequences of structural factors (environmental factors: work related difficulties, limited access to support) can make this group more susceptible to homelessness. The following question thus arises: is there something about autism that makes autistic individuals more vulnerable to homelessness and creates barriers to their obtaining housing? Research to date suggests there may be environmental factors not unique to autism that increase a person's risk of homelessness; these include lack of employment opportunities, lack of service and family support and lack of independence and may be more commonly experienced by autistic individuals (Stone, 2019). The study reported in this chapter aimed to investigate whether autism-specific characteristics, either independently or in combination with these environmental factors, contribute to homelessness. No studies to date have investigated this question or whether any autistic characteristics protect people against homelessness. To address this paucity of understanding, 33 participants—18 homeless, 10 diagnosed with ASDand 5 with an ASD diagnosis and prior experiences of homelessness—participated in five focus groups. The aim was to identify what circumstances and characteristics contribute to homelessness and whether some of the characteristics are diagnostic of ASD. The data were analysed thematically by two raters. The analyses

indicated that various environmental factors contribute to homelessness for autistic individuals, including inability to find their place in society, workplace barriers, practical limitations (physical accessibility) and lack of support. These environmental factors are the consequence of structural factors (economics, government funding) that limit the number of financial and practical resources in support services and workplaces to successfully implement strategies that allow autistic individuals toengage in a meaningful way. The following autistic characteristics were also identified as contributors to homelessness risk: communication differences, restricted and repetitive behaviours and sensory sensitivities. The most significant protective factors were family support and specialised support, demonstrating the importance of fostering autism-positive support systems. These results show that systems and environments need to be changed to provide enough resources to meet individual autism-related needs, as this will reduce autistic individual's risk of homelessness and allow them to access work and services and have a sense of belonging in the community.

Keywords: Autism Spectrum Disorder, autistic characteristics, homelessness risk factors, protective factors against homelessness

3.1 Introduction

'Why am I homeless?' The answer to this question is complex; a number of personal and structural factors contribute to the risk of homelessness. Homelessness is a diverse experience that extends beyond rooflessness to those living in insecure housing (e.g., couch-surfing) or inadequate housing (e.g., overcrowding) (Orwin et al., 2003). Homelessness is a significant issue in Australia, with over 116,000 Australians experiencing homelessness each year (Australian Bureau of Statistics, 2016). It is important to understand the factors that contribute to people's risk of homelessness and the factors that protect them against it, in order to reduce the risk. Several factors, including childhood-related, personal and structural factors, can make an individual more likely to become homeless, and other factors can offer protection (Casey et al., 2020). The negative experiences during childhood that are

homelessness risk factors include abuse, neglect, parental psychopathology, and foster care (Heffron et al., 1997; Huntington et al., 2008; Kim et al., 2011; Koegel et al., 1995; Shelton et al., 2009). Personal risk factors such as employment difficulties, underlying disabilities, mental health concerns and addiction were the focus of early homelessness research (Batterham, 2012; Elliott & Krivo, 1991). However, structural factors include system-related factors such as housing affordability, service accessibility and government support have received greater attention in recent years due to the recognition that service providers are overstretched, under-resourced, uninformed, and ill-equipped to support individual needs (Ji, 2006). Some groups of people with high support needs are finding it increasingly difficult to obtain affordable long-term housing in Australia (Berry, 2003; Galster & Lee, 2021; Yates 2016). Policies about eligibility often result in members of these groups not meeting the stringent eligibility criteria for the limited available housing (Campbell, 2015). It is recognised that some individuals (e.g., neurodiverse, intellectual disabilities) are more susceptible to the structural risk factors for homelessness (Grant, 2017), due to social exclusion, lack of opportunity for employment and education (Stone, 2022).

Individuals from some groups may be more susceptible to falling into cycles of homelessness, due to lack of opportunity to access services and support. One such group are those on the autism spectrum (Campbell, 2015). There is a higher presence of autism in the homeless population in developed countries (e.g., US, UK), with prevalence estimates of approximately 12.3% (Churchard et al., 2019). This is considerably higher than the general population estimate of 0.7%-2.5% in Australia (Australian Bureau of Statistics, 2017; Randal et al, 2016). Autistic individuals havebeen noted to have difficulties with fitting into neurotypical society due to non-autistic individual's misunderstandings and also social isolation, greater chances of being bullied,discrimination and exclusion from opportunities for employment, services and housing. Moreover, autistic individuals may have specific needs that are not accommodated by genericmental health approaches (Stone, 2022). All of

these problems can lead to homelessness (Backer & Howard, 2007).

Employment is a particular concern. Autistic individuals are up to 50% less likely to engage with employment after high school compared to those diagnosed with other conditions (neurological, down syndrome, intellectual ability) (Roux et al., 2013). Hence, given that research has suggested that unemployment is a major contributing factor to homelessness, it is likely that autistic individuals are at greater risk of homelessness than non-autistic individuals (Campbell, 2015; Stone, 2019). The barriers to gaining employment for autistic individuals can stem from two problems: gaps in their skills—for example, they may need support to complete the necessary administration procedures (Stone, 2019)—and system-related difficulties such as workplaces being unwilling to implement accommodations because staff at employment services or workplaces do not have autism-specific training (Stone; 2022; Casey et al., 2020).

Lack of opportunity to access employment and service support has been connected to late diagnosis of ASD, delays in diagnosis and poor adjustment to diagnosis (Campbell, 2015). These diagnostic issues may present barriers to obtaining accommodations in the workplace and can limit a person's eligibility for support services. Moreover, regardless of diagnosis, autistic individuals may lack knowledge about services and how to access them. According to Campbell's (2015) study, autistic individuals are underinformed about services, and more than half of those who do interact with support providers report unfavourable experiences. If people are unable to engage with service providers, they can become homeless because they cannot access the income and individualised support (such as support workers or occupational therapy) that they need to retain a home.

There are other issues besides employment, diagnosis and service accessibility. First, an autistic person may find that there are no available housing options that suit their needs, such as sensory needs (Ghanouni et al., 2021). Second, some autistic individuals are subject to practical limitations, related to adaptive function differences, that result in difficulties with

everyday skills involved in managing money and maintaining a home and limit the person's independence. These can make it difficult to retain a home.

All of the above issues suggest that autistic characteristics might have a unique effect on the risk of homelessness because they can lead to difficulties with independence, opportunity, work and discrimination. They may also present barriers to service provision. These characteristics differ from the known risk factors of homelessness. The question thus arises as to whether autistic individuals have unique or specific characteristics that can contribute to homelessness. While autism is a diverse experience, there might be some common factors that can put autistic individuals at higher-than-average risk of homelessness if adequate support is not provided. Investigating this may provide insight into the types of individualised support services autistic individuals need.

Autistic characteristics, according to the DSM-5 criteria (APA, 2013), include communication differences, restricted and repetitive behaviour or interests (including adherence to routines) and sensory sensitivities. These will now be discussed.

3.1.1 Communication Differences

Autism is characterised by differences in communication, including strengths and weaknesses in social-emotional reciprocity and initiating and maintaining conversations (Locke et al., 2010). These communication differences can limit an individual's ability to develop social supports and seek help (Locke et al., 2010). Relatedly, differences in non-verbal communication, such as lack of eye contact, can be perceived by others as disengagement or disinterest (Spaniol, 2018). One of the core differences associated with autism is limited ability to approach people and share information, which can make it hard for autistic individuals to approach or engage with service providers which makes it hard to maintain housing.

3.1.2 Restricted and Repetitive Behaviours

Restricted and repetitive behaviours can include holding intense interests, as well as

repetitive actions such as flapping, rocking or repetitive body movements (Honey et al., 2012). They can also include an insistence on sameness, as well as restricted patterns of behaviours (Honey et al., 2012). All of these characteristics can present barriers to accessing services that are important for remaining housed. For instance, an individual's insistence on sameness can make them unwilling to engage with new support programs even if current ones are inadequate. Moreover, when autistic individuals are engaged with service providers, they can struggle to cope with new staff (Factor et al., 2016). Finally, without adequate support to implement routines, some autistic individuals can be unable to attend appointments or take medications (Campbell, 2015; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019).

3.1.3 Sensory Sensitivities

Sensory sensitivities can include unusually high or low sensitivity to stimuli, including auditory, visual, textural, olfactory and taste stimuli. Sensory overload can result in both meltdowns and shutdowns. Sensory sensitivities can make it hard to manage everyday experiences, causing some autistic individuals to avoid sensory-rich environments. Thus, sensory sensitivities can present barriers to accessing accommodation, particularly if this accommodation is sensory-rich. Autistic individuals can find it difficult to remain housed if available housing does not accommodate their sensory needs (Campbell, 2015; Friedman et al., 2013).

3.1.4 Protective factors

Anecdotally, it appears that other people's lack of understanding of autistic individuals' communication differences, restricted and repetitive behaviours and sensory sensitivities, along with not having support focused on these characteristics, can limit an autisticindividual's ability to remain housed (Backer & Howard, 2007; Grant, 2017; Ryder, 2017).

The following discussion will consider the factors that might protect autistic individuals from

homelessness, since these factors are equally important.

Various protective factors are considered to reduce the chances of becoming homelessfor people who are at risk of it. Research has indicated that social and service support are important in ensuring vulnerable populations can access long-term affordable housing (Shinnet al., 2019). It has been found that social networks and supportive families, particularly parents, protect autistic individuals from homelessness, and that parents often help autistic individuals by providing advocacy and support to autistic individuals to ensure they have access to appropriate diagnostic assessments and government funding as well as services including long-term accommodation (Burke et al., 2018). In comparison to other groups, people on the autism spectrum are more likely to have positive relationships with parents andprofessional support staff rather than friends or colleagues (van Asselt-Goverts et al., 2015). Autistic individuals with supportive parents are more likely to be able to access early diagnostic assessments, financial resources and advocacy in order to navigate service organisations and obtain and retain employment (Ewles et al., 2014). In combination with family support, specialised support that meets the individual needs of autistic people is critical (Burke et al., 2018; Ewles et al., 2014), and it is clear that social service organization need to provide appropriate staff training and autism-specific services (Osborn & Young,2022).

Although service support can help reduce an autistic individual's risk of homelessness, the limited extent of the existing research into the relationship between autism and homelessness means there is a need for further exploration of both the risk factors and the protective factors. In particular, it is unclear which autistic characteristics might contribute the most to the risk of homelessness and why. These characteristics might contribute to the risk of homelessness because people experience an inability to find their place in society, lack of access to work or support services, and practical limitations. Additionally, the literature has not identified specific homelessness protective factors for autistic individuals.

It is important to understand the contribution of autistic characteristics to

homelessness risk, in what ways these characteristics might lead to homelessness, and the particular protective factors associated with autistic individuals. Insight into these potential risk factors and protective factors could inform autism-specific support programs or accommodations that service providers could implement to help autistic individuals avoid becoming homeless. Thus, to inform further research, the exploratory study described in this chapter was undertaken. It investigated participants perceptions on how autistic characteristics constitute homelessness risk factors; the specific protective factors against homelessness for autistic individuals were also discussed. The following three questions were explored to address the wider research question 2 presented in chapter 1:

3.1.5 Research questions:

Research Question 1: What system-related and environmental factors lead to homelessness for autistic individuals?

Research Question 2: Which autistic characteristics contribute to experiences of homelessness?

Research Question 3: What are the protective factors that help autistic individuals to avoid homelessness?

3.1.6 Ethical Considerations

This project was approved by the Flinders University Ethics Committee (Project Number 8556). The data were thematic and can be found in Appendices H. The focus groups couldbring up distressing recollections for the participants. The author made sure that confidentiality and discussion parameters were established and upheld. The attendees received information on how to find additional support if necessary.

3.2 Method

3.2.1Participants

Participants were recruited through flyers and word of mouth in a homeless shelter and an autism service provider, both in South Australia. Participants registered their interest

with the staff at the service provider and were then contacted by the researcher, who provided them with the time and place of the focus group. The participants included in the focus group were a convenience sample based on the interest of those who read the flyer. Participants' demographic information is outlined in Table 3.1.

Table 3.1

Demographic Information For The Five Focus Groups Organised Into The Three Groups

	Homeless-only *N* (%)	Autistic-only *N* (%)	Autistic and previously homeless *N* (%)
Age			
18–25	4 (22.22)	2 (20)	2 (40)
25–35	6 (33.33)	4 (40)	1 (20)
35–45	6 (33.33)	3 (10)	2 (40)
50+	2 (11.11)	1 (30)	0(0)
Total	18(99.99)	10(100)	5(100)
Gender			
Male	18 (100)	5 (50)	3 (60)
Female	0(0)	5 (50)	2 (40)
Homeless experience			
Rooflessness (living on the street)	8(44.5)	0(0)	3(60)
Secondary (living in shelters or temporary accommodation)	10(55.5)	3(30)	2(40)

Housed	0(0)	7(70)	0(0)
Total	18(100)	10(100)	5(100)

Potential participants were eligible to participate if they were homeless or diagnosed with ASD, at least 18 years old and willing and able to give informed consent. Participants were considered homeless if they were living on the street or in temporary accommodation such as a homeless shelter. Whilst some homeless individuals had direct experience with autistic individuals, including autistic family members, friends and peers on the street. Homeless people were only included to glean information from their direct experiences and compare those experiences to the experiences of the autistic individuals to uncover any specific differences between the two categories of people (autisticand non-autistic individuals). Due to the researcher's limited access to autistic individuals currently experiencing homelessness, the autistic participants, none of whom were currently homeless, were asked to reflect on their prior or wider knowledge of homelessness experiences. All participants were also asked for their perspectives on autistic characteristics that might contribute to homelessness. It was important to include autistic adults who were not homeless in this discussion in order to also identify protective factors.

3.1.7 Procedure

Five focus groups were held in September 2020 in Adelaide, South Australia. Focus groups were chosen over other qualitative methods (interviews) in order to facilitate discussions amongst focus group members to capture the diverse perspectives in each group, this is in recognition of both homeless and autistic groups being heterogeneous in nature (Correale et al., 2022). It is recognised that focus groups allow autistic individuals to contribute to research design and priorities, given the novelty of this topic it was important to ensure that this was important and relevant to autistic communities (Houting, 2021). Group discussions were thought to be a cost-effective way of discussing and reviewing multiple perspectives to

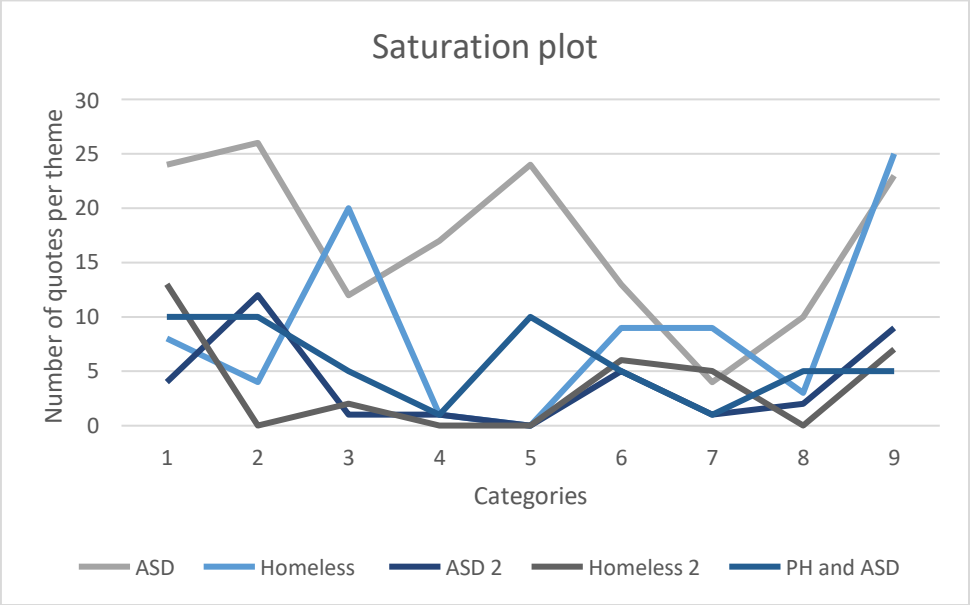
identify the specific autistic characteristics to focus on in future research. Of the participants, 18 were homeless adults (all men), and the other 15 were adults with a confirmed diagnosis of ASD. Of the autistic individuals, 10 (five men and five women) had never been homeless although had been at risk of homelessness in the past, but services and family support were thought to have protected them from homelessness. The remaining five (three men and two women) had prior experiences of homelessness. Eligible participants were recruited through flyers displayed at homeless and autism specific services. If interested in the research participants left their information on a sign-up sheet. Participants were selected and placed into two groups based on their prior diagnosis of autism and/or experience with homelessness. The five focus groups were composed of two focus groups of individuals that were currently homeless, held in a homeless service. Two focus groups consisted of individuals with a prior diagnosis of autism. The final group were a group with prior experiences of homelessness as well as a diagnosis. The focus groups were audio recorded on a mobile phone with participant consent, this recording was downloaded to a secure server and transcribed onto a word document for analysis (described below) using a qualitative approach, thematic analysis (Braun & Clarke, 2006).

Trustworthiness was ensured at each stage of the research by applying the guidelines provided by Elo et al. (2014), which state that trustworthiness is ensured by establishing the credibility, dependability, conformability, transferability and authenticity of the data. The credibility of this study's self-reported data was ensured via triangulation strategies (multiple sources of data) and conducting the focus groups at different times with the two categories of participants allowed information from the two perspectives to be distinguished, demonstrating dependability (Elo et al., 2014). All participants provided informed consent and participated in peer debriefing at each stage, further increasing the credibility of the results (Shufutinsky, 2020). Conformity was ensured using a measure of inter-rater reliability, which is described in the analysis section below. Quotes were included in the data to ensure

authenticity (representation of the breadth and depth of responses) (Elo et al., 2014). Moreover, guidelines were followed regarding sample size and saturation procedures to further ensure authenticity. Carlsen and Glenton (2011) recommended a sample size of between six and 12 participants for each focus group. Saturation is the gold-standard criterion for appropriate sample size for collecting qualitative data. Saturation refers to the exhaustion of themes and meanings in the data. Saturation was evaluated using the methodology suggested by Hennink et al. (2019) to reach two types of saturation: code saturation and meaning saturation. The focus group discussions were transcribed, analysed and coded according to theme. New codes were recorded in terms of their coding criteria recording any differences in the codes used for the different focus groups. At each stage of coding, the focus group data sets were placed in a random order and the code development was assessed, to ensure that saturation was not influenced by the order. To assess meaning saturation, the number of codes from each focus group to count the number of instances of each code were in each focus group discussion, searching through the codes in each focus group discussion in order until each group had been reviewed. Saturation was determined by the consistency of themes across groups and the presence of no group-specific themes, coding or data. Figure 3.1 outlines the number of quotes according to theme for each group; it shows the overall consistency of themes across the five groups.

Figure 3.1

Saturation Plot For the Five Focus Groups, According to Theme



ASD = Autism Spectrum Disorder
PH= Previous experience of Homelessness
1=Communication differences
2=Work
3=Fitting into society
4=Practical limitations
5=Need for support
6=Restricted and repetitive behaviours
7=Need for support
8=Specialized support
9=Family

3.1.8 Data Collection Procedure

Due to practical limitations related to COVID-19, the focus groups for autistic participants were conducted online via Zoom™.

On the day of each focus group, participants were given a brief overview of the study. If they were still interested after reading it, they were given consent forms to sign before the commencement of the focus group. The focus groups were conducted by the author using a semi-structured interview format (see Appendix G for a list of the questions). The author acted as a moderator, leading the five groups and facilitated the in-depth exploration of themes. Each focus group ran for one hour or until no further information emerged.

The questions were based on the DSM-5 criteria for ASD (APA, 2013) and how

these might relate to the risk of homelessness. For example: 'Would you say having an overreaction or under-reaction to sensory inputs could impact an autistic individual becoming homeless? Why or why not? Could you provide some examples?'

3.1.9 Analysis

Data were transposed and analysed using a qualitative approach, thematic analysis (Braun & Clarke, 2006). Thematic analysis is an iterative approach to qualitative data analysis that aims to identify overarching themes in the data (Braun & Clarke, 2006). The analysis used both an inductive approach to the coding and generation of themes, and deductive coding to fit the overarching research questions, following the steps outlined by Braun and Clarke (2006). Data were transcribed for the five focus groups and evaluated by two raters (the author and fellow researcher), who coded the data, identifying nine themes. Based on the research questions, the nine themes were placed into three overarching categories. Agreement between the groups was measured by the number of quotes from each group under a given theme. A comparison of the categorisation of quotes into the nine themes was conducted by two of the reviewers (the author and fellow researcher) and produced a Cohen's kappa value of .818, which suggests a very high agreement between the raters (Cohen, 1960). This value of kappa is significantly different from zero ($\kappa = .818$, $p > .001$).

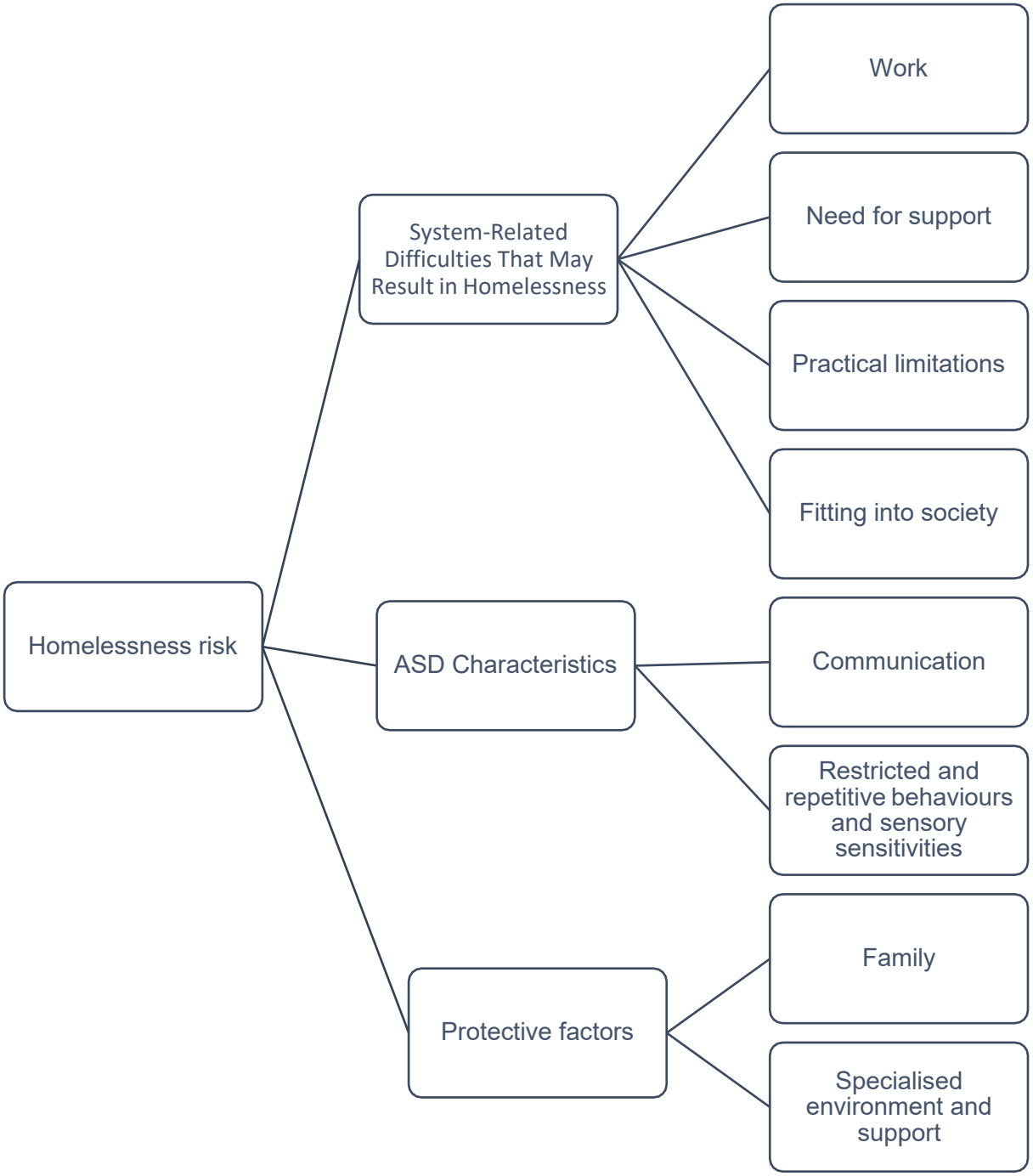
3.2 Results

From the 33 participants, 335 quotes were recorded and categorised into themes; this is an average of 11 quotes per person. Of the 335 quotes, 49% were from the ASD-diagnosed focus groups. The raters agreed upon nine broad themes: fitting into society; practical limitations; need for support; work; communication; restricted and repetitive behaviours; sensory sensitivities; and two themes related to protective factors (service and social support). The results will now be presented in three sections reflecting the following research questions: What system-related factors lead to homelessness in autistic individuals? Which

autistic characteristics contribute to homelessness risk? What protective factors help autistic individuals avoid homelessness? See Figure 3.2 and Figure 3.3for a conceptual map of this thematic categorisation.

Figure 3.2

Conceptual Map of Thematic Categories



ASD = Autism Spectrum Disorder

3.2.1 What System-Related Factors Lead to Homelessness in Autistic Individuals?

The results showed that autistic individuals can be vulnerable to homelessness due to various system-related factors that differ from the risk factors experienced by neurotypical homeless people. These factors include difficulties with employment, inability to find their place in society, need for support, and practical limitations. System-related difficulties such as lack of service support or lack of accommodations in the workplace or wider community can lead to several difficulties that participants considered to increase people's chances of homelessness. All participant groups observed that autistic individuals' difficulties at work included lack of progress or opportunities, being moved to different positions in the workplace, and lack of acceptance. These factors make employment difficult to sustain, which heightens the risk of homelessness. The contribution of work related issues in the context of becoming homelessness was a focus of discussion for both homeless and autistic participants. For one autistic individual, the direct experience ofhomelessness was related to the combination of system related factors, loss of a job, loss of accommodation and life related stress.

> *'Well, I am ASD and I have been homeless once. It was life stresses that copped me, and I had nowhere to live. I lost my job.'* (Autistic individual)

Also, homeless participants said that discrimination towards autistic individuals occurred throughout society because autistic characteristics were seen as odd. This meant that autisticindividuals had difficulty fitting into society and tended to become isolated, with limited social supports—and all participants considered social supports to be a safety net that helped people obtain and retain housing, meaning that those with limited social supports had a greater risk of homelessness.

Autistic participants said that the practical limitations associated with autistic characteristics included difficulties managing money, financial difficulties, and accessing support such as adiagnosis as well as government funding. Clearly, these practical limitations

are likely to heighten people's risk of homelessness by limiting their access to the financial and practical resources needed to remain housed. Quotes related to this, and the other nine themes will be presented in table 3.2 below.

Table 3.2

Example Quotes Illustrating System-Related Difficulties That Can Result in Homelessness

	Example quotes		No. of quotes (*N*)	Theme's percentage of all quotes
Theme column codes	Autistic participants	Homeless participants		
Fitting into society: *perceived as odd; discrimination; aloneness; different from the homeless community; limited community understanding*	'So, you got these restrictions with those things like discrimination when hiring, having a job where they understand. It just adds more complicated variables into an already difficult situation.'	'They are seen as being someone different and they get picked on for that.'	35	10%
Practical limitations: *lack of independence; issues managing money; financial pressures; problems maintaining a home*	'If you are struggling with the financial side of things and figuring out how to put these supports in place, then yeah, I mean, it's most likely going to lead to homelessness or all sorts of problems.'	'They might not know the proper way of doing things and seeking out the help and lack the skills to be independent. They are just going to have to fend for themselves without asking for help.'	19	5%
Need for support: *need for diagnosis; limits to available support*	'There's this idea that autism is a child thing. You turn 18—congrats, you no longer have autism. It's this misconception of autism as a diagnosis. It's a lifelong thing. You don't present as a child as an adult and that's because you have learned some things. It's quite common that you have learned to deal with things just a little bit better—that's not an autism thing, that is a life thing. I have learned a bit more.'	'These kinds of places (housing services) don't provide the help that they need. They need to be in a place where they can actually be supported.'	23	7%

Theme	Example quotes		No. of quotes (*N*)	Theme's percentage of all quotes
	Autistic participants	Homeless participants		
Barriers to Work: *not accepted at work, movement in work, lack of progress and opportunity, trouble maintaining work*	'Well, I am ASD and I have been homeless once. It was life stresses that copped me, and I had nowhere to live. I lost my job.'	'They need to [receive] help to get a job and, when they get it, to keep it. You have to find [them] a job and help them get paid.'	42	13%
Total number of quotes			335	100

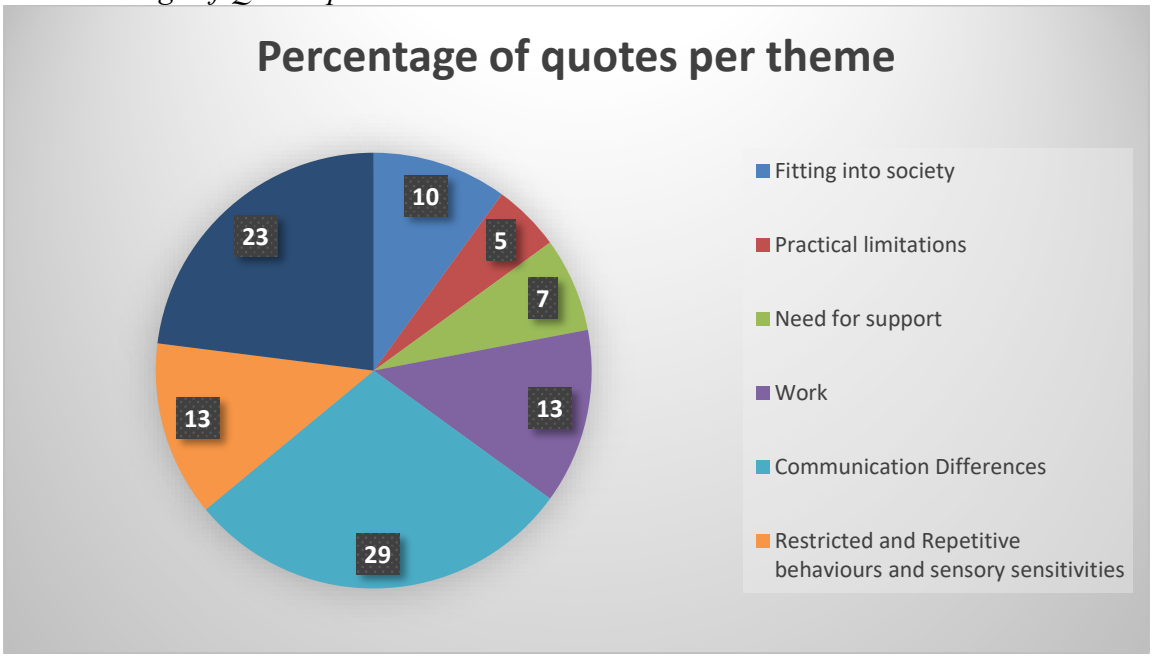
3.2.2 Which Autistic Characteristics Contribute to Homelessness Risk?

As well as these social issues unique characteristics related to autism were thought to contribute to homelessness risk. The group discussions focused on the three major autistic characteristics; all participant groups mentioned communication differences (29% of quotes) both autistic groups had a bigger focus on sensory sensitivities and restricted and repetitive behaviours (13% of quotes).

The percentages of quotes per theme are depicted in Figure 3.3.

Figure 3.3

Percentage of Quotes per Theme



3.2.2.1 Communication Differences

All participants considered communication differences to be a strong contributing factor to autistic individuals falling into cycles of homelessness. Participants agreed that an autistic person having a lack of social awareness or experiencing vulnerability related to social exhaustion can add to the risk. Difficulty communicating was considered the largest contributing factor by both the autistic and homeless participants, with 29% of the quotes falling into this category. In particular, difficulties with facilitating conversations that effectively communicate the specific needs and accommodations required in service providers and workplaces were considered to lead to homelessness. When autistic individuals were unable to communicate effectively, it led to difficulties accessing services and difficulties with landlords. Participants said that verbal communication differences contributed most to homelessness, but that non-verbal communication was also important. Adding to this, they said that autistic individual's lack of social awareness and insight was related to misunderstandings. Participants said that if autistic individuals were unsupported and misunderstood, social differences could cause a number of issues in the workplace and with service engagement, and that difficulties in workplaces, problems with support staff , and inability to engage with services led to housing instability and ultimately homelessness.

One autistic participant with prior experiences of homelessness reported:

'It's hard to maintain housing if you can't talk to your landlord but then once you become homeless. It's hard to engage with services and engage with landlords to get rental properties. It makes you more at risk but once homeless, it makes it really hard to get into a place, because people look at you differently' (Autistic individual).

Further quotes related to communication differences and other autistic characteristics are presented in table 3.3 below.

Table 3.3

Example Quotes Illustrating Autistic Characteristics

Theme	Example quotes		No. of quotes (*N*)	Theme's percentage of all quotes
	Autistic participants	Homeless participants		
Communication differences *Lack of social awareness* *Social exhaustion*	'The problem for me is that I get very energy drained. I always liken it to a party situation—when you go to a party for six hours. Most people are tired from going to a party for six hours but for me, it's equivalent to six hours but I have only been there for two hours. So, it is still the same level of tiredness […] I will never be the same as others, normal with my energy expenditure.' 'You think someone has understood you and you come to find out you are completely on the wrong page. And you think, here we go again, she's not up to speed, or whatever. So, a really big misunderstanding between what you are saying and what others are hearing. And what you're hearing and what they are saying.'	'People with autism find it really hard to communicate with people, and communication is so important when getting that support.' 'I think that communication is important for any success … you need to ask the questions. It's all knowledge and power.'	96	29%

Theme	Example quotes		No. of quotes (*N*)	Theme's percentage of all quotes
	Autistic participants	Homeless participants		
Restricted and repetitive behaviours, routines, and sensory sensitivities *Sensory sensitivities* *Response to stress* *Inability to cope with change.* *Uneven skill profiles*	'OK, now something is changing, and this change means, I am back at the start again and I have to re-explain something to someone new.' 'So many of the sensory-sensitivity issues are so invisible to other people. Because I have hearing loss and I am very sensitive to loud noises. Yet one of my first jobs after graduate year was working in ED, so it's a fast-paced unit where there are buzzers for 28 patients. It used to absolutely drive me nuts.' 'He was in astrophysics, and he was evicted because the landlord changed where his rent needed to be paid and he just could not work out how to do it.' 'Especially things that people put in the same category. So, it's like, oh you can do maths so you must be able to pay your bills. And it's like, well not necessarily.'	'I think it [sensory sensitivities] could lead you to be more selective with your accommodation types, and if you already have got limited houses that you can choose from, and you don't like the house that has gravel out the front because of sensory sensitivities, that could lead to homelessness.' 'When they stress out, they stress out ten times more than what we do.' 'I feel like they get frustrated—they feel like, although you are trying to help them, they cannot be in control of what they want to do.'	42	13%

3.2.2.2 Sensory Sensitivities and Restricted and Repetitive Behaviours

Both groups indicated that autistic characteristics, such as sensory sensitivities and restricted and repetitive behaviours, could increase a person's risk of homelessness. These characteristics were the focus of 13% of the discussion, with participants mentioning rigidity, response to stress, sensory sensitivities, issues with change, and uneven skill profiles.

3.2.2.2.1 Rigidity

Participants said that inflexibility about change, in the absence of appropriate support,

was particularly problematic for autistic individuals trying to obtain and retain work. They added to that to adapt to autistic individual's needs, employers should consider that some autistic individuals have trouble changing their routines, which can make them unable to fill certain roles (such as those involving shift work). Participants thought that autistic individual's inability to cope with change was related to rigidity in both thinking and routines. One participant described how, without adequate support to establish an adaptive routine, an autistic person could develop maladaptive routines that would make it hard for them to adhere to the requirements of service providers. For example, a person might always go to bed at 6:00 a.m. and wake at 3:00 p.m., sleeping during business hours, which would limit their access to support and employment. When individuals were not able to maintain employment and contact with services this would lead to homelessness.

Participants also considered it important to ensure that individuals sharing accommodation prefer compatible routines. Rigidity in routines can make it difficult for autistic individuals to live with others, particularly if housemates have conflicting routines.

Overall, rigidity can make it difficult for people to work, access services and live with others. This means that people with this characteristic have a higher risk of homelessness.

3.3.2.2.2 Response to stress

Participants said that heightened emotional states and anxiety related to stress resulted in autistic individuals leaving services, disengaging from supports and being treated unfairly within services. Services were reported to lack tolerance and understanding for some behaviours, for example, when autistic individuals demonstrated highly emotional states referred to as 'autistic meltdowns'. Participants reported that when these meltdowns occur autistic individuals are unable to communicate and consequently are removed from services and are unable to participate in society.

'Not being able to tell people what's wrong and having melt downs, kind of like criminals,

*they can't follow the rules, so they need to be removed from the system to prevent them causing further damage to the society'. (*Autistic participant).

Further to this, both groups reported that this increased response to stress led autistic individuals to leave services and disengage with support staff.

3.3.2.2.3 Sensory Sensitivities

Participants said that service providers' not accommodating sensory needs was a barrier to accessing services; for example, waiting in line could be extremely difficult due to the sounds in the environment (for example., music, buzzers, talking). Further, hypersensitivity to sound or smell could be an incentive to leave sensory-rich employment or accommodation. One participant that had a prior experience of homelessness commented: *'Hypersensitivity to sound and smell but also internal feelings. It is an incentive not to live somewhere. That was the issue'* (Autistic participant).

Interestingly, the participants also thought that autistic individuals were more susceptible to fatigue than non-autistic individuals because of sensory overload. Participants indicated that autistic individuals who cannot cope with sensory input and fatigue begin to feel frustrated and drained of energy.

It is clear that sensory sensitivities can make it difficult for autistic individuals to access services and support, retain employment and find suitable housing.

3.2.2.2.4 Uneven Skill Profiles

Both autistic and non-autistic participants indicated that autistic individuals are more likely to have uneven skill profiles. Participants said that autistic individuals were likely to have specialised skills in one area (e.g., mathematics) while lacking functional skills that are important for independent living (e.g., paying bills or sending emails). This can lead service providers to misunderstand their difficulties or not respect the reality of their condition and instead perceive it as disengagement or defiance, resulting in their being denied opportunities or support.

3.2.3 What Protective Factors Help Autistic Individuals Avoid Homelessness?

Protective factors of homelessness were considered by all groups, 23% of the quotes were focused on these protective measures. Family support was seen as the factor that most commonly protects autistic individuals against homelessness by all participant groups (ASD and Homeless). Participantssaid that the role of families in preventing homelessness includes practical support, such as providing accommodation or advocating for needs with service providers. Autistic individuals also indicated that their families, most often their parents, were providing financial assistance and compensating for gaps in services to ensure that they could retain access to support and accommodation. For example, one autistic participant with a prior experience of homelessness reported:

> *If I didn't have assistance. In the way of having parents that could take me to meetings. I wasn't able to go to an employment agency and I wasn't able to drive there. Without that help, I just wouldn't be able to have access to those things. I wouldn't have the funding to do so, I wouldn't have the ability to organise myself to even start. So, without those supports, it would be a completely different scenario. If you don't have those supports, it makes it very difficult [to maintain employment and housing]. (*Autistic participant)

Protective factors were also reported to include access to specialised services for those experiencing homelessness, but it was considered particularly important to have a specialised service for autistic individuals. Homeless participants indicated that specialised support thatmet individual needs could reduce the likelihood of homelessness.

In Australia, government funding packages (particularly the National Disability Insurance Scheme [NDIS]) are crucial to the provision of services and support for autistic individuals (Luskin-Saxby, & Paynter, 2018). The autistic participants noted that this support was vital for them to be able to live in the community successfully and not fall into cycles of homelessness.

3.3 Discussion

The findings of the study described in this chapter indicate that autistic characteristics can contribute directly to the risk of homelessness in addition to the known risk factors. The first part of the study highlighted the important contribution of system-related difficulties to autistic individuals' becoming homeless. The misunderstandings of community members, service providers and support staff about the unique needs of autistic individuals were considered by participants to be the principal contributing factor. Such misunderstandings lead to insufficient employment and educational opportunities being available to autistic individuals. As previously mentioned, this lack of opportunity limits the ability of autistic individuals to retain stable, independent housing. In particular, service providers' misunderstandings limit autistic individuals' access to services and support that meet their individual needs. Stone (2022) qualitative study of 10 of autistic homeless participants, the results of this study found that reporting a lack of understanding from family, teachers and society contributes to the increased need for masking which in turn leads to poor coping capacity, and reduced access to supports all of which lead to homelessness and/or prolong the homeless experience.

Lack of community understanding has been shown to have long lasting impacts on both opportunities (education, employment, access to services) as well as ongoing mental health concerns for autistic individuals, particularly if their difficulties were not recognized (Portway & Johnson, 2005). All participant groups in the current study agreed that autistic individuals can have uneven skill profiles, which can result in service providers incorrectly presuming that individuals can perform tasksindependently, because their perception that a person has skills in one area can lead them to ignore or trivialise that person's difficulties with other areas. Individuals' inability to performtasks therefore results in service providers believing that those individuals are noncompliant, resulting in reduced service provision rather than specialised support (Campbell, 2015; Churchard et al., 2022)Moreover, lack of services or support can result in an autistic person having limited ability to retain housing if

they do obtain it (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Vana, 2020)

Misunderstanding about autism fuels discrimination in the community and makes it difficult for autistic individuals to find their place in society (Portway & Johnson, 2005; Stone, 2022). This limits their access to housing. Hence, education for community members, service providers and families is important to reduce the number of misconceptions about autistic individuals and thedifficulties they face (Bollson et al., 2022).

In order to address these system-related difficulties and allow specialised support programs and appropriate services to be provided, it is necessary to understand the unique contribution of autistic characteristics to homelessness risk. Communication difficulties and restricted and repetitive behaviours, when not accommodated by workplaces, service providers or housing, were both considered by participants to heighten people's risk of becoming homeless. The data suggested that unsupported communication differences are the principal homelessness risk factor for autistic individuals. This is consistent with previous research showing that social communication differences are a risk factor for homelessness (Stone et al., 2019). When service and support providers are unable to accommodate the communication differences of autistic individuals, it makes those individuals less likely to engage with service organisations, support staff and workplaces. Moreover, successful communication is an important factor in remaining in housing, and if a person becomes homeless, they must deal with several stakeholders to regain housing. Poorly understood communication differences would heavily impede a person's ability to seek help in these ways.

As well as communication differences, restricted and repetitive behaviours and rigidity of routines were thought to contribute to homelessness by making it difficult for people to engage with service organisations. Inability to cope with change was linked by

participants to greater likelihood of disengagement with service providers, employment and shared accommodation. Ryder (2017) participants agreed that rigidity of routines can contribute to the risk of homelessness for autistic individuals, who were reported to have particularly problematic difficulties navigating the changing nature of emergency accommodation and relief services (Ryder, 2017). Without adequate support and appropriate accommodations, this lead to difficulties maintaining access to support services.

A particularly interesting finding of the present study was that sensory sensitivities can contribute to becoming homeless. A number of factors contribute to this risk. First, service providers are often sensory-rich environments, meaning autistic individuals may not be willing to engage with them. For example, autistic participants reported difficulties with sensory input, such as problems maintaining focus in loud environments and difficulty waiting in queues. A recent study found that in comparison to neurotypical populations, autistic individuals are likely to score lower on sensory function measures (Brown et al., 2008). Bitsika et al. (2015) demonstrated that this difference in sensory scores was associated with lower cortisol levels and significantly higher reported stress. These findings suggested that autistic individuals are more likely to react negatively to external sensory stimuli (Bitsika et al., 2015). Due to the lower levels of cortisol in their systems, their stress responses are greater. Hence, autistic individuals are physiologically less likely to be able to tolerate sensory-rich environments. Overstimulation in sensory-rich environments can result in fatigue or autistic burnout,[10] decreasing the person's ability to engage with the community effectively (Mantzalas et al., 2022; Raymaker et al., 2019). Sensory sensitivities are often not considered when selecting housing for autistic individuals, who find it necessary to decline or leave housing that does not suit their sensory needs (Campbell, 2015; Casey et al., 2020). If they are not accommodated, these sensory sensitivities can present an additional barrier to autistic individual's engaging with service providers, retaining employment or finding

[10] [5] Autistic burnout is characterised as chronic exhaustion, loss of skills, and reduced tolerance to stimuli.

suitable housing[11].

Thus, autistic characteristics such as sensory sensitivities can mean autistic individuals are at higher-than-average risk of homelessness. The study also focused on what might help protect autistic individuals from this risk. Participants considered family support, specialised support and a diagnosis to be important protective factors. Of these, family support was considered the most important. Homeless and autistic participants both noted the centrality of family support in the form of advocacy, financial assistance and housing, in agreement with the findings of Burke et al. (2018). Participants said that without this support, autistic individuals were likely to struggle to remain in housing. As well as emphasising parental support, the homeless focus groups identified a need for specialised services and support for homeless autistic individuals. Relatedly, it is well established in the literature that diagnosis and early support produce positive outcomes for autistic individuals (Clark etal., 2018). Participants in the present study noted that diagnosis was crucial to ongoing services and support and thus protected autistic individuals from homelessness.

3.4 Implications

The results show that the following changes would help autistic individuals avoid homelessness. First, it is important for the staff of housing services to be adequately trained and for support services to be appropriately funded to meet the individual needs of neurodivergent people. Second, it is recommended that service providers ensure that they meet the individual needs of their clients—including needs arising from communication differences, rigidity, restricted behaviours and sensory sensitivities—both in their own facilities and when considering housing options. Third, service organisations' staff should receive adequate training about autism, including the way skill sets can differ according to the individual and their level of stress. Finally, given the high prevalence of homelessness among autistic individuals and that the specific nature of autism can contribute to

homelessness, it is important for housing services to assess for neurological conditions such as autism. Further, early screening to facilitate diagnosis was considered an important protective factor. It is important to be able to provide members of this population, once diagnosed, with appropriate help in seeking government assistance (via the NDIS) to access support programs.

3.5 Limitations

The results presented within this chapter should be interpreted with these limitations in mind. Whilst focus group data was chosen to facilitate the discussion of different ideas and perspectives, this approach may be impacted by the ability for participants to voice their opinions within a group setting. It was recognised that often autistic individuals may struggle to participate in a group setting. Data collection conducted in a group setting may also increase the likelihood of social conformity (Acocella, 2012), whereby participants are more likely to agree with other group members rather than voice their own ideas. Likewise, the structure of the interview that included direct questions relating to each individual autistic trait in the DSM 5 criteria, could be considered leading in nature. This could have overinflated the importance of these factors as contributors of homelessness for participants. This limitation was reduced by the use of multiple groups that ensured that responses could be compared andcontrasted within and between focus groups to ensure that the data represented accurate information regarding the risk of homelessness for autistic individuals.

Further to this, the online format of the two autistic individuals focus groups may have impacted the willingness to share information amongst group members. Although, the online format allowed for some participants to use the chat function to respond rather than verbal communication. Beyond this, the author ensured that each focus group was a safe and friendly environment that participants felt that they could share in.

Due to the restrictions related to Covid 19 and the limited access to the autistic and homeless community only five participants within this sample had prior experiences of

homelessness and a diagnosis of autism. The wider knowledge of the two groups (autistic or homeless group) reflected the responses gleaned from the focus group that included participants with both experiences demonstrated that despite this limitation the data reflected the experiences of autistic individuals that had experienced homelessness. Some neurotypical participants had direct experience with autistic individuals, the majority did not have exposure to this diagnostic group, therefore the responses from this group may be influenced by the groups on biases and misunderstandings.

This study may have been impacted by self-selection bias, participants identified their interest on a signup sheet that was provided within services, therefore it is plausible that only participants that were comfortable talking in a group and had an interest in the topic participated in the study. This may not accurately reflect the wider groups perceptions related to the particular risk factors that increase the risk of homelessness for autistic individuals.

3.6 Conclusion

Homelessness is a significant issue in Australia, and autistic individuals are particularly at risk of homelessness due to system-related difficulties they experience when dealing with both society and service organisations. These include problems with fitting into society, work difficulties, requirements for support, and practical limitations. Further, specific autistic characteristics, namely communication differences and restricted and repetitive behaviours and sensory sensitivities, make engagement with service and support providers difficult. However, both family support and specialised services provided by appropriately trained people were reported to protect against homelessness. This study has highlighted the need for specialised training about autism in housing and employment services and the need to develop autism-specific interventions. Moreover, due to the importance of a diagnosis for accessing ongoing specialised support, it is recommended that homelessness services assess their clients for neurological conditions so that their needs can be identified and accommodated. Specialised support such as that provided by the NDIS was also noted as a

major protective factor; therefore, ongoing monitoring of housing support funding for autistic individuals should be integrated into service provision.

This study makes an important contribution by exploring the autistic characteristics that might contribute to a person's risk of homelessness. Providing insight into the autistic characteristics that may increase the chance of homelessness for autistic individuals. The findings should be considered in terms of the above-mentioned limitations, social conformity, small sample sizes and self-selection bias. The findings have demonstrated the value in further investigation of the effects of autism characteristics on homeless outcomes, therefore Chapter 4 will evaluate this using quantitative measures.

Data Availability Statement

The data is thematic, and a de-identified version can be found in Appendix H.

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Chapter 4: What are the Chances? The Probability of Homelessness for Autistic individuals: Exploring Homelessness Risk Factors, Autistic Characteristics and Protective Factors

Abstract

A number of risk factors may lead to an individual becoming homeless. These factors may include childhood-related factors, personal factors (such as mental illness or addiction), social supports (quantity and role), structural factors (such as housing availability), prior homelessness experiences, and socio-economic status. Due to their higher chance of experiencing these risk factors, autistic individuals are vulnerable to homelessness; and are indeed over-represented among those who are homeless. Evidence has begun to emerge from research about the specific nature of the homelessness risk for autistic individuals. Previous research has highlighted the need for research to focus on autistic characteristics that can increase the chance of homelessness.

The study described in this chapter investigated four important considerations: 1) The probabilities of homelessness predicted by the known risk factors of homelessness, comparing autistic with non-diagnosed people; 2) the additional contribution of autistic characteristics; 3) the mediating effects of adaptive and executive function differences on the relationship between autism and homelessness; and 4) the probability that social relationships, and specifically parent–child relationships, will reduce the likelihood of homelessness for autistic individuals.

The study involved both autistic and non-autistic participants; 335 individuals completed a questionnaire about autistic characteristics and known homelessness risk factors. Due to missing data 333 participants (177 ASD, 156 undiagnosed participants) were

included in the analyses. Bayesian hierarchical modelling was used to determine how the probability of homelessness was predicted by autism diagnosis status and by whether participants scored above or below a cut-off score (<26 or >26) on the Autism Spectrum Quotient (AQ). Further the predictive nature of knownrisk factors of homelessness and autistic characteristics on homeless outcomes was also investigated.

The results demonstrated that prior autism diagnosis predicted a lower probability of homelessness, but high levels of autistic characteristics without a diagnosis predicted an 85% probability of becoming homeless at least once, while holding other factors constant. This suggests that there could be a high proportion of undiagnosed autistic individuals among the homeless population. When considering those without a diagnosis, stronger evidence of an effect were detected for the following characteristics: communication differences, attention-switching and attention to detail than social skills and imagination. However, further investigation demonstrated that the difference between individual AQ-50 factors was not meaningful, suggesting that these characteristics increase the chance of homelessness collectively rather than independently. The relationship between autistic characteristics and homelessness was found to be mediated by adaptive function levels. The investigation of protective factors showed that autism diagnosis was the most effective protective factor for autistic individuals. For those with high levels of autistic characteristics but without a diagnosis, family support was found to be more important for protecting them from homelessness than it was for those with low levels of autistic characteristics.

The results show that the influence of autism (as indexed by the AQ) on homelessness risk should be interpreted in consideration to its interaction with known risk factors, namely socio-economic status (SES) and social and personal factors. In the absence of an autism diagnosis, it is important to find ways to help autistic individuals foster their social supports and thus minimise the chance of becoming homeless. The protective effect of diagnostic assessment is clear; allowing access to specialised support services.

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4.1 Introduction

Homelessness is defined as being without secure housing; it is often associated with rooflessness or living on the street but can also mean living in temporary housing (e.g., couch-surfing) (Orwin et al., 2003). Homelessness is a significant issue in Australia. In 2016, it was estimated that over 116,000 Australians were experiencing homelessness at any given time (Australian Bureau of Statistics, 2016). Homelessness has serious, long-lasting effects on society's resources, costing the Australian economy approximately $25,000 per homeless person per year (Baldry et al., 2012). Importantly, homelessness also reduces an individual's coping capacity, resulting in a decline in their mental and physical health (Edidin et al., 2012; Wright & Tompkins, 2006); hence, there is a need to identify and lessen the risk factors that may result in homeless outcomes (Heerde et al., 2020). This is particularly relevant to developed countries, which are recognised to have enough resources to eliminate homelessness (Shinn, 2007). The pathway to homelessness is complex, with a number of personal and structural factors leading to greater risk.

4.1.1 Homelessness Risk Factors

Homelessness does not occur in isolation. The combination of a number of risk factors can lead to an individual becoming homeless, including negative childhood experiences (e.g. abuse and negative parent behaviours), demographic factors (e.g. gender, age or low SES), structural factors (e.g. poor housing affordability or poorly resourced service organisations), limited social supports, and personal factors (such as drug and alcohol misuse or mental health problems) (Heffron et al., 1997; Huntington et al., 2008; Kim et al., 2011; Koegel et al., 1995; Shelton et al., 2009).

Homelessness risk begins in childhood. Childhood adversities such as abuse, parental drug use or mental health problems, and out-of-home care experiences have been found to heighten a person's risk of homeless outcomes later in life (Heffron et al., 1997; Huntington

et al., 2008; Kim et al., 2011; Koegel et al., 1995; Shelton et al., 2009). Moreover, certain demographic markers make people more likely to have negative childhood experiences that can lead to homelessness. These include low SES, mental illness and neurodivergence (Murillo et al., 2016; Salavera et al., 2014; Shelton et al., 2009; Stone et al., 2019; Van Rooy, 2008).

After childhood, homelessness risk can be made more likely by four factors that affect an individual's current experience. First, certain structural factors are thought to increase the risk for some individuals or groups. Structural factors such as lack of affordable housing or government support for low-income earners have been found to greatly increase their chances of homelessness (Batterham, 2012; Elliott & Krivo, 1991). Structural factors have received increased attention in recent years because it has been recognised that services are overstretched, underfunded and under-trained to provide the necessary support to individuals at-risk of homelessness (Hoff et al., 1992; Marçal et al., 2021).

Second, homelessness is associated with social isolation. The inadequate size of a person's social support network, which can stem from a breakdown in family or friendship support, a lack of professional support, negative or violent relationships, or recent divorce, means that person has a greater chance of homelessness (Haber & Toro, 2004; Hier et al., 1990; Johnson et al., 1997).

Third, some individuals experience personal factors, such as poor mental health, disabilities or drug and alcohol misuse, that make it hard for them to maintain social supports (Crane et al., 2005; Kim et al., 2011; Olfson et al., 1999; Rodriguez et al., 2012; Vaughn, 2013), thus making them more vulnerable to homelessness.

Finally, prior experiences of homelessness can make a person more likely to become homeless again. Specifically, people who have had longer or more frequent periods of homelessness are more likely to re-enter homelessness after being housed (Haber & Toro, 2004; Hier et al., 1990; Johnson et al., 1997).

Research has begun to investigate the predictive power of these homelessness risk factors. For instance, Shelton et al. (2009) conducted a longitudinal study with 14,888 young people over a six-year period to investigate the predictive power of homelessness risk factors. They found that the risk of homelessness was related to 32 factors, including childhood-related factors (e.g., negative experiences), personal factors (e.g., mental health problems, drug and alcohol misuse, or criminal history) and structural factors (e.g., poor housing availability or low levels of government support). Their study also confirmed that some individuals have characteristics that make them more susceptible to experiencing the structural risk factors (especially lack of access to housing) due to strict service criteria preventing some individuals from accessing services and support that addressed their individual needs.

Although it is recognised that homelessness can affect people from any background, certain populations may be more vulnerable to it because they are more likely to experience the known risk factors and because of their unique personal characteristics (Murillo et al., 2016; Salavera et al., 2014; Stone et al., 2019; Van Rooy, 2008). For example, individuals with disabilities or mental health conditions can be more vulnerable to homelessness due to their differing physical abilities, social skills and lack of access to social resources that help people obtain education and employment in order to secure housing (Backer & Howard, 2007).

Resent research on homelessness has concentrated on mental health and disabilities, with an interest in autism in particular (Churchard et al., 2019). In Chapters 2 and 3, the importance of investigating the risk of homelessness among autistic individuals has been demonstrated. The systematic review presented in Chapter 2 demonstrated that autistic individuals are over-represented in the homeless population in developed countries (UK and US), at a rate that has been estimated at 12.8% (Churchard et al., 2019; Kargaset al., 2019; Morton et al., 2010; Morton & Cunningham-Williams, 2009; Nishio et al., 2015; Pritchard,

2010), substantially higher than that of the general population, which has been estimated at .7%-2.5% (Australian Bureau of Statistics, 2016; Brugha et al., 2011; Randal et al, 2016). Possibly becauseautism is a heterogeneous condition, with autistic individuals having various individual strengths and weaknesses, it is often misunderstood in the wider community. This can then lead to autistic individuals experiencing discrimination and poor engagement in the community, both of which put autistic individuals at greater risk of homelessness (Stone, 2022). Moreover, the higher rate of autism among homeless people may be attributed to a combination of causes, including not only higher prevalence of known risk factors among autistic individuals but also personal factors. The personal factors may include relationship difficulties, lack of service support, and co-occurring issues (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Vana, 2020).

4.1.2 Are Homelessness Risk Factors More Prevalent Among Autistic Individuals?

A review of the literature in Chapter 1 suggested that autistic individuals are more likely to experience the known risk factors of homelessness, including childhood-related, structural, social, personal and demographic factors. Childhood-related risk factors may be common among autistic individuals, who have a greater risk of exposure to childhood abuse and neglect than other children with disabilities or neurological conditions (Bleil Walters et al., 2013; Brenner et al., 2018). It has also been noted that autistic individuals are more likely to experience structural risk factors; in particular, they are more likely to be economically disadvantaged and to struggle to independently obtain welfare support or community housing (Grant, 2017). This is further exacerbated by the lack of opportunity for employment particularly for certain populations (i.e., Neurodivergent individuals) that experience discrimination in the workplace (Campbell, 2015; Stone, 2019). In the absence of affordable housing, employment or service support, autistic individuals may have to rely on their social supports for their accommodation. Autistic individuals are more likely to rely on family members for support, particularly accommodation (Bader, 2012; Evans et al., 2016). This

differs from other homeless groups that tend to rely on their peers for social support (Johnson & Johnson, 2005) rather than a family member (Tyler, 2005). This reliance on social support for accommodation is particularly problematic because, autistic individuals are more likely than non-autistic individuals to have difficulties maintaining social connections (Bellini et al., 2007; Frye, 2018; Holloway et al., 2014). In fact, a comparative study of autistic individuals and those living with an ID found that the autistic individuals had smaller support groups that were less supportive (Locke et al., 2010). Milton (2012) suggested that this related to the double empathy problem whereby a breakdown of communication emerges from a lack of mutual lack of understanding and different communication styles between neurotypical and neurodiverse populations.

Finally, autistic individuals are more likely than non-autistic individuals to have had prior experiences of homelessness (which is a risk factor for becoming homeless again); this is implied by the higher proportion of autistic individuals among the homeless population. The rate has been estimated at 12.8% (Churchard et al., 2019).

A combination of childhood-related, personal, structural and social support– factors is likely to be the cause of an autistic individual becoming homeless. It is clear that autistic individuals can experience a number of the known risk factors of homelessness; the qualitative thematic analysis described in Chapter 3 provided insight into the risk of homelessness for autistic individuals. It demonstrated the system-related factors that can contribute to homelessness for autistic individuals. For example, participants considered autistic individuals to have a greater chance of experiencing structural issues, such as limited access to affordable housing, caused by difficulties engaging with service and support providers. However, factors other than the known risk factors were also considered to affect an autistic individual's chance of becoming homeless. These factors were associated with system-related environmental influences such as being unable to find their place in society, not having enough employment opportunities and lacking adequate access to stable

accommodation because of practical limitations. Participants in the five focus groups of Chapter 3 discussed the long-term implications of the alienation, discrimination and difficulties with fitting into society experienced by autistic individuals and how they can restrict access to ongoing employment, housing or service support. Stone's (2022) thematic analysis involving 10 autistic and homeless individuals also described the contributions of discrimination and social isolation to the risk of homelessness. In Stone's (2022) study these difficulties were considered to differ from the known risk factors.

As well as considering the known risk factors of homelessness, it is important to consider whether autistic characteristics add to the risk of homelessness. Osborn and Young (2021) considered the contributions of individual autistic characteristics to the risk of homelessness. The results suggested that communication differences, restricted and repetitive behaviours and sensory sensitivities contribute to homelessness risk either in combination with the known risk factors or independently of them. Moreover, Stone (2022) suggested that autistic individuals mask their autistic characteristics to find their place in society in order to avoid becoming homeless. Together, these findings suggest that the potential predictive relationship between autistic characteristics and homelessness should be considered.

4.1.3 Do Autistic Characteristics Alone Contribute to Homelessness?

Autistic characteristics, which could contribute to homelessness according to the DSM-5 criteria (APA, 2013), include communication differences, restricted and repetitive behaviours or interests (including adherence to routines) and sensory sensitivities. Beyond this, attention to detail, attention switching, imagination differences are largely under-researched characteristics of autism, although these behaviours are not diagnostic features, they are a biproduct of restricted and repetitive behaviours and are included in popular screening tools (Crespi et al., 2016). Adding to this, adaptive and executive function are not specific to autistic individuals, they are very common in this population and considered to be a transdiagnostic feature of autism (Clark et al., 2002; Pugliese et al., 2016; Wallace et al.,

2016). It is important to note that ASD is heterogenous in nature, therefore individuals report different characteristics, autistic profiles often have a cluster of symptoms that differ across individuals, in this way one individual may not experience all of the characteristics discussed below, whilst others demonstrate more or less of these behaviours (Ring et al., 2008). These characteristics when misunderstood and unsupported within the community it can lead to a number of difficulties including engagement with services, employment and maintaining housing. These difficulties may increase the chance of homelessness. These willnow be discussed.

4.1.3.1 Communication Differences

Communication differences related to autism can result in a number of gaps in skills including initiating and maintaining reciprocal conversations, social skills, and understanding verbal and non-verbal communication. Difficulties with initiating and maintaining reciprocal conversations can make it hard for an autistic individual to develop social supports and seek help (Locke et. al., 2010). Such characteristics can make it difficult for autistic individuals to maintain relationships that are important for accessing housing, such as those with employers, landlords or housing services (Campbell, 2015; Casey et al., 2020; Churchard et al., 2019; Grant, 2017; O'Donovan et al., 2020). This is because, without support to learn the relevant social skills, autistic individuals can have trouble dealing effectively with such people, leading to frustrations and misunderstandings (Grant, 2017). Lack of understanding of these verbal and non-verbal behaviors in services, could be perceived as disengagement or disinterest (Chapter 3). Misunderstandings of both autistic individuals and services can prevent autistic individuals from accessing the financial and practical resources they need to remain in a home, increasing the chance of homeless outcomes (Campbell, 2015; Casey et al., 2020; Churchard et al., 2019; Grant, 2017; O'Donovan et al., 2020). This was evidenced by the findings in Chapter 3, participants reported that difficulties in communication led to the absence of support from family and services contributed to their experiences of

homelessness.

4.1.3.2 Restricted and Repetitive Behaviours

The restricted and repetitive behaviours associated with autism include an insistence on sameness, inflexible routines, difficulties with transitions, restricted interests, characteristic motor movements, echolalia, and sensory sensitivities can have a broad range of negative outcomes. Some negative outcomes that have been noted in prior research include confusion, misunderstanding, discrimination, distraction from tasks for self and others (Factor et al., 2016; Honey et al., 2012), and reduced ability to attend appointments and take medications (Campbell, 2015; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019). In combination, restricted and repetitive behaviours and the negative outcomes can make it difficult for autistic individuals to access education, employment and housing due to widespread misconceptions and lack of understanding about these behaviours, which can cause community members to abandon autistic individuals increasing the chance of homeless outcomes (Stone, 2022).

4.1.3.3 Imagination Differences

Some autistic individuals are thought to have lower ability to use imagination, resulting in a number of difficulties with solving problems, evaluating past actions and imagining future selves. These difficulties with conflict resolution, problem-solving and creating future-oriented goals may be a barrier to achieving positive housing outcomes (O'Shaughnessy & Greenwood, 2020). When these imagination skill differences are not supported, they increase the chance of insecure tenancy and ultimately homelessness (Crespi et al., 2016).

4.1.3.4 Attention to Detail

Baron-Cohen et al., (2001) reported that autistic individuals are prone to focus on specific details rather than universal information (Baron-Cohen et al., 2001). Several autistic characteristics linked to attention to detail, such as cognitive inflexibility and the systematic

application of rules, are likely to lead to negative outcomes (Baron-Cohen et al., 2001). Some negative outcomes include misunderstanding by service providers, employers or support staff. Chapter 1 highlighted how this extreme focus on details combined with inattention can cause various difficulties related to maintaining housing and thus increasing the likelihood of homelessness.

4.1.3.5 Attention Switching

Autistic individuals demonstrate a reduced ability to switch attention between multiple stimuli, related to difficulties with executive function and communication within a social setting (Reed & McCarthy, 2011). Attention switching is considered a strength for many autistic individuals (high focus on one topic) but can also be associated with a number of difficulties with relationships, education, employment, and independent living (Hendricks, 2010). Attention switching also creates difficulties with planning and organising tasks as autistic individuals struggle to move from one activity to another (Kapp, Gantman, & Laugeson, 2011). It can be inferred that this reduced ability to maintain relationships, employment and housing may increase the chance of homelessness.

4.1.3.6 Sensory Sensitivities

Sensory sensitivities such as auditory, visual, textural, olfactory and taste stimuli can cause sensory overload resulting in meltdowns and shutdowns. Research has indicated that sensory overload and fatigue can contribute to difficulties for autistic individuals to live in certain types of housing, living with others or maintaining employment (Mantzalas et al., 2022; Osborn & Young, 2021; Raymaker et al., 2019). Lack of sensory-friendly employment and housing that do not consider sensory sensitivities and appropriate sensory interventions are likely to put autistic individuals at risk of homelessness due to overwhelm resulting in them leaving or avoiding these sensory rich environments (See Chapter 3).

4.1.3.7 Executive Function Differences

Differences in executive function are associated with a number of fundamental

abilities crucial for cognitive function, including memory, flexibility, and self-control (Diamond, 2013). Variations in executive function have an impact on a person's capacity to take in and comprehend information and base judgements on information (Diamond, 2013). Executive functioning differences have resulted in long term negative outcomes such as an increased susceptibility to mental illness, lower educational levels, poor adaptive functioning and reduced ability to live independently (Davids et al., 2016; Ghanouni et al., 2021). Thus, executive function differences may reduce or limit the possibilities for independent living available to autistic individuals, leading to an increased chance of becoming homeless.

4.1.3.8 Adaptive Function Differences

Adaptive function is the capacity to adapt to everyday environments. The assessment of adaptive functioning that will be employed in this study include a wide range of abilities necessary for self-care, independence, community engagement, and socialisation (Mitchell, 2018). Differences in adaptive function have been linked to poor educational achievements and lower employment opportunities, making it difficult for someone to become independent (De Bildt et al., 2005; Paul et al., 2004). Due to the low levels of independence, which are necessary for maintaining a home, this can increase the chance for homeless outcomes for autistic individuals.

4.1.3.9 Previous Studies Concentrated on Autistic Characteristics and the Risk of Homelessness

As the above discussions show, several autistic characteristics (communication differences, rigidity, imagination differences, attention to detail, and sensory sensitivities) and associated behaviours (those stemming from executive and adaptive function differences) can lead to homelessness. Yet there has been limited investigation into how autistic characteristics might contribute to the risk of homelessness. The systematic review described in Chapter 2 was used to collate prior research and identify the research gaps related to homeless risk for autistic individuals, the results identified that only six studies had discussed

the implications of rigidity and sensory sensitivities leading to homeless outcomes (Campbell, 2015; Davidson, 2007; Grant, 2017; Hurley et al., 2018; Stone, 2019). The review demonstrated that the existing research into the relationship between autism and homelessness had limited generalisability and a lack of specific focus on autistic characteristics or their contribution to homelessness, implying that further research is needed. The qualitative analysis described in Chapter 3 indicated that three particular autistic characteristics—communication differences, restricted and repetitive behaviours and sensory sensitivities—are likely to contribute to homelessness risk. Of these factors, communication difficulties were considered by the participants to contribute the most to the risk of homelessness.

It is unclear whether these characteristics individually contribute to the risk of homelessness or whether they differ in their influence on the risk of homelessness. It is important to understand how specific characteristics may contribute to becoming homeless, in order to raise awareness and design specialised programs to help autistic individuals. It is equally important to understand the factors that can protect autistic individuals against homelessness.

4.1.4 What Are the Protective Factors Against Homelessness for Autistic Individuals?

Protective factors mitigate the effects of the risk factors and can prevent an individual from experiencing homelessness. Homelessness prevention has received much more attention in recent years, a shift in the research that reflects an ongoing commitment to preventing homelessness in developed countries (Shinn, 2007). Proactive approaches that help to keep vulnerable groups in housing have been demonstrated to be effective in reducing the overall cost to society of homelessness by lessening the need for emergency support services, saving approximately $600 million (CND) per year (Gaetz & Dej, 2017). Proactive approaches to homelessness also have ongoing benefits for the individual, related to increased self-esteem, health and wellbeing (Gaetz & Dej, 2017).

A promising recent study outlined a number of factors that may prevent homelessness; these factors included social factors, such as the presence of social support; system-related factors, such as education and employment opportunities; and personal factors, such as values (Heerde et al., 2020). For autistic individuals, relationships was one factor that increased people's resilience to homelessness. According to Stone (2019), having strong connections with family improves an autistic individual's housing outcomes. However, although social support provides an important safety net for vulnerable people, research has shown that not all social supports provide protection. Those with social supports that were engaged in criminal activities or drug and alcohol misuse were comparatively unprotected; in fact, such networks had adverse effects (Stone 2022; Tyler, 2008; Tyler & Melander, 2011). It is important to help autistic individuals develop social supports comprised of peoplewho are non-judgemental, caring and emotionally supportive (Bower et al., 2018). Whether social supports provide protection depends on two factors: the size of the social support network and the nature of the support (for example, engagement in risky behaviours, the provision of food, accommodation and emotional support) it provides. Specifically,

differences in number of social supports were thought to influence the likelihood of an individual receiving support (Colombo & Saruis, 2015; Dietrich-Ragon, 2015; Slesnick et al., 2008). Both family and peer support were considered important factors in mitigating the effects of homelessness risk factors (Backer & Howard, 2007; Popejoy, 2017). These types of social support have been used in homelessness prevention programs, such as shelter diversion. Shelter diversion is a well-known strategy that has been shown to be effective in preventing homelessness, linking those in crisis with family and friends to support them in the short term. Once housing has been secured, diversion programs should provide additional support to help the client regain long-term housing (Shinn et al., 2019). This demonstrates the importance of supporting individuals to maintain prosocial and supportive social supports to

protect them against homelessness.

Homelessness outcomes are more likely for certain individuals, such as autistic individuals, these homeless outcomes are influenced by the amount of support individuals receive from social supports and service providers (Hong et al., 2013). Autistic individuals are less likely to have a larger number of social supports, and they often rely on family for support (Hong et al., 2013). Parental support is critical in improving autistic individuals' life outcomes in a number of domains, including quality-of-life and therapeutic outcomes (Boshoff et al., 2016; Townson et al., 2007). Family support was considered by participants in the qualitative study to be the principal protective factor against homelessness for autistic individuals (Osborn & Young, 2021). In this study, autistic individuals indicated that families, particularly parents, provide financial assistance, compensate for gaps in service provision and advocate for their child's needs, ensuring that they can obtain or retain access to support and accommodation (Osborn & Young, 2021).

Interestingly, this qualitative analysis confirmed that high-quality social relationships protected autistic individuals against homelessness (Osborn & Young, 2021). Additionally, a diagnosis and government and specialised service involvement are likely to help autistic individuals avoid homelessness (Osborn & Young, 2021). Access to specialised services that are able to work comprehensively with autistic individuals was considered by participants to reduce the likelihood of negative outcomes such as homelessness.

4.2 The Mediating Effects of Adaptive and Executive Functioning

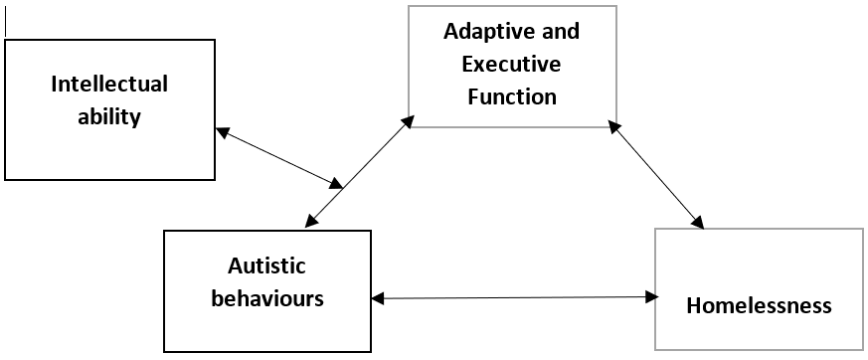
The argument thus far has demonstrated that there is a connection between autism and homelessness, as evidenced by the higher frequency of autism in the homeless population in developed nations when compared to the general population (Casey et al., 2020; Churchard et al., 2019; O'Donovan et al., 2020). Previously, this section covered a number of the facets of this relationship. First of all, autistic individuals are more likely to encounter a number of the established risk factors for homelessness, including those that are currently present and will

continue to be so if adequate service support is not provided. Second, those with autism may experience disadvantage, a lack of assistance, and ultimately homelessness due to their unique needs.

The association between autism and homelessness may be influenced by differences in executive function and adaptive function. Autism has a strong relationship with differences in executive and adaptive function (Pugliese et al., 2016). Differences in executive function have been found to indicate future difficulties with adaptive function in autistic individuals, restricting their capacity to live independently (Pugliese et al., 2016). Moreover, low adaptive and executive function has also been linked to an increased risk of homelessness (Hurstak et al., 2017; Thomas et al., 2011). Given that disparities in executive function and adaptive function are frequent among autistic and homeless individuals, it is possible that executive and adaptive function levels mediate the association between autism and homelessness. With regard to a moderating factor, ID, which has a well-established connection with executive and adaptive function differences and autism, should be taken into consideration in this mediating association of adaptive functioning on the probability of homelessness[12] for autisticindividuals, see Figure 4.1 (Matthews et al., 2015; Tillmann et al., 2019).

Figure 4.1

Mediation Model: The Influence of Adaptive Function and Executive Function Level on Homelessness for Autistic Individuals



[12] The probability of homelessness is defined as the likelihood that an individual will becomehomeless at least once in the future.

4.2.1 Summary and Research Questions Pertaining to Chapter 4

In summary, homelessness is a significant issue in Australia, with various negative economic and individual effects. Several factors can put a person at greater risk of homelessness; these include childhood-related factors, personal factors (such as mental illness or addiction), inadequate social support size, structural factors (such as housing), prior homelessness experiences, and low SES. Individuals from some groups may be more susceptible to experiencing these risk factors due to characteristics specific to the group. These characteristics may preclude them from accessing services and support because they need specialised support. One such group is autistic individuals, who are over-represented in this population possibly due to discrimination and lack of opportunities to obtain support, employment and independent housing. The higher prevalence of autism in the homeless population raises the question, as to why autistic individuals are susceptible to homelessness.Specifically, are they more likely to experience these known risk factors? Moreover, are autistic individuals more susceptible to experiencing homelessness due to autism-specific characteristics. A number of autistic characteristics, such as communication differences, restricted and repetitive behaviours, imagination differences, attention-switching, attention todetail, social skill differences and sensory sensitivities, may contribute to homelessness in a unique manner that does not occur in other homeless populations. The results presented in Chapters 2 and 3 have demonstrated the need for quantitative research that compares homelessness risk between autistic and neurotypical populations. It is still unclear whether autistic individuals are more likely to experience the known homelessness risk factors or whether autistic characteristics are risk factors in themselves. Previous chapters have also identified the need to investigate protective factors that might prevent autistic individuals from homeless outcomes.

The aim of this study is to investigate the following four questions: 1) Is there a

higher prevalence of known risk factors among those with a diagnosis of autism? 2) Are there autistic characteristics that contribute to the risk of homelessness over and above the known risk factors? 3) Do adaptive or executive function mediate the relationship between autistic characteristics and homelessness? 4) Is family support associated with fewer homeless outcomes for autistic individuals? For each question, the study investigated how the factors differ between autistic homeless people and other homeless groups.

The following results and discussion sections will systematically address these gaps in the research. The results and discussion will be presented sequentially, in four sections, to demonstrate the progression of the research and statistical analyses to address each research question.

The first stage of the research focused on investigating the known risk factors of homelessness in combination with autism; specifically autism diagnosis status as indexed by the AQ 50. This stage addressed the following two research questions: What are the specific risk factors for homelessness for autistic individuals? And do these risk factors differ from those of non-autistic individuals? The second stage focused on the autistic characteristics that may contribute to the risk of homelessness in addition to the known risk factors. It is important to understand whether the specific nature of autism engenders a greater risk of homelessness in order to lessen this risk. Hence, this stage of the study investigated how probability of homelessness outcomes depended on AQ factors (i.e., autistic characteristics), comparing groups according to autism diagnosis (yes or no) to address the following two research questions: Are there particular autistic characteristics related to becoming homeless? And do these autistic characteristics contribute additional variance to the risk of homelessness over and above the known risk factors of homelessness? The mediating effects of adaptive and executive function differences on the relationship between autistic characteristics and homelessness were considered in the third stage.

A number of protective factors can shield autistic individuals from homelessness;

these included a diagnosis, high SES and a large number of social supports. Therefore, the fourth stage of this study investigated how the nature of social supports affect the risk of homelessness. Comparisons were conducted between diagnosed and undiagnosed groups according to the nature of social supports (such as, parent, sibling, partner, or colleague). The probability of homeless outcomes was investigated depending on autism diagnosis (yes or no) and AQ cut-off score (<26 or >26) to answer one further research question: Will family support be associated with lower homelessness risk and fewer homeless outcomes for autistic individuals? To date, no quantitative research has been conducted to investigate whether the nature of family support contributes to the prevention of homelessness for autistic individuals and how this might differ from the experiences of non-autistic individuals.

The implications of these findings will provide insight into where to focus support programs to prevent homelessness for this vulnerable group.

4.1.4.1 Hypotheses

1. Autistic individuals (either autism diagnosed, or high AQ-50 score (>26) have a higher probability of homelessness than non-autistic individuals or those with less autistic characteristics when experiencing the known homeless risk factors.
2. Autistic characteristics will contribute to homelessness risk over and above known risk factors (controlling for these factors); the effects of autistic characteristics on homelessness risk will differ between autistic and non-autistic groups.
3. There will be a mediating effect of adaptive function levels for the relationship between AQ-50 score (<26 vs >26) and Homelessness.
4. The contribution of the presence of social support (yes/no) in protecting against homelessness will differ between autistic and non-autistic groups; parenting support (rather than a friend, partner, sibling, service) will contribute more to protecting autistic individuals this will differ from non-autistic individuals.
5. Family support will be associated with lower homelessness risk and less chance of

becoming homeless for autistic individuals.

4.2 Method

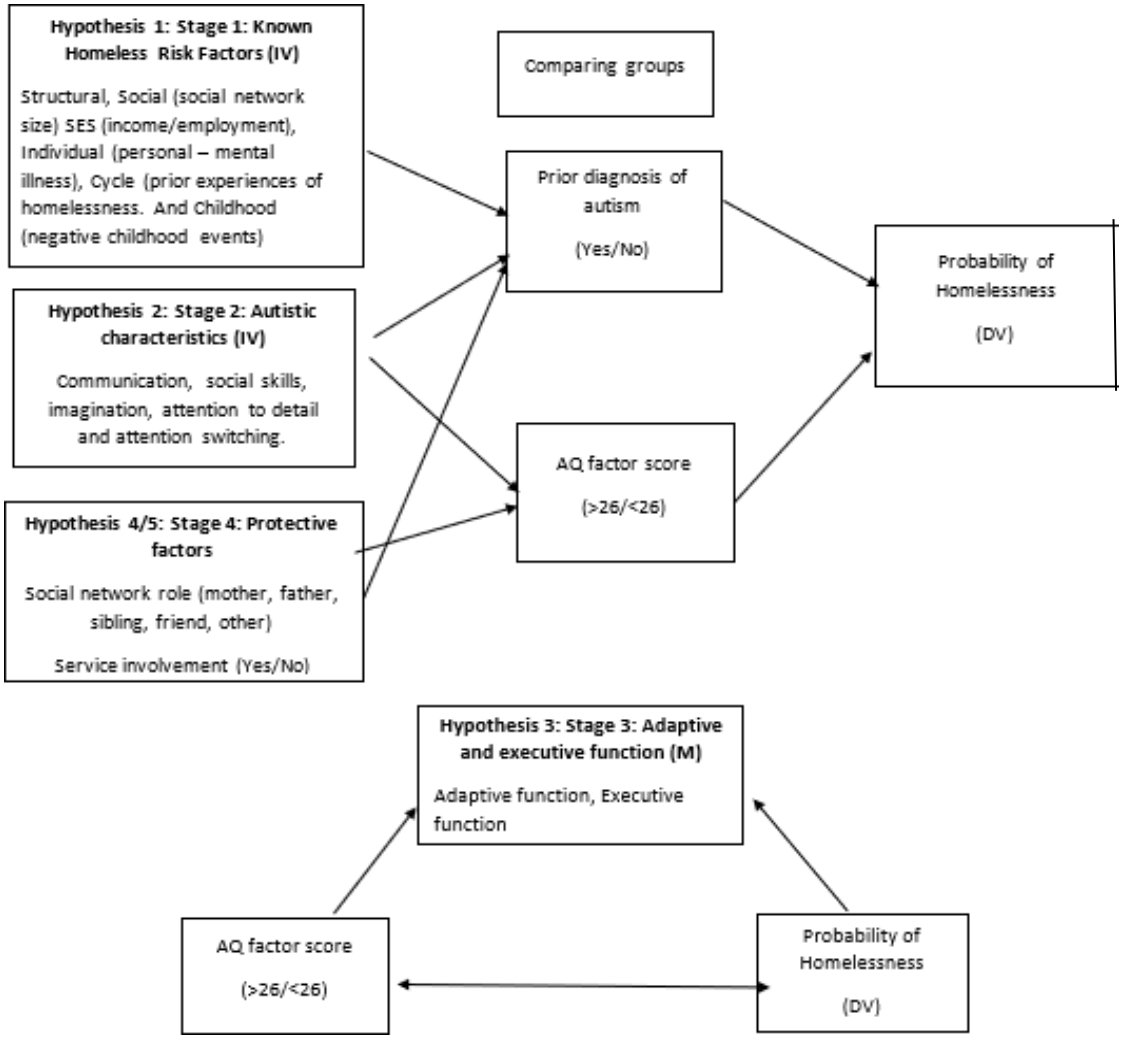
4.2.1 Research Design

An a priori power analysis was conducted using G*Power version 3.1.9.2 (Faul et al., 2009) to determine the minimum sample size required to test the study hypothesis. The results indicated that the required sample size to achieve 80% power for detecting a medium effect between groups using logistic regression predictors, at a significance criterion of p= .05, was N = 186[13]. Because it was not possible to use random sampling methodology to increase the representativeness of the research, the recruitment process aimed to collect data from a sample large enough to increase the representativeness of the sample. Via convenience sampling, 335 participants were recruited, two were removed due to missing data. They completed a questionnaire consisting of 10 measures (a total of 400 questions) conducted either online (N = 256) or on paper (N = 77). This was particularly important as there are not any standardised measures of homelessness risk. The sample consisted of 234 currently homeless (with and without a diagnosis) and 117 with a prior autism diagnosis (some with prior and current experiences of homelessness) and a portion of non-homeless non- diagnosed participants(n=55). It is noted that 17.3% of those with past experiences of homelessness were currently housed. Participants were required to be over 18, live in Australia and speak English to be eligible to partake in the study. Survey data was considered the best methodology to obtain information about the types of risk factors that each group (autism-diagnosed v. non--diagnosed and homeless v. non-homeless) experienced and provide a basis for group comparison. Survey data allows for a number of measures to be administered at one time to a large group of people to allow for easy comparison across groups (Wright, 2005).

[13] The data was originally analyzed using a frequentist approach to data analysis, Bayesianapproach was chosen over frequency models for a number of reasons discussed below.

Given the flexibility in survey design this can allow for multiple analyses to be conducted with one data set, in order to answer multiple research questions (Wright, 2005). Due to the nature of convenience sampling, the findings may be subject to self-selection bias, this limitation will be discussed in section 4.5.5. The dependent variable was homelessness (yes/no), and the independent variables were AQ-50 scores (<26 or >26), autistic characteristics (imagination, social skills, attention to detail, attention switching and communication), autism diagnosis (yes/no) and homelessness risk factors (strength of risk factor). In some analyses, the homelessness risk factors were used as covariates when considering the independent contributions of autistic characteristics (See Figure 4.1 forconceptual model of variables).

Figure 4.2 Conceptual Model of Independent and Dependent Variables



4.2.1 Ethical Considerations

This project was approved by the Flinders University Ethics Committee (Project number 8556). Data will be provided by the author upon request. Some of the research questions can cause participants to recall unpleasant memories. The author saw to it that guidelines for information to be obtained confidentially and stored securely were followed. The participants were given information of support services, in the letter of appreciation, if they needed more assistance.

4.3.3 Participants

In 2020 and 2021, participants were recruited via local organisations (via flyers and word of mouth) and social media sites, using posts that included a brief statement about the study with details of the procedure, time commitment and honorarium. The aim of the survey was to obtain information from four populations in order to understand the predictors of homelessness for autistic individuals (and if true, how they differ from predictors of homelessness in non-diagnosed individuals). The sample included a non-homeless, non-autism diagnosed group, a homeless-only group, an autism-diagnosed only group and a homeless autism -diagnosed group. All participants were provided a $20 gift card in compensation for their time. The groups were recruited with slightly different methods depending on the accessibility of the population. Local organisations included both homeless shelters and autism-specific services; the author has previously conducted research in the same homeless shelters involved in this research, but the relationships formed during the prior research were not considered to be a conflict of interest due to the nature of the relationship with the researcher was related to prior data collection and for no other purpose. The social media post included a link to an online questionnaire on the platform Qualtrics. The homeless population participated in person via a printed questionnaire. If people were interested in participating, they were given an information sheet. If they agreed to participate,

they gave their informed consent by either clicking Next or giving verbal consent. If they did not wish to participate, they were able to decline in person or could simply exit the webpage.

Participants for the non-diagnosed, non-homeless sample were recruited via the online crowdsourcing platform Prolific. Participants were registered users of this website who had been given a list of studies currently running. Participants provided informed consent and if they did not wish to continue the survey, they could exit the page at any time.

Homeless participants were recruited through flyers placed in homelessness services (the St Vincent De Paul Society and the Hutt Street Centre) and snowballing effects (word of mouth). Participants were able to register their interest by adding their names to a list kept by the homeless shelter or by indicating their interest verbally to a staff member. Once interest was obtained, participants completed the questionnaire face-to-face. There were two reasons for this: lack of accessibility to computers and the internet, and the low literacy rates among homeless populations (Hanckel et al., 2022).

Autism diagnosed participants were recruited via flyers placed in services (Autism South Australia and Headstart) and snowballing effects (word of mouth). Information about the study was also advertised on a Facebook page (the Flinders Autism Research Page). Online participants were shown information about the study (information sheet; Appendix I) and a link to the survey. Interested participants clicked on the link. Autism was defined in two ways: by self-reported professional ASD diagnosis (yes/no) and AQ-50 score (AQ >26 / < 26). Two definitions were used because existing research has suggested that looking at prior diagnosis alone does not provide a clear indication of autism in particular populations (such as homeless populations), as it fails to account for misdiagnosis or missed diagnoses (Baron-Cohen et al., 2001).

Homeless autism diagnosed participants were recruited through flyers placed in homelessness services (the St Vincent De Paul Society and the Hutt Street Centre) and snowballing effects (word of mouth). Participants were able to register their interest by

adding their names to a list kept by the homeless shelter or by notifying staff of their interest verbally.

All participants were over 18 and provided informed consent. Demographic factors such as age, income, educational level, gender and disabilities were recorded. The demographic information is presented in Table 4.1.

Table 4.1

Participants' Demographic Factors According to Autism Diagnosis Status

	Autism diagnosed		Non diagnosed		Full sample	
Characteristic	*N*	%	*N*	%	*N*	%
Gender						
Female	44	24.9	46	29.5	92	27.5
Male	132	74.6	109	69.9	241	71.9
Non-binary	1	0.6	1	0.6	2	0.6
Total	177	100	156	100	335	100
Age						
18–24	24	13.6	21	13.5	45	13.5
24–34	112	63.3	37	23.7	150	45.0
35–45	21	11.9	50	32.1	71	21.3
45–55	14	8.0	35	22.4	49	14.7
55+	5	2.8	13	8.3	18	5.4
Total	177*	99.4	156	100	333	100
Highest educational level						
Middle school	35	19.8	58	37.2	93	27.9
High school	65	36.7	41	26.3	107	32.1
University	75	42.4	52	33.3	127	38.1
Postgraduate degree	1	0.6	5	3.2	6	1.8
Total	176*	99.4	156	100	333	100

Characteristic	Autism diagnosed		Non diagnosed		Full sample	
	N	%	*N*	%	*N*	%
Ethnic background						
European	157	88.7	114	73.1	272	77.5
Aboriginal or Torres Strait Islander	17	9.6	27	17.3	44	13.2
Other	3	1.7	15	9.6	18	5.3
Total	177	100	156	100	333	95.2
Employment						
Full-time	56	31.6	28	17.9	84	25.1
Part-time	70	39.5	21	13.5	92	27.5
Student	1	0.6	11	7.1	12	3.6
Unemployed	29	16.4	12	7.7	41	11.7
Welfare payment	21	11.9	84	53.8	105	29.9
Total	177	100	156	100	334	95.2
Current housing						
Housed	56	31.6	55	35.3	111	31.7
Roofless	23	13.0	40	25.6	63	18.0
Temporary	94	53.1	59	37.8	153	43.7
Institutional	4	2.3	2	1.3	6	1.7
Total	177	100	156	100	333	95.1
Online?						
Yes	171	96.6	75	54.5	257	75.1
No	6	3.4	71	45.5	77	22.5
Total	177	100	156	100	334	95.2
AQ						
>26	134	75.7	74	47.4	209	62.6
<26	43	24.3	82	52.6	125	37.4

Characteristic	Autism diagnosed		Non diagnosed		Full sample	
	N	%	*N*	%	*N*	%
Total	177	100	156	100	333	100
Homeless						
Yes	121	68.4	101	64.7	222	63.4
No	56	31.6	55	35.3	111	31.7
Total	177	100	156	100	333	95.1

AQ = Autism Spectrum Quotient, *missing data

Table 4.3 Gender by diagnosis and AQ50 score

Characteristic	Autism diagnosed		Non diagnosed		Full sample	
	>26	<26	*>26*	<26	*>26*	<26
	N(%)	N(%)	*N(%)*	N(%)	*N(%)*	N(%)
Gender						
Female	30(22)	14(32)	33(44)	13(16)	62(30)	27(22)
Male	103(77)	29(67)	40(54)	69(84)	143(68)	98(78)
Non-binary	1(.7)	0	1(1)	0	2(1)	
Total	134(100)	43(100)	74(100)	82(100)	209(100)	125(100)

4.3.4 Measures

The survey questionnaire was self-administered online or on paper, or information was obtained from the participant via face-to-face questioning. The survey consisted of 10 pre-established measures (there was a total of 400 questions). It collected demographic information and information about homelessness, homelessness risk factors and homelessness protective factors, and included the following tests: a mental health screener, the Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders (DIAMOND); two autistic characteristics tests, the AQ-50 and the Adult Repetitive Behaviours Questionnaire–2 (RBQ-2A); an executive functioning measure, the Behavior

Rating Inventory of Executive Function (BRIEF); and a measure of adaptive functioning, the Adaptive Behaviour Assessment System (Third Edition) (ABAS-3) and the Fatigue Assessment Scale (FAS). The entire questionnaire took an hour to complete, on average. The information collected by the measures is described below.

4.2.1.1 Demographic Information

The following demographic information was obtained from participants: age (continuous), gender (male, female or non-binary), ethnic background (European, Indigenous or other), weekly income (by category, $0–$1000+) and employment (employed part-time, full-time, student, unemployed, or receiving welfare payments).

Participants were screened for neurological conditions other than autism, specifically brain injury, ID, ADHD, Down syndrome and dementia.

4.2.1.2 Homelessness Information

Information about current and previous experiences of homelessness was obtained from participants. To ensure homelessness was self-reported accurately, participants were asked about their current living arrangements (permanent housing, staying with others, hostel or motel, homeless shelter, vacant building and/or street, group home or other). Participants were included in the homeless group if they were living on the street or in temporary accommodation such as a homeless shelter. Homelessness was a dichotomous (yes/no) outcome variable. Participants were asked about how many times they had previously been homeless, how long for and the length of time between each experience of homelessness.

4.2.1.3 Homelessness Risk Factor Information

Data about homelessness risk factors were collated from a number of questions, as follows:

The Add Health In-Home Adolescent Interview was adapted, to be relevant for an adult sample, to investigate the risk factors of homelessness; this interview has previously been used to predict the overall risk ofhomelessness in teenagers (Shelton et al., 2009).

Although this measure was designed for teenagers, it can be easily modified to accommodate an adult sample. For each risk factor, they were asked whether they experienced it (yes/no) and how frequently it was experiencedon a five-point scale from 'only a short time to 'practically all the time' (0-15). Total score was calculated for each homeless risk factor no=0 or yes = a range between 5 and 15. Factorscores were calculated as an overall score according to the preestablished risk factors of homelessness (namely, childhood, SES and personal). Income was an ordinal variable with

10 levels, measured by weekly income ranging from $100 to over $1000 a week, increasing at $100 each category. Employment status included five options (employment fulltime, parttime, student, unemployed or welfare payment). As a group, the three homeless risk factors measured within this questionnaire (namely, childhood, SES and personal) had an acceptable level of internal consistency (Cronbach's alpha $\alpha = .69$).

A social support measure was developed based on the structured interview used by Wenzel et al. (2012). Questions were developed to identify the type and behaviours of the participant's social support. The type of the network was identified by its members' roles (friend, parent, sibling, partner, colleague or other). This was scored as a dichotomous variable (Yes =1 and no=0). This measure has not been validated, the limitations of using such measures will be discussed in section 4.5.5.

Structural factors were measured using operational structural factors developed by Ji (2006). The three questions focused on housing affordability, stability and government support. They were: 'How many times have you moved in the past 10 years?' (continuous); 'Have you ever attempted to rent an apartment under $300?' (yes/no); '[If yes] was this successful?' (Yes/No); and 'Have you ever received government help to gain housing?' (yes/no). Total score was derived from the sum number 'yes' response (score range 0-3). This measure has not been validated for homeless populations.

These questions formed the basis for six categories of risk factors described below:

1) Six categories of homelessness risk factors were evaluated for their individual predictive effects on homelessness, comparing autism-diagnosed and non-diagnosed groups. The categories were as follows: childhood-related factors, personal factors, homelessness transitions, structural factors, SES, and social network–related factors (As discussed in Section 4.2.1.2 above, autistic characteristics were also analysed both individually and as a group to assess their predictive ability for homelessness, comparing the autism diagnosed and non-diagnosed groups). Childhood-related factors were defined as negative life experiences before 18, some factors included adversity in childhood (abuse, running away from home, or foster care) measured with one question from Add Health In-Home Adolescent Interview (described below). Scores were total number of experiences (Yes= 1, No=0).
2) Personal factors included self-reported data on mental health difficulties (measured by diagnosis, medication or hospitalisation), addiction (identified by gambling or drug and alcohol use) and criminal behaviour (prior convictions) measured with three questions from Add Health In-Home Adolescent Interview (described below) scores were calculated based on the total number of personal factors (Yes= 1, No=0).
3) Homelessness experiences were measured by the number of times that an individual had been homeless previously (total number of times).
4) Structural factors were measured using three questions focused on housing affordability, stability and government support developed by Ji (2006). Measured with the total score across the three questions.
5) SES was measured using three questions measuring education level, income, and employment (scores were a combined score on the five-point Likert-type responses questions) from Add Health In-Home Adolescent Interview (described

above)

6) Social Support–related factors were measured using three questions to obtain the size of an individual's social support (total number), The type of support was identified by its members' roles (friend, parent, sibling, partner, colleague or other) (scores were dichotomous Yes = 1 or no = 0). This was developed based on Wenzel et al. (2012) structural interview described above.
7) Service support was obtained through three questions about the number of services that participants were currently engage with (total score), the type of service (housing, case management, mental health, emergency support and one open ended question to specify which service they were engaged with. A dichotomous variable was created to indicate the presence of service support yes/ no (yes=1 and no= 0) support.

4.2.1.4 Homelessness Protective Factor Information

The Add Health In-Home Adolescent Interview was adapted to investigate the protective factors of homelessness (Shelton et al., 2009). The participants were asked six questions about participation in the community, values (knowing the difference between right and wrong) and service involvement. For each risk factor, they were asked whether they experienced it (yes/no) and how frequently it was experienced on a five-point scale from 'only a short time to 'practically all the time' (0-15). Total score was calculated for each homeless protective factor no=0 or yes =1, total score had a range between 5 and 30. For service involvement, participants were asked how many service providers they were involved with (total score) and the types of support they received (housing, mental health support, emergency relief [such as food or clothing], case management, or other) (Yes =1 or No =0) and whether they believed this support would help them (on a five-point Likert scale, from strongly disagree to strongly agree). A dichotomous variable for service support was used in

the analysis, do you have services supporting you (Yes=1 or No= 0).

4.2.1.5 Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders (DIAMOND)

The DIAMOND screener (Tolin et al., 2018) consists of 30 dichotomous questions screening for mental health conditions, namely anxiety disorders, depression, obsessive-compulsive disorder, trauma, schizophrenia, eating disorders, neurodevelopmental disorders and suicidality, according to the DSM-5 criteria. Tolin et al. (2018) found that the inter-rater reliability of DIAMOND diagnoses of anxiety, mood and obsessive-compulsive disorders ranged from very good to excellent (κ = .60–.90) and that the test-retest reliability of DIAMOND diagnoses ranged from good to excellent ($\kappa \geq .59$). Further, convergent validity was established for between-group comparisons on applicable self-report measures for nearly all diagnoses (Tolin et al., 2018).

Measures of Autistic Characteristics

4.2.1.6 Autism Spectrum Quotient Test (AQ-50)

The AQ-50 (Baron-Cohen et al., 2001) was used to measure autistic characteristics for all the groups. It consists of 50 questions that assess various autistic characteristics, namely social skills, imagination differences, attention to detail, attention-switching and communication skills. Higher scores on each of the five subscales, imply stronger neurodivergence in each area. High scores on social skills, for instance, suggest greater social skills deficiencies, and high scores on attention to detail, on the other hand, show an unusual focus on details. Each of the subscales included 10 questions (score range 0-10) A total score is derived from the sum of the five factors and ranged from 0 to 50. It is suitable for screening purposes and has sound validity characteristics (sensitivity = *.95*, specificity = *.52*, positive predictive value = *.84*) and marginal internal consistency (α = *.67*) (Hurst et al., 2007; Kloosterman et al., 2011). A cut-off score of 26 was used to indicate a high level of autistic characteristics. While prior research has used a clinical threshold of 32, the screening cut-off score of 26 has

been demonstrated to have high sensitivity of 0.77 [95% confidence interval (CI) 0.72–0.82] and weak specificity of 0.29 (95% CI 0.20–0.38), significantly predicting a diagnosis of autism (Ashwood et al., 2016).

4.2.1.7 Adaptive Behaviour Assessment System (Third Edition) (ABAS-3)

The ABAS-3 (Harrison, & Oakland, 2015) self-report measure was used to examine the effect of adaptive function level on the risk of homelessness. The ABAS-3 consists of 237 questions using a four-point Likert scale (am not able to, never, sometimes, always) to assess three broad domains, which cover nine subskills in total. Each subset is scored from 0-19 and then provided a scaled score, the sum of the scaled score is used to measure global adaptive function with a score range of 30 to 160 with a mean score of 100 and SD of 15. The domains are as follows: conceptual (communication, functional, academic and self-directed skills), social (leisure and social skills) and practical (communication, school engagement, living skills, self-care, and health and safety skills). These broad domains are used to derive an overall score of adaptive function (General Adaptive Composite). The ABAS-3 demonstrates sound reliability coefficients between r= 0.96 and 0.99 (Harrison & Oakland, 2015).

4.2.1.8 Adult Repetitive Behaviours Questionnaire–2 (RBQ-2A)

The RBQ-2A (Barrett et al. 2015) is a self-report measure focused on restricted and repetitive behaviours such as routines and rituals, repetitive motor behaviours, sensory sensitivities and repetitive actions with objects. It consists of 21 questions on a four-point Likert-type scale with a range of 20-60. The RBQ-2A has a stable two-factor structure, with repetitive-sensory-motor and insistence-on-sameness factors consistently identified for both non- diagnosed and autism diagnosed individuals. It displayed good psychometric properties when used with a sample of autistic adults (Barrett et al., 2015) and good internal reliability when assessing both autism- diagnosed and non-diagnosed adults (α = .90 and α = .78 respectively) (Hwang et al., 2020).

4.2.1.9 Behaviour Rating Inventory of Executive Function (BRIEF)

The BRIEF (Baron, 2000) is a standard measure of executive function that consists of 75 questions using a three-point Likert-type scale (never, sometimes, often). It measures executive function using two broad indices: the behavioural regulation index measures an individual's ability to shift cognitive perspective as well as modulate emotional and behavioural responses (emotional control, inhibit, shift, self-monitor) and the metacognition index measures the ability to plan, organise and sustain working memory (initiate, working memory, plan/organise, task monitor, organisation of material). Each index is totalled and provided a scaled score. These indices are added together to assess an individual's global executive function. The total score range is 35 to >90 with a mean of 50 and SD of 10. The measure has been demonstrated to have high internal consistency but low discriminant validity (Boulet & Boss, 1991). The limitations of including these measures will be discussed in section 4.5.5.

4.2.1.10 Fatigue Assessment Scale

The Fatigue Assessment Scale (FAS; Shahid et al., 2012) consists of 10 questions using a five-point Likert scale (from never to always) to assess fatigue, which is a unidimensional construct that does not separate into different factors. Scores range from 10, the lowest level of fatigue, to 50, the highest level. It has internal consistency (a=.90) and a high correlation with other fatigue measures (Michielsen et al., 2003). The battery of measures are summarized in Table 4.4 below

Table 4.4 Summary of testing battery and validity of measures

Category	**Measures**	**Total score/ score procedure**	**Validation of measure**
Homeless risk factors			
Social support	Wenzel et al. (2012) structural interview	Total number of people	None

	questions used.		
Homeless transitions	None	Total number of times homeless	None
Structural	Operational structural factors developed by Ji (2006).	Sum of 'yes' responses. (score range 0-3).	None
SES Childhood Personal	Add Health In-Home Adolescent Interview (Shelton et al., 2009).	(yes/no) presence of risk factor and frequency 'only a short time to 'practically all the time' (0-15).	internal consistency (Cronbach's alpha α = .69).
Autism Behaviours	AQ 50	Subscales included 10 questions (score range 0-10) A total score is derived from the sum of the five factors and ranged from 0 to 50.	Sensitivity = *.95*, specificity = *.52*, positive predictive value = *.84*)
	ABAS -3	Score range of 30 to 160 with a mean score of 100 and SD of 15	reliability coefficients between *r*= 0.96 and 0.99
	Brief	Score range 35 to >90 with a mean of 50 and SD of 10.	high internal consistency (Boulet & Boss, 1991).
	RBQ 2A	Score range of 20-60	Reliability (α = .90)
Fatigue	Fatigue assessment Scale	Score range 10 to 50	internal consistency (*a*=.90)
Service involvement	None	Yes/ N0	None

4.3.6 Procedure

Four groups participated in the study, a group with prior diagnosis of autism (n=58), a group that was currently homeless (n=104), individuals with no experience of homelessness and no prior diagnosis (n=52), and finally a group that was homeless and had a prior diagnosis of autism (n=119; see table 4.2 for all demographic information). The procedure differed slightly between groups. The homeless participants were surveyed in person after providing informed consent, with an interviewer asking the survey questions and supporting participants to fill in a printed questionnaire (when required). Recruitment information linked participants to the online questionnaire (via the Qualtrics platform). If people were interested in participating, they were given an information sheet (see Appendix I). If they did not wish to participate, they could decline (for the in-person questionnaire) or exit the webpage. The participants completed a questionnaire that consisted of 10 measures, included 400 questions, starting with demographic information, homeless risk factors, protective factors (social support and service support), the DIAMOND, AQ 50, ABAS 3, BRIEF, RBQ-2A and ending with the FAS. The survey took no longer than one hour to complete. On completion of the survey, theparticipant was given information about Australian mental health support services Beyond Blue and Lifeline (see letter of appreciation, Appendix J). The data was recorded in Qualtrics.The data files were stored on a university computer on a secure network.

4.2.1.11 Data Analyses

Data were analysed with SPSS 333 V.28 and Stan (2022) using R software (R Core Team,2019), brms package (Bürkner P-C. 2017 a, b). Additionally, tidyverse (Kay, 2019), tidybayes (Kay, 2021), and cowplot (Wilke, 2020) packages were used to produce plots. Continuous variables were converted to z-scores, and missing variables weremanaged with case-wise deletion.

A Bayesian parameter estimation approach was used for the data analysis (which are analogous, although not identical to, mixed-effects logistic regression). Bayesian was chosen because it offers a number of advantages over frequentist approaches (Kruschke, 2010), providing a more direct and useful estimate of the information required to answer data-based questions. Bayesian approaches easily allow for hierarchical modelling (i.e., mixed effects in frequentist terms). This is important when considering the relationship between a group of risk factors and homelessness as these factors can be analysed simultaneously in the model, to consider the overall (average) relationship across risk factors and homelessness, as well as separately, estimating the relationship to homelessness for each individual risk factor. Importantly, by doing both simultaneously (average effects and individual effects), the model produces a better estimate of both (see, e.g.,Gelman & Hill, 2007; McElreath, 2020).

Data was analysed using Bayesian logistic regressions to predict the probability of homelessness according to homeless risk factors and autistic characteristics. Given that homelessness was the outcome,the models predicted the probability (or log odds) of homelessness. As pictured in Figure 4.1 different analyses used different sets of predictors (described in the results). Weakly informative priors were used for all analyses. These provide no information about the direction of any statistical effect and only serve to limit the analysis to consideration of plausible effect sizes (see, e.g., McElreath, 2020).

4.2.1.12 Null Hypothesis Significance Testing

Frequency models base hypothesis testing on *p* values. This has led to criticism due to poor interpretation of data and overinflation of false positives (rejecting the null hypothesis in the absence of a meaningful result) (Kruschke, 2010). There has been a call for informative illustrations of effect sizes and the level of uncertainty about effect sizes (Kruschke & Liddell, 2018). Bayesian statistics offer an effective alternative to frequency models. They provide high-quality information about the likelihood of the conclusions that

have been basedon the data (Kruschke, 2010). Bayesian models produce distributions that reflect the most plausible values for a parameter given the data and the credibility of proposed parameters (Wagenmakers, Morey, & Lee, 2016). This study uses highest density intervals (HDIs; Lindeet al., 2021). An HDI is a special case of the Bayesian credibility interval (Linde et al., 2021).It contains a range of values that has a specific probability of containing the true value and includes the most credible parameter values (i.e., no value outside the HDI is more credible than a value within the HDI). These analyses will be using a 95% HDIs.This is a strong errorbar that require large samples to detect an effect that is meaningful. A 95 % High density interval (HDI95%) captures the range of values that are the most credible and cover 95% of the distribution of possible values. It is 95% certain that the true value of the parameter lies within the specified range. Therefore, the width of the HDI95% (or the spread of values within it) shows the level of certainty about the values of a parameter (included in the model;Linde et al., 2021). The sign of effect may be determined as a non-meaningful difference of practical equivalence to the null hypothesis, not necessarily zero (Linde et al., 2021).

The Bayesian region of practical equivalence (ROPE) approach makes it possible to define an interval within which all values are practically equivalent to the null hypothesis and indicate a non-meaningful (i.e., negligible) difference, but not necessarily a difference of exactly zero. ROPE-based conclusions favour a difference when the data clearly shows that the effect is meaningfully sized rather than merely non-zero. Importantly, the result, when in the predicted direction, provides direct support for the hypothesis. This leads to more accurate interpretations of the data. In this study, the term ‘meaningful effect’ is used to refer to results that support this type of clear conclusion; it may be thought of as analogous to the classical term ‘significant effect’. The ROPE was defined as .5 on the Cohen’s *d* scale.

For thepurpose of this chapter, when HDI95%lay entirely outside the ROPE, this was judged to be ameaningful difference. Conversely, if the HDI95% lies within the ROPE, it

may be concluded that there is no meaningful effect or relationship. Finally, where the HDI95% partially overlaps the ROPE, the evidence is equivocal regarding accepting or rejecting the null hypothesis.

Beyond this HDI% (95) and ROPE decisions, the data can also be considered quantitatively. Specifically, the probability of a meaningful effect in the observed direction can be calculated,as well as the probability of a negligibly sized effect (plus the probability of meaningful in the opposite direction which is not often considered). These probabilities can help interpret re-sults in situations where the HDI intervals are equivocal.

4.3.6.5 Current Study

Hierarchical Bayesian logistic regression was selected over other Bayesian methods to account for all sources of variability, much like frequentist approaches is the model of probability that an event will take place (homelessness) by estimating log odds for the event. In frequentist approaches results should demonstrate a linear relationship when combining two or more independent variables. Rather than testing if the coefficients are different from zero, Bayesian decisions are based on the ROPE and HDI95%. The use of this model allowed the overall risk of homelessness to be predicted when considering each individual factor investigating the overall effects both collectively (averages across factors) and independently (each one separately). The probability of homelessness will be assessed according to the homeless risk factors averaged over factor scores (SES, Social support, personal, structural, homeless transitions and childhood) and diagnosis (autism-diagnosed and non- diagnosed) first to appropriately evaluate between factors and between group differences at each stage. The best way to look at the relationship between a risk factor and homelessness is to consider its slope, which reflects the change in log odds for a 2 SD change in the risk factor.

The aim was to identify overall patterns of homelessness risk (hr= the Bayesian log

odds ratio of homeless risk), autistic characteristics and social support types and behaviours and how these might differ according to autism diagnosis status and AQ-50 score. The mediating effects of adaptive and executive function on the relationship between autistic characteristics and homelessness outcomes were also evaluated using Process (Hayes 2017).

The results are displayed in figures and tables that indicates the HDIs (95) of the predicted values of the latent variable. An HDI of 80 error ribbon was used for some analyses described below, this is noted clearly when the error bar differs. The figures show the range of values that are most credible for a particular parameter and the span of the distribution of credible values. Therefore, one can be 95% confident that the value lies within this range. The ROPE was defined as .5 on the Cohen's *d* scale. A binary decision (significant/ non-significant) was supplemented with a quantification of the probability that the true difference in latent means was meaningful; this quantification is denoted by *P* estimates.

The results will be presented in four sections. In each case, the model fit was evaluated to ensure the appropriate measurement of each variable in the model, and in all cases, the model was found to have a good fit.

4.3 Results

4.3.1 Stage 1 The Probability of Homelessness Related to the Presence of Known Risk Factors Comparing Autistic and Non-Autistic Individuals.

The current stage examined how homelessness risk differed between those with and without an autism diagnosis as well as those with high and low levels of autistic characteristics. Homelessness risk factors were measured using the adapted Add Health In-Home Adolescent Interview, and autistic characteristics were measured using the AQ-50. This provided information about the following: 1) the relationship between probability of homelessness and level on known homeless risk factors; 2) how this relationship varied by diagnostic status and high versus low AQ scores. The purpose of investigating these two

questions was to answer Hypotheses 1.

4.3.1.1 The Probability of Homelessness In The Presence of Known Risk Factors Comparing Self-Reported Autism Diagnostic Status

Analyses were conducted in order to evaluate the relationship between the probability of homelessness and homeless risk factors (individually and averaged across the six factors) plus diagnosis status. I used a Bayesian hierarchical logistic regression with homelessness as the outcome variable. Predictors were (i) risk factor score, (ii) diagnosis status, and (iii) their interaction. The grouping variable (the Bayesian analogue of a random effect) was risk factor (i.e., which of the size risk factors the score reflected). The use of the grouping variable allows the model to simultaneously estimate the relationship with homeless for each risk factor as well as the overall (averaged across risk factors) relationship. Including all of this data in a single analysis (rather than analysing each risk factor separately) provides a superior estimate of the individual risk factor-homelessness relationships (see, e.g., Gelman, & Hill, 2007; McElreath, 2020). The dichotomous predictor was coded as .5 and -.5 while metric predictors were scaled to have a mean of 0 and *SD* = .5.

The results averaged over the known homeless risk factors, revealed a positive slope[14]with Autism diagnostic status held constant at 0 (i.e., averaged across diagnosis status). Thispositive slope suggests that the probability of homelessness increased with risk score when considering the probability across both diagnostic groups (averaged) (see the figures in Appendix J 1-5). However, when the data were split according to autism diagnostic status, a meaningful difference in probability of homelessness according to the known risk factors of homelessness was detected between the two groups. There is clear evidence of a difference between the two groups in slope between the groups (i.e., of a risk factor × diagnosis status interaction); it was concluded at a confidence level of 95% that the

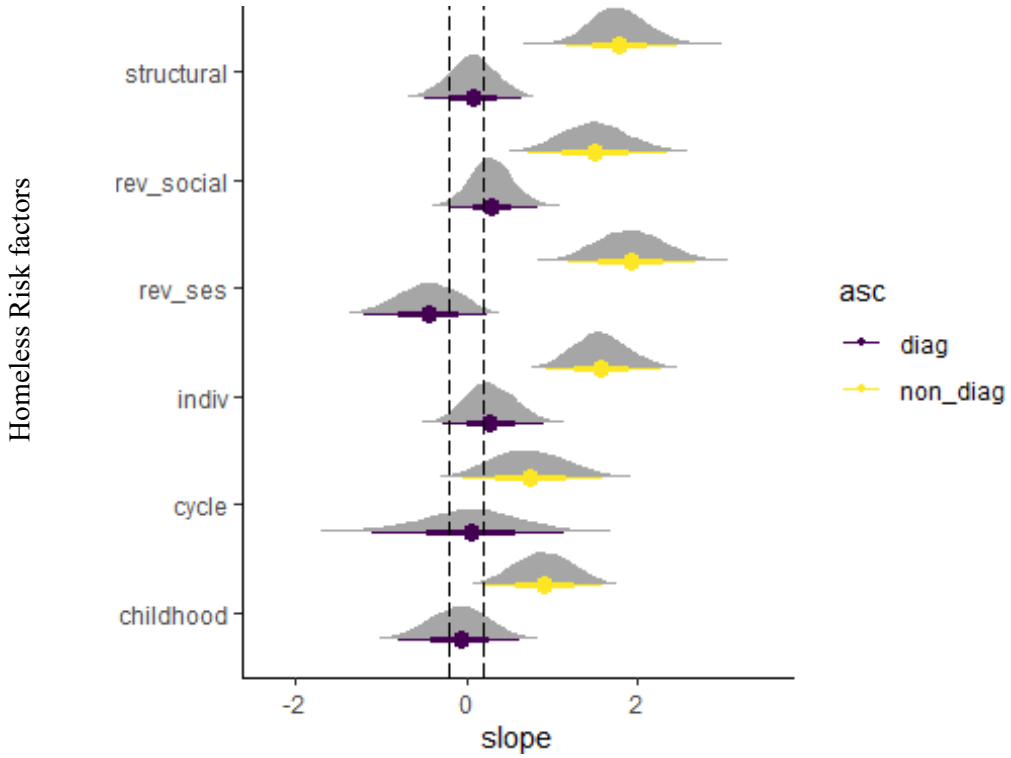
[14] Logistic regression slopes represent the change in log odds of the outcome (homelessness) with a 1-unit change in the predictor. Thus, for risk factors scores the slope shows the change log odds homelessness with a 2 *SD* change in the risk factor. As risk factor scores were scaledto have *SD* = .5, a 1-unit change reflected was a 2 *SD* change.

difference was meaningful. There was clear evidence of a positive risk-factor homelessness relationship forthe undiagnosed group, but the diagnosed group's distribution did not have a slope large enough to conclude an effect for this group, nor was it estimated precisely enough to be confident that the relationship was not meaningful. Having an autism diagnosis reduced therelationship between probability that homelessness and the risk factors would lead to homelessness. However, there is clear evidence to suggest that for participants without an autism diagnosis, the probability of experiencing homelessness increases markedly with increases in risk factor scores.

When the risk factors of homelessness were considered individually (see figure 4.2 below), for structural risk factors (such as poor housing availability), inadequate social supports, low SES, and personal risk factors (such as mental illness or drug dependency), there was evidence of an interactive effect, a strong positive relationship to homelessness was detected for the non-diagnosed group but not the diagnosed group for four of the known risk factors. Specifically, there is clear evidence, at a 95% confidence level, that this difference in probability of homelessness is meaningful for structural, social network–related, SES-related and personal risk factors. This indicates that the probability of homelessness increases as each homelessness risk factor's score increases. For the remaining two factors there was evidence of an interaction, but it was less clear, the evidence suggested a positive relationship for the non-diagnosed group but not the diagnosed group. For childhood-related risk factor score, the evidence was smaller but there was still a 94.8% likelihood that the slope difference (childhood score) was meaningfully sized for the non-diagnosed group. For previous homelessness cycles, there is weak evidence, at approximately 75% confidence of a positive relationship for the non-diagnosed group (probability of homelessness in the presence of homeless cycles). Estimates of slopes (homeless risk factors) did not estimate a slope precise enough to conclude an effect (predict homeless outcomes) for those with a prior diagnosis of autism.

Figure 4.3

Homelessness by Homelessness Risk Factor Score Slopes Separately by Risk Factor and Diagnosis Status



Note. Error bars show the HDI (thick = 66% and thin = 95%) and the shaded reason the posterior density – the higher the density plot for a given value, the more plausible that value is as an estimate of the *true* slope. The dashed vertical lines represent the ROPE.
hr = homelessness risk
asc= diagnostic status (diag=yes, non_diag=no)
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors

Mean scores are reported below in table 4.5.

Table 4.5 Known homeless risk factors score means and SD according to diagnosis.

Risk factor	Group	Mean	SD
Childhood	ASD	3.73	1.48
	NON ASD	4.36	1.94
Individual	ASD	3.97	1.88
	NON ASD	4.33	2.01
Social network	ASD	3.59	4.99
	NON ASD	1.96	2.75
Structural factors	ASD	1.80	1.15
	NON ASD	1.72	1.15
Homeless Cycle	ASD	12.41	9.21
	NON ASD	20.07	30.25
SES	ASD	9.19	1.47
	NON ASD	7.67	1.81

4.3.1.2 High or low AQ-50 Score

Differences in probability of homelessness in the presence of the known homelessness risk factors and autistic characteristics were considered according to whether participants scored above or below a cut-off score on the AQ-50. A score of 26 was used to distinguish between the high and low groups. This was a repetition of the previous analysis above, replacing the prior diagnosis with the AQ-50 cut off score. Bayesian hierarchical regression detected a meaningful difference between the groups for all homelessness risk factors when averaged over AQ scores. The odds of homelessness, on average, increase with increasing risk factors. Further investigation revealed no clear evidence that the relationship between homelessness and risk factors varies with AQ score. The estimated size of the interaction is not precise enough to conclude that the interaction is not meaningful, *P*(null) = .41; however, there is not

enough evidence to support the presence of an interaction, that is no difference was detected between groups (see Appendix J; Table 4.6 mean scores).

Table 4.6 Known homeless risk factors score means and SD according to AQ score.

Risk factor	Group	Mean	SD
Childhood	AQ 50 >26	3.80	1.35
	<26	4.40	2.19
Individual	AQ 50 >26	3.95	1.93
	<26	4.47	1.94
Social network	>26	3.05	1.93
	<26	2.41	5.51
Structural factors	>26	1.64	1.22
	<26	1.97	.99
Homeless Cycle	>26	15.03	24.72
	<26	17.57	16.55
SES	>26	9.01	1.47
	<26	7.57	1.87

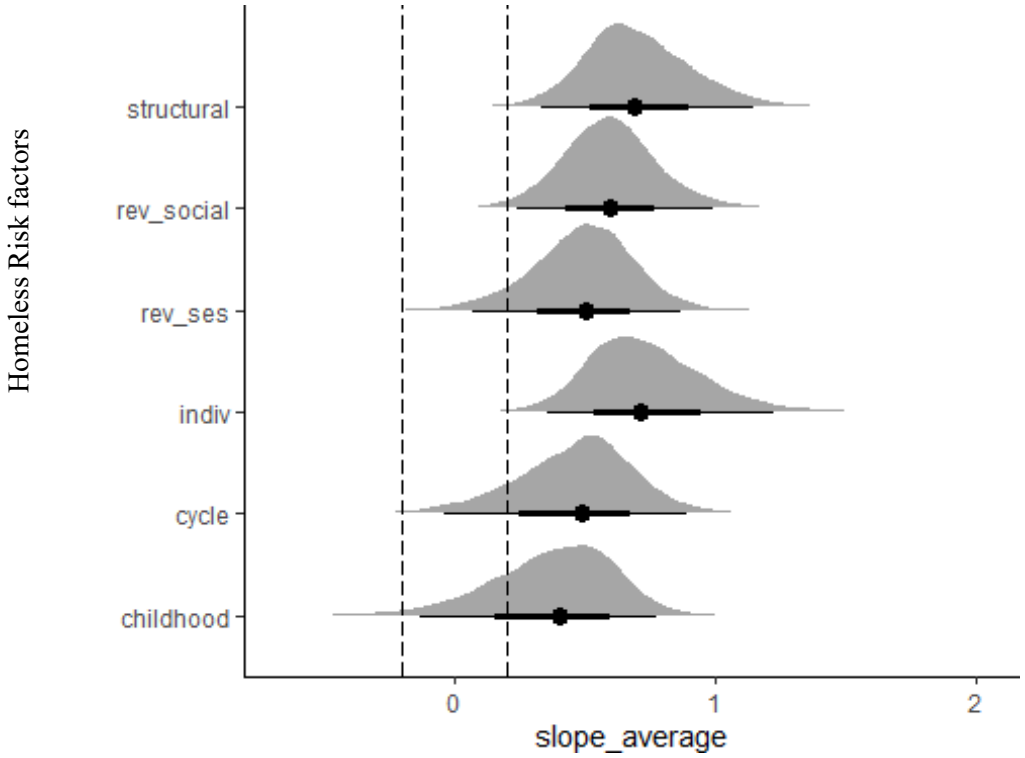
Therefore, the results will be considered averaged across AQ-50 groups (See Figure 4.4).

When the risk factors of homelessness were considered individually, it was found that structural risk factors (such as poor housing availability), social network–related risk factors, low SES, and personal risk factors showed evidence of a positive slope when averaged across AQ scores. This indicates that, on average, the probability of homelessness increases as each homelessness risk factor increases. There is clear evidence, at a 95% confidence level, that the slope is meaningful for structural, social network–related and personal risk factors. Low SES demonstrated weaker evidence, but the balance of evidence still supported a relationship with homelessness, *P*(meaningful) = .92. Homelessness-cycle-related and childhood-related risk factors demonstrated the weakest evidence of an effect; nevertheless, the evidence demonstrated an association for the homelessness cycle variables (*P* = .87) and weak

evidence for childhood-related risk factors (*P*= .79). Further to this, 72.9% of participants that scored above 26 on the AQ 50 were homeless.

Figure 4.4

Homelessness by Homeless Risk Factor Scores Slopes by Risk Factor Averaged Across AQ score.



Note. Error bars show the HDI (thick = 66% and thin = 95%) and the shaded reason the posterior density – the higher the density plot for a given value, the more plausible that value is as an estimate of the *true* slope. The dashed vertical lines represent the ROPE.
hr = homelessness risk
asc= AQ Score Representing Diagnostic Split (diag=high, non_diag=low)
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors

The interaction slopes demonstrate clear evidence that AQ scores affect the probability of homeless outcomes, but this is not associated with any difference in the relationship between homelessness risk factors.

The next stage of the study investigated the autistic characteristics that might contribute to homelessness.

4.3.2 Stage 2, The Probability of Homelessness Related to Autistic Characteristics

This stage tested Hypothesis 2. It investigated to what extent autistic characteristics predicted homelessness and whether the effects of autistic characteristics differed between the autistic and non-autistic groups. I used a Bayesian hierarchical logistic regression with homelessness as the outcome variable. Predictors were (i) autistic characteristics, (ii) diagnosis status, and (iii) their interaction.

4.3.2.1 The Unique Contribution of Autistic Characteristics to Homelessness, Depending on Autism Diagnosis Status

The results demonstrated clear evidence of an interaction (a difference between diagnostic groups) according to autism diagnostic status, the undiagnosed group demonstrated strong evidence of a positive slope (see figure in Appendix J 6). For undiagnosed participants, the probability of homelessness increased with increasing AQ score. The estimate of the slope for the autism-diagnosed group suggested either a weak negative or no relationship, but it was not precise enough to clearly distinguish these possibilities. Nevertheless, some evidence of a negative slope was detected for this group. This suggests that higher AQ scores predicted a lower probability of homelessness for the autism-diagnosed group.

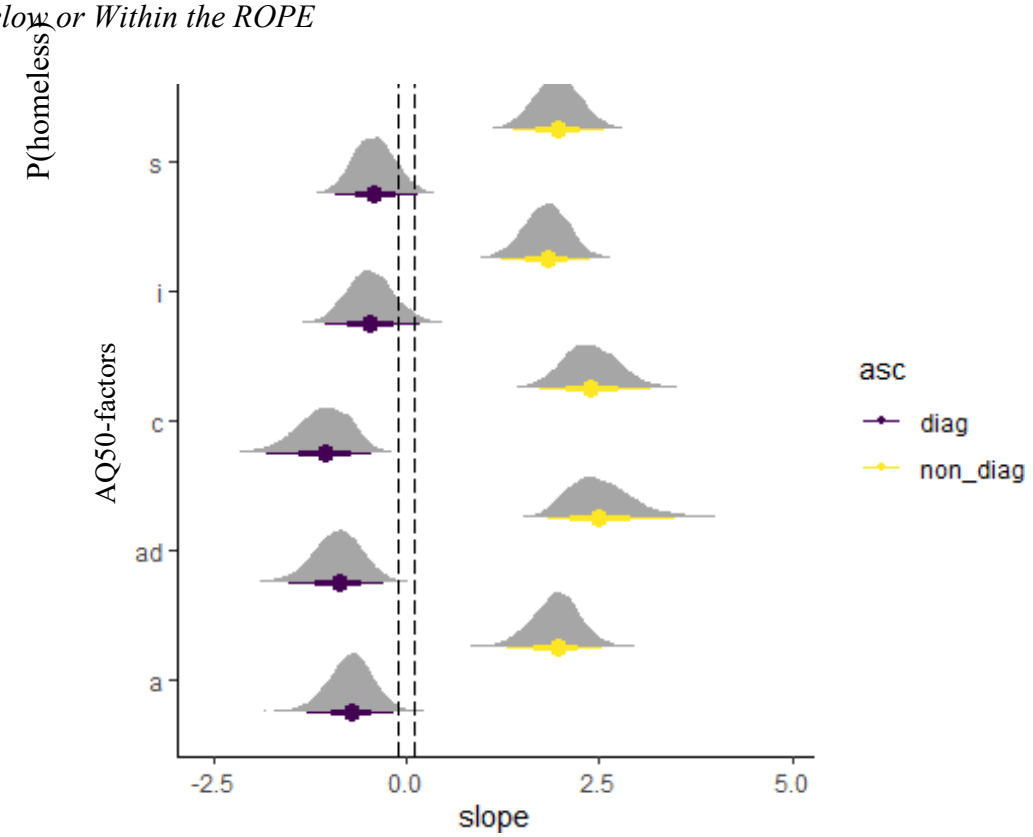
When the results were considered according to autism diagnostic status, the patterns were similar across the different AQ factors (i.e., the autistic characteristics: imagination, social skills, attention to detail, attention switching, communication). The plots displayed strong evidence of an interaction effect. The non-diagnosed group had a positive slope. These results demonstrated that for the undiagnosed group, there is a higher probability of homelessness for those with higher levels of autistic characteristics. Social skill differences, imagination differences, communication skill differences, attention to detail and attention

switching all had similar effects for the undiagnosed group.

When the data about the participants with an autism diagnosis were analysed, some AQ factors (communication differences, attention to detail and attention-switching) had a meaningfully negative slope; for the others, the balance of evidence still favoured a negative slope, but the evidence was weaker (Probabilities: *i*= .80, *s* = .78). The results demonstrated that the autism diagnosis group had a lower probability of homelessness for those with higher autistic characteristics, and that the evidence is stronger for communication differences, attention to detail and attention-switching (see figure 4.5), means and standard deviations of scores are presented in table 4.7.

Figure 4.5

Homelessness by Autistic Characteristic Score Slopes Separately by Autistic Characteristics and Diagnosis status Probability of True Effects of Individual AQ Factors Being Above, Below or Within the ROPE



ROPE = Bayesian region of practical equivalence; AQ = Autism Spectrum Quotient; hr = homelessness risk
asc= Autism diagnosis (diag=yes, non diag=no AQ factors a=attention switching, ad=attention to detail, c=communication, s=social skills, i=imagination

Table 4.7 AQ 50 individual factors mean and standard deviation.

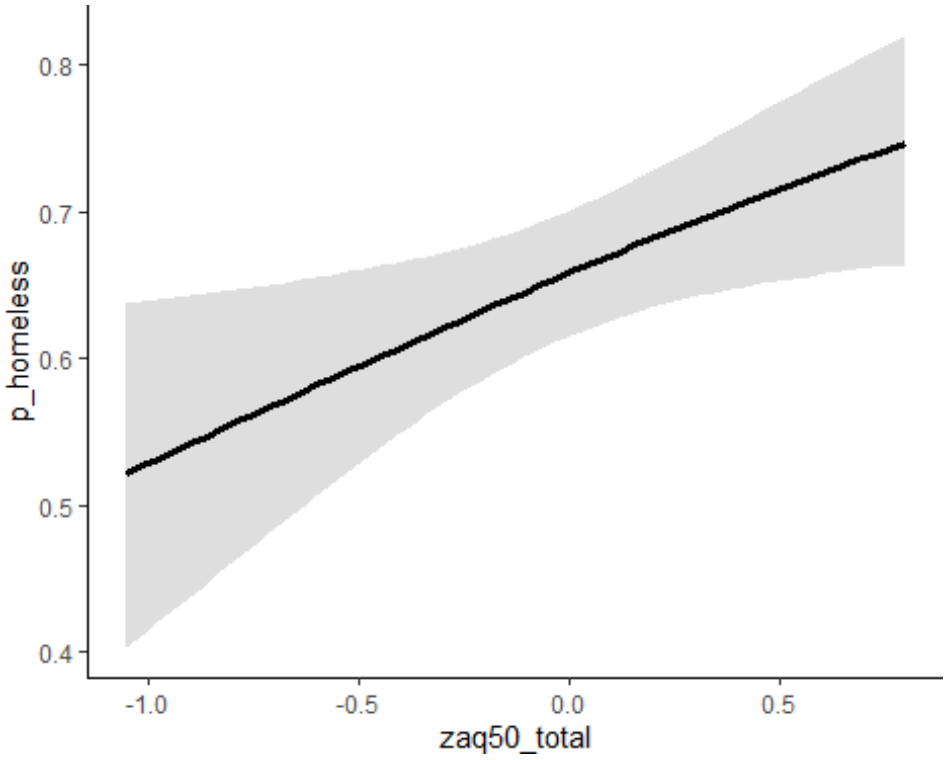
Risk factor	Group	Mean	SD
AQ 50 total	ASD	19.25	8.86
	Non ASD	28.86	11.16
Social skills	ASD	.37	.48
	Non ASD	.66	.47
Attention switching	ASD	4.40	2.57
	Non ASD	6.05	2.77
Communication	ASD	3.99	2.34
	Non ASD	6.22	3.22
Imagination	ASD	3.30	1.30
	Non ASD	3.76	1.78
Attention to detail	ASD	3.67	2.66
	Non ASD	6.59	2.7

4.3.2.2 The Unique Contribution of Autistic Characteristics to Homelessness, Depending on High or Low AQ Score

This analysis included the AQ-50 total score as well as the homeless risk factors as predictors, along with the interactions between the AQ and each of the risk factors. When holding all other risk factor scores constant, there is an 85% probability that the autistic characteristics have a positive meaningful relationship with homelessness. It cannot be concluded with a 95% confidence that AQ predicts homelessness after controlling for the risk factors. Figure 4.6 shows how the change in *p(homeless)* increases with autistic characteristics (AQ) while all predictors are held constant.

Figure 4.6

Change in p(homeless) *Increases With AQ Increase, Holding All Predictors Constant*



AQ score

AQ = Autism Spectrum Quotient
P(homeless)= probability of homelessness
Zaq= the standardised AQ factor score (z-score)

4.3.2.3 Interaction Effects

There was evidence of interactions between AQ total and three homeless risk factors, there was clear evidence that SES and social support and very weak (But large enough to be meaningful) evidence of an interactive effect with individual risk factor score. There was a clear negative relationship between AQ score and homelessness for those with high SES (See

Figure in Appendix H.12) Yet for those with lower SES there was a positive relationship between AQ score and homelessness.

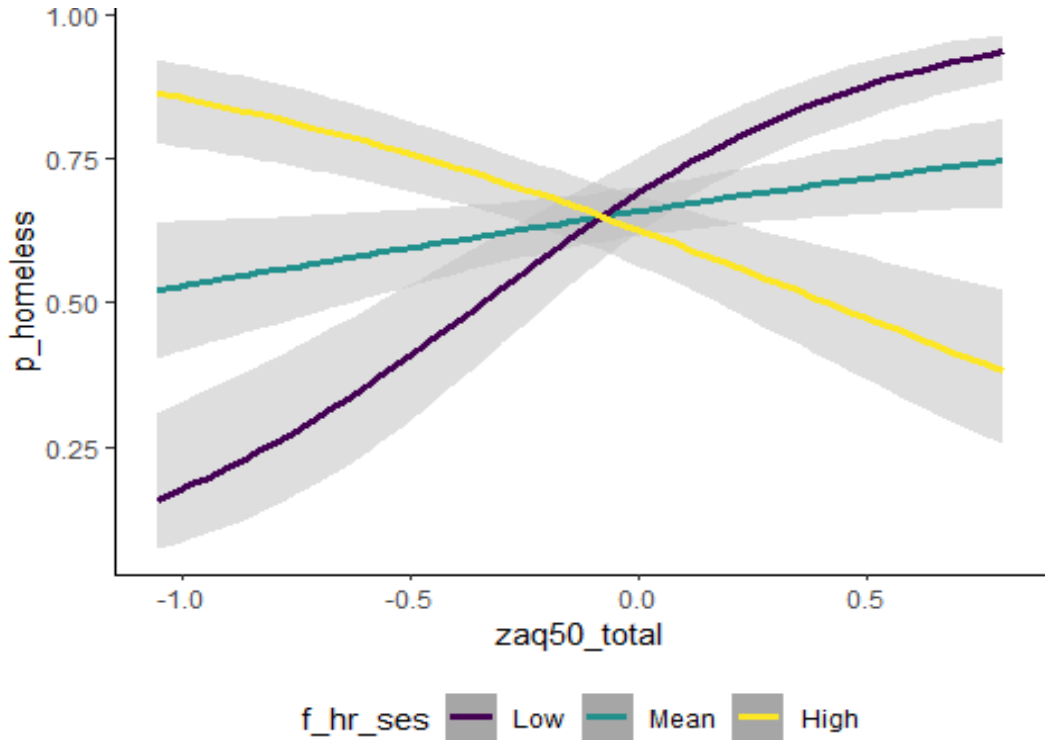
There was a weak negative interaction between AQ score and homelessness when social support score was high, although the evidence is not clear enough to demonstrate a meaningful result. The interactive effect of AQ scores on homelessness is strongest when there is a low social supports score (lower numbers of social support people) and this interaction was positive. Additionally, there was a clear positive relationship between AQ score and homelessness for low personal risk factor score, but the relationship weakened with increasing personal risk factor score, as such there was a very weak, if any between AQ score and homelessness for high personal risk factors.

For prior homelessness experiences, childhood-related risk factors and structural factors, the effect of AQ is equivocal, indicating no clear evidence of an interaction, but the evidence was not precise enough to accept the null (no presence of an interaction).

Figure 4.7

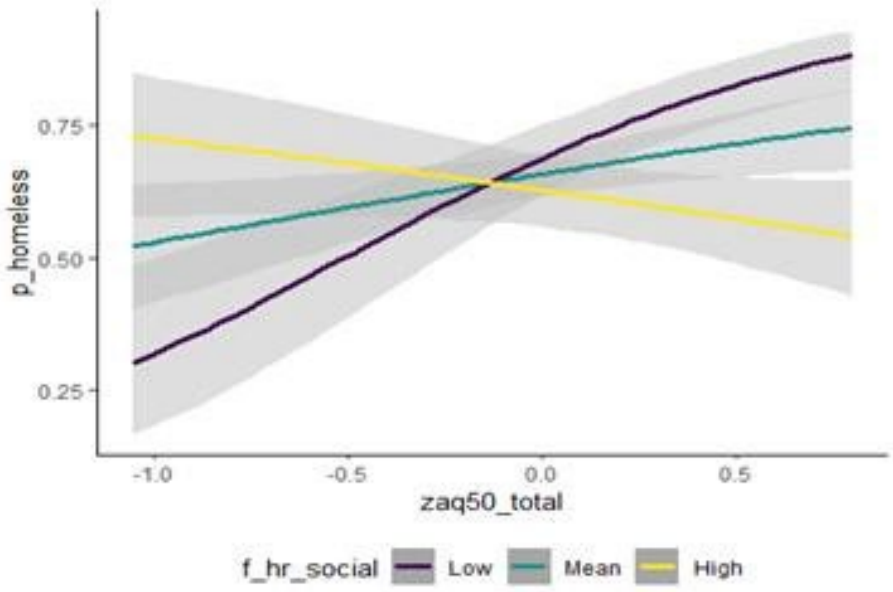
Probability of Homelessness According to the Interactive Effects of Autism Spectrum Quotient (AQ) and Homelessness Risk Factors

A. AQ by Socio-Economic Status



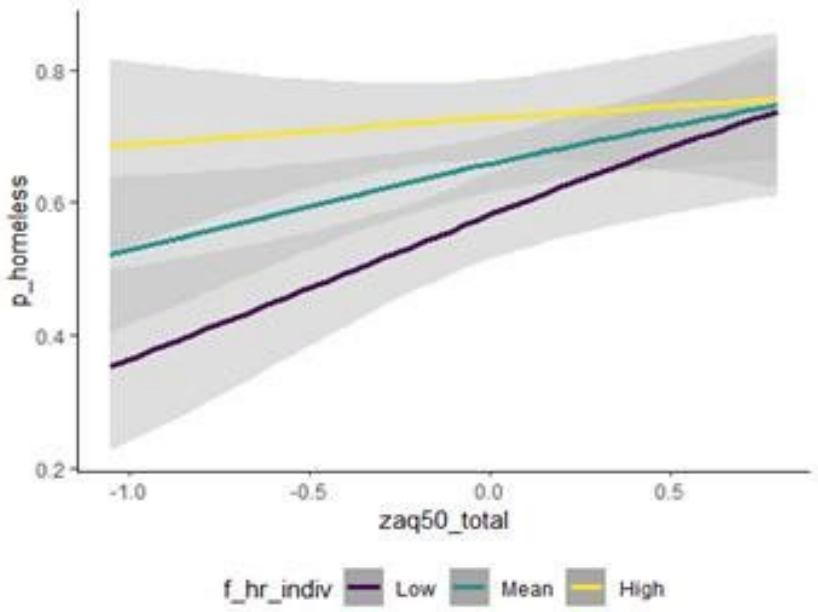
AQ = Autism Spectrum Quotient
P_homeless =probability of homelessness
F_hr_SES= social economic low scores, mean, high

B. AQ by Social



AQ = Autism Spectrum Quotient
P_homeless =probability of homelessness
F_hr_Social= number of social supports: low, mean, high scores

C. AQ Individual

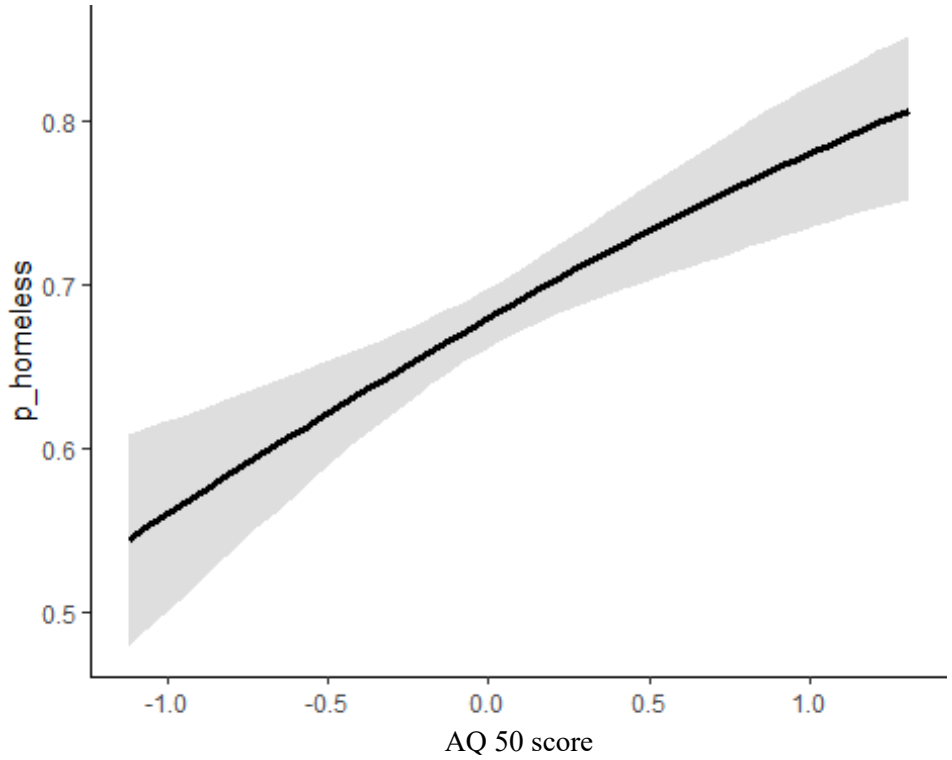


AQ = Autism Spectrum Quotient
P_homeless =probability of homelessness
F_hr_indiv= personal risk factor score (low, mean, high)

4.3.2.4 What Do Autistic Characteristics Add to the Known Risk Factors' Contributions to Homelessness Risk?

Figure 4.8

Change in p(homeless) *Increases with AQ Score*



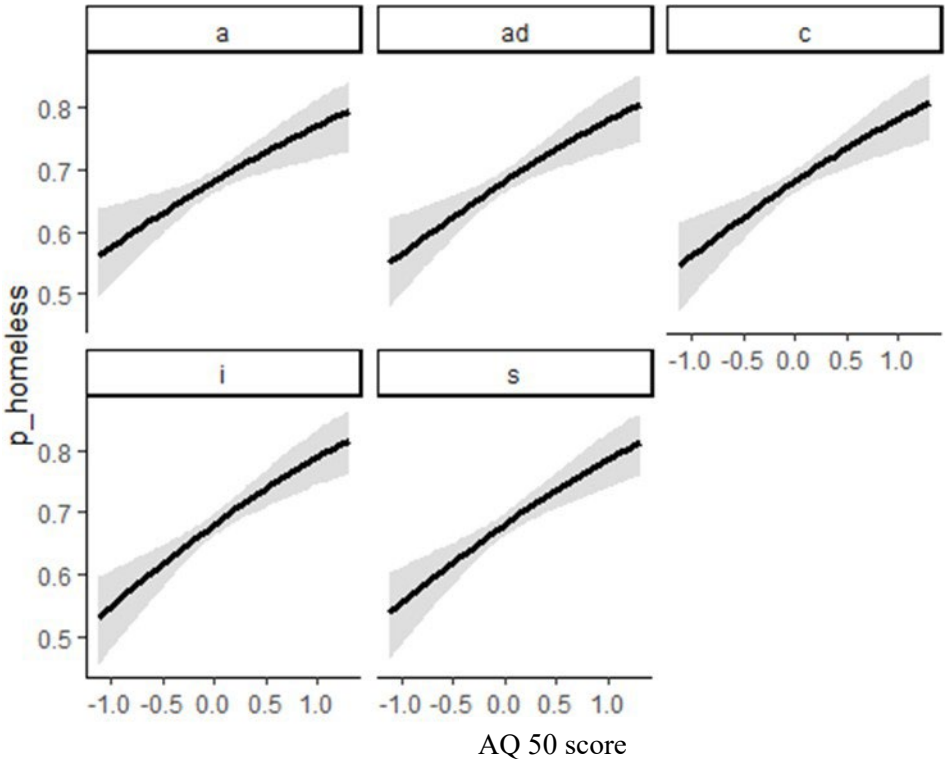
AQ = Autism Spectrum Quotient
P(homeless)= probability of homelessness
Zaq= the standardised AQ factor score (z-score)

The analysis found an 85% probability that, averaged across the AQ factors and holding the known-risk-factor scores constant, AQ factor score has a meaningful effect on the probability of homelessness (see Figure 4.8 above). Figure 4.8 shows how *p(homeless)* changed with each AQ factor score. The error ribbons represent 80% HDIs. The factors each demonstrated clear evidence of a meaningful, positive slope; no meaningful difference was detected between them. Given the lack of evidence of differences between the AQ factors, the effects were then averaged across AQ scores (the relevant tables are provided in Appendix J).

The ROPE probabilities for the interaction terms demonstrated a high probability that the AQ factor scores interact with SES (99%), clear evidence of an interaction with childhood-related risk factors, previous homelessness cycles, and social support score (all above 90% probability of a meaningfully sized interaction) and a weaker, but non-negligible, association for structural risk factors (80%). For personal risk factors, the evidence was equivocal, favouring no interaction but not estimated with enough precision to conclude the null with high confidence.

Figure 4.9

Change in Estimated P(homeless) *Increases with AQ Individually Controlling for Known Risk Factors*



AQ = Autism Spectrum Quotient, P_homeless= probability of homelessness

as=attention switching, ad=attention to detail, c=communication, i=imagination, s=social skills

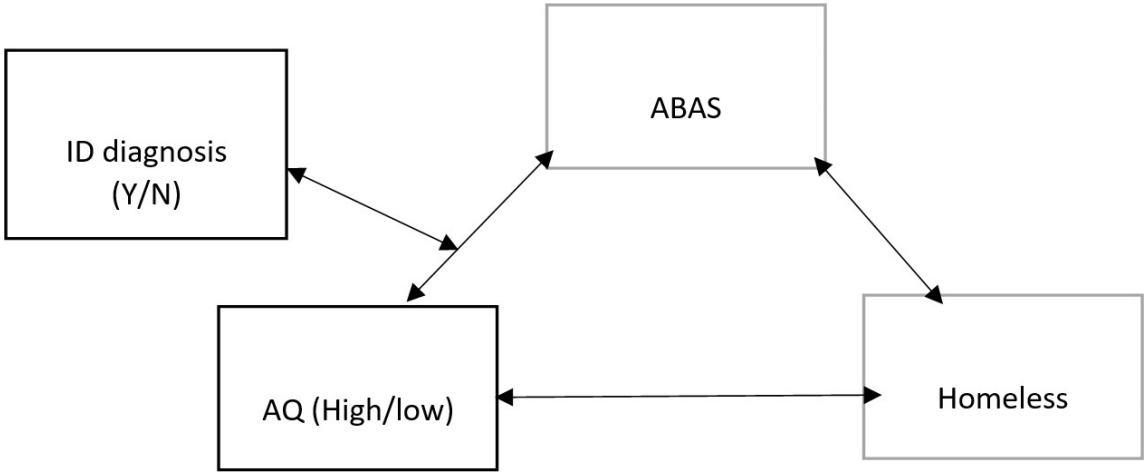
4.3.3 Stage 3, Mediating Effects of Adaptive and Executive Functioning on The Relationship Between AQ50 Score (high vs low) and Homelessness.

Given that autistic characteristics contributed to the risk of homelessness, but this did not relate to the known risk factors of homelessness, transdiagnostic features of autism—namely, adaptive function (measured with ABAS-3) and executive function (measured with BRIEF)—were examined in relation to the autistic people's relative risk of homelessness. While adaptive and executive function differences are not unique to autistic people, they are commonly observed among them (Pugliese et al., 2016). The following section will

investigate the mediating effects of adaptive function on the relationship between AQ scores and homelessness outcomes. This was used to evaluate Hypothesis 3. Given the longstanding relationship between ABAS-3 scores and intelligence (Prokopiak, & Kirenko, 2020), ID diagnosis status was included as a moderator, see figure 4.10 below.

Figure 4.10

Mediation Effects of Adaptive Function on the Relationship between AQ Cut-Off Scores and Homelessness

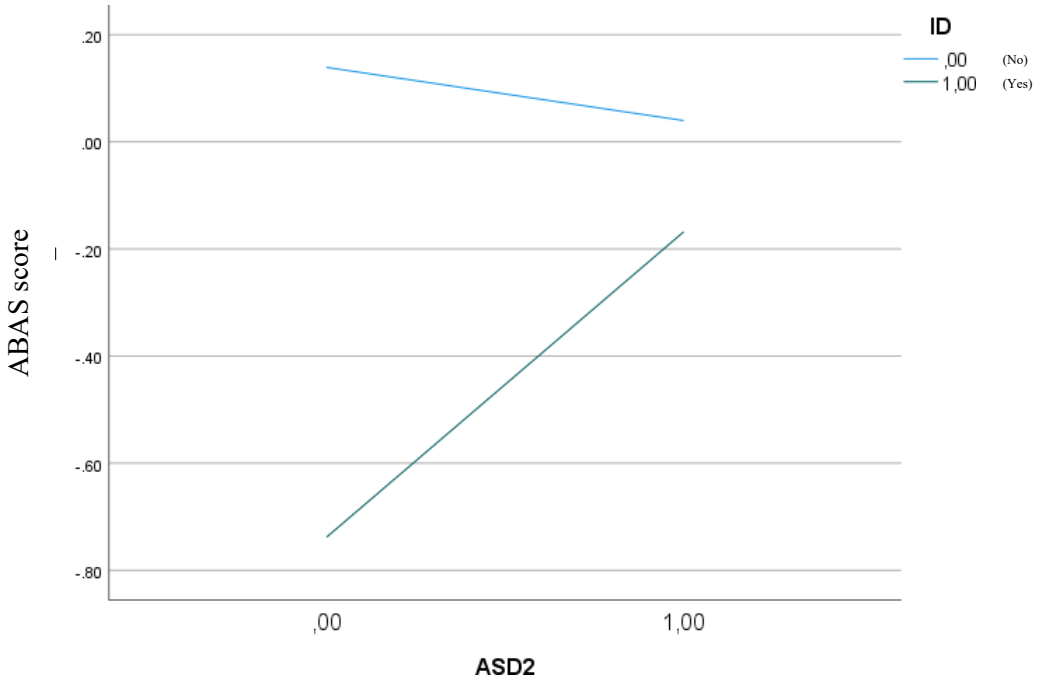


AQ = Autism Spectrum Quotient; ABAS = Adaptive Behaviour Assessment System (Third Edition) score; ID =intellectual disability.

Preacher and Hayes' (2022) Process Macro model seven was used to analyse if the relationship between AQ50 score and homelessness was mediated by adaptive functioning, with a moderation of intellectual function using frequents models (not Bayesian approaches). Confidence intervals were used to determine a significant effect providing evidence of both mediating and moderating effects. The interaction between ABAS-3 scores and ID diagnosis status was significant (b = .67, SE = .29, p = <.01), suggesting that ID diagnosis status moderates the effect of AQ50 score (high or low) on ABAS-3 scores. The direct effect on homelessness was significant for AQ score (b = .98, SE = .26, p = <.01). The mediating effect of ABAS-3 score (b = –.25, SE = .12, p = .04) was significant, given that the confidence intervals do not cross zero (*CI*: –.43 to –.01). It was concluded that ABAS-3 scores have an indirect effect on the relationship between AQ score and homelessness. This indicates that the relationship between high v. low AQ and homelessness is partly explained by the individuals' total ABAS-3 scores. This relationship is dependent on ID diagnosis status. Those with an ID diagnosis were more likely to score lower on the ABAS-3(b = .57, SE = .26, p = .02), no significant relationship was detected for those without an ID diagnosis (b = -.09, SE = .12, p = .41). Those with high AQ had slightly higher ABAS-3 scores than those with low AQ, but these scores were significantly lower than those of participants not diagnosed with an ID (see Figure 4.11).

Figure 4.11

ABAS-3 Score According to AQ score (high v low) and ID Diagnosis Status



ABAS = Adaptive Behaviour Assessment System score; ASD = Autism Spectrum Disorder; ID = intellectual disability (0 = no, 1= yes)

No mediating or moderating effects were found for executive function. Please see Appendix J 19 for the full results.

4.3.4 Stage 4, The Probability of Homelessness in the Presence of Support (comparing support type)

In order to test Hypothesis 4 and 5, this stage investigated to what extent the probability of homelessness was predicted by support, for the different types of support (father, friend, mother, partner, service organisation or sibling). To assess the influence of autism diagnosis, both autism diagnosis status and the interaction between autism diagnostic status and support type (yes/no) were added to the model, allowing all the coefficients to vary with support type. A large variance among the types of support was detected in the homelessness–support relationship. Overall, the probability averages showed that there was a greater likelihood of homeless outcomes for those without support compared to those with support. Thus, regardless of the type of relationship, social support predicted a decrease in

the chanceof becoming homeless. The interactive effects of autism diagnostic status and AQ score wereconsidered in terms of the effect of support on the probability of homeless outcomes.

4.3.4.1 The Probability of Homelessness According to Social support type Comparing Groups According to ASD Diagnosis

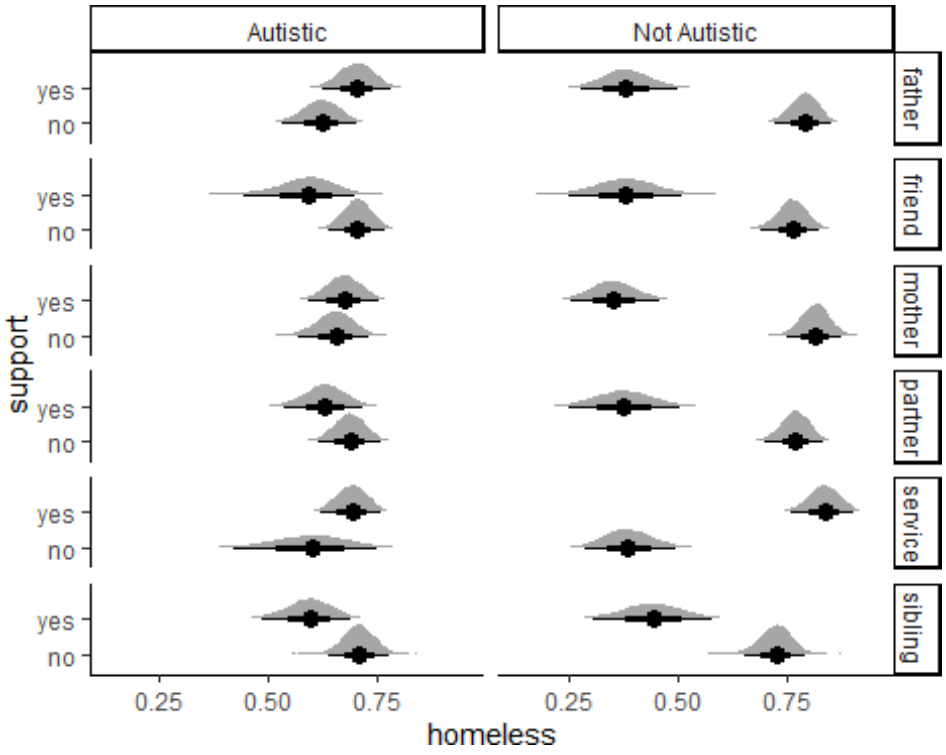
The analyses suggested an interaction between support and autism diagnostic status and that this relationship varies by type of support. However, as shown in Figure 4.12, the likelihood of homelessness was not meaningfully different across the types of support. Those without an autistic diagnosis clearly had a lower probability of homelessness in the presence of social support, but no clear difference in this probability was detected among the different support-provider roles. However, those without a diagnosis demonstrated a higher probability of homelessness if they were accessing support services (see Figure 4.12).

4.3.4.2 The Probability of Homelessness According to Social Support Type

Comparing Groups According to High v. Low AQ Score

Figure 4.12

Homelessness by AQ score Slope Separately for Support Presence (Yes or No) and Type, Comparing Diagnostic Groups



Note. Error bars show the HDI (thick = 66% and thin = 95%) and the shaded reason the posterior density – the higher the density plot for a given value, the more plausible that value is as an estimate of the *true* slope. The dashed vertical lines represent the ROPE.

The left panel of Figure 4.12 shows the estimated slopes, and the right panel shows how the slopes differed depending on the absence or presence of support, estimating the interactive effects (between supports and diagnostic groups). The interaction shows that the relationship between AQ total score (continuous variable (0-50) rather than dichotomous above and below 26) and homelessness differs depending on whether or not participants were receiving support.

Because there was a large number of participants with high AQ scores without a diagnosis of autism, it was important to examine how the relationship between support and homelessness varied with AQ scores.

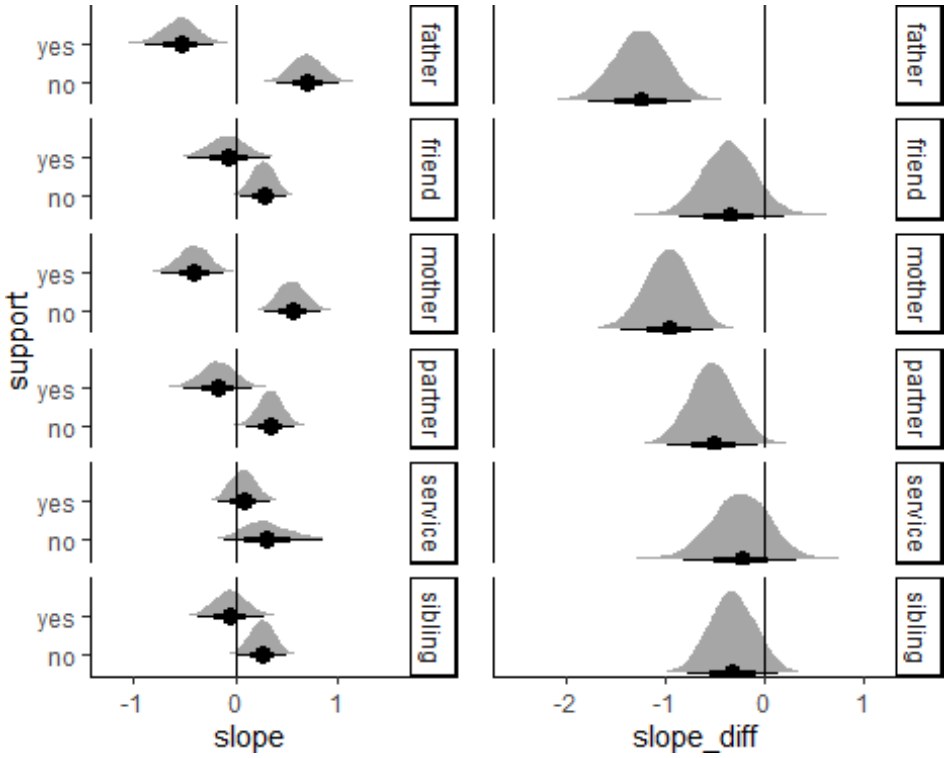
The patterns of the slopes for no support (labelled ‘no’ in figures 4.12) very clearly show that there is a positive relationship between AQ and homelessness for all social support types. The evidence suggests that there is a positive relationship for service support, but this estimation is less precise. These results indicate that lack of support increases the chances of homelessness with increasing AQ scores.

The pattern is less consistent for those who indicated the presence of support. The analysis clearly indicated a negative relationship between support and homelessness for both father-provided and mother-provided support. This indicates for those receiving parental support, higher AQ was associated with lower chance of homelessness. Similarly, the evidence supports a negative relationship between homelessness and the presence of a partner. For other predictors, there is weaker evidence of a relationship, but the slopes are not meaningfully non-zero (at the 95% level). The evidence suggests an interactive effect. The evidence is markedly stronger for mother, father, and partner support (probabilities 1.0, 1.0, and .96, respectively) than for friend or sibling support (.82 and .81, respectively). For service support, the evidence is equivocal (only 67% outside the ROPE).

The support service type frequencies and the types of support provided by support people are included in Appendix J 20.

Figure 4.13

Homelessness by AQ score Slopes Separately for Presence of Support (Yes or No) and Type of Support.



AQ = Autism Spectrum Quotient
Slope= Change in log Odds for every 2 SD difference in AQ score
Slope diff= difference between groups

4.4 Discussion

4.3.1 Stage 1. The Probability of Homelessness Related to the Presence of the Known Risk Factors of Homelessness.

The first stage of this study focused on investigating the known risk factors of homelessness (personal, structural, childhood, SES, social support, prior cycles of homelessness), in combination with autism; specifically, autism diagnosis status as indexed by the AQ 50. This stage addressed hypothesis one, will autistic individuals (either autism

diagnosed, or high AQ-50 score (>26) have a higher probability of homelessness than non-autistic individuals or those with less autistic characteristics when experiencing the known homeless risk factors?

The results of this study demonstrated important differences when considering those that had received a diagnosis of autism and those that had not demonstrated high levels of autistic characteristics as indexed by the AQ-50. Those with a diagnosis of ASD did not appear to be more vulnerable to experiencing homelessness, indicating that having an autism diagnosis can protect individuals from homeless outcomes. When homeless risk factors were considered separately, high SES was found to be related to a reduced probability of homelessness for the autism diagnosis group. Social support was also identified as a protective factor against homelessness. Therefore, demonstrating that homeless risk factors have the opposite effect (protecting) than anticipated (rather than increasing risk) for the diagnostic group.

Despite persons with high levels of autistic characteristics having an increased chance of homelessness, receiving a diagnosis appears to be a protective factor. Without a diagnosis those with high levels of autistic characteristics were, as expected, vulnerable to the common risk factors known to be associated with homelessness (e.g., structural, personal, social related factors and low SES) with the exception of prior experiences of homelessness. It appears that prior experiences of homelessness does not predict future homelessness among this group. Higher AQ score predicted an increased chance of homeless status but averaged across AQ scores, no detectable differences were noted for structural risk factors, inadequate social supports, individual personal risk factors, low SES, childhood-related risk factors and or prior cycles of homelessness. This indicates that AQ scores do impact homeless outcomes, but this difference is not related to the known risk factors, demonstrating evidence for rejecting Hypothesis 1 that predicted that known homeless risk factors increase the chance of homeless outcomes for autistic individuals. The implications of these findings are two-fold:

first, that the homeless sample had a high prevalence of undiagnosed or missed autism; and second, diagnosis of autism and that risk factors, other than the known ones, can contribute to autistic individual's homelessness risk. These results will be discussed in relation to prior research and related back to relevant clinical implications that highlight the need for identification of autism in the homeless population.

Firstly, this study demonstrated that having an autism diagnosis can protect individuals from becoming homeless. This reflects the findings in Chapter 3 that indicated that a diagnosis may provide protection from homelessness by increasing the person's eligibility for government funding and service support. Prior research has indicated that specialised support programs that meet the individual and diverse needs of autistic individuals help to produce positive housing outcomes (Grant, 2017). When such support programs are implemented by appropriately trained staff, they have been found to produce a number of positive outcomes, including increasing their clients' coping capacity and ability to find and maintain employment and housing, both independently and with support (Grant, 2017; Osborn & Young, 2021). It is noted that evidence-based practice for autistic individuals is in its infancy. Specialised support programs should continue to be researched and integrated into guidelines and policies (Whitehouse et al., 2018). Beyond specialized support an autism diagnosis may have a number of positive effects that may also reduce the overall risk of homelessness for example; more opportunity to implement accommodations in employment and educational settings, an increased sense of identity; and increased opportunity to connect with other likeminded peers.

The need for diagnostic assessment as well as ongoing support is clearly indicated by this study, which showed the non-diagnosed group are more likely to become homeless. The homeless group had high levels of autistic characteristics, being above the AQ cut-off score of 26 relatively often. Regardless of autism diagnosis status, higher AQ score predicted higher chance of homeless outcomes; however, averaged across AQ scores, no detectable

differences were noted in the predictive power of structural factors, social supports, personal factors, SES, childhood-related factors or previous cycles of homelessness. The findings indicate a high rate of autistic characteristics among the homeless population. The influence of AQ scores on homelessness outcomes was not related to the known risk factors of homelessness, indicating that autistic characteristics contribute to homelessness independently of the known risk factors. These findings have two important ramifications: first, they show that misdiagnosed or missed autism is quite prevalent in the homeless population, and second, they show that factors other than the established risk factors might increase the likelihood that an autistic person would become homeless. The need for detection of autism in the homeless community and other plausible risk factors of homelessness for autistic individuals will now be addressed in turn.

While the early detection of autism may protect individuals from becoming homeless, identifying some of the barriers to the early detection of autism may shed light on the cause of the high rate of missed diagnosis and misdiagnosis in the homeless sample. This high rate could be due to multiple possible factors, such as co-occurring conditions, gender and ethnicity that make diagnostic clarification difficult. Prior research has demonstrated that there are ongoing difficulties with missed diagnosis, misdiagnosis and late diagnosis among autistic individuals, particularly for female people and ethnically diverse populations (Fusar-Poli et al., 2020; Gesi et al., 2021). This is due to a number of factors, including the high incidence of co-occurring conditions whose symptomatology overlaps with that of autism, the disparity between autistic characteristics (i.e., internalising v. externalising symptoms) and, finally, the fact that diagnosticians are often inclined to diagnose co-occurring conditions rather than autism (Fusar-Poli et al., 2020; Postorino et al., 2017; Soke et al., 2018). Underlying autism may be mistaken for personality disorders, mood disorders, ADHD, schizophrenia or ID (Postorino et al., 2017; Soke et al., 2018). This may be particularly likely among the homeless population, whose members commonly have co-occurring conditions

such as personality disorders, mood disorders, ADHD or ID (Depp et al., 2015; Salavera et al., 2014; Spence et al., 2004). It is plausible that these diagnoses could co-occur with autism or stem from autism being mistaken for another condition. Hence, the importance of regularly screening homeless populations for autism is one clear implication of this study. Screening should be conducted by trained professionals using assessment tools with sound specificity and sound divergent validity, to ensure diagnostic clarification. Assessment tools were considered as part of the systematic review presented in Chapter 2. This review identified the need for abridged measures, such as the Autism Diagnostic Interview–Revised (ADI-R) and the Autism Diagnostic Observation Schedule–Second Edition (ADOS-2), to shorten the process of diagnosis (Falkmer et al., 2013), in recognition of the high possibility of disengagement with lengthy measures among the homeless population. Abridged versions of diagnostic screeners utilising mobile phone technology could offer one alternative to the lengthy measures described above (ADI-R and ADOS-2). Technology based assessment have begun to be implemented in the community sector for the early detection of autism (Thabtah, 2019). Staff in the community sector have responded well to the integration of technology-based screening devices and to training in their use (Thabtah, 2019). Suggesting one avenue to ensure that the early detection of autism within the homeless sector is accessible and cost effective. It is clear that alternative screening tools should be investigated further in order to implement these into homelessness services. Implementation of such technology may help to streamline and shorten diagnostic assessments. Shortening diagnostic assessments could also help to reduce the cost of diagnostic reports, which is an important consideration, given that the results demonstrated a strong link between homelessness and low SES.

Some individuals may find it difficult to obtain a diagnosis due to low SES. Compared to the low-AQ group, the high-AQ group participants with low SES had a higher probability of homelessness. This may be attributed to their lacking financial resources required to obtain a diagnosis. Conversely, this study demonstrated the importance of high

SES in protecting against homeless outcomes. When homelessness risk factors were considered separately, high SES was found to be associated with lower chances of homelessness for those with a diagnosis. The SES of individuals and their support people makes a big difference to how easily a person can obtain and retain support as well as housing (Grattan et al., 2022). Conversely, those with lower SES could lack the financial resources to access diagnostic assessments, which could prevent the early detection of autism as well as presenting a barrier to obtaining support (Daniels & Mandell, 2014). The results of this study show without service support and diagnostic clarity, individuals are more likely to become homeless. The results of this studydemonstrate that government funding is necessary to allow low-SES families to access diagnostic screening and assessment.

Overall, these results demonstrated that rating high on autistic characteristics contributes to the risk of homelessness but that this is not due to higher levels of the known risk factors of homelessness. It was therefore important to investigate the autistic characteristics that might contribute to this higher risk. Chapter 3 indicated that some unique characteristics of autism may contribute to the risk of homelessness; these included, but were not limited to, communication differences, rigidity and repetitive behaviours, and sensory sensitivities (Osborn & Young, 2021). The thematic analysis in Chapter 3 indicated that autistic characteristics contribute to homelessness through uneven profiles, lack of engagement with service providers, inability to find their place in society, lack of opportunity for work (Osborn & Young, 2021). The predictive effects of autistic characteristics were investigated further to determine which of these autistic characteristics contributed to homelessness, in order to answer hypothesis 2.

4.3.2 Stage 2. Discussion of The Probability of Homelessness in the Presence of Autistic Characteristics

The results of this study have important implications to understanding the risk of

homelessness for autistic individuals. Regardless of diagnosis, the results demonstrated an 85% probability rate that autistic characteristics contribute to the increased chance of homelessness, however this did not meet the strong criterion to conclude with 95% certainty that AQ score predicts homeless risk after controlling for other factors. However, although at increased risk, a diagnosis acts as a protective factor. The probability for homeless outcomes was stronger for specific characteristics, such as higher attention to detail, lower attention switching, and communication differences. Further investigation of the unique contribution of each autistic characteristic, demonstrated no meaningful differences between characteristics, indicating that it is the sum or combination of these characteristics that contribute to homelessness rather than each contributing independently.

The apparent relationship of AQ score to homeless risk was independent of one's prior experiences of homelessness, childhood and structural factors but was considered in light of its interaction with known risk factors of homelessness, individual factors, SES and social supports. In this study, SES demonstrated a strong interactive effect; lower SES was related to greater chances of homelessness for those with high AQ scores. Likewise, the relationship between AQ-50 factor score and homeless status was stronger when social supports are low. Larger numbers of social supports were related to lower chance of homelessness for those with high AQ scores. This stage demonstrated some evidence for the acceptance of hypothesis 2, that autistic characteristics contribute to the risk of homelessness over and above other known risk factors (structural, personal, negative childhood experiences, homeless cycle), it was not one autistic characteristic but the sum that contributed to this risk. And should be considered in terms of the interactive effects of social supports and SES. These results will be discussed in terms of how these findings relate to prior research as well as its implications for future research and implications for homeless service provision.

It was clear that those with high levels of autistic characteristics but no autism

diagnosis have the greatest risk of homelessness. These findings support prior research that found higher levels of autistic characteristics among the homeless population (Churchard et al., 2019; Kargas et al., 2019). The prevalence of high AQ (34.6%, 81 of 234, see demographic table 4.1) in the present study's homeless group was higher than that found by Kargas et al. (2019), who found that 18.5% (12 of 65) of their homeless participants scored 7 or above on the AQ-10. No previous studies have used the AQ-50 to evaluate the prevalence of autism in a homeless population, to the author's knowledge.

Subsequent investigation into the unique contribution to homelessness risk of each autistic characteristic found no meaningful differences between the characteristics, indicating that they contribute to homelessness as a whole rather than independently. Although, the evidence was strongest for the following autistic characteristics: attention to detail, attention-switching and communication differences than imagination and social skills.

Although the results regarding the autistic characteristics did not differ in a meaningful way, it is important to discuss how attentional issues and communication differences had a stronger association with homelessness. Lower attention-switching ability and higher attention to detail were found to increase the probability of homelessness at a confidence level of 96% and 98% respectively. These findings demonstrate the important contribution of attention differences for predicting homelessness. These, interestingly, are also features of certain otherneurological conditions, such as ADHD (Panagiotidi et al., 2019). This is an important consideration for future research because there is a strong empirical link between ADHD and homelessness (Harding,2014; Kocsis, 2004; Shepherd, 2021). Further, ADHD and autism are highly co-occurring (Lai et al., 2019). Hence, the results of the study suggest further investigation into the co-occurrence of autism and ADHD and probability of homelessness is warranted.

Attentional differences have been associated with executive and adaptive function differences (Clark et al., 2002). They can make it difficult for people to complete everyday

tasks (Baron-Cohen et al., 2009), that are important for retaining housing. Attention to detail has been shown to give some autistic individuals an enhanced ability to discriminate between details, which can help with recognising patterns and ability to hyperfocus on some subjects, but it can sometimes cause difficulties with the generalisation of information related to a task or a goal (Baron-Cohen et al., 2009). Generalising information is an important skill for staying in employment, relationships and housing; attentional issues can therefore impede an individual's ability to remain housed by making them forget important information or details (Mantzalas et al., 2022; Matson & Shoemaker, 2009). For example, as autistic individuals focus on one topic of interest, they may forget when an inspection will be held or forget to pay bills on time.

Prior research has also indicated that another reason for attentional differences being associated with homelessness is that service providers misinterpret autistic individuals' uneven profiles as noncompliance (Osborn & Young, 2021). This misperception can lead to individuals being excluded from service providers (e.g., housing services, government support agencies or employment agencies) that are important for homelessness prevention (Osborn & Young, 2021). Hence, to ensure that autistic clients can avoid homelessness, it is pivotal for service providers to understand attentional differences and the resultant skill-set gaps and provide specialised support programs to address these issues. If service providers increase their staff's awareness and implement flexible support programs, they can provide the support autistic individuals need to participate in the community and live independently (Spence et al., 2004; Stone et al., 2019; Stubbs et al., 2020). For example, to address a gap in a client's knowledge about paying bills, they could help the clients set up automatic direct debits.

The analysis in section 4.4.2.4 showed that participants with higher levels of communication differences have a 99% chance of homelessness. This confirms prior research findings that link communication differences to homeless outcomes offering a number of

plausible explanations to why this occurs (Casey et al., 2020; Grant, 2017; Stone, 2019; Stone et al., 2019; Yeo & Teng, 2015). First, they act as a barrier to services, support, employment and housing. Second, they can present a further barrier to maintaining a support network due to misunderstandings with service providers, employers or landlords. A breakdown in communication with employers or landlords can result in a lack of the financial and practical resources needed to retain stable accommodation. Third, a lack of communication may be perceived as disengagement or impoliteness (Chapter 3), resulting in exclusion from services and support and thus heightening the risk of homelessness (Spaniol, 2018). Finally, communication differences can mean autistic individuals cannot cope with new staff or initiate conversations with unfamiliar people, which can cause them to withdraw from support programs or decline to approach service providers (Campbell, 2015; Casey et al., 2020; Churchard et al., 2019; Grant, 2017; O'Donovan et al., 2020). Accordingly, prior research has reflected the importance of mitigating the negative effects of communication difficulties (Casey et al., 2020; Grant, 2017; Stone, 2019; Stone et al., 2019; Yeo & Teng, 2015). It is essential to raise awareness of autism in service organisations and employment services and among real estate agents and provide training for staff, in order to mitigate the risk of homelessness (Grant, 2017).

4.5.3.1 The Probability of Homelessness in the Presence of Known Risk Factors of Homelessness Comparing Diagnostic Groups

This study also investigated the influence of the known homelessness risk factors. The results demonstrated some important findings related to the predictive nature of autistic characteristics on homeless outcomes. The results demonstrated that the risk of homelessness for autistic individuals differs from that of non-autistic individuals. Autistic individuals' homelessness outcomes are less influenced by personal factors and childhood-related risk factors than non-autistic individuals. Importantly, autistic individuals are at risk of homelessness regardless of the presence of personal factors (such as drug misuse and co-

occurring conditions) or childhood abuse. This indicates that although personal and childhood factors contribute to homeless outcomes among other populations, they are less relevant for autistic individuals. Previous research involving autistic individuals currently experiencing homelessness has produced conflicting results. While some studies found that autistic individuals were less likely than others to engage in substance misuse (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Vana, 2020), others found a higher prevalence of drug misuse among autistic individuals (Stone, 2022). Non autistic homeless populations, differ, in general, a higher prevalence of drug misuse was found with in this community. Over 43% of the homeless population in Australia reported alcohol and drug problems, this was an increased rate in the general population of 16.4% (Australian Institute of Health and Welfare, n.d., accessed in 2022). This is similar to the rate of occurrence in the present study's homeless sample, which was 49%. The higher rate in the current study and Stone (2022) study may be due to the types of homelessness that the sample experienced, in both contexts the homeless participants were recruited from homeless shelters and drop in centers. Despite this high rate of drug use this did not increase the probability of homelessness for autistic individuals. This indicates that despite the high prevalence of alcohol and drug issues, they are less likely than other factors to influence homeless outcomes for autistic individuals.

The low likelihood of co-occurring conditions contributing to autistic individual's risk of homelessness is somewhat surprising; prior research has suggested that autistic individuals are more likely than non-autistic individuals to have several other co-occurring conditions (Rosen et al., 2018). Nevertheless, in the absence of an autism diagnosis, underlying conditions such as ID could qualify the person to receive support (Stone, 2019); this possibility could make them less likely to become homeless.

This study also covered childhood abuse. Of the participants with a diagnosis of autism, 53% reported childhood abuse. This is a lower rate than that found among homeless

populations; one study estimated that 83% of homeless youth had experienced abuse during their childhoods (Yoder et al., 2014). This suggests that the lower influence of childhood abuse on the probability of homelessness could be explained by the lower reported occurrence of childhood-abuse in this study.

While the influences of personal and childhood-related risk factors are not relevant to predicting homelessness outcomes among autistic individuals, the study demonstrated that the relative contributions of social support and SES have an interactive relationship with homelessness for autistic individuals.

The probability of homelessness increases as autistic characteristics increase, and social support sizes decrease. This indicates that those with higher levels of autistic characteristics are less likely to have social support and that this lack of support can lead to homelessness. A prior study found that autistic individuals were less likely to have positive relationships and that this led to lower quality of life (Pisula et al., 2015). Lack of social support may stem from a number of factors pertaining to autism, including differences in communication and social skills as well as restricted and repetitive behaviours (which could lead to an autistic person being bullied or ostracised). Lack of community understanding, and awareness may also make autistic individuals more likely to have lower numbers of social supports due to people's misunderstandings about autistic characteristics that can result in frustrations and relationship breakdown (Bellini et al., 2007; Crespi et al., 2016; Eyrich-Garg et al., 2008; Holloway et al., 2014). In the present study, support was found to be an important factor in lessening the risk of homelessness for those with high levels of autistic characteristics.

Larger numbers of social supports and higher SES were found to offer autistic individuals protection from homelessness. It is important to consider the factors that may help an autistic individual to develop and maintain their social supports. The protective nature of social supports among the neurotypical sample against homelessness is clear (Christian et al.,

2016; Crespi et al., 2016; Lincoln et al., 2009; Mabhala et al., 2017). Social supports can prevent homelessness by providing accommodation and emotional support in times of crisis (Christian et al., 2016), although the role of the support person and the nature of their support may influence the outcomes for autistic individuals. Previous research has indicated that the types of support available may influence homelessness outcomes (Lincoln et al., 2009; Rice et al., 2012). For example, social supports that included people engaged in criminal activity or drug misuse were less likely to have positive housing outcomes (Lincoln et al., 2009). In the absence of this support, autistic individuals are more likely to be at risk of homelessness. It is important to consider the factors that may help an autistic individual to develop and maintain their social supports. It has been shown that positive social supports protect neurotypical people against homelessness (Christian et al., 2016; Crespi et al., 2016; Lincoln et al., 2009; Mabhala et al., 2017). Family support has been identified as a protective factor against homelessness; parents play a critical role in assisting autistic individuals to obtain a diagnosis and access support and in advocating with service providers (Burke et al., 2018). It is important to consider with further research, the type of social support (role: father, mother, sibling, friend) and the types of interventions that may help to build and foster relationships, in order to offer autistic individuals protection from homelessness.

In summary, this stage of the study indicated that autistic characteristics, contribute to the risk of homelessness. It was found that these characteristics lead to higher chances of homelessness as a whole rather than individually. The influences of these factors were considered in terms of their interaction with known risk factors; higher autistic characteristics lead to homelessness when social support groups are small, SES and personal risk factor levels are low. This stage of the study contributes an important innovation to the comparative study of homeless populations, by evaluating known risks and identifying autistic characteristics that contribute to homelessness.

The transdiagnostic features of autism, which, although not unique to autistic

individuals, are closely associated with autism, may mediate the relationship between homelessness and autism. Given the considerable heightening influence of attentional differences on the probability of homelessness, factors such as adaptive and executive function were considered in the context of their potential mediating effects. It was conjectured that if an individual had low executive and adaptive function, this would make it relatively difficult for them to perform tasks important for retaining housing. The mediating effects of adaptive and executive function were therefore investigated, to evaluate hypothesis 3. These are discussed in the following section (4.5.3).

The results also demonstrated the protective nature of high SES and social supports. Since prior research found that the effects of social supports on homelessness risk depended on their members' behaviours and roles, the final stage of this study examined how the risk of homelessness was affected by social supports. The results of that stage are discussed in Section 4.5.4.

4.5.3 Stage 3: Mediating Effects of Adaptive Function On the Relationship Between AQ and Homelessness

The previous section highlighted that individual autistic characteristics do not differ meaningfully in their effects on homelessness risk; rather, they contribute as a whole, adding to the contributions of the known risk factors. This finding led to the third stage of the study, investigating the transdiagnostic features that might also contribute to the risk. The results demonstrated that individuals' adaptive function levels have implications for homelessness outcomes; the relationship between autistic characteristics and homelessness was found to be mediated by adaptive function, providing some evidence for accepting hypothesis 3. This transdiagnostic feature, which is correlated with autism, can result in some individuals struggling with daily-living tasks such as cooking, cleaning and engaging in employment (Thomas et al., 2011; Tillmann et al., 2019). Accordingly, the adaptive function measure used in this study takes into account social resources and community engagement (Harrison &

Oakland, 2015). It is plausible that a lower ability to perform daily-living tasks and engage socially and in a community context (for example in services, employment, education and enjoyable activities) can reduce a person's ability to retain housing (De Bildt et al., 2005; Pugliese et al., 2016; Tillmann et al., 2019). Further, Johnson (2001) proposed that people with low adaptive function could have a higher risk of homelessness due to poorer abilities to solve problems flexibly. This may lead to individuals becoming emotionally and behaviourally stuck, decreasing their ability to retain stable employment and housing (Johnson, 2001). The present study found that individuals with high AQ scores may become homeless if they lower levels of adaptive skills. However, an individual's adaptive skill levels are dependent on intellectual ability (Patel, Cabral, & Merrick, 2020). The present study found that the effect of adaptive functioning was moderated by intellectual functioning (measured by the presence or absence of an ID diagnosis). This has clear implications for clinical practice. Prior research has demonstrated that when specialised assessment and support are implemented, adaptive skills can be developed; a recent systematic review of occupational therapy programs for homeless participants found strong evidence that it is helpful to teach life skills in both individual and group settings (Thomas et al., 2011). Likewise, a study conducted with 75 autistic individuals found that improving daily living skills assisted individuals to successfully live independently (Matthews et al., 2014). Research should be directed towards implementing programs like this as a preventative measure and assessing their effectiveness in reducing homelessness risk. Importantly, moreover, it has been shown that specialised support programs focused on improving adaptive function not only reduce homelessness but also decrease risk-taking behaviours and improve mental health (Thomas etal., 2011). The findings of this research suggested the possible presence of other mediating effects, therefore executive function differences were explored as another possible mediator.

Executive function differences do not mediate the relationship between AQ scores

and homeless outcomes. Although differences in executive function may result in some difficulties for an individual in terms of employment and housing, this did not help explain the relationship between AQ scores and homelessness. This is an interesting finding given the proposal that differences in adaptive function (discussed above) may relate to higher incidences of homelessness through poor ability to problem-solve (Thomas et al., 2011). Problem-solving differences is an important feature of executive function, particularly skills such as flexible thinking and decision-making (Diamond, 2013). Accordingly, the questions in the ABAS-3 (adaptive function measure) and BRIEF (executive function measure) have a number of similarities in the types of questions asked. It appears that the independent living skills that are related to adaptive functioning but not executive functioning make the most important contribution to the risk of homelessness for those with high levels of autistic characteristics. Future research should explore other possible mediating factors that may influence the relationship between autism and homelessness. Given that this is the first study to explore the possible contribution of mediating factors, other possible mediating factors should be identified in future qualitative research.

The previous stage of the analysis indicated that autistic characteristics contribute to homelessness in combination, but the exact mechanisms of this were still unclear. The present stage suggested an explanation. The probability of homelessness for those with high AQ scores is influenced by their level of adaptive function (which is dependent on intellectual ability). Despite this, executive function did not mediate the relationship between AQ score and homelessness. It is arguable that having poor independent living skills puts a person at risk of losing a tenancy. It has been observed that support programs that focus on independent living skills not only help people retain housing but also improve their mental health (Thomas et al., 2011). It is important to note that the success of such programs depends greatly on the extent to which individuals have opportunities to engage with the community; therefore, all such programs should incorporate a strong social-inclusion focus.

4.5.3 Stage 4: The Factors that Prevent Homelessness for Autistic Individuals

This stage of the study explored the protective capacity of social and service support to preventing homelessness and how the level and quality of social and service support are influenced by autistic characteristics and autism diagnosis. The results clearly showed that a diagnosis of autism offers an individual the greatest protection from homelessness; social support scores and—interestingly—service support was not found to predict homelessness outcomes for participants with a diagnosis of autism. However, for those without a diagnosis, social supports influence the probability of homelessness. As the level of social support increased for the non-diagnosed group the probability of homeless outcomes decreased, regardless of that person's role. The presence of service support was associated with a higher probability of becoming homeless for the non-diagnosed group. These findings provide partial evidence for confirming hypothesis 4, differences were noted between groups.

This study's findings accord with those of previous research, confirming that social supports protect against homelessness—specifically, that of Johnstone et al. (2016), who found that having supportive family and friends during adolescence offered autistic individuals protection against homelessness and helped them recover from it. The present study's participants reported lower average numbers of caring people in their social support groups (low AQ score $M = 3.38$, $SD = 9.54$; high characteristics $M = 1.77$, $SD = 5.402$) and providing emotional support (low characteristics $M = 3.38$, $SD = 9.54$; high characteristics $M = 1.79$, $SD = 5.448$) than the participants studied in prior research. For example, Bower et al. (2018) reported higher average numbers of family members ($M = 4.48$, $SD = 4.51$), people who cared ($M = 6.48$, $SD = 5.65$) and people providing support ($M = 7.78$, $SD = 6.02$). Difference in social support size can influence the likelihood that a person will receive support (Colombo & Saruis, 2015; Dietrich-Ragon, 2015; Slesnick et al., 2008). The smaller social supports in the present study's sample could be due to differences between homeless groups in South Australia and Sydney or due to the ongoing effects of COVID-19, which

have placed stress on social supports (Conway et al., 2020). Differences between social support group sizes should be investigated further, comparing samples of autistic and non-autistic homeless people. Although, regardless of social support group size, the nature of an individual's relationships with their support people is critical. Prior research has shown that it is necessary for the support people to care and to be available to provide practical and emotional support (Bower et al., 2018). Bower et al. (2018) found that those with large social support groups whose members were engaged in criminal activities or involved with illegal substances were comparatively unprotected; in fact, these types of support had an adverse effect.

Overall, these results demonstrate that undiagnosed autistic individuals have a greater need for social support because they are more at risk of homelessness if their social relationships diminish. A breakdown in social relationships can springboard an individual into a cycle of homelessness (Negură, 2020), and after a person becomes homeless, their social relationships become more fragmented and less able to provide emotional support (Greene, 2014). How to help autistic individuals develop and maintain positive relationships to protect them from homelessness should be a focus of future research.

This study demonstrated important differences in the nature of social supports for individuals with high AQ-50 scores. Although this group are less likely to have support people in their lives, their risk of homelessness is lower if they have social support from either a parent or a partner. Those without an autism diagnosis are protected from homelessness when they have a parent who can provide them with support (such as food, accommodation, care and emotional support). Previous qualitative research (See Chapter 3) has indicated that parental support is fundamental to protecting autistic individuals from homelessness. Autistic individuals indicated that families, particularly parents, provided financial assistance, compensated for inadequate services, and advocated for their needs to ensure they could maintain access to support and accommodation (see Chapter 3). The results

of the current study demonstrated that parents and, to a lesser degree, partners tend to be the most effective protective factor for those who have not received an autism diagnosis. Due to the nature of autism, developing and maintaining social supports is particularly difficult for autistic individuals, so they tend to rely heavily on parental or partner relationships to provide ongoing support (Hong et al., 2013). Moreover, homelessness prevention programs that focus on repairing relationships and aim for individuals to remain in the family home despite conflict are the most effective (Sanbria, 2006). Alternatively, parent support may help people stay housed and avoid using homeless shelters. Shelter divergence (Shinn & Cohen, 2019) is a well-known form of support that has been shown to be effective in preventing homelessness. It aims to link those in crisis with family and friends to support them in the short term. Once short-term housing has been found, diversion programs focus on providing additional support to help the client regain long-term independent housing. Overall, services should aim to provide support to autistic individuals and their families that aim to reduce the risk of homelessness through maintaining relationships or linking to long-term accommodation options depending on the individual and family needs.

When compared to those with low AQ groups, their social supports differed substantially. Those with low AQ scores had higher chance of homelessness when they indicated a parent (father, mother) in their social support network and about equal chance of being homeless in the presence of other support (friend, sibling). It is arguable that the type of support that was being provided influenced these results.

Social supports play an important role in protecting individuals from homelessness. The study showed that those with high levels of autistic characteristics have different types of social supports from those with low levels. This finding implies that when the former experience a breakdown in social relationships, particularly with parents, they are more likely than the latter to become homeless. The systematic review (Osborn & Young, 2022; Chapter 2) and qualitative study (Chapter 3) demonstrated the importance of parent–child

relationships in protecting autistic individuals against homelessness; both reported that parents often supported their adult autistic children by providing support and accommodation. The results of this study support these findings, further demonstrating the importance of helping individuals to develop and maintain their social supports, particularly as individuals who become homeless are more likely to experience breakdowns in their social supports over time (Greene, 2014). Moreover, a rupture in family relationships is the most commonly reported cause of homelessness in the general population (Bower et al., 2018). Further, the qualitative study described in Chapter 3 suggested that reduced support from families, particularly parents, is attributable to misunderstandings and frustrations that lead families to stop trying to help autistic individuals.

Longitudinal research has indicated that family stress, divorce and parental health issues lead to homelessness later in life (Shelton et al., 2009). It is clear that these factors could weaken the parent–child relationship. Further, homelessness may be caused by the illness or death of a parent (Backer & Howard, 2007; Grant, 2017; Ryder, 2017). This is particularly problematic because specialised services in Australia have received little or no funding for providing supported accommodation in the event of the death of a carer or their inability to continue to care (O'Donovan et al., 2020). Provision needs to be made for autistic individuals who find themselves homeless after the death of a caregiver to transition into supported accommodation (Mercier & Picard, 2011; Nishio et al., 2015).

The presence of service support was found to be associated with homelessness in the present study. This could have various explanations. Those who are currently homeless require service support to a greater degree than those living in secure housing. However, the study considered only the presence or absence of support, so considering the types of services the homeless participants used might provide further insight; this will now be discussed. A slightly smaller proportion of the autism-diagnosed group reported using housing services (17.5%) than those without a diagnosis (16.7%). These proportions were higher than those for

mental health services. Of the homeless participants with an autism diagnosis, 19.8% reported using mental health services, whereas only 5.1% of the undiagnosed homeless participants reported doing so (see Appendix J20. The higher rates of homelessness among those using housing services may be due to their higher need to be engaged with such services. Although, engagement with these services is not related to reduced chance of homelessness which suggests that perhaps housing services are not providing adequate support to mitigate this risk of homelessness for autistic and non-autistic individuals. Housing service providers should continue to strive to create positive outcomes for individuals at risk of homelessness. It is important to continue to evaluate service models to allow more flexible service support to meet the individual needs to help prevent homelessness. When developing programs that focus on helping clients stay supported and making support more individualised, providers should consider the barriers (i.e., eligibility, capacity of services) to accessing these programs. Various suggestions for improving this support have been made in the literature (e.g., Casey et al., 2020), including that service organisations should provide ongoing advocacy as well as flexible support options that can meet individual needs.

Further, individuals with high AQ scores demonstrated equivalent probability of homeless outcomes for service support, indicating that the presence of professional support did not influence the relationship between high AQ score and homelessness. A large proportion of the high-AQ participants had not been diagnosed with autism; this would exclude them from service support. This further highlights the importance of early detection and a diagnosis for autistic individuals. The results imply that a diagnosis of autism can offer protection from homelessness that far exceeds the effect that social support might have. It is interesting that service support was not associated with homeless outcomes among those with a prior diagnosis. The results showed that people with high levels of autistic characteristics (as measured on the AQ) but no autism diagnosis are particularly vulnerable tohomelessness; however, the presence of a parent or partner was found to offer autistic individuals

protection. Providing further evidence for accepting hypothesis 4 and 5. This differed from those with low levels of autistic characteristics, who had a higher probability ofhomelessness despite the presence of a family member. Particularly concerning is that servicesupport was not associated with a lower probability of homelessness among the high-AQ group. The results demonstrate that a diagnosis and early support protect autistic individuals from homelessness. Given that diagnosis status and homeless outcomes were influenced by low SES scores, government funding should be provided for low SES families to assist in accessing specialised services for a diagnostic assessment. It is also important to ensure that both diagnostic and intervention programs are affordable and accessible.

4.5.4 Limitations

This study was limited by three main factors, the nature of self-reported data, the psychometric properties of the measures and the possibility of self-selection bias. Possible issues with the representativeness of the sample, each will be discussed in turn.

The efficacy of self-report measures with autistic individuals has been questioned, given the variability in ability to describe and report on internal states (Berthoz & Hill, 2005). Previous research has reported mixed results (Mazefsky, Kao, & Oswald, 2011); this limitation should be further investigated, as it was beyond the scope of the study. Moreover, the validity and reliability of the measures used in the study were limited, affecting the generalisability of the results (Shelton et al., 2009; Wenzel et al., 2012). The measure of service support was not validated; the question asking about the type of service was an open-ended question that was coded, which could have led to some under-reporting of the services a participant was accessing. It is important for future research to develop and validate some effective measures of service provider use and types of services provided and investigate which types of services are likely to prevent a cycle of homelessness for a person without family support or broader social support, particularly for clients with high levels of autistic characteristics.

It is also important for research to continue to focus on developing autism specific

measures with sound psychometric properties for the homeless population. A limitation due to using the AQ-50 was that other factors associated with an experience of homelessness could increase an individual's overall score. For example, a roofless person might agree more strongly with a question such as 'I find it hard to make new friends' because of the nature of their experience. Although, this sample may be less affected by this example given only 18% were experiencing rooflessness (see table 4.1). Further investigation should be conducted to validate the use of autism- specific measures in the homeless population. Additionally, the representativeness of the sample may be questioned due to the nature of the online sampling. The level of self-selection bias may be high; this is suggestedby the over-representation of non- diagnosed individuals with high AQ scores. Although thepatterns in the data reflect the overall sample in a convincing manner, it is important for future researchers to consider sampling from representative populations.

4.5.5 Research and Policy Directions for The Future.

Most importantly, homelessness services should screen and assess clients for autism to ensure the identification of underlying neurodivergence, to provide the opportunity to implement individualised support. The influence of SES should be considered in future research. Those with lower SES may be less able to afford diagnostic assessments, so government support should be provided to increase the accessibility of screening and diagnosis.

It is important for populations with high potential support needs, such as those experiencing homelessness, to be regularly screened for autism spectrum disorder. Screening should be conducted by trained professionals using assessment tools with sound specificity and sound divergent validity. Given the high co occurrence of autism and ADHD, future research should investigate the probability of homelessness in the presence of individual and dual diagnosis. Due to the heterogeneous nature of autism, support programs should be tailored to theindividual needs, that could be identified and communicated through client

advocates. Client advocates with knowledge and specific training related to autism may be able to provide autistic individuals with assistance in evaluating and communicating what support they need (Casey et al., 2020). Government funding should supplement services in order to make these adaptations possible. As well as examining how to improve service support, future research should focus onhow to help autistic individuals foster and maintain social supports, which are important in protecting them from homelessness. It is important to further investigate social supports to understand the specific characteristics (types of support this network provides) and whatmight help autistic individuals to maintain them.

4.6 Conclusion

The study described in this chapter contributes an important innovation to the comparative study of homeless populations, by evaluating known risks and identifying autistic characteristics that contribute to homelessness. The impact of diagnosis, AQ factor scores were compared for the known risk factors, autistic characteristics, the interactive (with known risk factors) and mediating effects (adaptive and executive functioning) of variables and protective factors.

First the results indicated that a diagnosis of autism may protect individuals from homeless outcomes. Although when considering AQ factor score, the present study indicated that high levels of autistic characteristics predicted homelessness outcomes for those not diagnosed with autism. It highlights the possibility of a high prevalence of undiagnosed autism in the homeless population. Further analysis of the data revealed that autistic characteristics contribute to the riskof homelessness but that this is not associated with higher levels of the known risk factors. Itis important to consider what factors might contribute to autistic individual's higher risk of homelessness.

Chapter 3 has indicated that unique characteristics of autism could contribute to the risk of homelessness; these include, but are not limited to, communication differences, restricted and repetitive behaviours, and sensory sensitivities. The results of this study

indicated that when other factors are held constant, there is an 85% probability that autistic characteristics influence homelessness. An investigation of the individual contribution of each autistic characteristics demonstrated no meaningful differences between the characteristics, indicating that they contribute to homelessness as a whole rather than independently. It was noted that the effect of AQ score on the probability of homelessness was influenced by interactions with SES and social support score. Higher SES provided protection from homelessness, for the high AQ group, whereas lower SES increased the probability of homelessness among participants with high AQ scores. This seems likely to bebecause low SES can be a barrier to accessing diagnostic assessments, services and housing. Further to these interactions, adaptive function (dependent on intellectual ability) mediated the relationship between AQ factor score and homeless outcomes suggesting that targeted intervention that has a focus on independent living skills (cooking and cleaning) mayhave positive implications for homeless outcomes.

Finally, the analysis of protective factors showed that parental support was the most effective type of support for participants with high AQ scores. This differed from those with low scores, who demonstrated little difference in risk of homelessness according to the support type. It is particularly concerning that service support did not lessen the chances of homelessness for participants with high levels of autistic characteristics. This study found that autism diagnosis and early support protect autistic individuals from homelessness. This study contributed to the research on the relationship between autismand homelessness—a corpus that has, to date, been limited—by being the first study of the unique effect that autism has on the risk of homelessness. Future research should focus on developing abridged versions of diagnostic assessments to shorten the diagnostic process, and government funding should be provided to low-SES families to subsidise the high cost of assessments.

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Chapter 5: Discussion

In this research project, the contribution of autistic characteristics to homeless outcomes was investigated in response to emerging evidence that autistic individuals may be at risk of homelessness. The studies reported in this thesis were aimed at identifying and examining the specific characteristics of autism that may contribute to homelessness and providing insight into their broader implications for access to services and support. This chapter examines how the study has contributed to answering the four research questions presented in Section 1.3, which were as follows:

1. Does autism diagnosis status predict the likelihood of homelessness?
2. What characteristics of autism are homelessness risk factors?
3. Do these characteristics predict homelessness better than other known risk factors (predisposing, current, perpetuating)?
4. Do adaptive or executive function levels mediate the relationship between autism and homelessness?
5. What are the protective factors against homelessness for autistic individuals?

In order to address the research questions, a review of the literature was conducted first. From the literature review it was evident that a higher proportion of autistic individuals experience the six known risk factors of homelessness (namely, negative childhood experiences, structural issues (lack of affordable housing), personal factors (co-occurrence ofmental health diagnoses, alcohol and drug use), number of social supports, social economic disadvantage and homeless transitions (Campbell, 2015; Stone, 2019; Stone, 2022). Beyond these known risk factors, the possibility of the additional contribution of specific autistic characteristics to the risk of homelessness werediscussed in Chapter 1. When these autistic characteristics (namely, communication differences, repetitive and restricted behaviours, sensory sensitivities,

imagination, attention to detail and attention switching) were poorly understood within services and the community this led to difficulties with accessing support services, employment and housing for autistic individuals. Given the overlap in homeless risk factors and the possible contribution of autistic characteristics, it is somewhat surprising that autism has received little attention within research in terms of the factors that contribute to autism increasing one's risk of homelessness. To collate the sparse literature focused on autism and homelessness a systematic review was conducted in Chapter 2. The systematic review found a higher prevalence rate of autism in the homeless community which was estimated around 12,3% (Churchard et al., 2019) A number of factors were thought to contribute to this high rate of autism in the homeless community namely, relationship difficulties, lack of opportunities and support, co-occurring issues, and rigidity inroutines. Chapter 2 concluded that further research related to autism and homelessness was needed, specifically research that focused on the contribution of autistic characteristics. In order to identify the specific autistic characteristics that contributed to homelessness for autistic individuals, five focus groups were conducted and reported on in Chapter 3. In this chapter I identified both systematic causes of homelessness (namely, lack of opportunity, work related issues, fitting into society and practical limitation) and the contribution of autism characteristics (namely, communication differences, restricted and repetitive behaviours and sensory sensitivities). In Chapter 3 I concluded that the next line of investigation should involve autism characteristics specific contribution to homelessness.

Given this, the contribution of the known risk factors of homelessness and autistic characteristics were compared according to diagnostic groups (self-reported autism diagnosis (yes and no) as well as AQ-50 score (high vs low) in Chapter 4 to ascertain the unique contribution of each factor to the probability of homelessness for autistic individuals.

Important differences were found when comparing self-reported autism-diagnosis groups, the autism diagnosis group had a lower probability of homelessness in the presence of all the known risk factors, with the exception of SES, compared to the non-diagnosed group that

demonstrated an increased probability of homelessness in the presence of these known risk factors. There was some evidence that the autism diagnosis group had a lower probability of homeless outcomes if they had lower SES, similar to the non-diagnosed group that demonstrated strong evidence of a higher probability of homelessness when SES scores were low. These results demonstrated that a diagnosis of autism may be a protective factor reducing one's risk from becoming homeless. When comparing groups according to AQ-50 score, the AQ-50 score contributed to homelessness risk, but this was independent of the known risk factors of homelessness. Alternative explanations of what may contribute to homelessness for this group were therefore discussed, including lack of opportunity (for employment, education, services and housing), co-occurring issues and diagnosis. ASD diagnosis was found to be associated with a lower probability of homelessness. However, there was a high rate of autistic characteristics among the homeless population, suggesting an underdiagnosis of ASD in this population. The potential contribution to homelessness of each autistic characteristic was examined; these investigations demonstrated the contribution of the following characteristics: communication differences, imagination differences and attention to detail. While there were no distinguishable differences between the predictive power of individual autistic characteristics on the risk of homelessness, their overall level as indexed by the AQ-50 increased the risk. These findings were then considered in terms of interactions with the known risk factors, including the relationships between autism diagnostic status, SES and social support. Level of adaptive functioning (dependent on intellectual functioning) mediated the relationship between high AQ compared to low AQ score and homelessness risk. These results indicated that support programs could be best placed when focusing on independent living skills to reduce autistic individual's risk of homelessness. Other protective factors were considered, specifically diagnosis, SES, and service and social support. Financial resources of a person (as measured by SES) provided protection from homelessness through accessibility to services and support. In the absence of an ASD diagnosis, parental

support was found to be a valuable source of protection.

With consideration of the arguments put forward in the data presented in the above four chapters; the followingthemes will be discussed: 1) the factors that may contribute to homelessness risk for autistic individuals; 2) the relatively high prevalence of autism in the homeless population; 3) the effects of autistic characteristics and their implications for homelessness risk; 4) the mediating effects of adaptive function levels; 5) the factors that protect autistic individuals from homelessness. The findings will be explored in terms of their broader implications for service support, policy development and future research.

The data presented indicates that autistic characteristics increase the risk of homelessness over and above the known risk factors. However, the risk is influenced by the individual's adaptive functioning, for example; independent living skills, community engagement, socialization and employment. This suggests that practical skills such as cooking and cleaning may be one helpful skill in retaining housing for autistic individuals without a diagnosis but with high autism characteristics. A diagnosis offers protection from homelessness. Other protective factors were high SES and family support. Each of the following five sections demonstrates that the risk of homelessness clearly depends on autism diagnosis status and AQ score; this section presents some plausible explanations of what makes autistic individuals more vulnerable to homelessness. Each theme will be discussed in relation to existing research as well as implications for policy, support services and ongoing research focus.

5.1 Factors That Can Contribute to the Risk of Homelessness for Autistic Individuals

The findings of Chapter 4 demonstrated important differences between the contributions of the known risk factors of homelessness, depending on autism diagnosis status and AQ score. The following factors were investigated in Chapter 4: childhood-related

factors, personal factors (mental illness or addiction), social support group size, structural factors (housing availability), prior homelessness experiences, and SES. The quantitative study (Chapter 4) found that high SES was associated with lower chances of homelessness for participants with an autism diagnosis not for those who had elevated autistic characteristics (high AQ-50 score). Social support was also identified as a protective factor against homelessness. When participants were grouped by AQ score alone (without taking into account autism diagnosis status) a number of known risk factors were found to increase the probability of homelessness for the high-AQ group, including structural factors, personal factors, inadequate social supports and low SES. High AQ score predicted higher homelessness, but when the known risk factors' effects were averaged across AQ score, no detectable differences were observed between the high AQ and low AQ groups. This indicates that levels of autistic characteristics affect homelessness but that this difference is not related to the known risk factors. This outcome guided the subsequent stages of the study to explore alternative explanations of the possible causes of homelessness among those with high AQ scores. It was noted that the qualitative analysis (see Chapter 3) identified a number of autism-specific factors (differing from the known risk factors) that can contribute to the risk of homelessness for autistic individuals. These were lack of opportunities for support, co-occurring conditions, and lack of diagnostic clarity. The first two of these will now be discussed. The third will be discussed in Section 5.1.3.

5.1.2 Lack of Opportunities to Access Support

Lack of opportunity to access support services, employment and education were found to be closely related to experiences of homelessness among autistic individuals. The effect of having fewer opportunities is far-reaching, as autistic individuals are less likely than non-autistic individuals to obtain full-time employment or further education after leaving school (Walsh et al., 2014). A number of obstacles to finding and staying in employment were identified in the qualitative study (Chapter 3), including service providers' policies and

procedures. In that study, participants indicated that autistic individuals were seen as different and were often excluded from service support by generic service models that lack specific training and resources to implement individualised support. Government support is difficult to access when autistic individuals are unemployed (Campbell, 2015; Stone, 2019). Without government support or funds necessary for securing housing, autistic individuals are more likely to become homeless.

Additionally, the variability in an autistic presentation underpinned many of the issues experienced by these individuals, including the lack of understanding and poor accessibility to service support. Such difficulties included miscommunication, inappropriate intervention, and negative experiences for both provider and client. These negative experiences and lack of training presented a further barrier to accessing the appropriate support that is critical for autistic individuals. According to Campbell's (2015) research autistic individuals frequently lacked knowledge about services, and more than half reported having negative experiences, when either trying to access or engage in services. Moreover, a large proportion of shelter workers reported that they had no formal training related to autism or autism specific programs and therefore felt ill-equipped to provide support to autistic individuals (Casey et al., 2020). This lack of training or specialised support may result in misunderstandings among both service providers and autistic individuals. The misunderstandings also extend to interactions with community members and support people resulting in the needs of autistic individuals being unmet and thus contribute considerably to their risk of homelessness. This then contributes to a cycle of inadequate employment and education opportunities.

5.1.3 Co-Occurring Conditions

Qualitative data included in Chapter 2, suggested that isolation, co-occurring mental health conditions, suicidal ideation and alcohol and drug use contribute largely to homelessness (Campbell, 2015; Casey et al., 2020; Davidson, 2007; Grant, 2017; Vana, 2020). There has been contradictory research reporting conflicting observations surrounding

alcohol and drug use amongst autistic individuals experiencing homelessness. According to some research, homeless autistic persons use alcohol and drugs less frequently than homeless people who are not autistic (Ryder, 2017), but others point to addiction issues as a contributing reason to autistic individual's continued homelessness (Casey et al. 2020). The quantitative study (Chapter 4) confirmed the contribution of co-occurring conditions to the probability of homelessness, finding that as personal risk factors (mental illness or addiction) had an interactive effect with higher autistic characteristics. This finding suggests that the effects of having co-occurring conditions acerbated the risk of homelessness. Autistic individuals are more likely to experience mental health problems (Baudewijns et al., 2018; De Alwis et al., 2014; Goodman, 1991; Toohey et al., 2004); this can prevent diagnosis and can create abarrier to accessing appropriate support particularly when co-occurring conditions are present, requiring specialised support from multidisciplinary teams.

5.2 The Higher Presence of Autism in the Homeless Population

The reasons for the higher prevalence of autism and autistic characteristics in the homeless population and the implications of these for diagnostic assessment and support were examined in this research project. Existing research has estimated that the rate of autism in the homeless population in developed countries to be at a rate of around 12.8%(Churchard et al., 2019; Kargas et al., 2019; Morton et al., 2010; Morton & Cunningham-Williams, 2009; Nishio et al., 2015; Pritchard, 2010), considerably higher than the .7%- 2.5% estimated for the general population (Australian Bureau of Statistics, 2017; Randal et al, 2016). Autistic characteristics were particularly prevalent among the quantitative study's sample, with 34.6% (81 of 234) of participants scoring above the threshold for autism (<26) as measured using the AQ-50 (see demographic table 4.1). This was a higher rate than that found in the study conducted by Kargas et al. (2019), in which 18.5% (12 of 65) of the homeless participants scored high on the AQ-10.

This difference might be due to different methodological approaches, difficulties with

obtaining a diagnosis of autism, or both. For example, Kargas et al. (2019) sample was homeless individuals recruited from homeless shelters, yet the current study had a portion that was recruited in homeless shelters, temporary accommodation services and online.

In the systematic literature review, a synthesis of the prevalence data was not possible due to vast differences in methodological approaches in the measurement of the diagnosis of autism in the homeless community. Notable methodological approaches to obtaining diagnostic clarification included the use of the WAIS, the AQ-10 and semi-structured clinical interviews with participants or their case managers (Churchard et al., 2019; Kargas et al., 2019; Nishio et al., 2015; O'Donovan et al., 2020). Two of these studies closely considered the DSM-5 criteria; however, the studies generalisability was considered limited (Churchard et al., 2019; O'Donovan et al., 2020) due to small sample sizes (n= 145) (O'Donovan et al., 2020) and because case management informants, not participants, were interviewed (Churchard et al., 2019). The conclusions of Chapter 2 imply that it would be helpful for future researchers to standardise their approaches to identifying autism in the homeless population so that studies could be compared more easily. Researchers have suggested that using gold-standard measures such as the ADI-R and ADOS-2 could be one effective way of standardising and streamlining the collection of prevalence data (Falkmer et al., 2013). However, these measures are often very time-consuming, so it is suggested that abridged versions be created and validated for the purpose of screening homeless clients for autism.

Chapter 4 used two self-report questionnaires (RBQ-2A and AQ-50) to identify autistic characteristics, as well as asking participants whether they had been diagnosed with ASD. The quantitative study (Chapter 4) is the first study of autism among homeless people to compare results based on both self-reported prior ASD diagnosis and autistic characteristics. It contributes considerably to knowledge by demonstrating that homelessness outcomes differ in important ways depending on autism diagnosis status and level of autistic

characteristics. First, autism-diagnosed participants had a lower probability of being homeless. Second, participants with high levels of autistic characteristics but no autism diagnosis had the highest chance of being homeless. This demonstrates that autism diagnosis considerably lowers homeless risk, and a diagnosis may be a protective factor. Naively one may argue that this is due to the autistic person who has been identified getting more supports but there are confounding variables that need to be considered. For example, obtaining a diagnosis requires access to support and education from parents and others as well as the financial resources to access these services. Hence, while it may appear a diagnosis is important, it could well be that the factors that contribute to receiving a diagnosis may be the protective factors.

The high levels of autistic characteristics as indexed by the AQ-50 among the homeless suggest that there is a possible high rate of underdiagnosis of autism among the homeless population. Various barriers to the early detection of autism may explain this. For example, autistic individuals are likely to have certain co-occurring conditions that can make diagnostic clarification difficult, and diagnosticians are more likely to diagnose these rather than autism (Fusar-Poli et al., 2020; Postorino et al., 2017; Soke et al., 2018). Ongoing difficulties with missed diagnosis, misdiagnosis and late diagnosis have been observed among autistic individuals, particularly among female people and ethnically diverse populations (Fusar-Poli et al., 2020; Gesi et al., 2021). This is due to various factors, including the overlap between ASD symptomatology and that of other conditions, the disparity between the presentations of internalising and externalising symptoms (Fusar-Poli et al., 2020; Postorino et al., 2017; Soke et al., 2018). Underlying autism may be mistaken for personality disorders, mood disorders, ADHD, schizophrenia or ID (Postorino et al., 2017; Soke et al., 2018). Moreover, among homeless populations, there is a greater-than-average prevalence of diagnosed mental health conditions such as personality disorders, mood disorders, ADHD and ID (Depp et al., 2015; Salavera et al., 2014; Spence et al., 2004). It is

plausible that these conditions may co-occur with autism or that their diagnoses could stem from misdiagnoses of autism. Therefore, the importance of regularly screening adults in the homeless community for autism using adequate screening tools that have sound specificity and sound divergent validity has been emphasised in this thesis. The importance of the early detection of autism is clear from the findings of all three studies (the systematic review and the qualitative and quantitative studies) that having an autism diagnosis lowers the probability of homelessness. The importance of diagnosis was ubiquitous throughout this thesis. Problems obtaining a diagnosis, delays in diagnosis, and difficulties adapting to diagnosis contribute to or a possibly confounded with a lack of support, increasing the risk of homelessness. The quantitative study (Chapter 4) demonstrated important differences between those with an autism diagnosis and those without. Those with a prior diagnosis of autism were less likely to become homeless. In fact, having an autism diagnosis was found to be the largest protective factor for autistic individuals. However, the caveats mentioned above regarding the confounding variables that affect obtaining a diagnosis should not be ignored. The qualitative research (see Chapter 3) indicated that diagnosis could provide protection from homelessness by improving access to support services. As mentioned aboveand in Chapters 3 and 4, it is necessary for support to meet the needs of the individual. Existing research has shown that tailored support programs that can be adapted to each individual's needs are the most effective (Grant, 2017).

From the quantitative study presented in Chapter 4 it was evident that those with high autistic characteristics but no diagnosis were at the greatest risk of homelessness. It appeared that this was because they had limited access to services and support, as well as autism specific support services. Research thus far indicates that generalised service models often fail to meet the individual needs of those with high levels of autistic characteristics, increasing their chances of homelessness (Stone et al., 2019). Service providers often misunderstand autistic characteristics as negative and fail to utilise the strengths of autistic

individuals (Stone, 2022). Autistic characteristics were found to contribute as a whole, rather than specifically, to a higher probability of homelessness. However, the qualitative analysis revealed some important differences between each of the characteristics, and the strengths of their effects were found in the quantitative study to differ (albeit not to a statistically meaningful extent), with communication differences, attentional differences and imagination differences associated with the highest probabilities of homelessness. Hence, the contribution of each characteristic was subsequently analysed in terms of how it might lead to reduced ability to access services and ultimately homelessness. The various autistic characteristics will be discussed in the next section, considering their contributions to homelessness risk.

5.3 Autistic Characteristics and Their Implications for Homelessness Risk

Autistic individuals possess specific risk factors and experience unique difficulties that may contribute to homelessness (Backer & Howard, 2007; Campbell, 2015; Davidson, 2007; Hurley et al., 2018; Popejoy, 2017; Ryder, 2017; Stone, 2019). In the present study, several autistic characteristics were shown, either qualitatively or quantitatively, to be associated with homeless status in the absence of diagnosis as discussed above. These characteristics are communication differences, rigidity of routines, sensory sensitivities, imagination differences and attention to detail.

5.3.1 Communication and Social Differences

Communication and social differences were found to be the largest contributor to homelessness. Both verbal and non-verbal communication differences were considered important by participants in the qualitative study (Chapter 3), who said they caused misunderstandings when dealing with service providers. The difficulties experienced related to varied communication skills among autistic individuals include difficulties with accessing support services and maintaining relationships, limiting opportunities for employment and housing.

Social communication differences are an important feature of autism that may negatively affect an individual's ability to engage with housing services and support providers (Stone, 2019). Having communication differences is strongly associated with being bullied and experiencing greater conflict, making it difficult to retain housing (Casey et al., 2020). All three studies described in this thesis confirmed the contribution of social communication differences to homelessness risk. The quantitative study (Chapter 4) revealed that although social communication differences increase the probability of homelessness among individuals with high levels of autistic characteristics, these differences were less likely to contribute to homelessness when considering autism diagnosis status alone. This suggests that communication differences are the most problematic when individuals do not have an autism diagnosis. Communication differences (such as trouble initiating conversations, lack of social reciprocity, poor eye contact) add to the risk of homelessness by causing misunderstandings in relationships and making individuals less likely to access education and support services. Difficulties with communication would heavily impede a person's ability to seek help. Given an inability to approach people is a diagnostic feature of the condition, it is therefore not surprising that autistic individuals may struggle to communicate their needs (Campbell, 2015; Evans et al., 2016; Stone, 2019).

If service providers and support staff cannot accommodate the communication differences or unique communication style of autistic people, an autistic person may have poor or non-existent relationships with service providers, support staff and employers. Developing and maintaining these relationships is essential to staying housed and to regaining housing when homeless. Hence, communication and social differences can make autistic individuals more likely to become homeless due to difficulties obtaining services and support.

These difficulties with obtaining services and support are problematic as autistic individuals are less inclined than other homeless groups to engage with service providers

once homeless (Pritchard, 2010). This may be caused by several factors, including poor serviceavailability, ignorance of autism among service staff, and the fact that service providers' premises are often sensory-rich environments, which the qualitative analysis (Chapter 3) identified as causing significant difficulties for autistic individuals.

5.3.2 Sensory Sensitivities

Only two prior studies have discussed the potential contribution of sensory sensitivities to the risk of homelessness (Campbell, 2015; Davidson, 2007).

The qualitative study (Chapter 3) highlighted the contribution of sensory sensitivities to the risk of becoming homeless. Autistic participants reported sensory overload (caused by sensory rich environments), resulting in fatigue and shutdowns. If service providers are unable to accommodate autistic individual's sensory needs, service facilities can become overwhelming and stressful. Physiologically, autistic individuals are less likely than others to be able to tolerate sensory-rich environments and form part of the diagnostic criteria for autism spectrum disorder. Overstimulation by sensory-rich environments may result in avoidance or autistic burnout, which decreases a person's ability to participate in community life effectively[9] (Mantzalas et al., 2022; Raymaker et al., 2019). The problematic effects of excessive sensory input reported by autistic participants included trouble maintaining their focus in loud environments and difficulty waiting in queues. These factors present an additional barrier to engaging with services, as well as interfering with daily functioning, resulting in difficulties in retaining housing.

5.3.3 Rigidity of Routines

Another important autistic characteristic associated with homelessness is having rigid routines (Ryder, 2017). In the absence of support, this can limit housing options. Rigidity is closely linked with other autistic characteristics—attention-switching, attention to detail and imagination differences—that necessitate additional support with problem-solving and goal-setting skills (Reed & McCarthy, 2011; Baron-Cohen et al., 2001; Crespi et al., 2016).

Without such support, a homeless autistic person can become psychologically stuck in their current situation and have trouble solving the problem of finding housing, resulting in longer periods of homelessness. This difficulty with problem solving may be misunderstood as noncompliance by staff, resulting in the person being refused services or persons becoming frustrated by multiple attempts to provide housing that does not properly accommodate the needs of the autistic client and simply refusing to offer them alternate options.

Although imagination differences and attention to detail are not mentioned in the DSM-5 as part of the diagnostic criteria for autism, they are assessed by the AQ-50; both of these behaviours underpin or are associated with restricted and repetitive behaviours and sensory sensitivities (Booth et al., 2013). In addition, they impact adaptive functioning (discussed in section 5.4 below). Their contribution to homelessness is an important finding of this study. No prior studies have investigated or alluded to the potential contribution of imagination differences (i.e., perspective taking skills, creativity and empathy) or high attention to detail as being associated with homelessness. It is suggested that imagination differences may make it more difficult to solve problems and generalise information (Crespi et al., 2016). Attention to detail may decrease the ability to think flexibly and increase the implementation of rules in a systematic way, resulting in autistic individuals becoming stuck (Baron-Cohen et al., 2009). Problem solving and cognitive flexibility are important skills for retaining housing and service support. When service organisations cannot assist with problem solving and cannot accommodate one's lack of cognitive flexibility, they may not be able to assist the autistic individuals to gain suitable housing. Further, without this support they may be less likely to stay in their homes. For instance, poor problem solving may lead to individuals becoming emotionally and behaviourally stuck, decreasing their ability to adapt to housing issues (such as conflict with housing officers or flatmates), resulting in housing instability (Johnson, 2001). This is particularly true for those autistic characteristics that are

[9] Autistic burnout is characterised as chronic exhaustion, loss of skills, and reduced tolerance to stimuli.

not consistent with lay perceptions of autism and therefore less frequently attributed to autism by the general public including service providers.

The identification and recognition of autistic characteristics in the general public and within homeless services are important given the unique contribution of these autistic characteristics to the risk of homelessness over and above the known risk factors. In the absence of diagnosis, this identification and recognition of autistic characteristics in housing services may lead to appropriate accommodations within services (for example, sensory rooms) and targeted intervention (such as, assistance with planning and problem solving) to reduce the overall probability of homelessness for autistic individuals.

5.4 Mediating Effects of Adaptive Function Levels

As discussed in the previous section, the present study found that autistic characteristics, in combination, contribute to homelessness risk. Once this had been established, the mechanisms underlying this contribution were investigated. Adaptive function was found to mediate the relationship between autistic characteristics and homelessness outcomes, this was dependent on the individual's intellectual functioning. Thiswas consistent with persons with high AQ scores being overrepresented in the homeless population.

Previous research has shown that autistic individuals who struggle with daily-living tasks such as cooking and cleaning, with social interaction and community involvement, and with finding and retaining employment (Thomas et al., 2011; Tillmann et al., 2019) may have difficulties staying housed (De Bildt et al., 2005; Pugliese et al., 2016; Tillmann et al., 2019). Moreover, Johnson (2001) proposed that a person's inability to handle problems flexibly as a result of having low adaptive functioning increases their chance of being homeless. The quantitative investigation revealed that intellectual ability (measured by the presence or absence of an ID diagnosis) mitigated the effect of adaptive functioning level.It is thus

possible that those with high AQ scores who lack adaptive abilities are likely to become homeless. However, a person's level of adaptability was based on their intellectual ability. For clinical practise, this clearly has ramifications. A recent systematic review of occupational therapy programmes for homeless participants found strong evidence that teaching life skills in both individual and group settings is beneficial (Thomas et al, 2011). Life skills can include increasing practical schools such as cooking, cleaning and money management but can also extend to connecting individuals with community organizations, increasing social connections and assisting individuals in employment settings (Thomas et al, 2011). Prior research has shown that adaptive skills can be developed when specialised assessmentand support are implemented (Thomas et al., 2011). Implementing such initiatives as a preventative intervention and evaluating their efficacy in lowering the probability of homelessness should be the focus of research. Moreover, it has also been demonstrated that specialised support programmes aimed at enhancing adaptive functioning not only reduce homelessness but also curtail risky behaviours and enhance mental health (Thomas et al., 2011). It is crucial to remember that the effectiveness of these programmes was greatly influenced by the clients' access to community involvement opportunities. As a result, it is suggested that all support programmes ought to include a strong social-inclusion focus. The findings of Chapter 4 and earlier study (Thomas et al., 2011) suggest that future research should concentrate on looking into therapies that enhance autistic individual's adaptive functioning in order to decrease homelessness. The data of chapter 4 suggests that whilst adaptive functioning is important, other mediators may influence the relationship between autism and homelessness. It was concluded that other mediating factors should be identified and investigated in future research. Given that this research is in its infancy other mediating factors should be identified using qualitative measures.

5.5 Factors That Protect Autistic Individuals From Homelessness

The studies described in this thesis showed that autistic characteristics add to the risk

of homelessness for autistic individuals. Homelessness research has indicated that preventing homelessness is important. A recent systematic review identified the need for efficient, effective programs that address the societal conditions that cause homelessness; the recommended programs included housing subsidies, eviction prevention, community-based services, well-timed engagement with support programs and proactive screening (J. R. Shinn et al., 2019). In the present research project, autistic individuals were found to be protected from homelessness by the presence of a number of similar factors to prior research, including housing support (affordable housing) and service support. Adding the additional protective factors of diagnosis and family support, these protective factors decreased the probability of homeless outcomes for autistic individuals.

5.5.2 Housing Interventions As a Protective Factor of Homelessness

In the systematic review (Chapter 2), important protective factors were identified, including gaining stable housing. Affordable housing was seen as the most effective way to reduce people's risk of homelessness (Parsell & Marston, 2012; Shinn et al., 2019). The housing market in Australia has become difficult to enter due to the rising house prices resulting in a housing shortage (Morris et al., 2022). This shortage in accommodation options has meant that housing services are often unable to match accommodation to the needs of autistic individuals, who have specific housing requirements related to their autism most notably their sensory needs and restricted and repetitive behaviours (i.e., routines). As well as being scarce, the accommodation available in the housing market is mostly unusable for this clientele as it does not meet the sensory needs of autistic individuals. Hence, it is important to strive towards developing affordable housing schemes that allow autistic individuals to access housing that meets their individual needs and preferences.

5.5.2 Social Support

The effects of relationships on homelessness risk were a common theme in the prior literature, as well as in the three studies described in this thesis. Three previous studies

reported that lack of social support was a substantial contributing factor to homelessness among autistic individuals (Backer & Howard, 2007; Popejoy, 2017; Ryder, 2017). As previously mentioned, differences in communication can limit a person's ability to maintain relationships (Casey et al., 2020). When relationship are compromised, support people stop trying to help autistic individuals. However, this study found that when these relationships are fostered, social relationship (particularly with parents) protect autistic individuals from becoming homeless by helping them access opportunities and support (Casey et al., 2020). In addition, study 3(Chapter 4) showed that in the presence of social support, the probability of homelessness decreases, offering protection to autistic individuals.

The nature of social support was an important focus of Chapter 3, reinforcing one of the themes of this thesis, namely that family support is important in shielding autistic individuals from homelessness. The protection provided by social supports for the neurotypical population has been well investigated (Colombo & Saruis, 2015; Dietrich-Ragon, 2015; Slesnick et al., 2008). How well social supports protect against homelessness depends on two factors, the size of the social supports and the nature of the support it provides (Chapter 3). Differences in social support size have been observed to influence the likelihood of an individual receiving support (Colombo & Saruis, 2015; Dietrich-Ragon, 2015; Slesnick et al., 2008). Both family and peer support were found to be important factors in mitigating the risk of homelessness in the research presented here. In Study 3 (Chapter 4) those without a prior diagnosis who reported having a supportive person in their social network had a lower chance of being homeless, regardless of that person's role. Additionally, regardless of autism diagnostic status, those with high AQ scores had a reduced probability of homelessness when they had a parent or partner supporting them. This differed from the data on the low-AQ group that were better protected by friend support. This suggests that in the absence of a diagnosis, autistic individuals may be supported to remain in housing and avoid homelessness. Prior research has used social support as one means of homeless prevention

programs such as shelter divergence, by placing individuals that are experiencing housing instability with their families or supports as a short-term solution until long-term sustainable housing is obtained. Prevention programs such as shelter divergence.

5.5.3 Family

Family support, particularly parental support, was identified in this research project as an important protective factor against homelessness. The qualitative study (Chapter 3) found that family support was the most important protective factor. The effectiveness of family support in providing advocacy and financial and housing support was identified. Parent–child relationships protect young people from homelessness (Backer & Howard, 2007; Popejoy, 2017). Moreover, it has been observed that homelessness prevention programs that focus on repairing relationships and aim for individuals to remain in the family home despite conflict are the most effective (Sanbria, 2006). Parental support seems to be the most common protective factor for autistic individuals without an autism diagnosis. Parents help advocate for support programs, adaptations and accommodations within services, in higher education and with employees (Boshoff et al., 2016; Townson et al., 2007). Hence, it is important to focus support programs on helping people maintain and regain connections with their parents. It is also important to provide support and education regarding navigating the NDIS to parents so that they can assist their child to access autism specific service that can continue to support these children into their adult lives. In an ideal world, one would try to minimise the need for parents to advocate in this way for their children. This would reduce the burden placed on parents and help those who do not have this resource to achieve better outcomes.

Previous research has indicated that the risk of homelessness is greater with an absence of family support (Backer & Howard, 2007; Popejoy, 2017). Autistic individuals may be vulnerable to homelessness if they often have to move between their family's home and care systems such as foster care. The death of a caregiver was also thought to significantly increase the chances of an autistic individual becoming homeless (Backer &

Howard, 2007; Ryder, 2017). Likewise, having inadequate support systems because of being unable to live at home has been associated with becoming homeless (Ryder, 2017). Some researchers found that social difficulties, such as relationship breakdowns, conflict and bullying strongly contributed to the risk of homelessness (Casey et al., 2020). In the event that family support is unavailable; service organisations provide the most protection against homelessness for autistic individuals.

5.5.4 Organisational Support

It has been identified in this thesis that there is a need for specialised support for autistic individuals and their families to prevent homelessness. The qualitative study (Chapter 3) showed that autistic individuals need housing services and support that accommodate their individual needs, including sensory sensitivities and communication needs. The need for specialised services for the autistic community has been a focus of research for several years. Specialised services can take a number of forms. Common features include in-depth understanding of autistic characteristics and co-occurring issues; individual needs assessments; and input from psychologists and occupational therapists with prior working experience with neurodivergence (Siew et al., 2017). It is clear from the results presented in this thesis that accommodations should focus on sensory needs, communication style, routines, and problem-solving and goal-setting skills, while also allowing for the functional capacity of the individual and avoiding causing autistic burnout. These findings are consistent with prior research that highlighted the efficacy of intervention that focus on problem-solving and goal setting (Mantzalas et al., 2022; Matson & Shoemaker, 2009). Further, specialises services should develop autism-specific training and autism awareness in housing services, as discussed above. Homeless shelters should assess clients for autism (and specific characteristics) when completing intake assessments and provide individualised support based on each client's skills and areas of need.

It was interesting that the quantitative study found that participants without an autism

diagnosis had a higher probability of being homeless if they reported using support services. No distinguishable differences in the probability of homelessness in the presence of support services were observed for the other groups (non- diagnosed. AQ50). This higher rate of homelessness was attributed to the higher need for support services when homeless.

The importance of service provision in preventing homelessness is clear. Providing specialised support to reduce the likelihood of homelessness should be considered when providing services and developing policies.

5.5.5 Advocacy

One clear implication of this research is the need for autism advocates in homeless shelters to help staff communicate with autistic individuals and provide for their needs. The effectiveness and importance of advocates for autistic individuals have been demonstrated in the UK, which has a number of legislative requirements aimed at remedying deficiencies in service provision and support for autistic individuals (Casey et al., 2020). Several advocacy groups have been established to ensure that the needs of autistic individuals are communicated and adhered to during both policy development and community engagement (in services, education, employment and housing) (Watts, 2017). In Australia, service coordinators and mentors, funded by the NDIS, often act as advocates for autistic individuals. When services and support are not available or not being used, parents often provide the necessary advocacy (Boshoff et al., 2016; Townson et al., 2007). The need for parents and service staff to act as advocates may reflect the lack of government policy on advocacy in Australia. Because of the importance of advocacy in identifying and communicating the needs of autistic individuals, it would be beneficial for governments to provide additional funding to homelessness services and to autistic individuals, to pay for advocates to provide support with communication and defuse misunderstandings between service providers and clients. Grant (2017) found that autistic individuals could successfully navigate homelessness services that were flexible enough to provide tailored programs and accommodate individual

needs. The need for this flexibility could be communicated through advocates.

5.5.6 Socio-Economic Status

Social economic status has been linked to increased risk of homelessness in prior research (Grattan et al., 2022). For some individuals, it may be difficult to obtain a diagnosis due to low SES. High- AQ participants with lower SES had a higher probability of being homeless. This may be attributed to their not having the financial resources required to obtain a diagnosis. The SES of individuals and their support people greatly affect how easily a person can obtain and retain support as well as housing (Grattan et al., 2022). Those with low SES may lack the financial resources to access diagnostic assessments, which could prevent early detection of autism and make it hard to obtain support. Without service support and diagnostic clarity, autistic individuals aremore likely to become homeless (see Chapter 4). The results of this thesis demonstrate that government funding is needed to allow low-SES families to access diagnostic screening and assessment. It is clear that given the longstanding link between low SES and the increased risk of homelessness that low income individuals should have the opportunity to access services and support to remain in housing.

5.6 Limitations

Along with the findings, a number of limitations have already been discussed, including the self-reported data that could have influenced the results (see section 4.5.5).

This research project used several methodological approaches that relied on self-reported data. The limitations of some of the approaches have been discussed in the literature. Moreover, concerns have been raised about the sensitivity of the AQ-50, with one study suggesting that it does not correlate well with other autism specific measures such as the ADI-R (Bishop & Seltzer, 2012). This highlights the need to develop valid and reliable measures for both diagnostic and research purposes.

Also, a number of the self-report homelessness risk factor measures that were used in this research have yet to be validated, limiting the results' generalisability. Future research

should validate these or other measures in homeless populations. The findings of the systematic review (Chapter 2) indicated that gold-standard measures such as the ADOS-2 should be used to identify autism in research studies. These measures are often time-consuming, so it would be useful to develop abridged versions that could be used as screening tools by service organisations and in research.

5.7 Future Directions

This study has a number of important implications for clinical practice. Homelessness services should routinely screen their clients for autism; education and support should be provided to families and staff working with autistic individuals; and advocates are needed to help autistic individuals deal with service organisations. These will be discussed in more detail below.

The findings also suggest a future research direction. It was found that autistic characteristics add to the risk of homelessness. It was also shown that these characteristics' relationship with homelessness risk can be mediated by other variables that are not diagnosticfeatures but are closely related to autism, such as adaptive function levels. This indicates that daily-living skills could be one focus of intervention that may reduce the chance of homelessness for this group. The clinical implications are equally important. First, due to the protective effect of a diagnosis, it is important for service providers to conduct regular routine screening for autism. Some barriers to diagnostic procedures should be considered when implementing diagnostic screening in homeless populations, such as implementing tools, accessing historical information and co-occurring conditions. Existing tools may be difficult to implement among the homeless population. Accessing historical information related to childhood experiences for diagnostic clarity can also be difficult for homeless individuals. Given the high presence of co occurrence and preexisting diagnoses amongst homeless individuals, differential diagnosis requires clinical expertise (Fusar-Poli et al., 2017). Thus, to identify autism among homeless clients, it may be beneficial to develop a triaging system sothat screening can be conducted by the provider's staff

and clients who meet the threshold can be referred to an onsite psychologist for diagnostic clarification.

Second, the protective effects of family support cannot be underestimated. Autistic individuals without an autism diagnosis are likely to rely on their parents for support. Misunderstandings and mental health issues among parents can result in family membersreducing or withdrawing their support. It is clear that family members, particularly parents, need adequate support from specialised services as their children reach adulthood. This willallow autistic individuals to widen their support network beyond their parents to specialisedservices and support workers available to these individuals through the NDIS.

Further, this study confirmed, that there is often a lack of understanding of autism among service organisation staff, who need specific training to support their autistic clients. Homeless service providers that work with autistic individuals should therefore review their current policies and provide appropriate training to staff. Governments should allocate funding to homelessness services to implement and tailor support to meet the needs of autistic clients. Training should raise awareness of complex presentations, such as co-occurring conditions, which are common among autistic individuals. These recommendations are particularly pertinent to supporting those in the homeless population who report that they lack trust in service providers, because this decreases the likelihood that they will be transparent when sharing information about themselves. Previous research focused on enhancing understanding of autism in educational settings has pointed to the efficacy of implementing education at the university level as well as ongoing training once qualified to ensure quality up-to-date knowledge of autism amongst professionals (Gomez-mari et al., 2022). Therefore, universities and homeless shelters should be provided training related to autism.

Beyond training, government funding should allow for the identification of autism (and related characteristics) when completing intake assessments and provide individualised support based on the client's skills and areas of need. Finally, the implications of this study

suggested the importance of involving autism advocates in service provision to compensate for both deficiencies in staff knowledge and autistic individual's communication difficulties. Future research should investigate the effectiveness of using autism advocates in homeless services.

5.8 Summary

This research has identified the risk and protective factors of homelessness for autistic individuals. The higher prevalence of autism in the homeless population was confirmed in the literature review (Chapter 1) systematic review (Chapter 2). Further, the quantitative study found that a high proportion of homeless participants had high AQ scores but had no prior diagnosis of it, indicating that in the homeless population, there are high levels of undiagnosed autism and autism misdiagnosed as other conditions. This could have multiple causes, including co-occurring conditions and environmental factors that make diagnostic clarification difficult.

Regardless of autism diagnosis status, all autistic characteristics were found to contribute to homelessness in addition to the known risk factors. Qualitative data (Chapter 3) identified that autistic characteristics contributed to homelessness (namely, communication differences, rigidity of routines and sensory sensitivities) and identified the need for quantitative research. In the final quantitative study, some characteristics had a stronger probability of homelessness, these were communication differences, rigidity, attention-switching and imagination differences. It was observed that these characteristics add to homelessness risk in important ways, such as by causing misunderstandings in relationships and with service providers and thus reducing the autistic person's access to education, employment and support.

The relationship between AQ-50 score and homelessness was mediated by adaptive function level, dependent on intellectual functioning. Having low adaptive function was found to increase the likelihood of an autistic person being homeless, largely because of its

effect on independent living skills.

Protective factors against homelessness were also studied. Autism diagnosis was found to be paramount, with SES, social, parental and service support being the next most important factors. Low SES was found to be a barrier to accessing an autism diagnosis, increasing the probability of homelessness. Importantly, autistic individuals with an autism diagnosis were less vulnerable to the homelessness risk associated with small social support network. Undiagnosed autistic participants were often dependent on parental support. The protective effectiveness of social support was found to depend on the relationship (e.g., parent, sibling, friend) and what kind of support the person provided.

The findings about adaptive function and protective factors suggest two future research topics. The first is how to develop and implement effective interventions to help autistic individuals improve their independent living skills. The second is how to facilitate access to affordable diagnostic assessment and adequate support for autistic individuals and their families.

The findings can be summarised as follows. First, there is a greater-than-average prevalence of autism, particularly undiagnosed, in the homeless population. Second, communication, rigidity, imagination differences and attention-switching increase autistic people's chances of homelessness. Finally, the detection and diagnosis of autism offer autistic individuals the greatest protection from homelessness, and the additional protection provided by family support and specialised professional support that accommodates individual needs is essential.

This study has important implications for service providers and researchers. Regular routine screening for autism would be an important first step towards reducing autistic clients' homelessness risk. Second, staff should be provided with training to minimise misunderstandings. Third, service provision should be implemented flexibly to meet the needs of the individual. Fourth, autistic individuals should be provided with advocates to help

them identify and communicate their individual needs. Finally, researchers should develop time-efficient, standardised methodologies to ensure that data can be collected effectively and compared meaningfully. It is hoped that the results lead to training in specialised services and homeless services to allow for the implementation of individualised support programs to autistic individuals in order to avoid homelessness.

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Appendices

Appendix A: Table 2.1. Risk of Bias for studies based on the Critical Appraisal Skills program criteria

	1. Was there a clear statement of the aims of research?	2. Is a qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Were the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?
Hurley et al. 2018	✓	✓	✓	✓	✓	No	No	✓	✓	✓
Davidson 2007	✓	✓	✓	✓	✓	No	No	No	✓	✓
Stone 2019	✓	✓	No	No	No	No	No	No	✓	✓
Morton et. Al 2009	✓	✓	✓	✓	✓	No	✓	✓	✓	✓
Nishio et al. 2015	✓	✓	✓	No	✓	No	✓	✓	✓	✓
Pritchar d 2010	✓	✓	✓	No	✓	No	No	✓	✓	✓
Morton et. al. 2010	✓	✓	✓	✓	✓	No	✓	✓	✓	✓

	1. Was there a clear statement of the aims of research?	2. Is a qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Were the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?
Backer & Howard (2007)	✓	N/A	N/A	N/A	✓	NA	✓	✓	✓	✓
Campbell (2015)	✓	✓	No	✓	✓	No	No	✓	✓	✓
Churchard et al. (2019)	✓	No	✓	No	✓	✓	✓	✓	✓	✓
J. A. Frazier & Carlson (2005)	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓
Kargas (2019)	✓	✓	✓	Small sample	✓	✓	✓	✓	✓	✓
Evans (2011)	✓	✓	✓	✓	✓	✓	No	✓	✓	✓

	1. Was there a clear statement of the aims of research?	2. Is a qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Were the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?
Popejoy (2016)	✓	✓	✓	NA	NA	✓	✓	✓	✓	✓
Backer (2007)	✓	✓	✓	NA	NA	✓	✓	✓	✓	✓
Ryder (2016)	✓	✓	✓	✓	No	✓	✓	✓	✓	✓

Abbreviation: ✓, criterion met.

Appendix B: Table 2.2. Demographic factors within study 1

	1. Age	2. gender	3. Race	4. SES
Hurley et al. 2018	N/A reported that 50% of children were under 5	1 Male 6 Female	7 white/non-Hispanic	Education: Bachelor 3 Masters 3 PHD 1
Davidson 2007	NA	Female	NA	NA
Stone 2019	39	2 Male	NA	Low SES
Morton et. Al 2009	20-29= 23 30-39 = 14 40-64 = 25	46 Male 16 Females	African American = 58 Caucasian = 4	Education Less than 8th grade = 11 Less than high school= 50 GED= 2 Highschool = 15 College= 3
Nishio et al. 2015	20- 29 = 5 30 – 39 = 15 40-49 = 22 50-59 =31 60- 69 = 33	106 Male 8 Female	NA	NA
Pritchard, 2010	21-58	11 male 3 Female	NA	Oxford graduate – learning disability

	1. Age	2. gender	3. Race	4. SES
Morton et. Al. 2010	M = 35.87 (SD =11.60) Mdn = 34.50 mode = 42, range = 20–64	45 Male 15 Female	African American = 56 Caucasian = 4	Education Less than 8th grade = 11 Less than high school= 29 GED= 2 Highschool = 15 College= 3
Backer & Howard (2007)	NA	N/A	N/A	NA
Campbell (2015)	NA	NA	NA	NA
Churchard et al. (2019)	Mean = 48.9 (SD =12.7)	Female =46 Male =91	106 born in the UK/ Republic of Ireland	NA
J. A. Frazier & Carlson (2005)	NA	N/A	N/A	NA
Kargas (2019)	Age groups: 18-25, n = 13; 26–30, n = 9; 31–60 n = 43).	62 males 3 females	NA	NA
Evans (2011)	NA	NA	NA	NA
Popejoy (2016)	NA	NA	NA	NA
Backer (2007)	NA	NA	NA	NA
Ryder (2016)	Median: 50 years old (range: 23 to 77 years	large majority were male	White British.	NA

	1. Age	2. gender	3. Race	4. SES
Grant 2016	Range: 31- 65	7 males	White British 4	NA
	Median 55	1 fm	French 2	
		I intersex	Un 1	

Appendix C: Table 2.3. Study Characteristics for qualitative data

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
1	Backer & Howard (2007)	Review the literature on intellectual disabilities and autism in homeless communities	Lit review	Lit review	Lit review	autistic individuals are susceptible to homelessness due to a lack of family support due to foster care, parents becoming diseased. They are vulnerable when services are unable to provide support.
2	Popejoy (2016)	To review the literature on Autism and homelessness	Lit review	Lit review	Lit review	autistic individuals require living facilities that are staffed 24/7 to support daily living. As autistic individuals get older it becomes more difficult for their families to look after them, leading to reduced support.

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
3	Ryder (2016)	To identify the characteristics of homeless adults with elevated characteristics of autism	Interview with case workers. Audio recorded	106 homeless individuals (as reported by 9 key workers) Comparing non ASC to ASC	deductive content analysis	The ASC homeless group was older. Had been homeless longer. Homeless cycles were related to the death of a parent, inability to maintain independent living, declining accommodation options and lack of support systems for autistic individuals. Alcohol and drug use was significantly lower in the ASC group
4	Kerman, Gran-Ruaz, Lawrence and Sylvestre (2019)	Evaluate service experiences of individuals that had experience homelessness	Structured interview Audio recorded	52 currently and formally homeless individuals with mental health issues	Thematic analysis	Homeless participants may not trust service providers enough to disclose information and service providers were often seen as judgemental.

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
5	Campbell (2015)		Semi structured interview Audio recording	12 autistic individuals experiencing homelessness.	Thematic analysis	A number of factors increase the risk of homelessness for autistic individuals including sensory sensitivities, social communication differences, unemployment, relationship breakdown, professionals understanding
6	Davidson (2007)	To gain perspective of the experiences of autistic women	Analysis of 16 books	16 books with first-hand accounts from autistic women	Thematic analysis	Loneliness, sensory overload and co-occurrence of mental health issues are related to experiences of homelessness.

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
7	Grant (2016)	To investigate the risk factors of homelessness for autistic individuals	Structured interview Audio recorded	6 people with experience of homelessness that were also autistic	Critical realist epistemology. Interactive	Risk of homelessness related to loosing connections this could occur through a number of means society politics culture (discrimination), services, personal relationships and environments (housing).

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
8	Casey et. al (2020)	Explore the lived experience of autistic individuals that experience homelessness and evaluate service providers knowledge of autism	Narrative interviewing	3 autistic individuals 206 workers	Cross case analysis	Family difficulties including abuse, trauma and bullying, lack of early diagnosis, lack of belonging. Found it difficult to access services due to the environment, lack of awareness from staff. 85% had received no autism related formal training. 92% reported that there were no specific interventions or arrangements for people with autism within their services.

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
9	Vana (2020)	Case description of two individuals with intellectual disabilities that were experiencing homelessness	Record review	2 autistic individuals with intellectual disabilities	Case description	A number of factors were present with in the cases, a breakdown in family relationship, running away from home and refusing family support, irregular medication, and suicidal ideation.
10	Stone (2019)	A narrative 2 autistic adults that are experiencing homelessness	Semi structured interview Audio recorded	2 males	Thematic analysis?	The risk of homelessness was attributed to bullying, abuse, Lack of social network. Experiences of homelessness included insights into shelter life and the impact on mental and physical health. Employment, re-establishing connections and independence were seen as important in regaining housing after a period of homelessness.

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
11	O'Donovan et al. (2020)	To develop a greater understanding of what factors ledto autistic individuals becoming homeless	unstructured phone interview – open ended questions transcribed verbatim extraction of data from service data base	10 individuals experiencing homelessness 6 workers 145 families identified as homeless	social constructionist ground theory	Participants identified that there was a lack of available housing that was stable. 42.5% of visits to crisis accommodation was due to the death of a caregiver.
12	Hurley et. Al. (2018) Infants & Young Childre	To develop a greater understanding of homeless families and their needs withinshelters.	Semi structured interview Audio recorded	7 people 1 male 6 females	constant-comparative method	autistic children that were living in homeless shelters found it difficult due to the lack of routine.

n

Study number	Author (s) (year) Publication	Aims	Qualitative data collection method and recording method	Sample	Data analysis method	Key findings
13	Pritchard (2010) Exeter city council	To evaluate the effectiveness of using a individual budget for homeless individuals with mental illness and alcohol abuse experiencing homelessness	Structured interview	14 entrenched homeless participants 9 with autism spectrum disorder	Cost benefit analysis	The effectiveness of the individualized budget was clear, whilst diagnostic proceedings were unclear 9 out of 14 homeless participants were diagnosed with Aspergers and/or autism.

Appendix D: Table 2.4. Homelessness status and definition in each study

Study number	Author (s) (year) Publication	Aims	Definition	Types of homelessness
1	Backer & Howard (2007)	Review the literature on intellectual disabilities and autism in homeless communities	Homelessness defined as roofless, but also living in a situation of insecure tenancy.	Rooflessness and temporary accommodation 80% have intellectual disabilities
2	Popejoy (2016)	To review the literature on Autism and homelessness		
3	Ryder (2016)	To identify the characteristics of homeless adults with elevated characteristics of autism	Homelessness defined as roofless, but also living in a situation of insecure tenancy	42% were living on the street 24% in shelter accommodation and remaining were in temporary accommodation. Average length of homelessness was 10 years
4	Kerman, Gran-Ruaz, Lawrence and Sylvestre (2019)	Evaluate service experiences of individuals that had experience homelessness	Homelessness defined as spent one night in a homeless shelter or on the street.	Of the 52 participants half were currently homeless.
5	Campbell (2015)		Homelessness defined as roofless, but also living in a situation of insecure tenancy	14 homeless – all had experienced couch surfing, transitional accommodation
6	Davidson (2007)	To gain perspective of the experiences of autistic women	Not clearly defined	One homeless woman that had lived on the street, in and out of homelessness several times

Study number	Author (s) (year) Publication	Aims	Definition	Types of homelessness
7	Grant (2016)	To investigate the risk factors of homelessness for autistic individuals	Homelessness defined as roofless, but also living in a situation of insecure tenancy	Of the 6 participants 3 were rough sleepers, one slept in a homeless shelter and the other 2 temporary accommodation. Homelessness persisted for an average of 3 years
8	Casey et. al (2020)	Explore the lived experience of autistic individuals that experience homelessness and evaluate service providers knowledge of autism	Homelessness defined as roofless, but also living in a situation of insecure tenancy	Of the participants 42 lived in emergency accommodation (40%), 37 in supported housing 35%, and 27 in treatment and recovery services 25%
9	Vana (2020)	Case description of two individuals with intellectual disabilities that were experiencing homelessness	Not clearly defined	Two individuals one both with shelter experience
10	Stone (2019)	A narrative 2 autistic adults that are experiencing homelessness	Homelessness defined as roofless, but also living in a situation of insecure tenancy	two rough sleepers that had been in sheltered accommodation

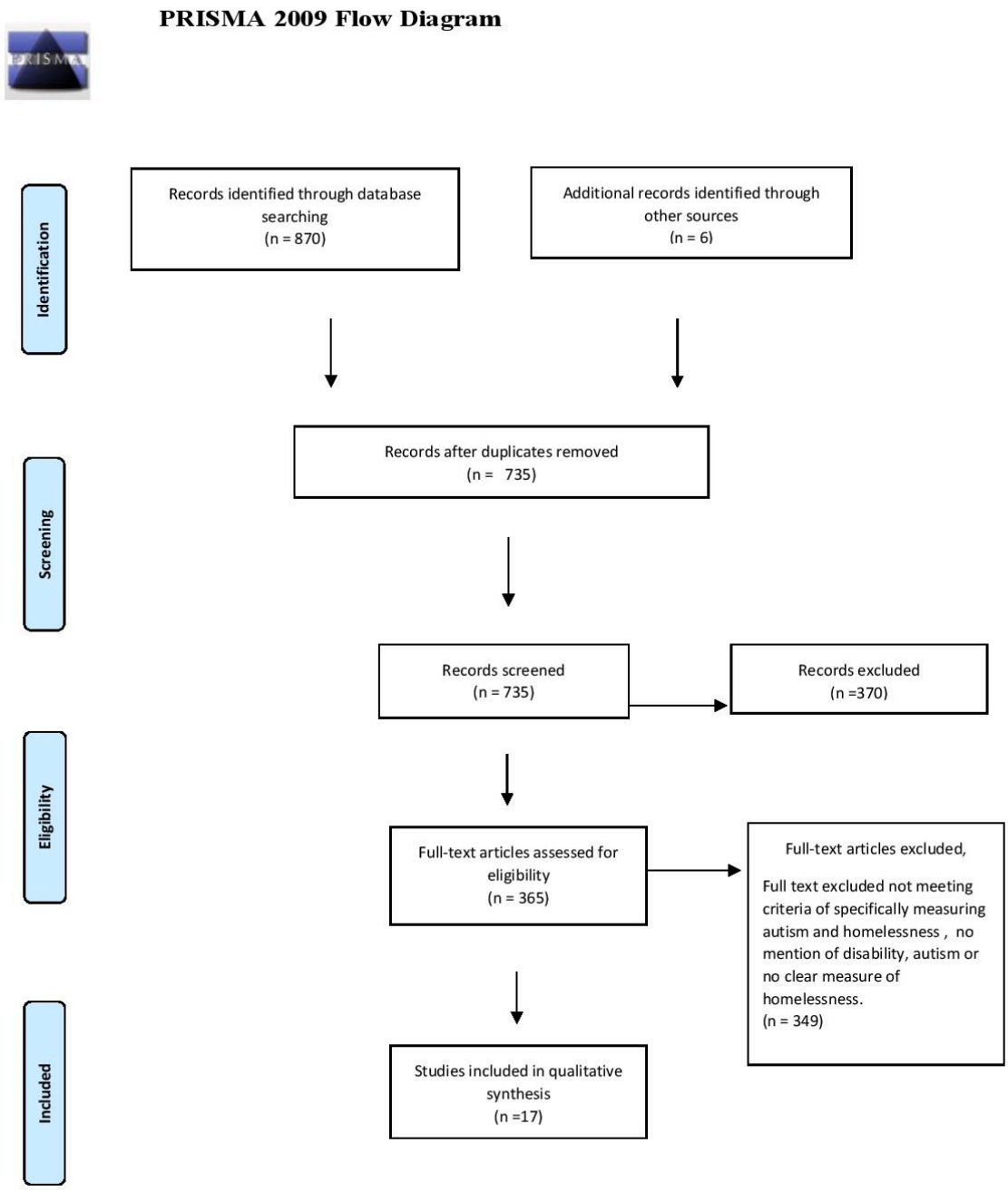
Study number	Author (s) (year) Publication	Aims	Definition	Types of homelessness
11	O'Donovan et al. (2020)	To develop a greater understanding of what factors led to autistic individuals becoming homeless	Homelessness is considered roofless, but also living in a situation of insecure tenancy, inadequate and inappropriate housing in that it fails to meet the needs of the people living there.	3 participants identified that they had experienced rooflessness, others reported staying in homeless shelters, couch surfing and utilising other forms of emergency accommodation. No information was collated about the duration of homelessness however 12% of the sample were on the waitlist for housing for up to 10 years.
12	Hurley et. al. (2018) Infants & Young Children	To develop a greater understanding of homeless families and their needs within shelters.	Economic hardship or loos of housing, transitional accommodation, shelters, rooflessness	In the past 5 years, all 7 were in transitional accommodation or rooflessness. Children and their families
13	Pritchard (2010)	To evaluate the effectiveness of the Devon individualized budget project	Rooflessness and entrenched sleepers.	All 14 participants were entrenched sleepers characterized by the duration that they had slept rough and refusal for support and accommodation.

Appendix E: Table 2.5. Temporal arrangements of second order constructs

Temporal sequence used to organize second order constructs	Synthesized label for related second order constructs across papers	Summary definition (translation) of the second order constructs	Papers that included contributing second order constructs.
Relationship difficulties	Relationship breakdown Bullying and exploitation Communication difficulties	A lack of social supports and/or loosing relationships through foster care, losing a family member or getting kicked out. A number of papers cited bullying as a contributing factor Communication differences and a lack of understanding were thought to make relationships hard to maintain.	1,2,3,5,9,10,11
Opportunity and support	Issues with gaining a diagnosis Gaining appropriate housing service providers employment and education	Issues with gaining an early diagnosis, delays in diagnosis and adapting to this diagnosis were thought to limit supports The lack of housing options matched to needs were sparse. Maintaining housing was also seen as difficult. Negative experiences in homeless services were common. 85% of homeless service providers lacked knowledge regarding autism and this led to a lack of targeted intervention Lack of ability to gain and maintain employment, paperwork was seen as a large barrier	1,2,3,4,5,7,8,9,10,11

Temporal sequence used to organize second order constructs	Synthesized label for related second order constructs across papers	Summary definition (translation) of the second order constructs	Papers that included contributing second order constructs.
Co-occurring issues	Mental health issues Isolation Sensory sensitivities Lack of resilience and independence Drugs and alcohol	Suicidality and negative cognitions were common. The inability to connect with others led to isolation and feelings of loneliness which prevented help seeking. Sensory sensitivities made accessing services difficult A lack of independence and resilience made it difficult to access and maintain long term housing. Some papers indicate a reduced use of drugs and alcohol whilst others believe this has an increased presence	3,5,6,8,9
Rigidity/ routines	Adaptions and changing routines	Differences with flexibility and adapting routines were thought to led to problems such as failure to make appointments, take medication and cope with daily demands. The inability to maintain a routine and lack of structure were thought to be particularly problematic.	9,10,12

Appendix F: Figure 2.1. PRISMA inclusion flow diagram



Appendix G: Focus Group Questions

First, I want to open up a broad question, and then we will look at the specific ASD criteria. What ASD characteristics do you think increase [the] chances of someone becoming homeless?

The first criterion is difficulties with social communication and social interaction across contexts. We will talk about each of the subcategories in a moment, but, broadly, would you say communication difficulties and social interaction difficulties may impact [the chances of] a person with ASD becoming homeless?

How so?

Do you think that inability for a person to have effective social and emotional back-and-forth relationship[s] with others may lead to homelessness?

How so?

What about inability to hold back-and-forth conversation—[do you think that] may lead to homelessness?

How so?

Now I am going to list a number of criteria related to abnormal social approach. Here is a copy of them written as well. Do you think that any of these may lead to homelessness?

How so?

Do you think that overreaction or under-reaction to sensory inputs may lead a person to becoming homeless?

How so?

Do you think that those who lack shared interests may have an increased chance of homelessness?

How so?

Do you think those with an inability to initiate social interactions may [find that it] lead[s] to homelessness?

How so?

Do you think that those with poor non-verbal communication may [find that it] lead[s] to

homelessness? You have been provided [with] a list of characteristics thought to underpin ASD—discuss which ones, if any, do you think may contribute to homelessness:

- eye contact
- body posture
- gestures
- volume, pitch, rate and rhythm
- affect
- lack of coordination between verbal and nonverbal communication.

Do [you] think that those with an inability to maintain relationships to an appropriate level may [find that it] lead[s] to them becoming homeless?

Do [you] think that those with difficulties adjusting behaviour to suit social contexts may [find that it] lead[s] to them becoming homeless?

Do [you] think that those with inability to share and [engage in]imaginative play may [find that it] lead[s] to them becoming homeless?

Do [you] think difficulties making friends may lead people to become homeless?

Do [you] think the lack of interest in others may lead them becoming homeless?

The next part of the ASD characteristics that we will focus on is the repetitive patterns of behaviour, interest, or activities.

Do [you] think repetitive speech may lead to people becoming homeless?

Do [you think] repetitive motor movements may lead [to] people becoming homeless?

Do [you] think the repetitive use of objects may lead to people becoming homeless?

Now we will focus on adherence to routines and patterns of behaviour, as well as resistance to change.

Do [you] think that adherence to routines may lead to people becoming homeless?

Do [you] think that ritualised patterns of verbal or nonverbal behaviour may lead to people becoming homeless?

Do [you] think that excessive resistance to change may lead to people becoming homeless?

Do [you] think that rigid thinking may lead to people becoming homeless?

Do [you] think that those with high[ly] restricted fixed interests that are abnormally focused may lead to them becoming homeless?

Do you think that sensory sensitivities may lead to a person becoming homeless?

Are there any other ASD characteristics not covered that may lead to a person becoming homeless?

Finally, what might protect a person with autism from homelessness?

Appendix H Thematic Analysis

Thematic analysis quotes per theme for Chapter 3

Social limitations

A. social awareness and social cues

1. When people have low social skills, they require more charitable personalities to set up their social networks. This lack of skills leads to a cycle where bad skills lead to worse skills.
2. Defiantly, when it comes to social interaction. If I am not told that what I am doing is not correct, then I will not know that what I am doing is not correct. It's something that other people pick up, especially growing up, people will react a certain way and act accordingly, but if you don't recognise that reaction then you are not going to change your behaviour. You'll just continue doing, what you are doing.
3. We are not so good at picking up on the things other people are, so I have had a lot of negative experiences myself and I have had a lot of trouble.
4. It was just really bad because when I did try and talk to people they would only talk about something that they cared about. I think not being understood socially.
5. With trust issues aside, if you have communication difficulties, you are not going to be able to communicate those issues to people. But if you have those diminished social skills you are not going to have as many friends.
6. lack of shared interest might impact or lead to more difficulties with relationships, housemates, or roommates. That one probably not, it might be a contributing factor in the breakdown of a relationship, but I don't see it being a major factor in something like homelessness

B. Vulnerability

1. It's hard out there when they are out there on their own its hard for them to survive you

know.

2. A lot of us are vulnerable to being exploited because we don't know what's normal, in terms of a workplace stuff.
3. And then you get taken advantage of.
4. I went into uni to nursing because then I figure well that sounds more interesting than information science. I enjoyed the degree and the time I worked 20hr a week as well. I went into my first year of working in nursing and was bullied. And you know. I didn't even recognise it as bullying until the mother of a friend of mine who also worked at the same hospital said that was what was happening.
5. They go to places, and they have no idea, they go to places where they'll get used!
6. Yer, so they can be used.
7. Yes, they are easily used because they like to have friends.
8. I refer to my cousin because that's the only person I know with Autism, he has asperges, I just keep coming up with the word gullible, what did I say before? He is just easily led, you are right about communication, he won't speak up in the situation.

9. They are vulnerable, if someone says try this it will make you feel better, they might just do that. To see if it will make them feel better about themselves.

C. Social exhaustion

1. The problem for me is that I get very energy drained. I always liken it to a party situation. When you go to a party for six hours. Most people are tired from going to a party for 6 hours but for me, it's equivalent to that 6 hours but I have only been there for 2 hours. So, it is still the same level of tiredness. I'll stay like everyone else but it's like I have been there for over a day, pretty much. So that kind of level of exhaustion and energy drain is probably just a part of who I am, and it's about reducing some of the anxiety. But I will never be the same as others, normal with my energy expenditure.

2. I can relate a lot to the energy thing. I get tired easily and overstimulated, I guess. The lack of energy comes from that. As for me even if I spend time and I even I spent with someone I like, there might be one person around that I don't, If they are someone I like, I still feel tired around but if I spend a good two or three hours with someone I am enjoying myself. I am still tired for a good 12 hours later.

3. Same

4. It doesn’t matter how much I love or hate it; I am still tired.

5. See I found, previously when I was working as an electrician as a trade, 9 days a fortnight and that was all good. And then I moved to the office and had all the people around me, I had

to cut back to part-time because I couldn't deal with it. I'm trying to get back to electricalwork, where I can work on my own and do my own thing.

D. Difficulty communicating

1. I have a nephew with autism, and he doesn't talk or anything. He won't talk at all. It's hard because you don't know what he wants, and he is only 7 but he doesn't talk at all. We don't know what to do.
2. Communication is important for it.
3. I think that communication is important for any success. So if you find someone that has got an overdose. And you need to ask questions. It's all knowledge and power.
4. And people with autism find it hard to communicate with people and getting that support is so important.
5. because most of the time I don't even know what I need. I have no idea and um. how to express what I need.
6. Even going to something like a workplace meeting by herself she struggles with. and that not only understanding but also communicating what you need.
7. I know for me, is the space to talk. A lot of the time when you try and have these conversations, with organisations or workplaces. Whether it contracts or organising left. I really, really struggle. it's frustrating because I can usually learn and understand the information easily. When it comes to that I have a mental blockage. I can't see through it. And I can't find a way to understand it.
8. When it comes to trying to understand what people want, I struggle with it. And I will say to them I am getting assistance from my mentor, who is helping me with that. When it comes to businesses, he helped me write an email to them and that took us 10 minutes with him. It was very thorough; it was very to the point. It had everything that I wanted to say in it. Had I been doing it by myself, it would be poorly written and It would have taken me at least 4 hours.
9. Cooperation requires both parties to understand each other, thus whenever a situation is strained it will require more effort to resolve due to poor communication. It is then attractive to seek out someone that requires less effort to communicate and cooperate with.
10. And sometimes I think too, I feel that I am speaking a different language. I'm thinking, I know that was English and a fully formed sentence how come we are not connecting here?
11. You think someone has understood you and you come to find out you are completely on the wrong page. And you think here we go again, she's not up to speed, or whatever.
12. So, a really big misunderstanding between what they are saying and what others are hearing. And what you hear and what they are saying.

13. Also, if you are just generally quiet and you have to want to engage but you don't know how to, certainly chat people just think that you are not friendly, people would think that I am snobby or rude and I didn't know what to say. You know I would try and talk to people about things, but they wouldn't be interested in. and you know, I think I am a bit better at it than most. I also don't know, I'm not sure how much this would have deficits as such because we tend to get along with each other.
14. Any type of meeting, starting with the interview is quite difficult and I struggle obviously.
15. So, services are not likely to give you the support that you need because they are interpreting your way of communicating as rude or unfriendly.
16. I have an example of the struggle with communication at work, I have a person at work that I struggle to get along with. they have changed a lot of the systems with reporting and communication. So then of course with all those issues you are trying to go to the NDIS, Centrelink trying to get help and sometimes they don't understand or don't want to help you because they think you are being unreasonable. You are like no, this is what I need, and it comes across as anything, I don't know rude, arrogant, petty. You are just stating what you need, and it's just framed differently.
17. I think it could be because they can't explain their situation.
18. If they have trouble communicating, they are going to have trouble getting accommodation.
19. If there's someone that doesn't know your situation, and everyone reads off of posture.
20. So, if you can't maintain eye contact language and/or posture that could lead to misunderstandings.
21. if you don't like looking into someone's eyes. If someone doesn't know that you are autistic, someone is just going to think this person isn't interested in this conversation, they don't care about it, they don't have any respect or they don't find this interesting.
22. It may be some form of self-sabotage by not being able to communicate. You might get looked over for a house. I'm not saying you will become homeless but I'm just thinking about other problems that you might encounter that may lead to homelessness. it might put you more at risk.
23. It's probably a bit of both. it's hard to maintain housing if you can't talk to your landlord but then once you become homeless. It's hard to engage with services, engage with landlords to get rental properties. It makes you more at risk but once homeless it makes it hard to get into a place. Because people look at you differently.
24. Yes once you are homeless, it's really hard
25. Well, that always comes down to the way that you present yourself. Your posture, your eye contact. You don't get a look in, do you? And I guess that it all becomes too hard for someone that's Autistic.

26. Communication, if you can't communicate with people how are you supposed to get help? You know I have always classified myself as a people person. And my mum will tell you that I have had more opportunities than any other person over the years. And don't get me wrong I have done alright; I have had my own house. Just over the years. communication you know what I mean is so important.
27. if there's a problem that arises and you struggle to explain the situation and they could be like quite blatantly I don't want to live with you anymore and you can't sit down with them and talk through it.
28. that's exactly the problem that I had with communication with people. I couldn't explain what was going on in my head at the time.
29. Yes, again that's going to impact more on your relationship more. I had a big block. When depression first hit when my fiancé first left. I couldn't keep eye contact. I looked disinterested, trying to tell someone that you love them when you have a blank expression on face. My expressions for happiness, sadness, and anger all look the same. I think that I need help. That is what led me to lose my job and become homeless.

Work

a) Not accepted at work

1. I reckon that they would have trouble fitting in at work.
2. Managers don't like you.
3. Managers just want robots essentially. To do the job. They want people that are efficient and without any baggage. They find a lot of people unacceptable in the role, just because that is the nature of people, I think. They are harsh managers.
4. was going to say they want robots.
5. They don't want the additional complications that come with Autism.
6. Well, I suppose they don't know what they are doing to accommodate you.
7. I don't think I am hard to work with, I just don't like talking to people. I just want to do my work instead of talking to people. And you know, I had a job where people hated me, but I did well at it. But I never said hello or goodbye to people. Because it terrified the hell out of me. And I am a lot better at that now but when I was 18 or in my early 20s.
8. It's also not taking the initiative, I guess there are a few reasons for that depending on our experiences. I'm so used to second guessing myself and someone looking over my shoulder that I try and be quiet and fit in as best as I can and not make waves.'
9. which makes work hard and makes managers hate you and work issues.
10. I have had a few different jobs over the past few years and the boss has been quite helpful.

Because Autism is out there now. People are aware of ASD and Aspergers. So explained what it is and how it affects you and they took it all on board and welcomed me in.

11. I think that it's nice that they have that there but whenever I consider the accommodations that I need, I always consider whether this is going to affect my job prospects or if is it going to come down to the kindness of someone that wants to hire someone with a disability. Will I be discriminated against? Will I need an application for it? I don't know what kind of guarantees in stopping those sorts of things from happening. I feel like it's just sort of practices and policies.
12. They have employees and employers coming through knowing it's for disability so they understand and can help in ways that others can't.

b) Movement in work

1. it can, you will try a different career, thinking that you will do better maybe somewhere else or in a different career. You start at the bottom of the ladder again, every time. And even for me nursing I graduated about 10 years ago. But I am still at a level 4 years, and I have been practicing 10 because getting full-time work has been a nightmare. And also, I can't handle it very well. And I just didn't understand what my strengths or weaknesses would bring to the job. You don't know until you are doing it. You know, people used to ask me what kind of nursing you want to do. And I have no idea! I didn't understand the different career paths that you could take. I had no idea.
2. Those were usually my choices, but I was astute enough to see the writing on the wall and think that this not going to go anywhere. And I feel miserable, and I am going to try something else.
3. ,I have had a few different jobs over the past few years.

c) Lack of progress/opportunity /

1. There's no choice when it comes to the rules it can either be enforced without a deterrent regardless of the reason for breaking them.
2. Whether it be my age gap or homelessness, well mostly you don't have access to computers or the devices necessary to make this kind of payments. Let alone the knowledge, to be able to do this. Like if you have never had access to a computer then suddenly, it's like right.

Here's a computer, now start paying your bills via email. It's like, well. Thanks for the computer but I don't know how to do that.

3. It makes interviews harder.
4. So, it's like right! Your cut off you get no funding you start again from the beginning.
5. An occupation would prevent them from becoming homeless.
6. But I had to keep doing that for my funding for NDIS. If I don't succeed in that I am cut off and it's as simple as that, that's just what's going to happen.
7. Finding the right employee and the right job for you is so important.

d) Maintaining work

1. They are preoccupied. You don't go to work because you are lying in bed worrying about things.
2. . After all, they need help to get a job, and when they get it. You have to find a job and help them get paid.
3. In favour of jobs that are called 'real jobs' in inverted commas. I also know now, I could not have handled… Well for the most part, now that I have had a child, and while I was still married… I could not have worked full time. The longest time I lasted was for three months. When my son was in primary school. And you know it was just, off to work, cook dinner, fall into bed. And the weekend was getting ready for the next week. It drained me. But I also found the same with working an 8-day fortnight on a 24/7 roster for nursing. Left me completely flat. And you know. Shift work is hard for anyone you know but for me, it was really hard.
4. So, when it comes to maintaining a full-time job at the level of energy required. It is not a possibility. And that's something that I struggle with on a mental level. Because there is part of me that says, 'well I need to work, It is not ok that I am not doing a 9-5 job.' There is this thing to fit into a society that you must do this amount of work or you must do this. So, I am still battling with the sense that it's okay, that I am not working that much and it's not good for me to work that often. It's about what's good for me and not others.
5. there are a lot of necessary things that are needed to be able to work.
6. I know that a full-time job is just not a possibility for me.
7. Then people don't like you, and there are more problems at work, you lose your job or have fewer hours. You then have less money, and it makes it harder to keep your house.
8. when I was working full-time hours. I would not take my clothes off or shower for a week. It

was too exhausting; I would work, I would come home, sleep in the clothes, I had on before, and get up and have a muffin on the way to work. I would barely eat anything. I just couldn't handle it.

9. Businesses are more likely to cut you off because you are harder to manage and deal with
10. That all adds up to losing energy and losing employment if those environments aren't adapted for you.
11. So, I needed to get a job. So, it's like, ok fill out this form, get this form filled out. They were able to drop work and take that money and just deal with the problem. And get it done. Whereas that is obviously, very much not the case for everyone.
12. The difference is, If I didn't have that support in place, it would be like, right you haven't responded to the email in time you haven't done this, not understanding the difficulties that I have.

    I secured a permanent job 13 years ago. And that's allowed me to be able to negotiate with work for adjustments to help me. So, I can see If you are a casual or on a contract. Like most work these days. You'd be stuffed. And I just go, you know. If you bring up any problems, then they are not going to negotiate, they will just give you the flick. And they are not going to want to deal with it and then you are not going to have a job. Whereas I am a full-time worker so they have to deal with it. So, I can see for me that has been a big advantage. So, I started in the workplace a fair while ago. And got a permanent job. Whereas if I started now, I'd be stuffed. It would be really difficult. Probably just the usual difficulty getting a job or maintaining a job. Loss of income would be the main factor in homelessness I would assume.

13. It depends on what kind of work you have I guess, there are social things if you are in a social environment If there's a misunderstanding of sorts. Or if co-workers or bosses don't understand someone's personality type and they are just not charismatic or work well in a group environment. So, there are a lot of things that could impact. There are a number of different ways that different symptoms could impact someone's work. Whether the boss or the work environment knows that there's a diagnosis or doesn't know that there's a diagnosis it's going to impact either way.

Well, I am ASD and I have been homeless once. It was life stresses that coped with me, and I had nowhere to live. I lost my job.

14. My job was highly stressful, I was doing security in a mine, and they put a lot of work on me, and just became too much and I broke down. The girlfriend I had at the time left. I had severe depression. I went down the tube, and eventually, I lost my job and I had nowhere to live because I couldn't afford to pay the rent or anything like that.

15. Yes, I mean homelessness is two things if you have your place and there's a loss of income.
16. I have learned now, at any new job I tell the employer I am ASD, I have autism. I tell them straight up I may not understand fully what you are asking of me. So, you may have to reframe it.
17. I don't know I am 21 at the moment and I graduated uni last year. So, it's been difficult for me to look and find work. Then I ended up deciding that I going to enrol in TAFE next year and see if I can get on Centrelink in the last term. On my birthday, I will be able to apply for independence which means that my parent's income will not be taken into account. Which is basically, the safest way I feel to access income. Because I don't know how easy it is to get employment, which is difficult. I was a waitress for a couple of years, I tried to get a job doing that. But I was only able to do a trial shift for a couple of hours and then I realised that the three hours I worked were so stressful, If I was desperate, which I wasn't at the time. I could push myself through the stress of it just to get the income, which I know some of my friends are doing. ' I know it's a job I hate but I will push through because I need to work I need the money but due to a lot of factors due to my ASD, I know I can't push through the stress to do the work.

Fitting into society

A) Perceived as odd.

1. Yer (trouble fitting in) everywhere they go.
2. So, they tend to. they are pretty much screwed up from the beginning.
3. I think so, especially hand movements. I was at Centrelink a couple of weeks ago. And there was a young lad that came in with his mum and he came in with his headphones on. And he kept doing the same hand movements and everyone kept watching him. He must have had autism or something like that. But I think that it would be hard. Especially with housing. If you are doing those hand movements, is the landlord going to think, something weird is going on here? What is he doing it for? Do you know what I am saying?

B) Discrimination

1. In saying that they often get picked on a lot. I tend to see that a lot.
2. So, they can actually get stood over and picked on
3. They won't get looked after at all.
4. So, disadvantage is being used, targeted.
5. And they get picked on and everything like that.
6. Stigma
7. Although they are seen as being someone different and they get picked on for that.

8. He thinks that it's okay for them to be here in a place where they will get picked on used and abused. It’s not fair.
9. People bully you.
10. So, you got these restrictions with those things like discrimination when hiring, having a job where they understand. Etc. etc. It just adds more complicated variables to an already difficult situation.
11. But you are also seen as someone that they are not going to promote or even give a full-time job to.
12. stuck in one level and not being looked at for a promotion. Or being moved on from work.
13. There's so much misunderstanding and discrimination against autism.

C) Aloneness

1. I have been homeless for the last few years now. And on the outside, I have come across people with autism, and they are usually alone, they are usually walking around alone by themselves.
2. And if I'm not 100 percent sure but I think that there is one fella here that has autism. and he is pretty cool. I have been here a few weeks now. He is harmless. He does walk around and talk to himself, but he is harmless. But if I happen to approach him and say hello and he is all ok with it.
3. For me, I am open to that kind of thing, I am aware of it and I understand it. That they probably don’t have it all and that it's not good for them to be out there on their own.
4. Starting homeless ultimately requires a person with Autism to understand their place and have a place in society. No person is an island alone.

D) Differences within the homeless community

1. I feel bad when I see that because they have a different kind of personality to us if you know what I mean.
2. And their personality generally doesn’t fit in with normal people [sic] like us
3. For me when I see these kinds of people, I put myself out and just let them know “hey, I am your friend ok? And I am aware that you have a different personality and that you are different from all of us’ and I want to help you know.
4. Also, a lot of us don’t understand that kinds of people and we react differently towards them thinking that they are weird kinds of people.
5. If you think about it, I believe that is only fair that they get a fair go as well. You know it's not fair for them to be homeless and be in a place like us. Because they different from us

6. It's not equal for them to be in a place like us it's not equal at all.
7. Once you see, you know how people with autism behave and what they are like, and you have been around that a lot and you know people around that you probably understand, and you probably think ‘hang on a minute’ they are different.

E) Limited community understanding (uniqueness of ASD to the person)

1. It's just that they have a disability with autism, you know, they tend to clash. People see it as something bad but it’s not. And they a generally harmless as well they don’t mean to harm or offend anyone.
2. You know it's kind of rocked the world like the virus you know, and you have drug problems. You know that the rich get away with it. But we get punished for it. It’s a disease and people don’t understand. And you need to help yourself. And people with autism without family are the same.
3. More understanding of autism would be good,
4. They don’t understand Autism.
5. I was talking to my mother about this the other night. She said, I hope that after you have spent all this money on a diagnosis, people will understand you better now. And you know, I tell people what the issue is and they just kind of go ‘oh but you’re an adult?’ or ‘oh really? you seem high-functioning [sic] I guess technically… with the number of mental health issues that high-functioning people have it's just you know. it’s just not talked about enough, I don’t think.
6. I remember when I was working for the first time in childcare. And there was this, um, a family that I was working with warned me about their Autistic son that I might have a hard time getting on with. and he was a great kid. And I was the only nanny that worked well with him. I find that when I meet other people on the spectrum, I tend to think that we all get that things can get a bit awkward. And that’s ok so. And people are more accepting, for the most part. I feel like it’s a lack of understanding from others, I feel like I have done so much work trying to understand other people, but I feel like other people maybe haven’t done that.
7. When I do disclose, sometimes people do compare me to some 5-year-old Autistic kid they know, you are not like this kid, well of course not I am not like I am almost 40!
8. Some people are educated, and some people think that they are educated but they are not.

Practical limitations

a) Lack of independence

They might not know the proper way of doing things and seeking out help and lack the skills to be independent. They are just going to have to fend for themselves without asking for help.

1. I don't think that a lot of people talk about this very much. General Cleanliness and hygiene. I know that people with autism struggle with it. My big thing is that I like to shower every day and if I don't then I get stressed out, but I don't brush my teeth. I don't talk about it that much. My friends don't talk about it, and no one talks about it. So, it's not a huge deal. But I know that my girlfriend at times has been like 'hey your breath isn't too good, can you go brush your teeth.' And I am like 'yer sure'. She is understanding and empathetic because she knows that it is not that I don't want to. It's just something that I struggle with. But some fewer understanding people get uncomfortable, with different things, for example washing your hair. And definitely workplaces. So, workplaces, definitely need you to have good hygiene.

b) Issues managing money.

1. So, I was in a really bad situation, where I lost my job a couple of years ago and I just kept putting my rent on my credit card, because I didn't know how to apply for Centrelink. So I just ended up with all this debt that I am trying to pay off now.
2. That is an interesting point that I hadn't even considered that something as simple as paying a bill or calling up someone about a question could be difficult and if you are not understanding the information that you are given then you might not pay that bill and that may relate to an incidence of homelessness.
3. Or the other thing is you just give up and pay the bill – I can't deal with this fight just give up.
4. I have got plenty of letters in the post and you look at the letter and see big red writing under the letter saying final payment and it will be something that I have missed and that will be. We sorted out me and my partner. But if I was on my own It would be I missed it and I would have trouble communicating that to the person I am meant to be communicating that to and it's all messed up. I want to pay stuff and I want to keep on top of things on track, but I lose track.
5. Consistency. And being able to be consistent in paying things and performing these tasks is something that may be difficult. '

6. I think that's the executive functioning that comes in there. A lot of the time the money will be sitting in my bank account. And today I almost got restricted because I am two months on my phone bill and I have that, and I just say I'll get to it. but I don't know unless the thing is right there when I need to do it, it will just fall out of my head. Planning and making sure that you have paid bills on time.
7. I also think, going on from that, trying to see where your money is going and creating a budget. I need help with that. I try and save every receipt, but numbers and spreadsheets are my worst nightmare. And using any electronic, anything! is just asking for trouble. I would rather have my paper diary and do things the long way because it makes more sense. It does take a lot more time and then the procrastination creeps in. Argh, I could just be here all day doing this.
8. That just reminds me of me and my partner, we can do well at work, but we get our final disconnection bill for our electricity and it disconnected between the two of them
9. I am in that position at the moment. I pay rent to mum for a flat that I am staying in through a realtor. When mum passes, I am quite sure that my siblings will say, out – I am going to sell the flat. So that's been hanging over me for 5 years. I am pretty good at not thinking about it, but I don't know. Even paying the rent, he wanted me to pay it every week. Well, for most of my adult life in America, everything was paid monthly. You always had a paper statement and there it is in black and white. And it's tangible and I can see it and I can highlight the date on it, and I know when it's due and I was never late but now. Everything is electronic and it just slips by me all the time.
10. And also, I have had it recently where my mum is trying to help me understand bills, and it's frustrating for me because I can see that the concept of paying bills is quite a simple one but I don't get it. And it's very frustrating If I didn't have my mum helping me with that.
11. With those bills, people are just like I don't see what the problem is, they take 5 minutes what so hard about them? But for me it takes me 4 hours and by the end of it, I am so exhausted that I end up sleeping for the rest of the day. So, it's like yer, I put it off and I don't do it or I put it off and the amount of work involved is astronomical for me. Obviously, that is something that you don't understand.

c) Financial pressures

    1. if you are struggling with the financial side of things and figuring out how to put these supports in place. Then yer, I mean, it's most likely going to lead to homelessness or all sorts of problems.

2. And I sold my house and moved to Adelaide and that's been supplementing my income. And finally, during the lock my Dr told me, I was particularly stressed, I could see all this money disappearing that should be invested in a flat to live in. but I couldn't apply for another mortgage because I don't have a full-time permanent job. I feel like I am sliding down this financial hole.

3. I also think, going on from that, trying to see where your money is going and creating a budget. I need help with that. I try and save every receipt, but numbers and spreadsheets are my worst nightmare. And using any electronic, anything! is just asking for trouble. I would rather have my paper diary and do things the long way because it makes more sense. It does take a lot more time and then the procrastination creeps in. Argh, I could just be here all day doing this.

4. There is also an element of not being educated on these things. Oh, we don't need to pay a bill but for me. Yer, you do. It's a lot and when you get math, and you can do this higher-level math but I don't know how to pay a bill. They are very separate for me.

d) Maintaining a home

1. There are minimal requirements to maintain a home and if you are unable to meet these for whatever, reason you lose your home.
2. I'm very lucky where I am. I have been here for 4 years, and my landlord has come here when I haven't managed to clean things or do the weeding and he is pretty good about it but

Need for supports.

a) Need for diagnosis.

1. Recently I have had a diagnosis to get the NDIS. Which cost me $1200.
2. Getting a diagnosis as an adult is so hard, and that adds another level of complexity to the already complicated.
3. No diagnosis equals no support,
4. And for diagnosis, I had to pay $1200 out of pocket just for a diagnosis.
5. My speech path completed a report for me, but Her report was not enough for the NDIS. There's no funding for adults for diagnosis. There are public mental health services, but they take so long and then you go private and that costs so much money. It's all about money and

Medicare just doesn't give enough. It's just so hard out there because there are no public mental health services for things like Autism.

6. The problem is that they only diagnose kids in public. You have to go private and pay for it.
7. Misdiagnosis leads to lack of diagnosis, which leads to lack of social skills which relates to problems later in life which affect work and social skills and life.
8. The biggest thing with NDIS is the diagnosis, you have to get that far.
9. Early diagnosis and support.
10. I was diagnosed at 38 because when I was a kid it wasn't around so that was the way it was. To get that support and understanding early on.
11. More support for getting people diagnosed.
12. Free diagnosis for those that are homeless.
13. Diagnostics within homeless shelters.

b) Limits of support

1. Support into adulthood
2. Also, a lot of the kids that did get diagnosed a lot of them don't have support after leaving school.
3. Robyn has mentioned that a lot. 18 separates that. And now you are in a completely different system and those two do not connect and sometimes you get connected and you get cut off from support.
4. And that's another place we have to start again.
5. And we are already trying to deal with year 12 and getting a job.
6. There was no support for me from 7- 28.

-Supports into adulthood

1. I was told when I was looking for OT help or OT that specialised in the issue I was having, when she realised how old I was, I could get a home care package because I am not eligible for NDIS anymore. I thought you know. How is a home care package going to help me? They're assuming that we are either self-funded or retiree or on the pension.
2. I think that the kids are the ones that get a lot of help through the school system but those that are in the older age groups are. I feel like we just muddled our way through to have a clearer idea. Especially having a clearer idea and finding something that you are suited to and sustainable and plays to your best strengths. That's what some of us are still finding out but it can be very daunting to take a leap. Well, I always wanted to do this, so I took a leap and chucked in my job and finally did it. Well, you always hear about the success stories but

boy I think that you would be out on the street if you fell flat. Doing that kind of thing. so, it's hard to chuck into something that you don't enjoy because you need the money.

3. There is a kind of legislation at the moment that people will just grow out of it.
4. There's this idea that Autism is a child thing. and it's like, you turn 18, and it's like congrats! You no longer have Autism. It's this misconception of Autism as a diagnosis. It's a lifelong thing. You don't present like a child as an adult and that's because you have learned some things. It's quite common that you have learned to deal with things just a little bit better that's not an Autism thing, that is a life thing. I have learned a bit more.

- Poor fit

1. Which sucks but I am still here and it's like I just could not figure out the website. I couldn't work out a way to call them. I was very bad at the time. I had no clue what to do.

Rigidity, Criteria B

a) Response to stress

1. When they stress out, they stress out ten times more than we do.
2. Not being able to tell people what's wrong and having melt downs, kind of like criminals, they can't follow the rules, so they need to be removed from the system to prevent them from causing further damage to society.
3. I just have to leave; I just lose my shit I just have to leave
4. If I have to wait too long, I will just run off and disappear.
5. I have done that when I have had to be in the emergency department. I have had enough, and I just left, when I have had a medical problem and I can't deal with it.
6. They get bonds with people; you know what I mean. But when you try and help them so much, they will run away.
7. .I suppose, it's not a pleasant experience for a lot of people but a lot of things are magnified. So, it's like waiting in a cue. I don't think I have met anyone that likes it, it's a terrible and annoying experience. The thing with people with ASD is the anxiety to get out of that situation is amplified and there are more reasons to get out of the situation. So sometimes, you speak to people about these things, and you say I have trouble with that or this they say well everyone does. Well, it's like no it's more of an issue for me.

b) Sensory difficulties

1. Anything about how they feel is a lot more intense than what we feel.
2. I have an issue lining up in a line in a government building that requires you to line up with a

big group of people.

3. If I have to go to the shops, Dr's office, and Centrelink. It all compounds. I know it takes me a bit longer to learn someone's name sometimes and it takes a few seconds to click. And that is a big problem for me when talking on the phone, getting a little bit better at it. But with people, I don't know, so any government agency.
4. So many of the sensory sensitivity issues are so invisible to other people. Because I have hearing loss and I am very sensitive to loud noises. Yet one of my first jobs after my graduate year was working as an 'emau', so it's a fast-paced unit where there are buzzes for 28 patients. There are also cardiac monitors and hard-wired monitors, and they all have their pings and buzzers. It used to drive me nuts. I am second-guessing myself and I only lasted three years.
5. I know that they are not just hypersensitive to sound or smell but also things like internal feelings. I don't know if that means anything, but for someone that is hypersensitive to claustrophobia, it might be an incentive not to live somewhere. That was the issue with my cousin. I don't see him much anymore.
6. I think it (sensory sensitivities) could definitely lead you to be more selective with your accommodation types and if you already have got limited houses that you can choose from, and you don't like the house that has gravel out the front because of sensory sensitivities that could lead to homelessness.
7. I know that people can overreact. Well, I overreact to sensory input.
8. I mean I don't know if an overreaction to something sensory might result in a workplace, a big incident, that may lead to someone getting fired or something like that.

c) Issues with change

1. They say people are just like that and they are not going to change.
2. I feel like they get frustrated because they feel like, although you are trying to help them, they can't be in control of what they want to do.
3. They don't want to be told.
4. They get frustrated, they always want to do things how they want to do them. Like we are trying to help but you some time you just gotta let them do what we are going to do.
5. Sometimes when it comes to dealing with change, we have. Well for example I have different points of contact for me. For my employment agency, I go through one person constantly, and I am working with someone now that I am having some issues with so that change could mean I withdraw from it. It would only take a few bad situations before I just with-

draw entirely. So, if that was to happen then again it would be like you are not doing what you need for the NDIS, so we are going to cut you off. It's dealing with those situations of change and dealing with these situations. You can only do it if you have the fortitude and the built-up reserves to be able to deal with them and if you don't then your kind of stuff because they are like well your target meter is changing, and you need to deal with it right now. And you are like, I can't. I can't physically and mentally deal with this. Well tough and that is not a good system.

6. I don't think that I could ever live with anyone else, I am so weird about stuff I just don't think I can. I mean I have a partner, but we don't live together because we are very similar. That means being on my own. And even when there were many opportunities to have a housemate, but I would just panic if I ever had to do that, and I came here. And I fell upon this house by some kind of luck. It's a lot for one person.
7. Ok, now something is changing, and this change means, I am back at the start again and I have to reexplain something to someone new.

8. . I had an initial change; I had a lot of difficulty changing from the office to working at home. It's difficult, but I got accustomed to that now they want me back at work. And I have to transition back to the workplace after working from home this whole time. So, I suppose if you look at homelessness if you are accustomed to it. And it would be shit, but if you are in it and used to it. It would be really hard to. Like if you went to Centrelink and they were like push you into a full-time job and you're not ready for that you just get pushed to do something that you don't have time to build up to it.

9. um, most other people I know that rent have to move houses so often every year or every 6 months and I think I would just fall apart in that kind of situation. I believe that I could not live somewhere else, but I think I even had to think about living somewhere else, I would just freeze.

10. I noticed that they don't like changes if they were to walk in this direction, they will always do that…For them, they don't like changes at all, everything that they do. It has to be in that order.

11. I guess if you learn healthy habits and healthy routines that are obviously going to benefit you. If you learn some not-so-helpful habits, then it's going to be that you are not so successful. And not everyone is successful. I am not successful even though I am hyper-intelligent,

and autistic people are not really like that. Some people can develop some unhealthy relationships with people and that might lead to some unhelpful routines.

12. So what you are saying is that some people could develop a unhealthy routine and this could lead to some difficulties.
13. And if you develop an unhealthy routine and you have to stick to that routine obsessively that is not going to work in someone's favour.
14. Especially if that is what they do every day of their lives when they were living with their parents and they had a routine. Now they are on the street they have to keep their routine going. I think that would drive you mad.
15. Yer, so if you have routines that it definitely impact shift work. That changes regularly. Even things like. In May last year, I was living with my girlfriend. And we would sometimes argue about the cleaning tasks. I would do them regularly and she wouldn't. I was very particular about having the dishes cleaned whereas she didn't care so much. And we argued last year that could have been easily resolved. But if it was a big argument, it could lead to the end of a relationship.
16. So being rigid with your routine could lead to conflict with the people that you live with, which could lead to a breakdown in the relationship and lead to homelessness.
17. Especially for someone with limited income, perhaps if you live in a share house situation, that will also mean that there are a lot of people in the house. Although you could do well, a lot of people might not know about your diagnosis. Different routines can be stressful. And if you want to have a specific routine and there are a lot of people in the house that could result in conflict.

d) Preoccupations

1. If they want to buy a packet of rock men, they will always do that

Uneven skill profiles

a) Smart in some areas

1. Do you know what it is? they may be docile, but they also have smart things in their head.
2. They are smart.
3. But in saying that they are very intelligent people.
4. But they are smart right you know with the phone; with technology he was really smart.
5. I have worked with a person with a few years back. Their memory and behaviour take getting used to. But numbers and stuff are like masters. They are like a human calculator. I'll hell be doing things in his head.

6. That is how they are born; they are like Einstein but their personality is like a little kid

7. Another thing, when my lad was two years old, he left his father. And he is 22 today and he is very smart. But he only watches cartoons, and when the bus goes next. And his father has always been in trouble so is he right? And I thought I could help, but his father, he is two years old in his head. He is so smart with some things, but he is like a two-year-old in other things. And I am wondering how did he get like that? Did it get to his head?
8. I was reading this book about CBT for Autism and the author wrote it because a lot of people don't understand Autism. She was saying that she worked with a client that was in astrophysics and he was evicted because the landlord changed where his rent needed to be paid and he just could not work out how to do it. And it's like weird. what do they call it. Uneven skill profile. It's like you can do these things but not these things you know.
9. Yes, especially things that people put in the same category. So, It's like oh you can do maths so you must be able to pay your bills. And it's like well not necessarily.
10. An uneven skill profile is a really good term! I have written that one down.
11. I feel that a lot of the stuff that I have trouble with is what should be the simple stuff.
12. So, after that, a man in the city taught him canning in the city. I helped him. So, autistic people can pick up on things you know. So that the canning and he lives on that all the time. So, they all can learn differently.
13. They can learn something well but other things not so well.
14. Autistic people in general, tend to have lower IQs, not all of them, but a surprising amount of them. A lot of them have diminished intelligence.
15. When approaching the idea of tackling the issue, obviously the smarter you are the more beneficial it is going to be, when trying to locate housing.
16. Anything that is going to inhibit intelligence is going to work against you.
17. I can't see it logically doing anything for anyone. I can only see it as a hindrance.
18. My cousin is, and you're right, we all know that those with Autism are a bit slower, and just vulnerable you know. It makes them at risk in a sense, not that I know a lot about Autism.
19. You first said lack awareness of what kind of accommodations you need, I think that you need to understand your strengths and weaknesses and communicating that to services around you is so important.

Co-occurring issues

a) Addiction

1. When autistic people get old, and they get into weed or it can be just genetic that it develops.
2. For me, I have an addictive personality and once I am, it's almost impossible for me to stop.

So for me, I have made sure never to drink alcohol, because If I started I would never stop. That's the core of who I am. If I had not realised that when I was younger, I would have started drinking the same age as everyone else, but I would have kept drinking. I would have gotten to a point where I would have been struggling with alcoholism to a very high degree. That would obviously lead to a whole lot of issues. It would lead to homelessness, I mean that is just how it goes, Autism or not, that's related to homelessness.

3. . You might start by taking drugs or drinking alcohol and you start at 18. You start experimenting with these things and that can lead you down a very dark path, very easily. And some people that are very hard to come out of and if you have that intensity that comes with Autism, then that may increase tenfold.
4. I won't comment on the alcohol problem because that has been and gone for me, but I will say, it's just lucky that I had support from family and friends, or it would be a different story.
5. It is really hard to deal with that successfully, I see people struggle with that in the ED, and by the time they get there, they are very unwell.
6. Yes, I would say so. I had a drinking problem that was a repetitive behaviour and that had a huge impact on my relationship breakdown.
7. it was pretty much the downfall. The boss bailed me up and told me I was drinking way too much; I was never drinking at work. In my time off, they had a concern and ended up firing me based on that.

b) Mental health problems

1. and a co-morbidity of mental health conditions can make it difficult.
2. For them, from day one being born with mental health.
3. I had to have speech therapy, anxiety, and depression made it harder. So, I find communicating difficult because of my anxiety and depression.
4. Something I find I struggle with is I have OCD, part of that for me is checking behaviour and checking for germs. And that is quite common germaphobia. And sometimes to get the help and support you need you to need to go into places that are not cleaned or cleaned regularly. So, I walk into a place, and I go 'no! can't do it nope! No!
5. I was in a bad situation; I could have easily become homeless the bad experiences with MH services made me feel like I had to work hard on my own because at the time no one would help me.
6. So, if I didn't have those supports, I just would not be able to approach buildings to start getting support. I would not even be able to get inside the building and I would get to that point where it is social interaction. I am so far back that I can't even begin to get that.

7. There are so many co-morbidities as well, it's very common for us to have anxiety. You hear a lot about anxiety all the time. I have ADHD as well as a number of other MH diagnoses over the years. I think a lot of those things sort of fill up and I know that a lot of mental health issues are linked to homelessness, so yer.
8. And yer, comorbidities of mental health conditions being one of the most common risk factors of homelessness alongside lack of social support and drug use.

Protective factors

a) Family and friends

1. A support network is important.
2. Parents care less.
3. It won't lead to homelessness because he has his mum and dad and stuff.
4. So, if he didn't have his parents.
5. If they didn't have their parents to love them, they would be in trouble.
6. Just knowing being around their parents and then all of the sudden they are on their own.
7. I don't think they'll become homeless bro, they have too much family. You just got to let them go. He will only talk to his dad, so that's what you let him do.
8. They pretty much, once they lose that comfort of being around their parents.
9. It depends on their support network. As well as early interventions. Studying I have done into autism and homelessness or autism. I don't know if it's just about autism and homelessness or more about being able to connect on a social and emotional and mental level. So, if they have a good support group and keep on top of their health. They should be able to find housing.
10. Family prevents them from becoming homeless.
11. Family prevents them from becoming homeless.
12. if I didn't have parents that were financially able to support me. They were able to assist me and sometimes they would throw money at the problem.
13. Because I had to move out of home and I didn't have much support from my family.
14. If I didn't have assistance. In the way of having parents that could take me to meetings etc.. I wasn't able to go to an employment agency and I wasn't able to drive there. All of these things cost money. But without that help, I just wouldn't be able to have access to those things. I wouldn't have the funding to do so, I wouldn't have the ability to organise myself to even start. So, without those supports, It would be a completely different scenario. If you don't have those supports that makes it very difficult.

15. If I didn't have my partner with me, I would be stuffed. She organises any meetings, any phone calls, anything that needs doing. If I was on my own, my parents would help me, even now. But If I didn't have that I don't know where I'd be. If I didn't have that support.
16. When I was younger, I was just thinking how crappy I was at it. I was out of school for a while due to mental health issues and went back to school at adult school, but my mum went to school with me because I couldn't do it by myself, so I was an 18-year-old that couldn't it by myself I was fine with the academics but it's the teacher interactions. She wanted to go back, and she missed school when she was younger. So, she wanted to go back and do the same subjects. We did it together and that was good, but you would have thought that seemed a bit odd that I can't go to school by myself.
17. So, I finished when I was 20 and then I sort of went out on my own and eventually a few years later, after 7 years on the disability support pension I was able to get a job. It was family support that did it and if I was in a family that couldn't provide that, it would be very different.
18. I find the overseas call centres, but I can't. You have your English plus a second language. I am lucky I have a partner and I just can handball that all over. But if I was on my own trying to deal with all that, I can't make sense of all that. If I have to deal with my bills my everyday bills, I don't know what would happen.
19. so I will be able to contact my parent and contact my NDIS support people and have them do things on my behalf because I have found something too difficult or I am struggling too much with it.

20. The risk factor of losing family support, and when you are thinking about losing your mum and might lead to a lack of housing. So, when you lose those social connections or the social support network. Then you feel that is when you will be most at risk of becoming homeless.
21. You can't replace our social networks quickly, which leaves us vulnerable for longer, making it a lot more likely that we suffer complications.
22. Autistic people have very few friends. And a wider network of friends will enable them to have more opportunities, there are opportunities behind every person. The wider range of friends that you have to go the wider range of assistance and support that you can receive. Not only if they were on t street, and if the wrong people came along, they would mislead them and those with autism would misplace trust in them. It is from a social and communication perspective, if you don't have a lot of friends, you don't have a lot of options.

23. I refer to my cousin once again, watching him through life and if it wasn't for his mum and without that support. I think it comes down to a lot of support for someone with autism. Someone that can represent you.
24. It's all about the family, they help them make the choices day to day.
25. the other one is if you are staying somewhere else and there's a breakdown in a relationship. Yer breakdown in a relationship could Impact your living situation. And if you don't have an alternate place to live that ends in homelessness
26. My younger brother, I was too proud to ask for help. But he figured that I was pretty down and out, and he let me live at his house for a little while. So, I lived there and found a new job, picked myself up again. I went to see the doctor and got put on meds and having a new job helped and then I was able to afford a new place again.
27. Another contributing factor to a relationship breakdown and you know, if two people share a place, and they don't want to live with each other anymore, then that leads to insecure housing.
28. And some supports in place.
29. Yer I have married a lovely woman that right into autism and has done that many courses, studied that kind of stuff. So, she is fully aware of everything that goes on with Autism. So, no matter the kind of day I am having. If I have some funny indosychrancies happening, then she is just like oh that's just part of your Autism. So, I am very lucky to have married her.

b) Special environments

1. That's why they should have places for these people so that they can make friends with their kind.
2. Do you know what I would do? I would make the government pay out money through these packages. Just to make sure that they have the right care. They should have places for people like that here.
3. Facilities when they are homeless, be around their people and own kind. Not around these people. Normal people like us. Proper support.
4. It's hard for them to live here Before you get in here, they ask you a whole bunch of questions. One of the questions does you have any special needs or mental health. If they identify as autistic, they should take them to another place.
5. But that is why they should start building special places for them to go,
6. So, if you get that person a carer and a buddy that works great. They need a place where they

are so intelligent, they need to be in a calm soothing environment, and they have things to do. Their brain is ticking over fast unlike us and when they have nothing to do. It can do their head in. I feel like they do need to be around. These kinds of places don't provide the help that they need. They need to be in a place where they can be supported more.

7. so, I feel like that is a bit unfair for people like that to be here you know. And not just people with autism, but there are other cases where people are generally behaving normally like us and they need to be in a special place where they can get more help and support. I feel like that. And I can't believe that they put them here and people with disadvantages and they can't be here. These are people that can support themselves and look after themselves, but these people need special help and special support/
8. If there are in a household or shared accommodation with other people with Autism, then that would be good for them

9. They should live with other people with Autism. So that they can establish the same routine and feel safer. If there in a house with people like us without autism and they are not made to feel welcome. It's going to be harder. And they're not going to want to stay there.
10. I'm surprised that they haven't created specialised accommodations for people with Autism. It seems like horrible segregation and marginalisation but they only seem to be able to connect with people like them, with other people with autism. So, it seems logical to me to have a place where all the people with Autism can go to live together. Like a retirement home but with people with Autism.

c) Access to specialised support

1. I don't see if you don't come across that support in your younger years, then you are in a lot of trouble later on.
2. and they are not getting special help out there.
3. And they need all the support that they can get.
4. They need a lot of support.
5. People monitoring them, doing things that keep them stable/
6. Democracy and diversity in cross-cultural dynamics Australia is ahead of most of the world. So, there are a lot of third-world countries. So, there are places that you can go to and doors that can open to living a normal life. There is an education and treatment level if find some-

one that can help you perform at your best.

7. They gotta find that one thing you gotta find that one person they get along with and make them the carer and you have to keep an eye on that carer.
8. it is important to have specialised support.
9. I couldn't have done it on my own, I couldn't have done it. I could see that I don't know where I would have been. I could have been on the street easily.
10. Safety nets.
11. Having support through NDIS is vital as well.
12. Support is key.
13. With nurses and -the-clock care.
14. Specialised support is so important.
15. It comes down to support, whether it be family, government services, or support. It's routine.
16. I Can see with the NDIS …. Now I work three or four days a week, and I have a support worker come in and make sure I have a shower. So that has been good. But I can't see how I could work without having that kind of support. And I can see it helped.
17. The problem here with accommodation is that the system does not have a prebuilt system. That means that additional resources are required to accommodate people with disabilities. This means that access to such resources may be further restricted to avoid unnecessary spending.
18. the NDIS has been fantastic, and things are getting better which is good. But it is still really hard to find good providers that understand. I am still not fully sure of the routine yet, and at some places, they have one or good people but the rest of it's like... oh, I'm not sure. I don't want to keep telling the same story over and over again. And try and educate people on what I need, because most of the time I don't even know what I need. I have no idea and um. how to express what I need.
19. Finding a good therapist is hard and therapists that know about Autism are. The waitlists are long and there is no Medicare for adults with Autism.
20. Needing that extra support for even finishing education, which is so important for getting a job.
21. And NDIS and other services have helped.
22. The NDIS is a step in the right direction, a lot of services are available through the NDIS. It was not available for the majority of my life but also for those older than me. So, I think it's a step in the right direction but there are some teething issues. But I think at least there are

some things that we are heading in the right direction. And increasing the funding to the system would be good.

23. It's getting better with NDIS, still, lots of people don't know what to do but if you had early intervention, you should be right.
24. If you go to Centrelink, you go for an assessment with disability employment services they are disability-specific, they find suitable jobs, and they help with putting in things for me. They are brilliant they understood what Asperger's was.
25. That is good. They helped me, running me through some courses to help me get me back into the public. Because that was one of my fears. With work, they weren't pushing me into jobs, they were fully understanding.

Appendix I Autism and Homelessness Survey for Study 3

Autism and homelessness Survey for Study 3

1) Have you been diagnosed by a health professional or psychologist with Autism spectrum disorder?

- Yes
- No

2) Are you currently experiencing homelessness? (i.e., are you currently staying on the streets, bus shelters, cars, tents.)

- Yes
- No

3) How old are you?

_____

4) What is your gender?

- Male
- Female
- Nonbinary

5) What is your race?

- Australian

- Indigenous (Aboriginal/ Torres Strait Islander)
- Other _____

6) What is your weekly personal income?

- $0- 100
- $100 - $400
- $400 - $600
- $600 - $800
- $800 - $1000
- $ 1000 +

7) what is your employment status?

- Employed full time.
- Employed part-time.
- Student
- Unemployed
- Centrelink payment

8) what is your postcode

_____

9) how many times have you moved over the past 10 years?

10) Have you ever tried to rent a house/ apartment for under $300?

- Yes
- No

11 If yes, were you successful?

- Yes
- No

12 What is your highest level of education.

_____

13 Have you had help (i.e. with Housing SA) to gain housing?

- Yes
- No

14) If so, was this successful?

- Yes
- No

15) Have you been diagnosed with any illness that has required more medication than you can afford?

_____

16) Have you been diagnosed with any of the following?

- o Brain injury (Traumatic, Acquired i.e., brain tumour) (1)
- o Intellectual disability/ Learning disability (2)
- o Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (3)
- o Down syndrome (4)
- o Dementia (5)
- o None (6)
- o Other (7) _____

17) How many services are you involved with? (i.e., Centrelink, NDIS, Hutt st, Wescare, Autism SA, etc) indicate the number below:

---

18) What support do you receive?

- o Housing
- o Mental health support
- o Emergency relief (food, clothing)
- o Case management
- o Other _____

19) Please indicate the services that you receive support from (i.e. Centrelink, housing SA, Wescare, Autism SA, etc)

20) I believe I will get the help I need from government services.

- Strongly disagree.
- Somewhat disagree.
- Neither agree nor disagree
- Somewhat agree.
- Strongly agree.

21) Where do you currently live?

- In secure housing/ permanent housing

- In someone else's apartment or house (temporarily)
- In a hotel or motel room, in a boarding house or single room occupancy

- Homeless shelter
- Vacant buildings, public or commercial facilities, parks, cars, or streets because you didn't have a place to stay.
- In a group home or residence such as a residential facility or halfway house
- Other _____

22) how long have you been in this accommodation type? (Indicate response in the number of

months to the closest month)

_____

23 How many times have you been homeless throughout your life? (Indicate number)

_____

24 What was the average amount of time between each stage of homelessness? (Indicate response in the number of months to the closest month)

_____

25 Do you have people in your life who support you/ help you?

- Yes
- No

26 If yes, how many?

_____

27 Please identify their role.

- Mother
- Father
- Sibling
- Friend
- Partner
- Other

28) How many of these people could you:
Could you count on for money: _____

Would give you food: _____

would give you a place to stay: _____

would provide you with emotional support: _____

really care: _____

Total: _____

29 How many of these people did you meet whilst living on the streets?

_____

30) Have you ever experienced any childhood adversities:

- Run away from home.
- Ordered out of the house.
- Social services investigate family.
- Adopted
- Fostered
- Biological parents incarcerated.
- Been placed on Social welfare payments (i.e. Centrelink)
- Biological parents' addiction (gambling, alcohol, illegal/ prescription drugs)
- Parental diagnosis of a mental illness
- Other _____
- None

31) Had ever experienced childhood abuse?

- Physical
- Emotional
- Sexual
- Neglect
- None

32) What is the highest grade or year level of regular school that you have completed?

_____

33) Have you ever been diagnosed with a mental illness?

- Yes
- No

34) IF you answer Yes, indicate which one.

- o Depression
- o Anxiety
- o PTSD
- o Bipolar
- o Schizophrenia
- o BPD

Other _____

35) Have you taken prescribed medication for mental illness or stress in the last 12 months?

- Yes
- No

36) Have you ever been prescribed medication in your life?

- Yes
- No

37) Have you ever experienced any difficulties with addiction:

- o Alcohol
- o Prescribed medication
- o Illegal substances
- o Gambling

38) IF you answer Yes, indicate how long over the duration of your life.

- Only a short time
- some of the time
- part of the time
- most of the time
- practically all of the time

39) Have you had problems at school or work because of you had been drinking?

- Yes
- No

40) IF you answer Yes, indicate how long over the duration of your life.

- Only a short time
- some of the time
- part of the time
- most of the time
- practically all of the time

41) How often were you high on drugs at school or at work?

- Only a short time
- some of the time
- part of the time
- most of the time
- practically all of the time

Answer the next block of questions by either indicating yes or no.

Question	Yes	No
In the past 12 months, have you participated in criminal activity?		
Have you ever committed a crime that you have been convicted for in court?		
Have you been a victim of violence or abuse from another person?		
I had a good relationship with my parents		
My parents spent quality time with me		
Question	Yes	No
I am involved in the community (sports, volunteering, clubs, etc)		
If YES, I am praised for my involvement in the community		
I stand up for what is right		
I know the difference between right and wrong		
I have frequent thoughts, urges, or images that I don't want to have (for example, thoughts about being contaminated even though I may not be, or that I may hurt someone else even though I don't want to).		
I do repetitive behaviours (for example, hand washing or cleaning, ordering or arranging, checking things, or repeating behaviours over and over), or I repeatedly do things in my mind (for example, counting, saying certain words or phrases) in order to feel better or to prevent something bad from happening.		
I spend a lot of time worrying about my physical appearance.		
My house is excessively cluttered.		
I frequently pull out hair from my scalp or my body.		
I frequently pick at my skin.		
I get very anxious or fearful in social situations or when I am being observed.		
I have had a panic attack, where I experienced a lot of fear and physical sensations that came out of the blue.		
I feel very fearful or anxious in situations where it's difficult to escape quickly or get help (for example, using public transportation, being in open or enclosed spaces, standing in line or being in a crowded place, or being alone away from home).		
I feel excessively anxious or worried about many things, a lot of the time (for example, worry about finances, responsibilities at work/school, my health, or the health of others).		
There are certain objects, situations, or activities that I am very afraid of (for example, like animals, insects, blood, needles, heights, storms, fly-		

ing, choking, vomiting, or enclosed spaces).		
I feel very afraid to be away from a certain person or people.		
I have had a period of four days or more when my mood was so good or elevated, like I was on top of the world, that it caused problems for me, or people thought I wasn't my usual self.		
I have been feeling down, blue, or depressed frequently over the past two years.		
I have had a time when I felt very sad, blue, down, or depressed, or lost interest or pleasure in my usual activities, for two weeks or more.		
(For women only) I get really depressed, irritable, anxious, or have mood swings in the week prior to menstruation (my period).		

Question	Yes	No
I am distressed about a really bad event (like seeing something that was life-threatening or caused someone to die, being seriously injured or seeing someone be seriously injured, or being sexually assaulted or molested) that I have experienced or witnessed.		
I'm having a hard time dealing with a stressful or unpleasant experience, or a major change in my life.		
I have had very strong beliefs in something that other people thought was strange.		
I have had sensory experiences that others could not understand, such as: a. Hearing sounds that others couldn't hear, such as voices or music. b. Seeing things that others couldn't see, such as colours, animals, people, or spirits c. Having unusual sensations in my body, such as a feeling of electric shocks or bugs on me. d. Smelling odours that others could not smell, such as vomit, faeces, or something rotting.		
I avoid eating food because I think I am overweight.		
I often have to eat "binges," in which I eat more than most people would eat, and it feels like my eating is out of control.		
I eat very little, have difficulty eating enough, or avoid certain foods.		
I have a physical health problem that makes me very worried or anxious or requires me to do a lot to diagnose or monitor it.		
I often worry that I have a serious medical illness or injury, or that I am going to develop a serious medical illness or injury.		
I have had 3 or more alcoholic drinks within 3 hours on 3 or more occasions.		
I have used illegal drugs, or I have used prescription medications other than how they were prescribed more than three times.		
I have difficulty paying attention or concentrating when I need to.		

It often seems that I have difficulty sitting still or waiting for things.		
I have a lot of sudden movements (tics) that are hard to control or make sounds that are hard to control.		

Answer the next group of questions on a scale from definitely agree to definitely disagree.

Question	definitely agree	Slightly agree	Slightly disagree	definitely disagree
I prefer to do things with others rather than on my own.				
I prefer to do things the same way over and over again.				
If I try to imagine something, I find it very easy to create a picture in my mind.				
I frequently get so strongly absorbed in one thing that I lose sight of other things.				
I often notice small sounds when others do not.				
I usually notice car number plates or similar strings of information.				
Other people frequently tell me that what I've said is impolite, even though I think it is polite.				
When I'm reading a story, I can easily imagine what the characters might look like.				
I am fascinated by dates.				
In a social group, I can easily keep track of several different people's conversations.				
I find social situations easy.				
I tend to notice details that others do not.				
I would rather go to a library than to a party.				
I find making up stories easy.				
I find myself drawn more strongly to people than to things.				
Question	definitely agree	Slightly agree	Slightly disagree	definitely disagree

I tend to have very strong interests, which I get upset about if I can't pursue them.				
I enjoy social chit-chat.				
When I talk, it isn't always easy for others to get a word in edgeways.				
I am fascinated by numbers.				
When I'm reading a story, I find it difficult to work out the characters' intentions.				
I don't particularly enjoy reading fiction				
I find it hard to make new friends.				
I notice patterns in things all the time.				
I would rather go to the theatre than the museum.				
It does not upset me if my daily routine is disturbed.				
I frequently find that I don't know how to keep a conversation going.				
I find it easy to "read between the lines" when someone is talking to me.				
I usually concentrate more on the whole picture, rather than on the small details.				
I am not very good at remembering phone numbers.				
Question	definitely agree	Slightly agree	Slightly disagree	definitely disagree
I don't usually notice small changes in a situation or a person's appearance.				
I know how to tell if someone listening to me is getting bored.				
I find it easy to do more than one thing at once.				
When I talk on the phone, I'm not sure when it's my turn to speak.				
I enjoy doing things spontaneously				
I am often the last to understand the point of a joke.				
I find it easy to work out what someone is thinking or feeling just by looking at their face.				

If there is an interruption, I can switch back to what I was doing very quickly.				
I am good at social chit-chat.				
People often tell me that I keep going on and on about the same thing.				
When I was young, I used to enjoy playing games involving pretending with other children.				
I like to collect information about categories of things (e.g., types of cars, birds, trains, plants).				
I find it difficult to imagine what it would be like to be someone else.				
I like to carefully plan any activities I participate in.				
I enjoy social occasions.				
I find it difficult to work out people's intentions.				
New situations make me anxious.				
I enjoy meeting new people.				
I am a good diplomat.				
I find it very easy to play games with children that involve pretending				
I'm not very good at remembering people's dates of birth.				

Please answer the next set of questions in terms of your ability or function

Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
Says the names of other people (i.e., "mama", "Daddy" or names of family and friends).				
I say hello and goodbye to others				
I answer the telephone by saying "Hello".				
I use sentences with a noun and a verb				
I can name 20 or more familiar objects.				
I can name my street address, including the postcode.				

I can give verbal instructions to others that involve two or more steps or activities.				
I can speak clearly and distinctly.				

Please answer the next set of questions in terms of your ability or function

Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I can tell others my telephone number				
I can shake my head or say "yes" or "No" in response to a simple question (for example: "Do you want something to drink?")				
I can look at people's faces when they are talking to me				
I can use irregular pronouns correctly (for example, says "feet" instead of "foots" and "men" instead of "mans".				
I can nod and smile to encourage others when they are talking.				
I can tell family, friends, or others about my favourite activities.				
I can listen closely for at least 5 minutes when people talk.				
Uses up-to-date information to discuss current events				
Starts conversations on topics of interest to others				
Answers complex questions that require careful thought and opinion (i.e.. Questions about politics or current events)				
Distinguishes truthful from exaggerated claims by friends, advertises or others				
Repeats stories or jokes correctly after hearing them from others				
Talks with others about complex topics for at least 10 minutes (i.e. politics or current events)				

Waits for others to finish what they are saying, without interrupting				
Participates in conversation without talking too much or too little				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
Talks about realistic future educational or career goals				
Explains the terms of a legal document to others (i.e. a contract to buy a house or rent a car).				
Finds the restroom in public places				
Finds a specific area in a store or business (i.e., the dairy aisle in a store or the customer service department in a bank)				
Looks both ways before crossing a street or parking lot				
Orders own meals when eating out				
Carries enough money to make small purchases (for example soft drink)				
I can state a general address of a travel destination (for example, on Washington Avenue, near Lake Street").				
I recognise when a store item is poorly made or is too expensive.				
I can ask the store clerk for help if an item cannot be found.				
I can tell others about a store's hours of operation (for example, "10 am to 9 pm").				
I can follow another person's directions to nearby places.				
I can use a credit or debit card for making purchases.				

I can make appointments by telephone, mobile device, or internet.				
I use paper or digital maps to find his or her way to desired locations.				
I can obtain money from an ATM				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
Calls a repairperson when needed (for example, if the air conditioner or hearer stops working).				
Is responsible for my personal finances, such as my bank account, credit card, or utility bill.				
I can ask other people's advice on where to shop.				
I can use the school library, public library, or the internet to get books or reference materials.				
I can shop for friends or family who may be unable to shop.				
I use printed or internet resources to obtain information before making major purchases (for example, cars, appliances, and computers).				
I walk or ride bikes alone to locations within a 1-mile or 5-block radius of home or work.				
I can write or print my first and last name.				
I can state the days of the week in order.				
I can read my name when printed.				

I can write my address, including the postcode.				
I can read menus at restaurants.				
I can give a clerk the necessary amount of money when buying items.				
I read and obey common signs (for example, Do Not Enter, Exit, Stop).				
I can locate telephone numbers for repair services or businesses using a phone book or the internet.				
I can locate important dates on a calendar (for example, birthdays or holidays).				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I can weigh myself or objects correctly using a scale.				
I can find names and telephone numbers using a phone book or the internet.				
I can read the daily classroom or work schedule, without needing to be reminded by another person				
I record dates and times for appointments and deadlines.				
I can measure length and height.				
I write and send letters, personal notes, or emails.				
I check for the correct change after buying an item				
I use lists and reminders to remember important things.				
I can complete forms to apply for jobs.				
I complete forms for businesses or services (for example, to obtain a lease).				

I check the accuracy of charges before paying a bill				
Reads important documents (for example, credit card applications or rental agreements).				
Budgets money to cover expenses for at least 1 week				
Reads labels before purchasing products for important information about size, weight, and direction for use				
I check bank or other financial statements at least monthly to be sure they are correct				
I can operate a microwave oven				
I can use small electrical appliances (for example, a can opener or blender).				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I can make a simple meal that does not require cooking (for example, sandwiches or salads).				
I can cook simple foods on a stove (for example, eggs or canned soup).				
I wipe up spills at home				
I show respect when using others' possessions (for example, by keeping them clean and returning them undamaged when requested).				
I can use a clothes dryer				
I use a washing machine to wash clothes.				
I wash dishes either by hand or with a dishwasher.				

I place dirty clothes in the proper place (for example, a hamper or clothes basket)				
I fold clean clothes.				
I assist in big clean-up projects at home or at work (for example, spring cleaning or cleaning storage rooms).				
I keep working on important tasks at home, even when it is noisy.				
I take out the trash when the can is full.				
I clear the table completely after a meal.				
I put things in their proper place when finished using them.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I clean my room or living quarters regularly.				
I clean the bathroom with proper cleaning supplies.				
I make my bed.				
I pay my bills on time (for example, electricity or telephone bills).				
I dust furniture until it's clean.				
I follow a maintenance schedule for a car or home (for example, changing the car oil or the home furnace filter).				

I obtain home, rental, or car insurance for myself.				
I can perform minor household repairs (for example, fixing a clogged drain or leaky faucet).				
I can use electrical outlets or sockets safely				
I show caution about hot or dangerous items.				
I carry breakable objects safely and carefully.				
I display safe behaviours at work or other public places				
I can buckle my seat belt in a car.				
I can care for my minor injuries (for example, paper cuts, knee scrapes, and nosebleeds).				
I can swallow liquid medicines as needed				
I carry scissors safely.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I follow general safety rules at home.				
I use tools and equipment safely.				
I refuse gifts and rides from strangers				
I obey requests from other people ONLY if I know them and trust them.				
I avoid people who might take advantage of me (i.e., for money or sex)				
I take medication without supervision on days and at times prescribed.				

I buy over-the-counter medications when needed for illness.				
I read labels on my medication to make sure it is not expired				
I take my temperature with a thermometer when feeling sick.				
I inspect the contents of the refrigerator and remove food that is spoiled or whose expiration date has passed.				
I make my appointments to see a physician for annual check-ups.				
I plan meals to get the necessary nutrition.				
I wait for my turn in games and other fun activities.				
I follow the rules in games and other fun activities				
I select television programs or use the internet to keep up with an area of interest (for example, sports, music, and nature).				
I listen to music for fun and relaxation.				
I play games or fun items with others.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I invite others to join in when playing games or other fun activities.				
I engage in a variety of fun activities instead of only one or two.				
I attend fun community activities with others (for example, a movie or concert).				
I attend fun activities at another's home.				
I tell others when I need free time to relax alone.				

I play alone with games or do other fun activities.				
I initiate games or select television programs liked by my friends or family members.				
I plan for activities on free days or afternoons.				
I plan for extended leisure activities during breaks or vacations.				
I try a new activity to learn about something new.				
I organise a game or fun activity for a group of friends without help from others.				
I invite others home for a fun activity.				
I make travel arrangements for myself and others.				
I reserve tickets in advance for activities such as concerts or sports events.				
I have hobbies or creative activities that require making or building something (for example, a club, sports team, or music group).				
I participate in an organized program for a sport or hobby (for example, practicing basketball or taking a music class).				
I put my shoes on the right feet.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I button my clothes				
I use a fork to eat solid food.				
I can use the restroom at home without help.				

I close and lock the door before using a public restroom				
I dress myself				
I wash my hands with both soap and water.				
I use public restrooms alone.				
I blow and wipe my nose with tissues or a handkerchief.				
I combine hot and cold water for a shower or bath.				
I can tie my shoes				
I can select the correct clothes for cold or warm days.				
I brush my teeth before leaving for work or appointments.				
I cut or file my fingernails and toenails regularly.				
I select appropriate clothes for different occasions (for example, casual activities or formal events).				
I bathe daily				
I keep my hair neat during the day by brushing or combing.				
I cut meat or other foods into bite-size pieces with a knife.				
I eat a variety of foods instead of preferring only one or two.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I get out of bed on time by myself.				
I wear a variety of clothes, instead of the same or similar clothes most days				

I obtain haircuts regularly on my own.				
I wash and rinse the sink after brushing my teeth				
I avoid unhealthy foods and drinks.				
I exercise or work out for at least 2 hours a week				
I work on one home or school activity for at least 15 minutes without reminders.				
I work independently and ask for help only when necessary.				
I call work or other places if absent.				
I avoid situations at home or in the neighbourhood that are likely to result in trouble.				
I resist pressure from others to do things that could endanger me.				
I stop a fun activity, without complaining, when the time is up.				
I stand still when needed, without fidgeting or moving around.				
I control disappointment when a favourite activity is cancelled.				
I control anger when another person breaks the rules in games and other fun activities.				
I complete routine household tasks within a reasonable amount of time.				
I return on time when asked to be back in 1 hour.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I save money to buy something special (for example, a birthday present or spe-				

cial clothes).				
I avoid behaviour that could embarrass or bring shame to myself or my family				
When leaving home, informs others of your destination and return time.				
I control my feeling when not getting my way				
I plan home projects in logical steps				
I make important decisions only after careful consideration, without rushing.				
I call family or others when I am running late (for example, when returning home, attending a social event, or arriving for an appointment).				
I plan ahead to allow enough time to complete big projects.				
I limit my time playing computer games or other non-productive activities.				
I complete large home projects on time				
I say "Thank you" when given a gift.				
I have more than one friend				
I stand a comfortable distance from others during conversations (not too close).				
I laugh in response to funny comments or jokes				
I move out of the way of other people as needed on sidewalks, in store aisles, or hallways.				
I congratulate others with something good happens to them.				
Question	I am not	Never	Sometimes when needed	Always (or almost al-

	able to			ways when needed)
I show respect for persons in authority by following their rules and directions (for example, parents, teachers, and police officers).				
I show sympathy for others when they are sad or upset.				
I listen to friends or family members who need to talk about problems.				
I recognise when someone is making an unreasonable request.				
I place reasonable demands on friends (for example, do not become upset when a friend goes out with another friend).				
I keep a stable group of friends.				
I say "please" when asking for some-thing.				
I have a good relationship with family members				
I avoid friends and social settings that may be harmful or dangerous				
I offer guests food and beverages				
I show good judgement in selecting friends.				
I seek friendships with others in my age group.				
I state when others seem happy, sad, scared, or angry.				
I refrain from saying or doing things that might embarrass or hurt others.				
I make or buy gifts for family members on birthdays or major holidays.				
I try to please others by doing something special or giving them a surprise.				

I select specific locations for social activities with friends (for example, restaurants or movie theatres).				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I say when I am feeling happy, sad, scared, or angry.				
I send thank you notes or emails after receiving a gift or help with an important task.				
I behave safely at work so that no one will be harmed.				
I care properly for work supplied and equipment.				
I follow a daily work schedule without reminders from my supervisor.				
I return to work willingly after taking a break or lunch.				
I perform tasks at work neatly.				
I follow my supervisor's instructions when completing tasks or activities.				
I refuse when a co-worker encourages me to do shoddy or unsafe work.				
I clean up after completing work.				
I am productive and cooperative as part of groups or teams				
I complete work assignments within the required time limits.				
I work quietly, without disturbing co-workers.				
I ask for directions, as needed, before beginning work tasks.				
I find full-time or part-time jobs myself.				

I organize tasks at work so that the most important ones are completed first.				
I take the time needed to do a task well, without rushing.				
I check my work to determine if improvements are needed.				
Question	I am not able to	Never	Sometimes when needed	Always (or almost always when needed)
I keep working efficiently and accurately, even with loud noises or distractions.				
I perform extra work on the job willingly.				
I seek help from my supervisor, as needed when work-related problems or questions arise.				
I keep a stable part-time or full-time job for at least 1 year.				
I verify wages to ensure that I am receiving the proper amount.				
I make suggestions to supervisors (for example, how to have a safer or more productive workplace).				
I train and supervise others in the workplace.				

question	Never	Sometimes	Often
I have trouble sitting still			
I have trouble accepting a different way to solve a problem with things such as schoolwork, friends, or tasks.			
When I am given three things to do, I remember only the first or the last			
I am not aware of how my behaviour affects or bothers others			
My work is sloppy			
I have anger outburst			
I don't plan for my work tasks			
I have difficulty finding my things (i.e. clothes, glasses, shoes, books, or pencils)			
I have problems getting started on my own			
I am impulsive (I don't think before doing)			
I have trouble getting used to new situations (such as classes, groups, or friends)			
I have a short attention span			
I have a poor understanding of my strengths and my weakness (I try things that are too difficult or too easy for me)			
I have outbursts for little reason			
I get caught up in details and miss the main idea			
I get out of control more than my friends			
I get stuck on one topic or activity			
I forget my name			

I get stuck on one topic or activity			
I forget my name			
I have trouble with jobs or tasks that one step			
I don't know when my actions bother others			
I have problems organ-ising my written work			
I get upset over small events			
I have good ideas but do not get the job done (I lack follow-through)			
I talk at the wrong time			
I have trouble finishing tasks (such as chores or homework)			
I don't notice when my behaviour causes nega-tive reactions until it is too late			
I overact			
I have trouble remem-bering things, even for a few minutes (such as directions or phone numbers)			
I have problems wait-ing my turn			
It bothers me when I have to deal with changes (such as rou-tines, foods, or places)			
I forget to hand in my work, even when it's completed			
I am slower than others when completing my work			
I am easily over-whelmed			
I don't plan for future activities			
I have trouble counting to three			
I don't have difficulty finishing a task on my			

own			
I interrupt others			
I try the same approach to a problem over and over when it doesn't work (I get stuck)			
I forget instructions easily			
It takes me longer to complete my work			
I make careless errors			
I don't think ahead about possible problems			
I have problems completing my work			
My eyes will fill with tears quickly over little things			
I have trouble thinking of a different way to solve a problem when I get stuck			
I am absentminded (forgetful)			
I have trouble prioritising (ordering) my activities			
I think or talk out loud when working			
I don't think of the consequences before acting			
I am unaware of my behaviour when I am in a group			
I have trouble changing from one activity to another			
I have trouble carrying out the things that are needed to reach a goal (such as saving money for special items or studying to get good grades)			
I have difficulty coming up with different ways of solving a			

problem			
I cannot find the front door of my home			
I have problems finishing long-term projects (such as papers or books or reports)			

Question	Never or rarely	One or more times daily	15 or more times a day
Like arranging items in rows or patterns			
Repetitively fiddle with items? (e.g., spin, twiddle, bang, tap, twist, or flick anything repeatedly			
Spin yourself around and around?			
Rock backward and forwards, or side to side, either when sitting or when standing?			
Pace or move around repetitively (e.g., walk to and from across a room, or around the same path in the garden?			
Make repetitive hand and/or finger movements? (e.g., flap, wave, or flick your hands or fingers repetitively?)			
Have a fascination with specific objects (e.g., trains, road signs, or other things?			
Like to look at objects from particular or unusual angles?			

Have a special interest in the smell of people or objects			
Have a special interest in the feel of different surfaces			
Have any special objects you like to carry around			
Collect or hoard items of any sort			
Insist on things at home remaining the same? (e.g., furniture staying in the same place, things being kept in certain places, or arranged in certain ways?)			
Get upset about minor changes to objects (e.g. flecks of dirt on your clothes, minor scratches on objects?)			
Insist that aspects of daily routine must remain the same			
Insist on doing things in a certain way or re-doing things until they ‘‘just right’’?			
Play the same music, game, or video, or read the same book repeatedly			
Insist on wearing the same clothes or refuse to wear new clothes			
Insist on eating the same foods, or a very small range of foods, at every meal?			
	A range of different and flexible self-chosen activities	Some varied and flexible interests but commonly choose the same ones	Marked and notable (will tolerate changes when necessary)/

What sort of activity will you choose if you are left to occupy yourself?			

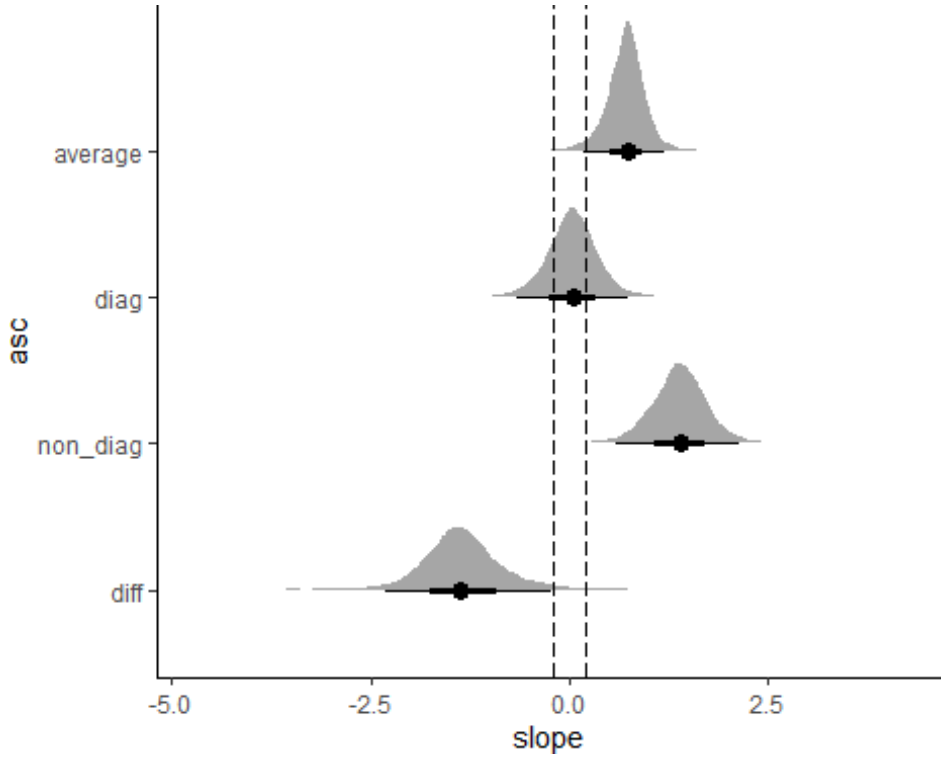
Question	Never 0	1	2	3	4	Always 5
I am bothered by fatigue						
I get tired quickly						
I don't do much during the day						
I have enough energy for everyday life.						
Physically, I feel exhausted.						
I have problems starting things						
I have problems thinking clearly						
I feel no desire to do anything						
Mentally, I feel exhausted						
When I am doing something, I can concentrate quite well.						

Appendix J: Data Analyses for Chapter 4

Chapter 4 Posterior Plots

Figure J.1

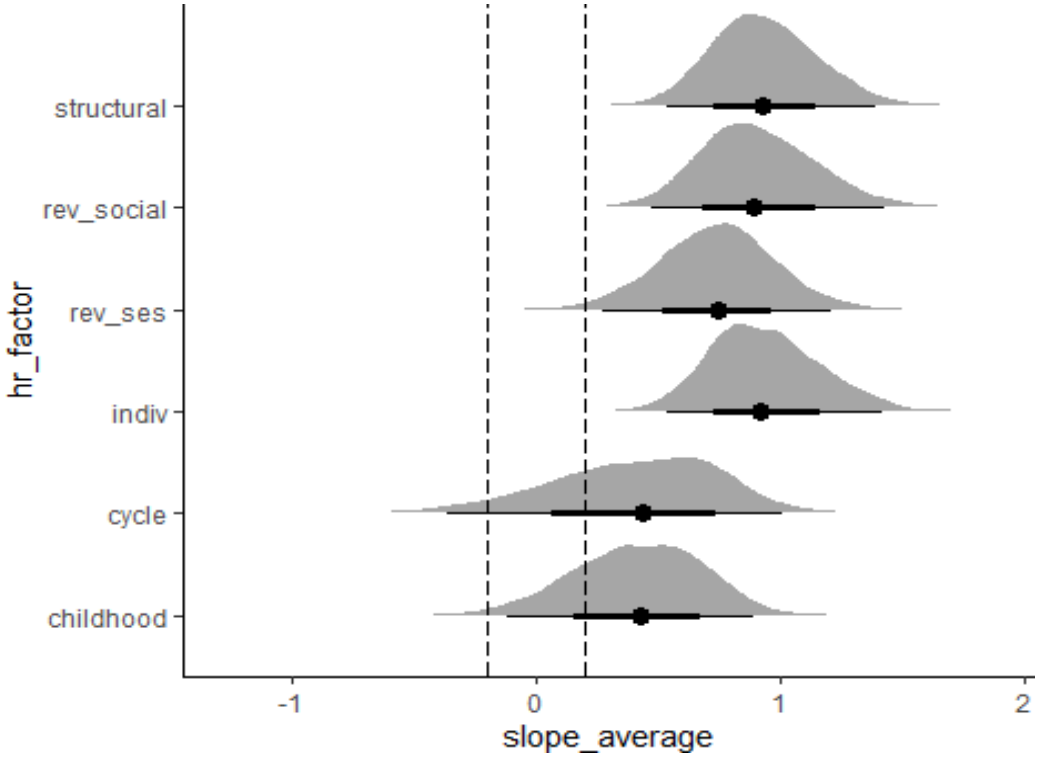
Probability of Homelessness Averaged Across Risk Factor



ASC= ASD diagnosis status
Diag= ASD diagnosis
Non_diag= non ASD diagnosis
Slope= most occurring posterior distribution

Figure J.2

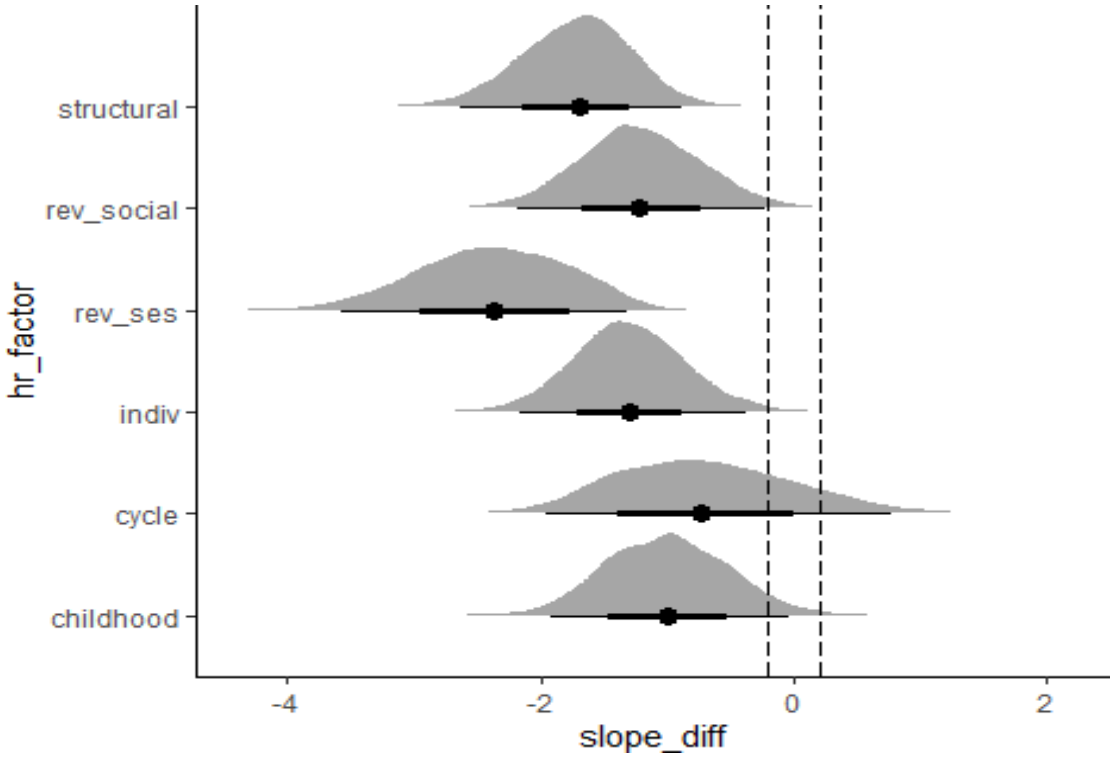
Contribution of Individual Risk Factors to the Risk of Homelessness, Averaged Across ASD Diagnosis Statuses



Slope_average= most occurring posterior distribution averaged across diagnostic groups
Hr_factor= homelessness risk factor type
Structural= Affordable housing and service accessibility
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors
Childhood= number of negative childhood experiences

Figure J.3

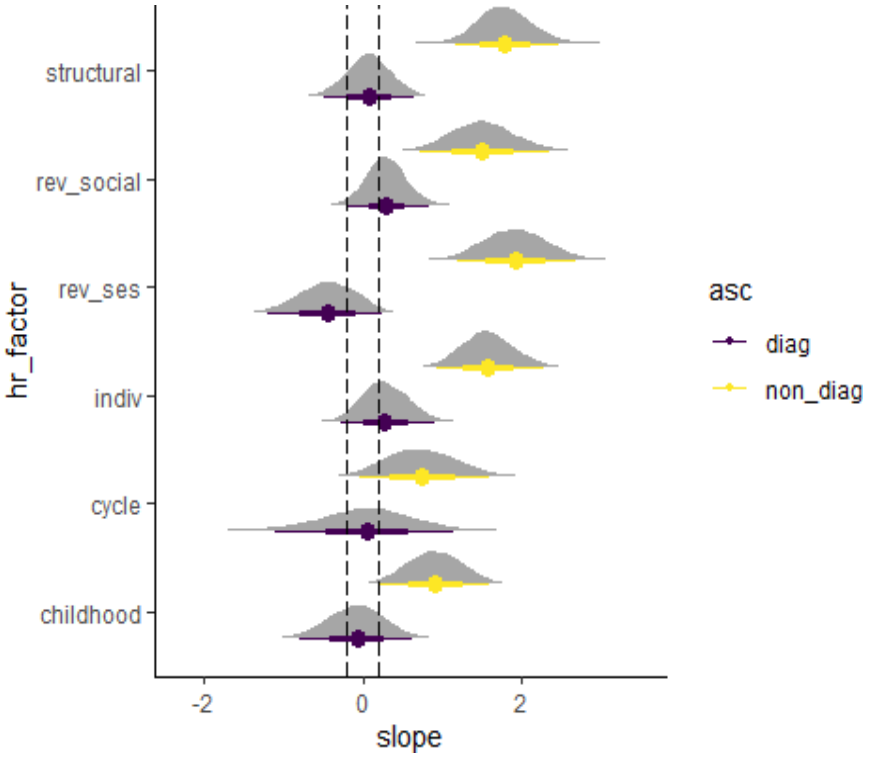
Interactive Effects of Risk Factors and ASD Diagnosis Status



ASD = Autism Spectrum Disorder
Slope_difference= difference in posterior distribution according diagnostic groups
Hr_factor= homelessness risk factor type
Structural= Affordable housing and service accessibility
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors
Childhood= number of negative childhood experiences

Figure J.4

Contribution of Risk Factors to Homeless Outcomes, According to ASD Diagnosis Status



Slope_average= most occurring posterior distribution averaged across diagnostic groups
Hr_factor= homelessness risk factor type
Structural= Affordable housing and service accessibility
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors
Childhood= number of negative childhood experiences
asc= diagnostic status (diag=yes, non_diag=no)

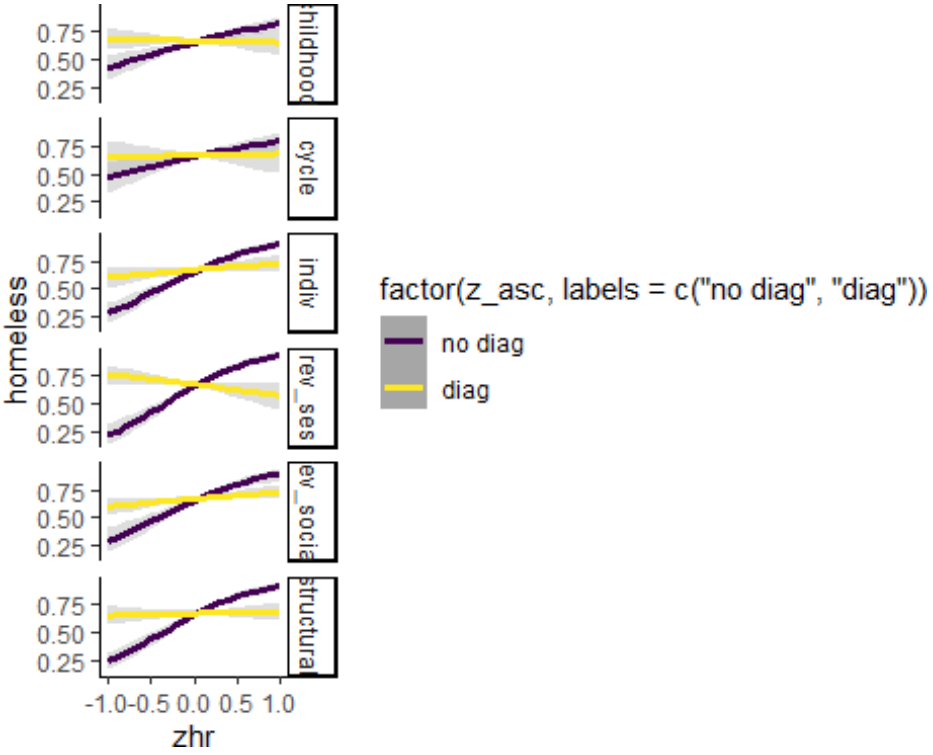
Table J.1

Probabilities That the True Effect Size is Below, Within, or Above the ROPE (Region of Practical Equivalence)

```
## # A tibble: 6 x 4
## # Groups:   hr_factor [6]
##   hr_factor  `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>            <dbl>        <dbl>       <dbl>
## 1 childhood        0.948       0.0436      0.008
## 2 cycle            0.757       0.128       0.115
## 3 indiv            0.991       0.009       0.000375
## 4 rev_ses          1           0           0
## 5 rev_social       0.979       0.0181      0.00312
## 6 structural       1.00        0.000375    0
```

Figure J.5

Interaction of the Estimated Probability of Homelessness Predicted by the Risk Factor Variable, Separately for the Diagnosed and Not-Diagnosed Groups

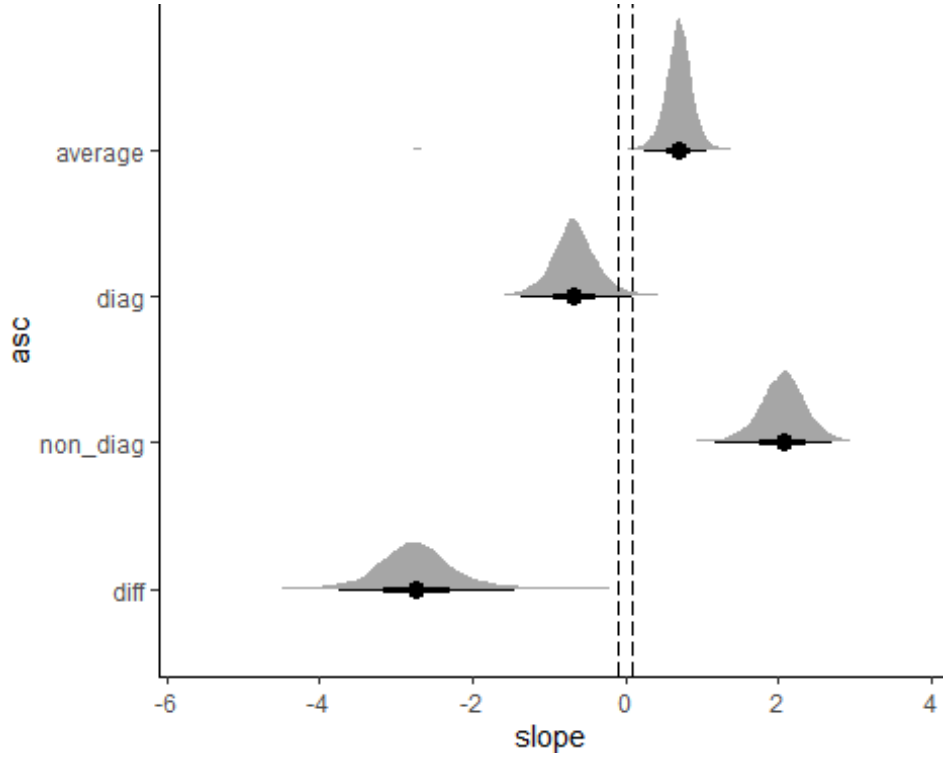


Hr_factor= homelessness risk factor type
Structural= Affordable housing and service accessibility
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors
Childhood= number of negative childhood experiences
asc= ASD diagnostic status (diag=yes, non_diag=no)

Autism Spectrum Quotient (AQ) Factors

Figure J.6

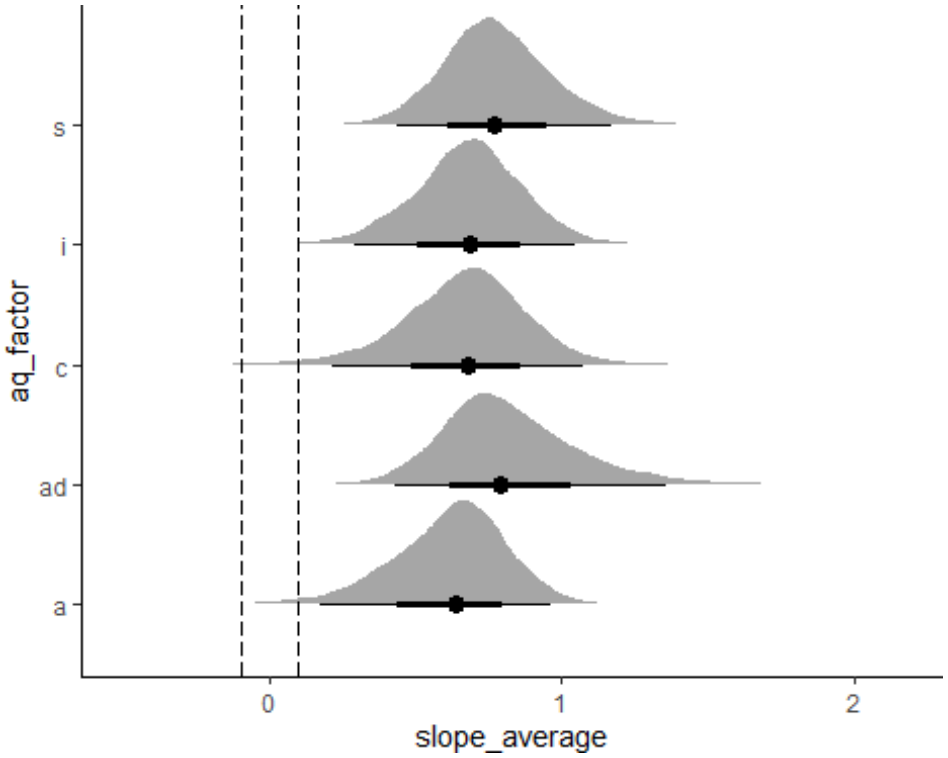
Average Probability of Homelessness Across the 5 AQ Factors



AQ = Autism Spectrum Quotient
asc= AQ score high vs low (diag=high, non_diag=low)
Slope= most occurring posterior distribution

Figure J.7

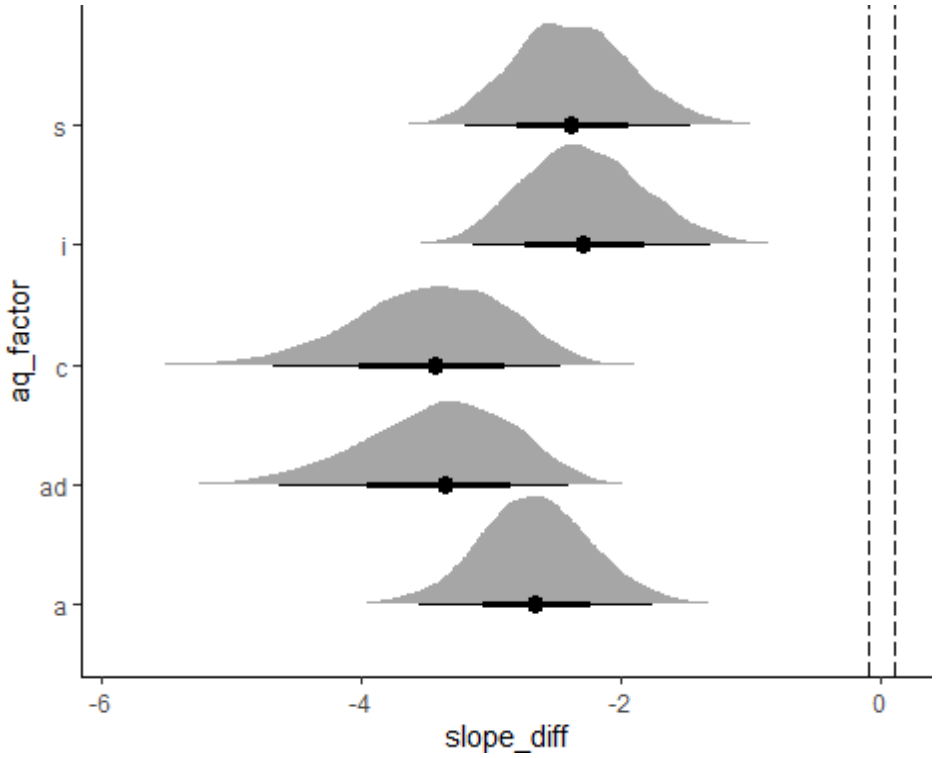
Contribution of Individual Characteristics Averaged Across ASD Diagnosis Status



Slope average= most occurring posterior distribution averaged across group scores
S=social skills
I=imagination
C= communication
Ad= attention to detail
A=attention switching
Aq_factor= AQ factors evaluated separately

Figure J.8

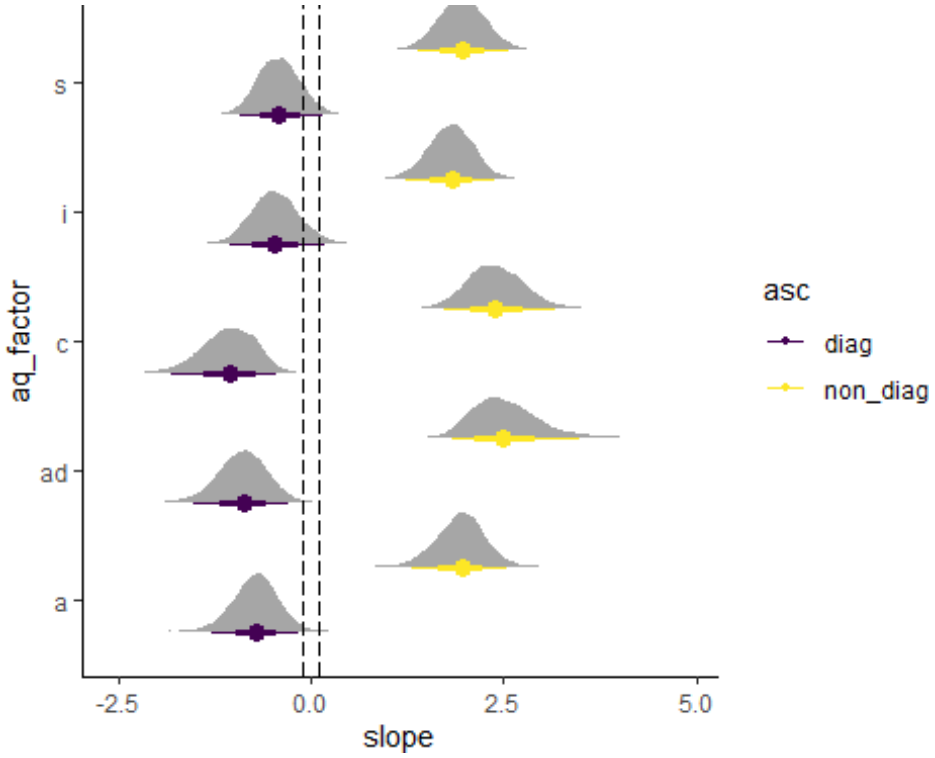
Interactive Effects of ASD Diagnosis Status, According to AQ Factor



AQ = Autism Spectrum Quotient
S=social skills
I=imagination
C= communication
Ad= attention to detail
A=attention switching
Aq_factor= AQ factors evaluated separately
Slope_diff= most occurring posterior distribution difference across diagnostic group scores

Figure J.9

Probability of Homelessness for Each AQ Factor, Comparing Diagnostic Groups



AQ = Autism Spectrum Quotient
S=social skills
I=imagination
C= communication
Ad= attention to detail
A=attention switching
Aq_factor= AQ factors evaluated separately
Slope= most occurring posterior distribution
asc= diagnostic status (diag=yes, non_diag=no)

Table J.2

Probabilities Relative to the ROPE (Region of Practical Equivalence) for the Interaction and Then the Slopes, Split into AQ (Autism Spectrum Quotient) Factor and ASD Diagnosis Status

```
## # A tibble: 5 x 4
## # Groups:   aq_factor [5]
##   aq_factor `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>           <dbl>        <dbl>        <dbl>
## 1 a                   1            0            0
## 2 ad                  1            0            0
## 3 c                   1            0            0
## 4 i                   1            0            0
## 5 s                   1            0            0

## # A tibble: 10 x 5
## # Groups:   aq_factor, asc [10]
##   aq_factor asc   `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>     <chr>       <dbl>        <dbl>        <dbl>
## 1 a         diag        0.965        0.034     0.000875
## 2 a         non_diag    0            0         1
## 3 ad        diag        0.988        0.0112    0.000625
## 4 ad        non_diag    0            0         1
## 5 c         diag        0.999        0.00125   0
## 6 c         non_diag    0            0         1
## 7 i         diag        0.804        0.176     0.02
## 8 i         non_diag    0            0         1
## 9 s         diag        0.780        0.204     0.0164
## 10 s        non_diag    0            0         1
```

Table J.3

Correlation Matrix for Homelessness Risk Factors and Autism Spectrum Quotient (AQ)–Based Variables

##	zhr_childhood	zhr_structural	zhr_cycle	zhr_indiv
## zhr_childhood	1.000000000	0.09467633	-0.006201594	0.2483307
## zhr_structural	0.094676334	1.00000000	-0.111588635	0.3735656
## zhr_cycle	-0.006201594	-0.11158864	1.000000000	-0.1237248
## zhr_indiv	0.248330695	0.37356561	-0.123724772	1.0000000
## zhr_rev_social	0.124421073	0.04110467	0.062248414	0.1204764
## zhr_rev_ses	0.206027125	0.28519527	-0.002662891	0.2888507
## zaq50_s	NA	NA	NA	NA
## zaq50_a	0.154945095	0.05069598	0.058936574	0.1499678
## zaq50_c	0.244126389	0.10834069	-0.028629950	0.2248244
## zaq50_i	0.188418963	0.06681551	0.019510513	0.1449743
## zaq50_ad	0.199625578	0.14313833	0.084840892	0.2112831
## zaq50_total	0.230777192	0.16496508	0.067981152	0.1613965

##	zhr_rev_social	zhr_rev_ses	zaq50_s	zaq50_a	zaq50_c
## zhr_childhood	0.124421073	0.206027125	NA	0.15494509	0.244126389
## zhr_structural	0.041104667	0.285195269	NA	0.05069598	0.108340689
## zhr_cycle	0.062248414	-0.002662891	NA	0.05893657	-0.028629950
## zhr_indiv	0.120476388	0.288850732	NA	0.14996775	0.224824415

```
## zhr_rev_social          1.000000000    -0.051744543          NA   0.03481766 -
0.009928122
## zhr_rev_ses            -0.051744543     1.000000000          NA   0.29073803
0.460292376
## zaq50_s                          NA              NA           1           NA
NA
## zaq50_a                 0.034817658     0.290738033          NA   1.00000000
0.729803131
## zaq50_c                -0.009928122     0.460292376          NA   0.72980313
1.000000000
## zaq50_i                 0.034120712     0.283821607          NA   0.58833127
0.529661438
## zaq50_ad                0.042978150     0.490328304          NA   0.73708094
0.776404348
## zaq50_total            -0.031594403     0.453930623          NA   0.67511621
0.740997397
##                    zaq50_i   zaq50_ad zaq50_total
## zhr_childhood  0.18841896 0.19962558  0.23077719
## zhr_structural 0.06681551 0.14313833  0.16496508
## zhr_cycle      0.01951051 0.08484089  0.06798115
## zhr_indiv      0.14497435 0.21128313  0.16139647
## zhr_rev_social 0.03412071 0.04297815 -0.03159440
## zhr_rev_ses    0.28382161 0.49032830  0.45393062
## zaq50_s                NA         NA          NA
## zaq50_a        0.58833127 0.73708094  0.67511621
## zaq50_c        0.52966144 0.77640435  0.74099740
## zaq50_i        1.00000000 0.39319121  0.38094602
```

```
## zaq50_ad          0.39319121 1.00000000  0.80312966
## zaq50_total       0.38094602 0.80312966  1.00000000
```

AQ Total (and Homelessness Risk Factors)

Table J.4

Model Fit With the Six Homelessness Risk Factors and the Autism Spectrum Quotient (AQ) Total

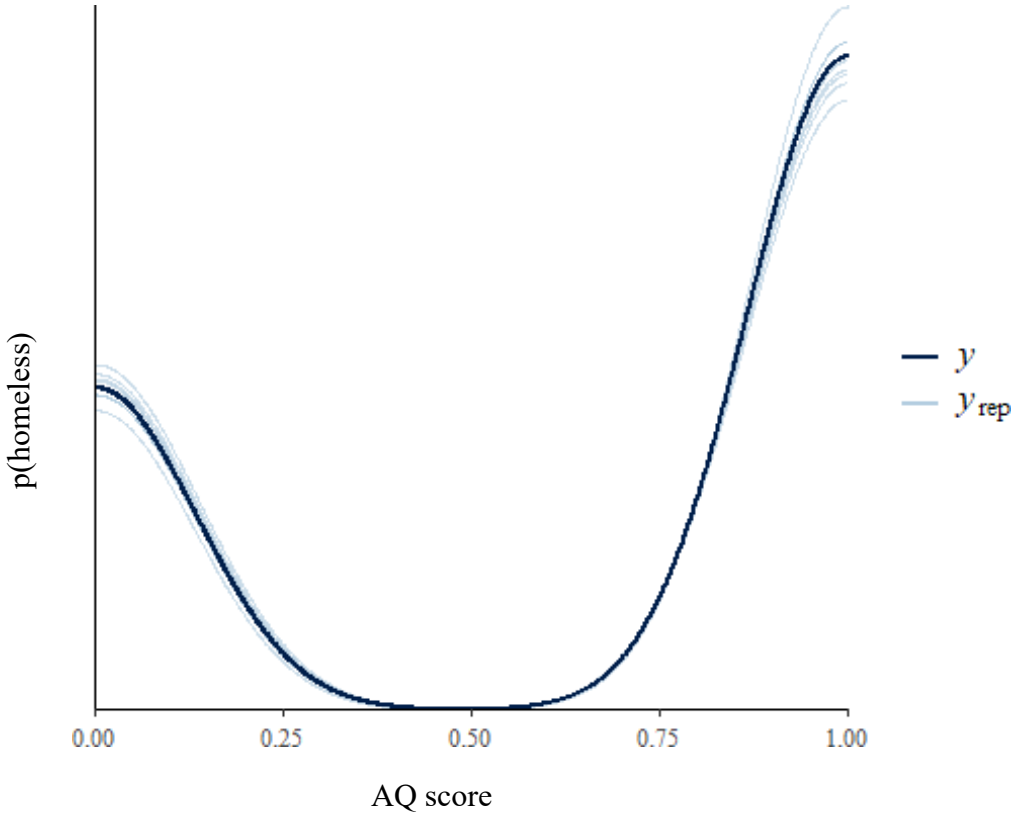
```
## Family: bernoulli ##
         Links: mu = logit
## Formula: homeless ~ zaq50_total * (zhr_childhood + zhr_rev_social +zhr_structural +
zhr_cycle + zhr_rev_ses + zhr_indiv)
##          Data: dat_combined (Number of observations: 318)
## Samples: 8 chains, each with iter = 2000; warmup = 1000; thin = 1;## total post-warmup
samples = 8000
##
## Population-Level Effects:
##                    Estimate  Est.Error  l-95% CI  u-95% CI  Rhat
Bulk_ESS
## Intercept             0.66       0.15      0.37      0.95  1.00
9996
## zaq50_total           0.54       0.34     -0.11      1.21  1.00
8197
## zhr_childhood        -0.43       0.33     -1.07      0.22  1.00
9220
## zhr_rev_social        0.26       0.36     -0.45      0.96  1.00
8275
```

```
## zhr_structural                0.87      0.32     0.25     1.49 1.00
8397
## zhr_cycle                     0.46      0.38    -0.24     1.26 1.00
8974
## zhr_rev_ses                   0.28      0.32    -0.35     0.91 1.00
10000
## zhr_indiv                     0.66      0.34     0.01     1.32 1.00
8751
## zaq50_total:zhr_childhood    -0.15      0.58    -1.27     1.02 1.00
8604
## zaq50_total:zhr_rev_social    2.01      0.62     0.83     3.26 1.00
6639
## zaq50_total:zhr_structural   -0.03      0.65    -1.28     1.24 1.00
8532
## zaq50_total:zhr_cycle        -0.08      1.10    -2.19     2.14 1.00
8141
## zaq50_total:zhr_rev_ses       3.61      0.78     2.11     5.15 1.00
7243
## zaq50_total:zhr_indiv        -0.70      0.68    -2.02     0.62 1.00
7358
##                           Tail_ESS
## Intercept                     6427
## zaq50_total                   6400
## zhr_childhood                 6878
## zhr_rev_social                6280
## zhr_structural                6354
## zhr_cycle                     5536
```

```
## zhr_rev_ses                      5855
## zhr_indiv                        5779
## zaq50_total:zhr_childhood        6362
## zaq50_total:zhr_rev_social       6134
## zaq50_total:zhr_structural       6459
## zaq50_total:zhr_cycle            6323
## zaq50_total:zhr_rev_ses          6659
## zaq50_total:zhr_indiv            6253
##
## Samples were drawn using sampling(NUTS). For each parameter, Bulk_ESS
## and Tail_ESS are effective sample size measures, and Rhat is the
potential
## scale reduction factor on split chains (at convergence, Rhat = 1).

## Using 10 posterior samples for ppc type 'dens_overlay' by default.
```

Figure J.10

Change in p(homeless) *Increases With AQ Increase, Holding All Predictors Constant*



AQ = Autism Spectrum Quotient
Y=interactive effects
Y rep = credible interval

What Does AQ Total Add (to the Effects of the Risk Factors)?

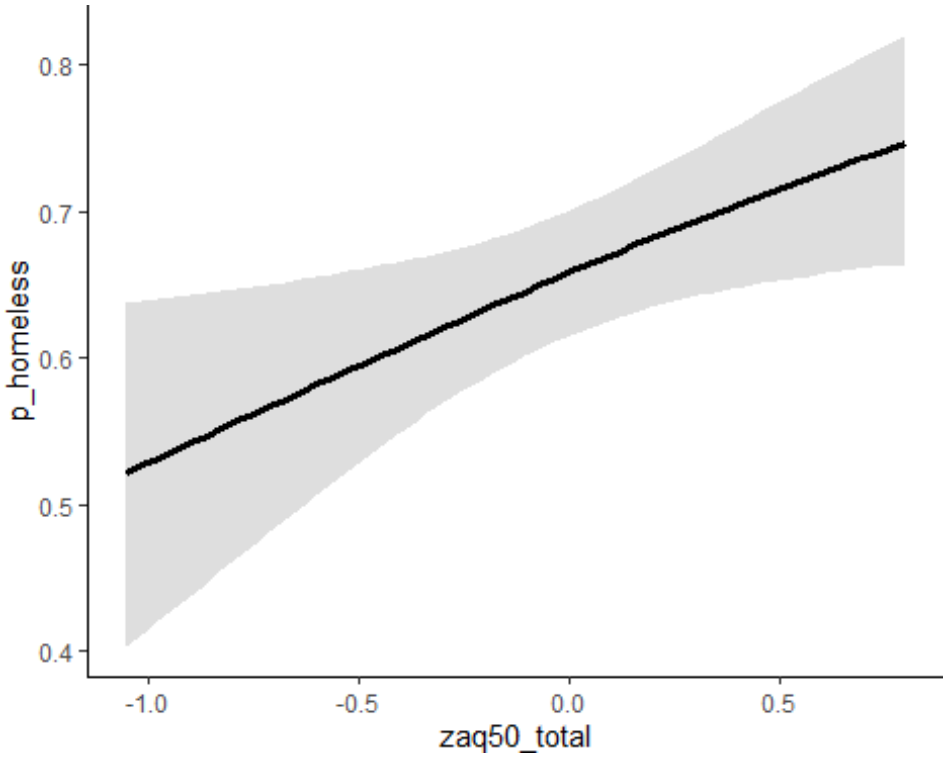
Table J5

ROPE (Region of Practical Equivalence) Probabilities for the Interaction Terms

```
## # A tibble: 1 x 3
##   `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##         <dbl>        <dbl>       <dbl>
## 1      0.0127        0.143       0.844
```

Figure J.11

Interaction Between the Probability of Homelessness and AQ factor Score



P(homeless) = probability of homelessness

ZAQ50_total = Autism Spectrum Quotient total score

Table J.6

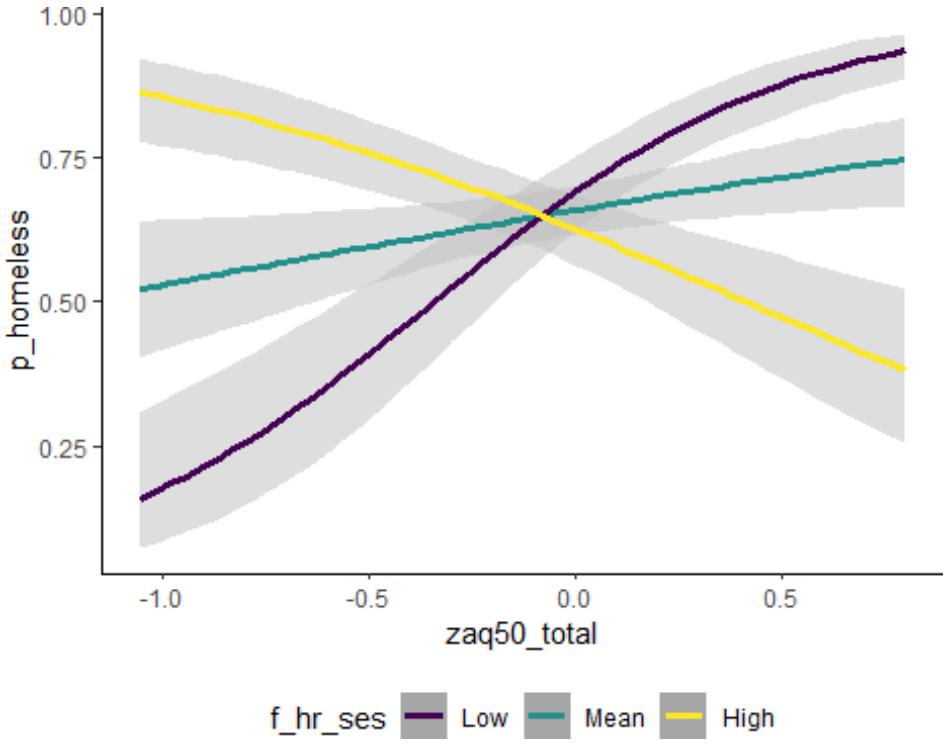
Coefficient Estimates for the Interaction Terms

```
## #    A tibble:    6  x  4
##      .variable                          `P(<  ROPE)`  `P(in ROPE)`      `P(>   ROPE)`
##      <chr>                                    <dbl>           <dbl>            <dbl>
##  1  b_zaq50_total:zhr_childhood              0.464           0.268            0.268
##  2  b_zaq50_total:zhr_cycle                  0.463           0.142            0.395
##  3  b_zaq50_total:zhr_indiv                  0.772           0.135           0.0929
##  4  b_zaq50_total:zhr_rev_ses                0               0                1
##  5  b_zaq50_total:zhr_rev_social             0               0.00100          0.999
##  6  b_zaq50_total:zhr_structural             0.397           0.242            0.361

## #    A tibble:    6  x  7
##      .variable                          .value .lower .upper .width .point
.interval
##      <chr>                               <dbl>  <dbl>  <dbl>  <dbl> <chr>
<chr>
##  1  b_zaq50_total:zhr_childhood        -0.148    -1.26   1.02    0.95  median   hdci
##  2  b_zaq50_total:zhr_cycle            -0.0937   -2.23   2.08    0.95  median   hdci
##  3  b_zaq50_total:zhr_indiv            -0.683    -1.96   0.678   0.95  median   hdci
##  4  b_zaq50_total:zhr_rev_ses           3.59      2.11   5.15    0.95  median   hdci
##  5  b_zaq50_total:zhr_rev_social        1.99      0.765  3.18    0.95  median   hdci
##  6  b_zaq50_total:zhr_structural       -0.0313   -1.27   1.25    0.95  median   hdci
```

```
## # A tibble: 6 x 4
##   .variable          `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>                    <dbl>        <dbl>       <dbl>
## 1 b_zhr_childhood         0.757        0.215      0.0275
## 2 b_zhr_cycle             0.0316       0.224      0.744
## 3 b_zhr_indiv             0.00525      0.0795     0.915
## 4 b_zhr_rev_ses           0.068        0.334      0.598
## 5 b_zhr_rev_social        0.0982       0.334      0.567
## 6 b_zhr_structural        0.000125     0.0169     0.983

## # A tibble: 6 x 7
##   .variable          .value  .lower .upper .width .point .interval
##   <chr>               <dbl>   <dbl>  <dbl>  <dbl> <chr>  <chr>
## 1 b_zhr_childhood   -0.426  -1.08    0.201   0.95 median hdci
## 2 b_zhr_cycle        0.433  -0.257   1.22    0.95 median hdci
## 3 b_zhr_indiv        0.660   0.00700 1.32    0.95 median hdci
## 4 b_zhr_rev_ses      0.286  -0.356   0.905   0.95 median hdci
## 5 b_zhr_rev_social   0.262  -0.457   0.946   0.95 median hdci
## 6 b_zhr_structural   0.863   0.267   1.50    0.95 median hdci
```

Figure J.12

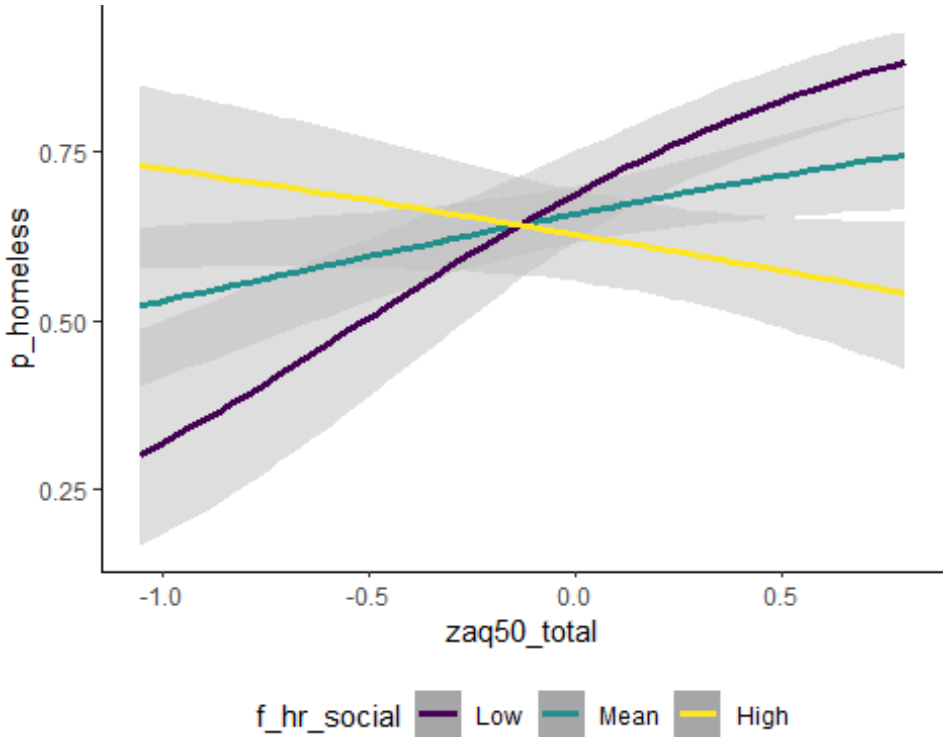
Relationship Between AQ and Homelessness Depending on Socio-Economic Status



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
SES= social economic status =low score, mean score and high score

Figure J.13

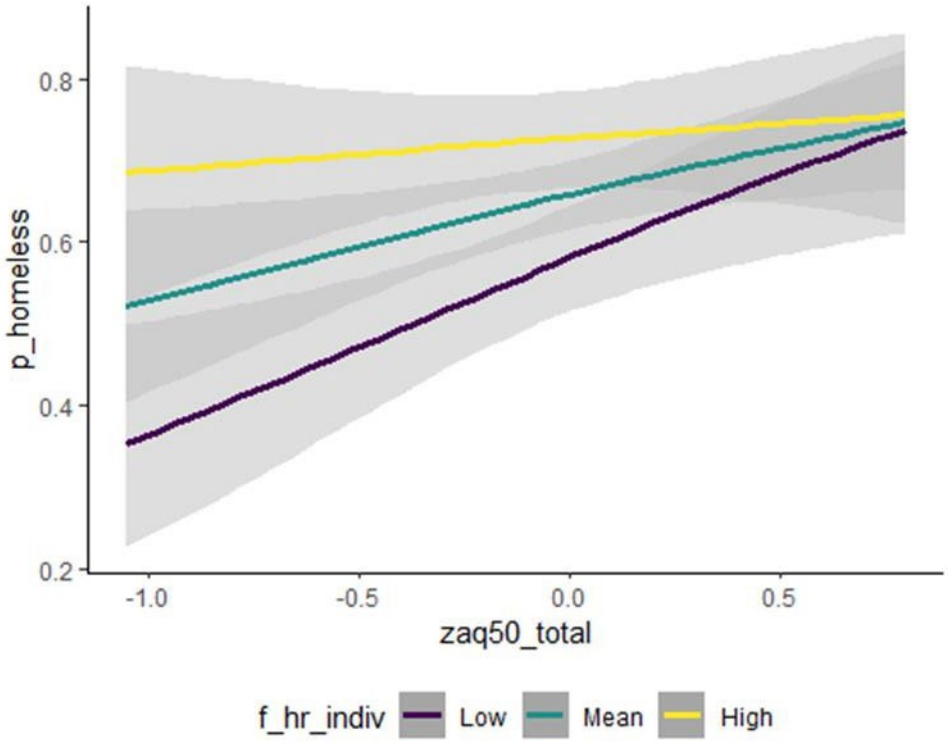
Relationship Between AQ and Homelessness Depending on Social Network Size



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
Social= number of social supports=low score, mean score and high score

Figure J.14

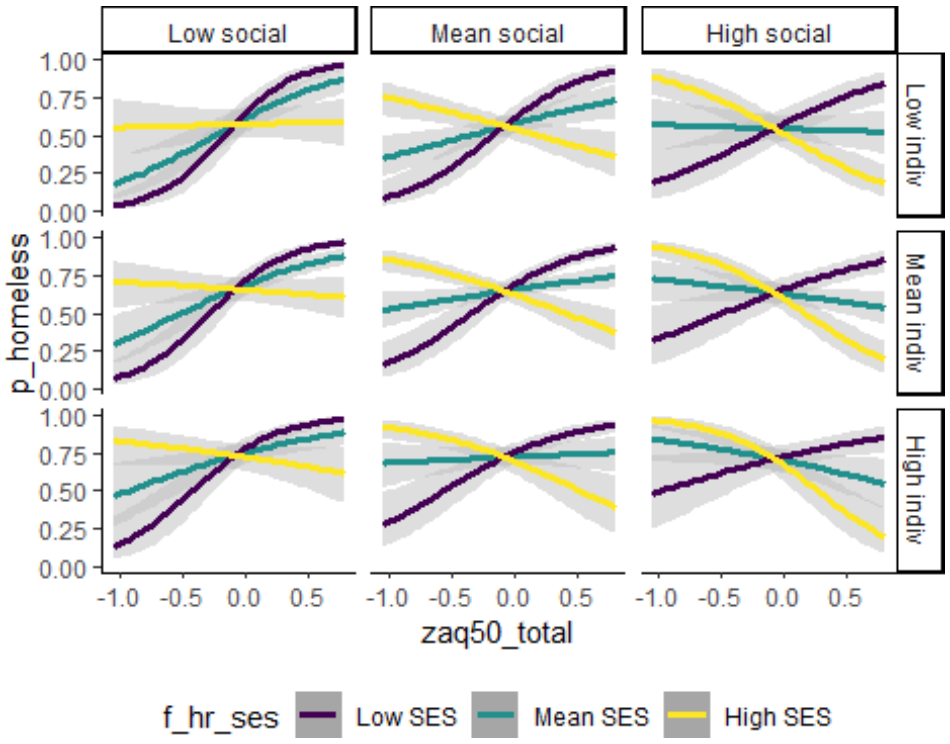
Relationship Between AQ and Homelessness Depending on the Presence of Personal Risk Factors



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
Individual= Personal risk factors =low score, mean score and high score

Figure J.15

Influence of AQ Score on Homeless Risk and the Interactive Effects of Social Factors, SES and Personal Risk Factors

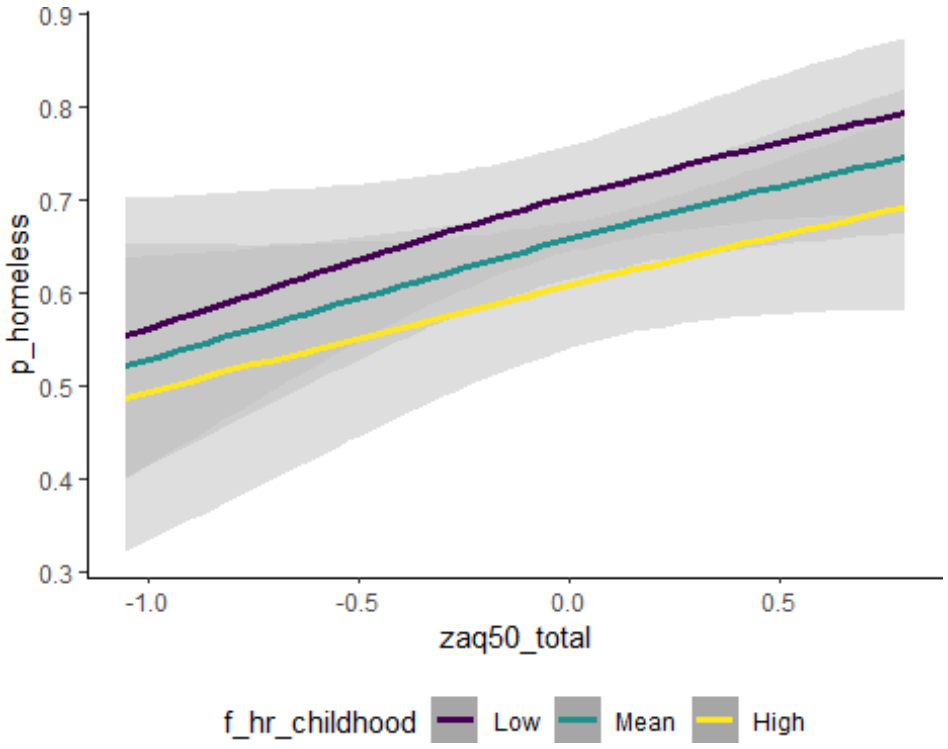


AQ = Autism Spectrum Quotient; SES = socio-economic status
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
SES= social economic status =low score, mean score and high score
Individual= Personal risk factors =low score, mean score and high score
Social= number of social supports=low score, mean score and high score

AQ by the Other Risk Factors

Figure J.16

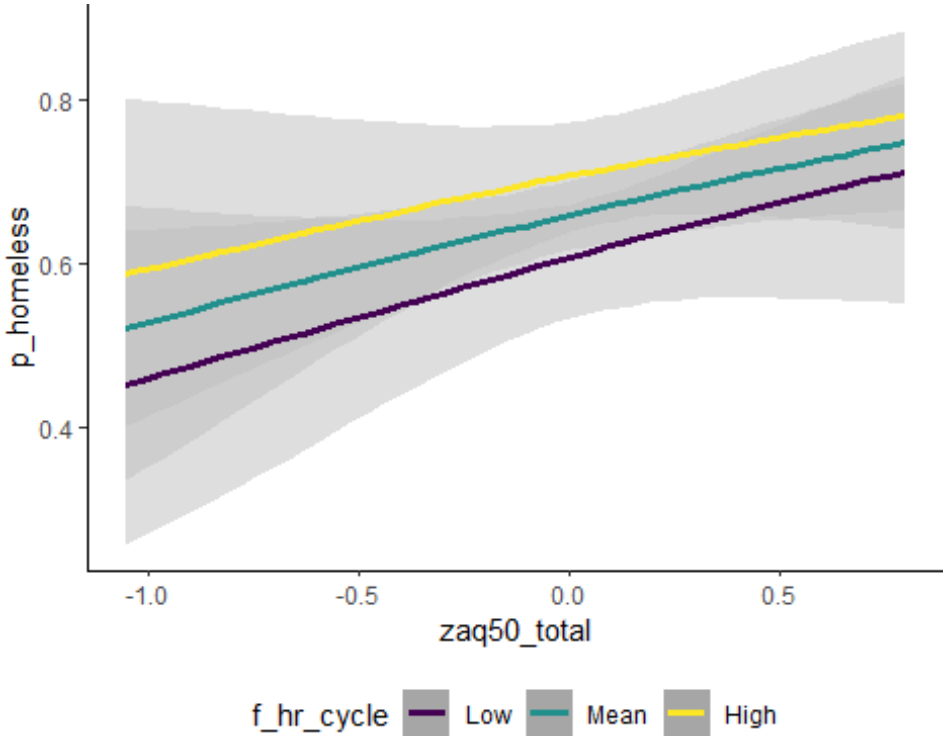
Interactive Effects of Childhood-Related Risk Factors on the Probability of Homelessness, According to AQ Score



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
Childhood= number of negative childhood experiences =low score, mean score and high score

Figure J.17

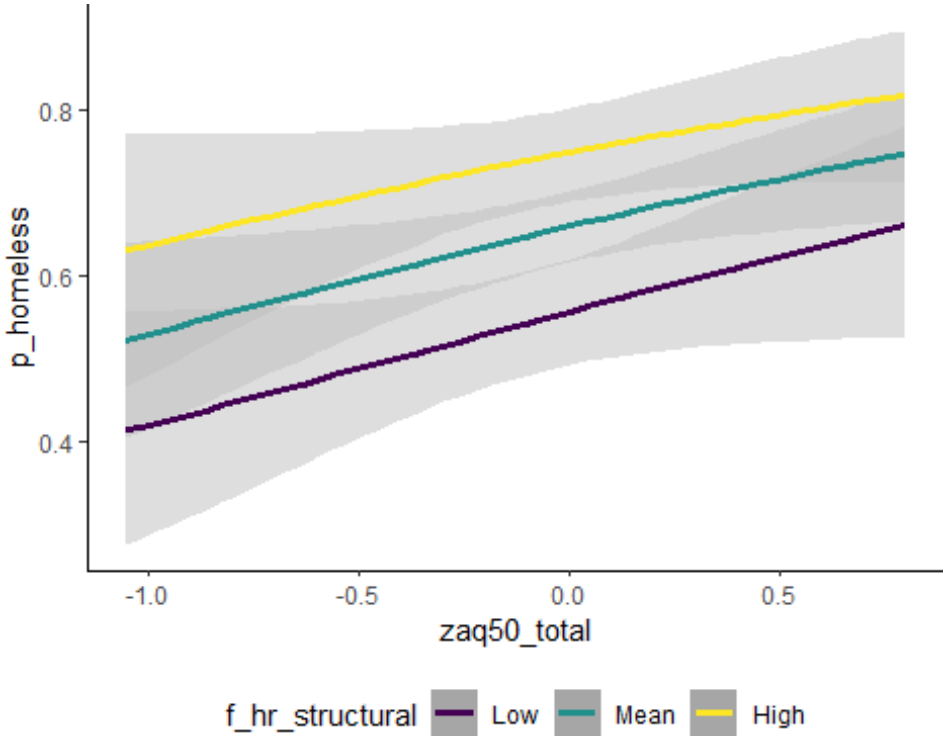
Interactive Effects of Homelessness Cycles on the Probability of Homelessness, According to AQ Score



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
f-hr_cycle= Homelessness cycle =low score, mean score and high score

Figure J.18

Interactive Effects of Structural Factors on the Probability of Homelessness, According to AQ Score



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
AQ50-total = Autism Spectrum Quotient total score
F-hr-structural= structural risk factors =low score, mean score and high score

AQ Factors (and Homelessness Risk Factors)

Table J.7

Model Fit Check With the Six Risk Factors as Covariates and the Autism Spectrum Quotient (AQ) Factors as the Predictors of Interest, Modelled Hierarchically

```
## Family: bernoulli ##
        Links: mu = logit
## Formula: homeless ~ zaq * (zhr_childhood + zhr_rev_social + zhr_structural + zhr_cycle +
zhr_rev_ses + zhr_indiv) + (0 + zaq * (zhr_childhood + zhr_rev_social + zhr_structural + zhr_cycle +
zhr_rev_ses
+ zhr_indiv) | aq_factor)
##         Data: dat_combined_aqfactors (Number of observations: 1585)
## Samples: 8 chains, each with iter = 2000; warmup = 1000; thin = 1;## total post-warmup
samples = 8000
##
## Group-Level Effects:
## ~aq_factor (Number of levels: 5)
##                                                    Estimate Est.Error l-95% CI
u-95% CI
## sd(zaq)                                              0.24      0.26      0.01
0.91
## sd(zhr_childhood)                                    0.20      0.22      0.01
0.77
## sd(zhr_rev_social)                                   0.19      0.20      0.01
0.71
## sd(zhr_structural)                                   0.19      0.21      0.01
0.72
## sd(zhr_cycle)                                        0.27      0.28      0.01
```

1.01

sd(zhr_rev_ses) 0.21 0.22 0.01

0.81

sd(zhr_indiv) 0.21 0.21 0.01

0.76

sd(zaq:zhr_childhood) 0.38 0.38 0.01

1.38

sd(zaq:zhr_rev_social) 0.37 0.38 0.01

1.34

sd(zaq:zhr_structural) 0.66 0.55 0.03

2.09

sd(zaq:zhr_cycle) 0.57 0.54 0.02

1.94

sd(zaq:zhr_rev_ses) 0.85 0.64 0.05

2.51

sd(zaq:zhr_indiv) 0.54 0.49 0.02

1.84

cor(zaq,zhr_childhood) -0.01 0.27 -0.52

0.51

cor(zaq,zhr_rev_social) 0.00 0.27 -0.52

0.53

cor(zhr_childhood,zhr_rev_social) -0.00 0.27 -0.53

0.51

cor(zaq,zhr_structural) -0.00 0.27 -0.52

0.51

cor(zhr_childhood,zhr_structural) -0.01 0.27 -0.52

0.51

## cor(zhr_rev_social,zhr_structural)	0.00	0.27	-0.50
0.51			
## cor(zaq,zhr_cycle)	-0.01	0.27	-0.51
0.52			
## cor(zhr_childhood,zhr_cycle)	0.00	0.27	-0.52
0.53			
## cor(zhr_rev_social,zhr_cycle)	-0.00	0.27	-0.52
0.51			
## cor(zhr_structural,zhr_cycle)	0.01	0.27	-0.51
0.52			
## cor(zaq,zhr_rev_ses)	-0.01	0.26	-0.51
0.51			
## cor(zhr_childhood,zhr_rev_ses)	-0.00	0.27	-0.52
0.51			
## cor(zhr_rev_social,zhr_rev_ses)	0.00	0.27	-0.52
0.51			
## cor(zhr_structural,zhr_rev_ses)	-0.01	0.27	-0.53
0.52			
## cor(zhr_cycle,zhr_rev_ses)	-0.00	0.27	-0.53
0.52			
## cor(zaq,zhr_indiv)	-0.01	0.27	-0.53
0.51			
## cor(zhr_childhood,zhr_indiv)	-0.01	0.27	-0.52
0.51			
## cor(zhr_rev_social,zhr_indiv)	-0.00	0.27	-0.53
0.51			
## cor(zhr_structural,zhr_indiv)	-0.01	0.27	-0.52

0.50

cor(zhr_cycle,zhr_indiv) 0.01 0.27 -0.51

0.52

cor(zhr_rev_ses,zhr_indiv) -0.01 0.27 -0.52

0.51

cor(zaq,zaq:zhr_childhood) 0.00 0.27 -0.51

0.52

cor(zhr_childhood,zaq:zhr_childhood) -0.01 0.26 -0.52

0.50

cor(zhr_rev_social,zaq:zhr_childhood) -0.01 0.27 -0.52

0.51

cor(zhr_structural,zaq:zhr_childhood) -0.01 0.27 -0.51

0.51

cor(zhr_cycle,zaq:zhr_childhood) 0.00 0.27 -0.52

0.52

cor(zhr_rev_ses,zaq:zhr_childhood) -0.01 0.27 -0.53

0.52

cor(zhr_indiv,zaq:zhr_childhood) -0.01 0.27 -0.53

0.51

cor(zaq,zaq:zhr_rev_social) 0.00 0.27 -0.51

0.52

cor(zhr_childhood,zaq:zhr_rev_social) -0.01 0.28 -0.54

0.54

cor(zhr_rev_social,zaq:zhr_rev_social) -0.01 0.27 -0.52

0.50

cor(zhr_structural,zaq:zhr_rev_social) 0.01 0.27 -0.50

0.52

## cor(zhr_cycle,zaq:zhr_rev_social)	0.00	0.27	-0.51
0.51			
## cor(zhr_rev_ses,zaq:zhr_rev_social)	0.00	0.27	-0.52
0.52			
## cor(zhr_indiv,zaq:zhr_rev_social)	-0.00	0.27	-0.51
0.51			
## cor(zaq:zhr_childhood,zaq:zhr_rev_social)	0.00	0.27	-0.52
0.50			
## cor(zaq,zaq:zhr_structural)	0.00	0.27	-0.52
0.53			
## cor(zhr_childhood,zaq:zhr_structural)	-0.01	0.27	-0.52
0.51			
## cor(zhr_rev_social,zaq:zhr_structural)	0.01	0.27	-0.51
0.52			
## cor(zhr_structural,zaq:zhr_structural)	0.02	0.26	-0.50
0.52			
## cor(zhr_cycle,zaq:zhr_structural)	-0.00	0.27	-0.53
0.51			
## cor(zhr_rev_ses,zaq:zhr_structural)	-0.01	0.27	-0.53
0.51			
## cor(zhr_indiv,zaq:zhr_structural)	0.01	0.27	-0.51
0.54			
## cor(zaq:zhr_childhood,zaq:zhr_structural)	0.02	0.27	-0.49
0.52			
## cor(zaq:zhr_rev_social,zaq:zhr_structural)	-0.00	0.27	-0.52
0.51			
## cor(zaq,zaq:zhr_cycle)	0.01	0.27	-0.51

0.51

cor(zhr_childhood,zaq:zhr_cycle) 0.00 0.27 -0.51

0.51

cor(zhr_rev_social,zaq:zhr_cycle) -0.00 0.27 -0.51

0.50

cor(zhr_structural,zaq:zhr_cycle) 0.00 0.27 -0.52

0.52

cor(zhr_cycle,zaq:zhr_cycle) 0.01 0.27 -0.51

0.51

cor(zhr_rev_ses,zaq:zhr_cycle) -0.01 0.27 -0.52

0.51

cor(zhr_indiv,zaq:zhr_cycle) 0.00 0.27 -0.51

0.51

cor(zaq:zhr_childhood,zaq:zhr_cycle) -0.00 0.27 -0.52

0.52

cor(zaq:zhr_rev_social,zaq:zhr_cycle) -0.01 0.26 -0.52

0.51

cor(zaq:zhr_structural,zaq:zhr_cycle) 0.01 0.27 -0.51

0.53

cor(zaq,zaq:zhr_rev_ses) -0.00 0.27 -0.52

0.51

cor(zhr_childhood,zaq:zhr_rev_ses) -0.01 0.27 -0.52

0.50

cor(zhr_rev_social,zaq:zhr_rev_ses) 0.01 0.27 -0.50

0.51

cor(zhr_structural,zaq:zhr_rev_ses) 0.00 0.27 -0.53

0.52

## cor(zhr_cycle,zaq:zhr_rev_ses)	0.00	0.27	-0.50
0.53			
## cor(zhr_rev_ses,zaq:zhr_rev_ses)	-0.01	0.27	-0.54
0.50			
## cor(zhr_indiv,zaq:zhr_rev_ses)	0.00	0.27	-0.51
0.52			
## cor(zaq:zhr_childhood,zaq:zhr_rev_ses)	0.01	0.27	-0.51
0.53			
## cor(zaq:zhr_rev_social,zaq:zhr_rev_ses)	0.04	0.27	-0.49
0.55			
## cor(zaq:zhr_structural,zaq:zhr_rev_ses)	0.01	0.27	-0.51
0.51			
## cor(zaq:zhr_cycle,zaq:zhr_rev_ses)	0.00	0.27	-0.51
0.52			
## cor(zaq,zaq:zhr_indiv)	0.00	0.27	-0.51
0.52			
## cor(zhr_childhood,zaq:zhr_indiv)	-0.00	0.27	-0.52
0.52			
## cor(zhr_rev_social,zaq:zhr_indiv)	0.00	0.27	-0.53
0.51			
## cor(zhr_structural,zaq:zhr_indiv)	0.01	0.27	-0.52
0.53			
## cor(zhr_cycle,zaq:zhr_indiv)	0.00	0.27	-0.53
0.52			
## cor(zhr_rev_ses,zaq:zhr_indiv)	0.00	0.27	-0.51
0.52			
## cor(zhr_indiv,zaq:zhr_indiv)	0.00	0.27	-0.52

```
0.51
## cor(zaq:zhr_childhood,zaq:zhr_indiv)                -0.01              0.27        -0.52
0.50
## cor(zaq:zhr_rev_social,zaq:zhr_indiv)               -0.02              0.27        -0.53
0.50
## cor(zaq:zhr_structural,zaq:zhr_indiv)                0.00              0.27        -0.51
0.52
## cor(zaq:zhr_cycle,zaq:zhr_indiv)                     0.01              0.27        -0.50
0.52
## cor(zaq:zhr_rev_ses,zaq:zhr_indiv)                  -0.03              0.27        -0.55
0.49
##                                                      Rhat   Bulk_ESS  Tail_ESS
##   sd(zaq)                                            1.00       3547      4068
##   sd(zhr_childhood)                                  1.00       4559      4270
##   sd(zhr_rev_social)                                 1.00       4799      4573
##   sd(zhr_structural)                                 1.00       4456      4251
##   sd(zhr_cycle)                                      1.00       4405      3676
##   sd(zhr_rev_ses)                                    1.00       4317      3728
##   sd(zhr_indiv)                                      1.00       4495      3949
##   sd(zaq:zhr_childhood)                              1.00       4289      3510
##   sd(zaq:zhr_rev_social)                             1.00       3726      3479
##   sd(zaq:zhr_structural)                             1.00       4024      3881
##   sd(zaq:zhr_cycle)                                  1.00       4864      3638
##   sd(zaq:zhr_rev_ses)                                1.00       3292      3917
##   sd(zaq:zhr_indiv)                                  1.00       4315      4640
##   cor(zaq,zhr_childhood)                             1.00      10824      6358
##   cor(zaq,zhr_rev_social)                            1.00      10719      5731
```

##	cor(zhr_childhood,zhr_rev_social)	1.00	9992	6331
##	cor(zaq,zhr_structural)	1.00	12602	6191
##	cor(zhr_childhood,zhr_structural)	1.00	9316	6027
##	cor(zhr_rev_social,zhr_structural)	1.00	8809	5936
##	cor(zaq,zhr_cycle)	1.00	11886	5853
##	cor(zhr_childhood,zhr_cycle)	1.00	9464	5773
##	cor(zhr_rev_social,zhr_cycle)	1.00	8234	5527
##	cor(zhr_structural,zhr_cycle)	1.00	7250	6346
##	cor(zaq,zhr_rev_ses)	1.00	11175	6255
##	cor(zhr_childhood,zhr_rev_ses)	1.00	11109	6255
##	cor(zhr_rev_social,zhr_rev_ses)	1.00	9141	6777
##	cor(zhr_structural,zhr_rev_ses)	1.00	8292	6436
##	cor(zhr_cycle,zhr_rev_ses)	1.00	7754	6431
##	cor(zaq,zhr_indiv)	1.00	10016	5126
##	cor(zhr_childhood,zhr_indiv)	1.00	9576	5932
##	cor(zhr_rev_social,zhr_indiv)	1.00	9119	6632
##	cor(zhr_structural,zhr_indiv)	1.00	7983	6198
##	cor(zhr_cycle,zhr_indiv)	1.00	6804	6502
##	cor(zhr_rev_ses,zhr_indiv)	1.00	6549	6455
##	cor(zaq,zaq:zhr_childhood)	1.00	11994	5946
##	cor(zhr_childhood,zaq:zhr_childhood)	1.00	9435	6292
##	cor(zhr_rev_social,zaq:zhr_childhood)	1.00	9718	6557
##	cor(zhr_structural,zaq:zhr_childhood)	1.00	7201	5879
##	cor(zhr_cycle,zaq:zhr_childhood)	1.00	6668	6130
##	cor(zhr_rev_ses,zaq:zhr_childhood)	1.00	5771	6040
##	cor(zhr_indiv,zaq:zhr_childhood)	1.00	6169	6576
##	cor(zaq,zaq:zhr_rev_social)	1.00	11104	6242

##	cor(zhr_childhood,zaq:zhr_rev_social)	1.00	10151	6041
##	cor(zhr_rev_social,zaq:zhr_rev_social)	1.00	8601	6100
##	cor(zhr_structural,zaq:zhr_rev_social)	1.00	7570	6224
##	cor(zhr_cycle,zaq:zhr_rev_social)	1.00	6548	5945
##	cor(zhr_rev_ses,zaq:zhr_rev_social)	1.00	6696	6418
##	cor(zhr_indiv,zaq:zhr_rev_social)	1.00	6361	6219
##	cor(zaq:zhr_childhood,zaq:zhr_rev_social)	1.00	5806	5704
##	cor(zaq,zaq:zhr_structural)	1.00	10671	5315
##	cor(zhr_childhood,zaq:zhr_structural)	1.00	8652	6073
##	cor(zhr_rev_social,zaq:zhr_structural)	1.00	8387	6598
##	cor(zhr_structural,zaq:zhr_structural)	1.00	7366	6132
##	cor(zhr_cycle,zaq:zhr_structural)	1.00	6609	6073
##	cor(zhr_rev_ses,zaq:zhr_structural)	1.00	6376	7020
##	cor(zhr_indiv,zaq:zhr_structural)	1.00	5970	6309
##	cor(zaq:zhr_childhood,zaq:zhr_structural)	1.00	5793	6402
##	cor(zaq:zhr_rev_social,zaq:zhr_structural)	1.00	4926	6492
##	cor(zaq,zaq:zhr_cycle)	1.00	11603	6110
##	cor(zhr_childhood,zaq:zhr_cycle)	1.00	9447	6010
##	cor(zhr_rev_social,zaq:zhr_cycle)	1.00	9125	6579
##	cor(zhr_structural,zaq:zhr_cycle)	1.00	8491	6244
##	cor(zhr_cycle,zaq:zhr_cycle)	1.00	6840	6263
##	cor(zhr_rev_ses,zaq:zhr_cycle)	1.00	6706	6606
##	cor(zhr_indiv,zaq:zhr_cycle)	1.00	6326	6511
##	cor(zaq:zhr_childhood,zaq:zhr_cycle)	1.00	5624	6047
##	cor(zaq:zhr_rev_social,zaq:zhr_cycle)	1.00	5197	6578
##	cor(zaq:zhr_structural,zaq:zhr_cycle)	1.00	5403	6586
##	cor(zaq,zaq:zhr_rev_ses)	1.00	8867	5795

```
##   cor(zhr_childhood,zaq:zhr_rev_ses)                1.00     8583     5697
##   cor(zhr_rev_social,zaq:zhr_rev_ses)               1.00     7725     6405
##   cor(zhr_structural,zaq:zhr_rev_ses)               1.00     7256     6318
##   cor(zhr_cycle,zaq:zhr_rev_ses)                    1.00     6528     6663
##   cor(zhr_rev_ses,zaq:zhr_rev_ses)                  1.00     5414     5871
##   cor(zhr_indiv,zaq:zhr_rev_ses)                    1.00     5934     6245
##   cor(zaq:zhr_childhood,zaq:zhr_rev_ses)            1.00     5652     6745
##   cor(zaq:zhr_rev_social,zaq:zhr_rev_ses)           1.00     5194     6442
##   cor(zaq:zhr_structural,zaq:zhr_rev_ses)           1.00     5038     6808
##   cor(zaq:zhr_cycle,zaq:zhr_rev_ses)                1.00     5410     6482
##   cor(zaq,zaq:zhr_indiv)                            1.00    11524     5646
##   cor(zhr_childhood,zaq:zhr_indiv)                  1.00     9314     5907
##   cor(zhr_rev_social,zaq:zhr_indiv)                 1.00     7747     6257
##   cor(zhr_structural,zaq:zhr_indiv)                 1.00     7448     6400
##   cor(zhr_cycle,zaq:zhr_indiv)                      1.00     6912     5925
##   cor(zhr_rev_ses,zaq:zhr_indiv)                    1.00     6540     6399
##   cor(zhr_indiv,zaq:zhr_indiv)                      1.00     6229     6883
##   cor(zaq:zhr_childhood,zaq:zhr_indiv)              1.00     5736     6439
##   cor(zaq:zhr_rev_social,zaq:zhr_indiv)             1.00     5291     6553
##   cor(zaq:zhr_structural,zaq:zhr_indiv)             1.00     5060     5838
##   cor(zaq:zhr_cycle,zaq:zhr_indiv)                  1.00     4921     5864
##   cor(zaq:zhr_rev_ses,zaq:zhr_indiv)                1.00     4641     6326
##
##   Population-Level Effects:
##                          Estimate Est.Error l-95% CI u-95% CI Rhat                Bulk_ESS
Tail_ESS
## Intercept                    0.76      0.06     0.63     0.88 1.00                13405
```

7153

zaq 0.52 0.20 0.12 0.91 1.00 5051

4224

zhr_childhood -0.21 0.19 -0.57 0.16 1.00 5294

4305

zhr_rev_social 0.59 0.18 0.23 0.93 1.00 5414

4296

zhr_structural 0.76 0.18 0.41 1.10 1.00 5499

4455

zhr_cycle 0.40 0.24 -0.04 0.88 1.00 5473

4572

zhr_rev_ses 0.34 0.19 -0.03 0.71 1.00 5674

4400

zhr_indiv 0.80 0.19 0.43 1.19 1.00 5911

4383

zaq:zhr_childhood -0.67 0.35 -1.31 0.01 1.00 6360

3893

zaq:zhr_rev_social 0.73 0.34 0.11 1.34 1.00 4515

3443

zaq:zhr_structural -0.54 0.45 -1.47 0.34 1.00 4967

4323

zaq:zhr_cycle -0.93 0.53 -1.92 0.16 1.00 6732

4783

zaq:zhr_rev_ses 1.61 0.54 0.51 2.65 1.00 4305

3688

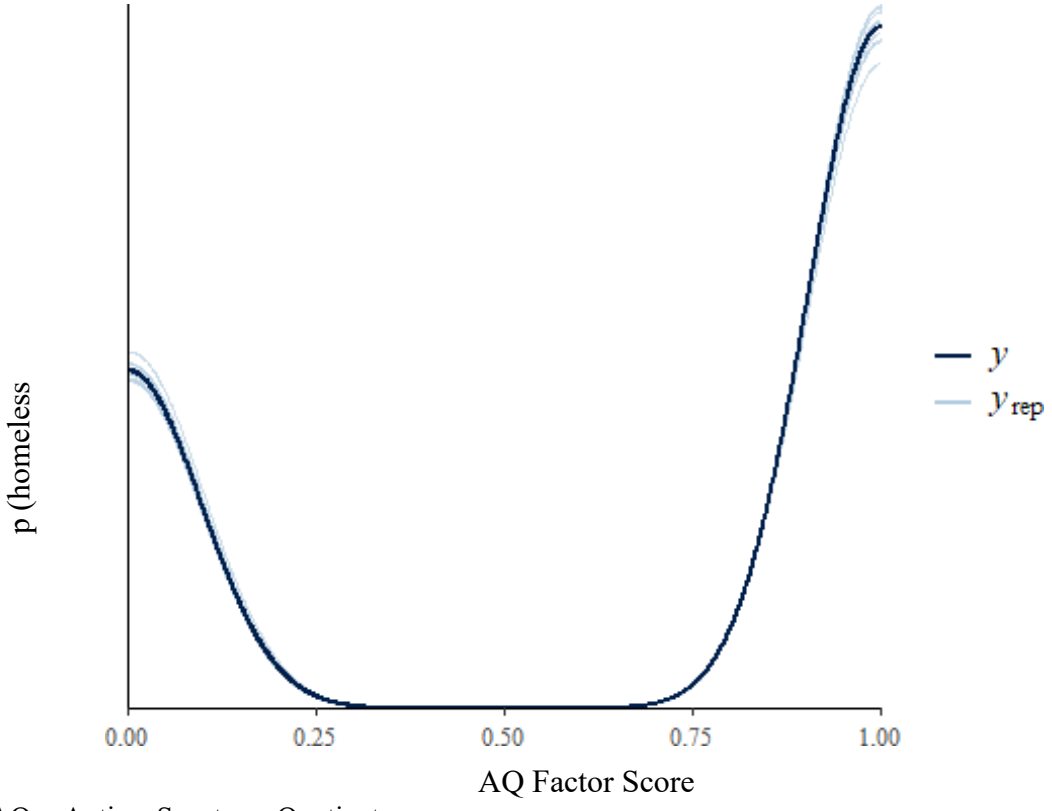
zaq:zhr_indiv 0.10 0.42 -0.71 0.93 1.00 4939

3952

```
##
## Samples were drawn using sampling(NUTS). For each parameter, Bulk_ESS
## and Tail_ESS are effective sample size measures, and Rhat is the
potential
## scale reduction factor on split chains (at convergence, Rhat = 1).

## Using 10 posterior samples for ppc type 'dens_overlay' by default.
```

Figure J.19

Change in p(homeless) *With AQ Factor Score (From Minimum to Maximum Observed)*



AQ = Autism Spectrum Quotient
Y=interactive effects
Y rep = credible interval

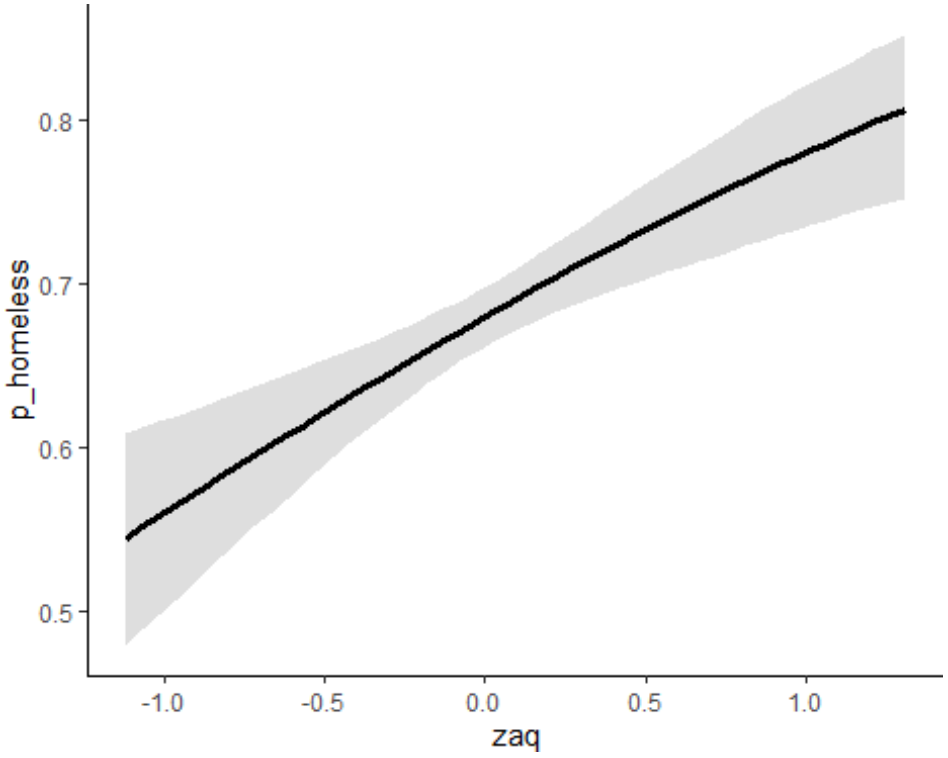
Table J.8

The Probability estimates of Homelessness Averaged Across AQ Scores.

```
## # A tibble: 1 x 3
##   `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##         <dbl>        <dbl>       <dbl>
## 1     0.00288       0.0425       0.955
```

Figure J.20

Probability of Homelessness Averaged Across AQ Scores



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness

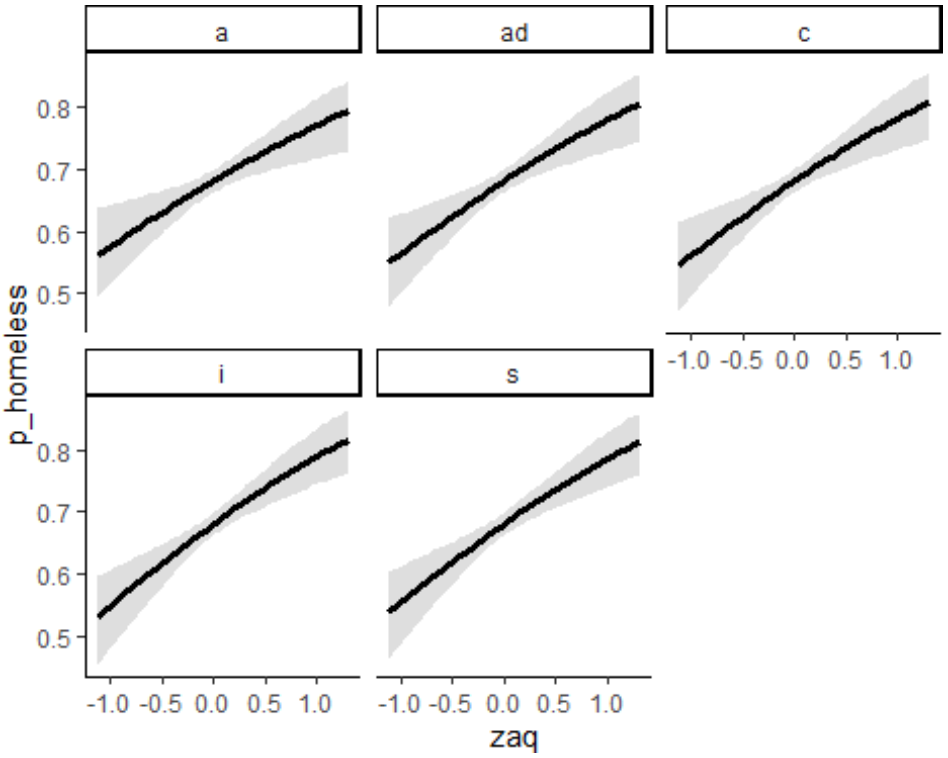
Table J.9

Coefficients for Each of the Personal Risk Factors

```
## # A tibble: 5 x 7
##   factor slope_zaq .lower .upper .width .point .interval
##   <chr>      <dbl>  <dbl>  <dbl>  <dbl> <chr>  <chr>
## 1 a          0.455 0.0304  0.828   0.95 median hdci
## 2 ad         0.501 0.100   0.921   0.95 median hdci
## 3 c          0.514 0.0734  0.903   0.95 median hdci
## 4 i          0.560 0.205   0.988   0.95 median hdci
## 5 s          0.538 0.174   0.940   0.95 median hdci

## # A tibble: 5 x 4
##   factor `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>        <dbl>        <dbl>       <dbl>
## 1 a          0.00588        0.109       0.885
## 2 ad         0.00188       0.0683       0.930
## 3 c          0.00138       0.0616       0.937
## 4 i         0.000125       0.0221       0.978
## 5 s         0.000125       0.0297       0.970
```

Figure J.21

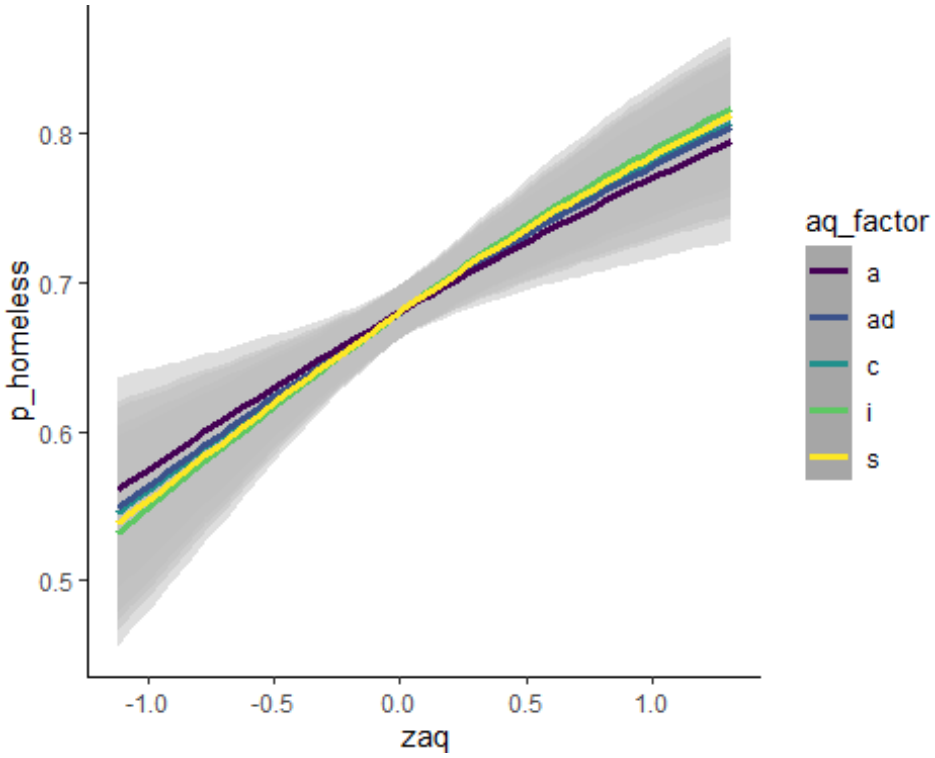
ROPE Probabilities of Homelessness, According to AQ Factor



ROPE = region of practical equivalence; AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness

Figure J.22

Probabilities of Homelessness According to AQ Factor



AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
S=social skills
I=imagination
C= communication
Ad= attention to detail
A=attention switching

Interactions

Table J.10

ROPE (Region of Practical Equivalence) Probabilities for the Interaction Terms (Averaged Across Risk Factors)

```
## # A tibble: 6 x 4
##   .variable                `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>                          <dbl>        <dbl>       <dbl>
## 1 b_zaq:zhr_childhood          0.924        0.0646      0.0111
## 2 b_zaq:zhr_cycle              0.917        0.0605      0.0224
## 3 b_zaq:zhr_indiv              0.216        0.398       0.387
## 4 b_zaq:zhr_rev_ses            0.00525      0.00625     0.988
## 5 b_zaq:zhr_rev_social         0.008        0.0330      0.959
## 6 b_zaq:zhr_structural         0.804        0.151       0.0451

## # A tibble: 6 x 7
##   .variable                .value .lower .upper .width .point .interval
##   <chr>                     <dbl>  <dbl>  <dbl>  <dbl> <chr>   <chr>
## 1 b_zaq:zhr_childhood   -0.674   -1.31   0.0187   0.95 median hdci
## 2 b_zaq:zhr_cycle       -0.945   -1.96   0.109    0.95 median hdci
## 3 b_zaq:zhr_indiv        0.0942 -0.770  0.850    0.95 median hdci
## 4 b_zaq:zhr_rev_ses      1.63    0.510  2.65     0.95 median hdci
## 5 b_zaq:zhr_rev_social   0.731   0.118  1.34     0.95 median hdci
## 6 b_zaq:zhr_structural -0.539   -1.47   0.345    0.95 median hdci
```

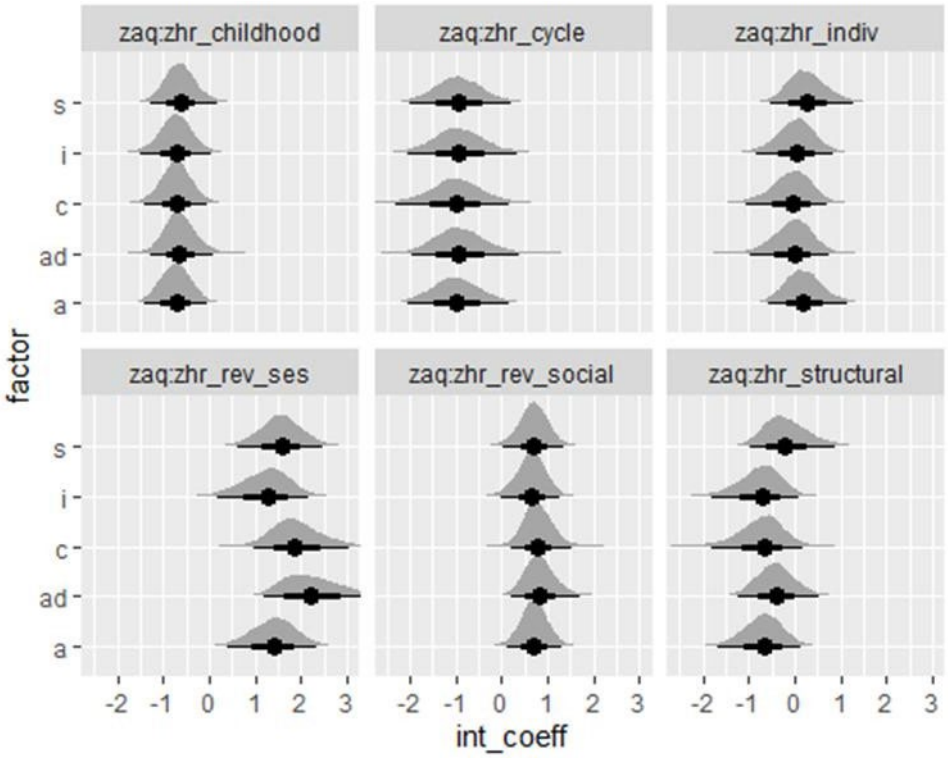
Table J.11

Coefficient Estimates for the Interaction Terms

```
## # A tibble: 6 x 4
##   .variable          `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>                    <dbl>        <dbl>       <dbl>
## 1 b_zhr_childhood         0.544        0.439       0.0166
## 2 b_zhr_cycle             0.00912      0.159       0.832
## 3 b_zhr_indiv             0.000375     0.00350     0.996
## 4 b_zhr_rev_ses           0.00725      0.196       0.797
## 5 b_zhr_rev_social        0.00112      0.0171      0.982
## 6 b_zhr_structural        0.00025      0.00475     0.995

## # A tibble: 6 x 7
##   .variable          .value .lower .upper .width .point .interval
##   <chr>               <dbl>  <dbl>  <dbl>  <dbl> <chr>  <chr>
## 1 b_zhr_childhood    -0.219 -0.601          0.131  0.95 median hdci
## 2 b_zhr_cycle         0.395 -0.0286         0.891  0.95 median hdci
## 3 b_zhr_indiv         0.798  0.429          1.18   0.95 median hdci
## 4 b_zhr_rev_ses       0.337 -0.00948        0.725  0.95 median hdci
## 5 b_zhr_rev_social    0.591  0.254          0.944  0.95 median hdci
## 6 b_zhr_structural    0.765  0.418          1.11   0.95 median hdci
```

Figure J.23

Posterior Distributions for Each of the Estimated Interaction Coefficients



AQ = Autism Spectrum Quotient; ses = socio-economic status; int_coeff = interaction coefficient
Each interaction is between AQ factor score and one of the risk factors; zhr=homeless risk factor score; rev= reversed

Table J.12

Probability of Homelessness according to AQ-50 factors Below, Within and Above the Rope.

```
## # A tibble: 5 x 4
##   factor `P (< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>         <dbl>        <dbl>       <dbl>
## 1 a             0.874        0.108      0.0175
## 2 ad            0.692        0.220      0.0879
## 3 c             0.869        0.109      0.0228
## 4 i             0.889        0.0985     0.0126
## 5 s             0.514        0.274      0.212

## # A tibble: 10 x 4
##    factor `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##    <chr>        <dbl>        <dbl>       <dbl>
##  1 ad - a       0.142        0.378       0.481
##  2 c - a        0.312        0.396       0.293
##  3 c - ad       0.494        0.371       0.134
##  4 i - a        0.333        0.403       0.264
##  5 i - ad       0.517        0.359       0.124
##  6 i - c        0.326        0.400       0.273
##  7 s - a        0.0655       0.316       0.619
##  8 s - ad       0.165        0.387       0.448
##  9 s - c        0.0659       0.314       0.620
## 10 s - i        0.0541       0.302       0.644
```

Table J.13

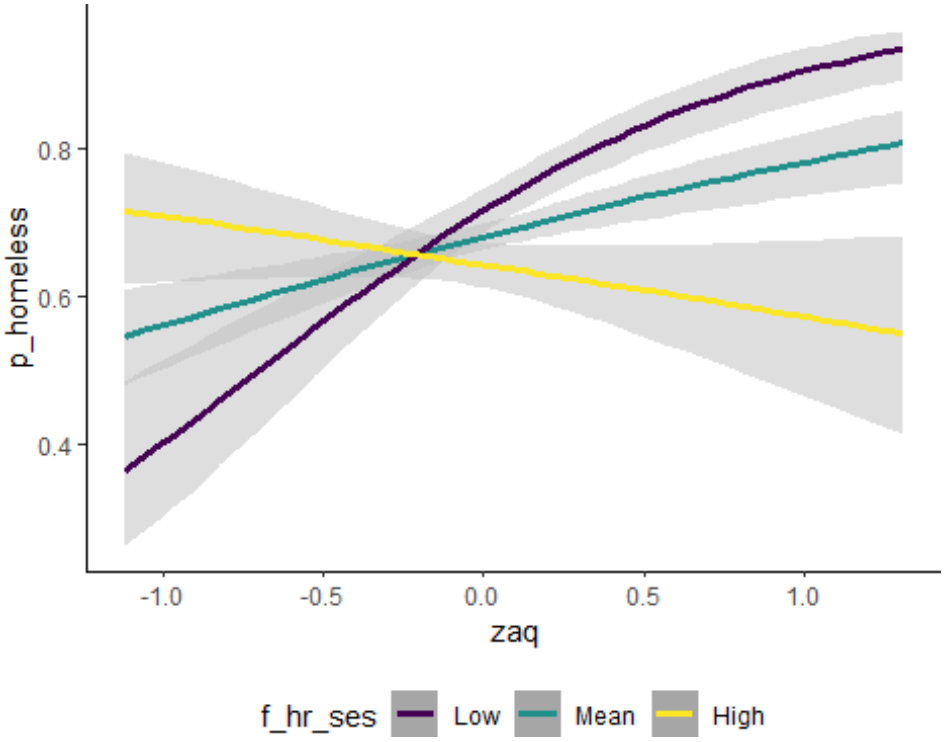
Probability of Homelessness according to AQ-50 factors Controlling for Known Risk Factors Below, Within and Above the Rope.

```
## # A tibble: 5 x 4
##   factor `P (< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>         <dbl>        <dbl>       <dbl>
## 1 a           0.00162      0.00750       0.991
## 2 ad          0            0             1
## 3 c           0            0.000375      1.00
## 4 i           0.00512      0.0247        0.970
## 5 s           0.00025      0.00325       0.996

## # A tibble: 10 x 4
##    factor `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##    <chr>        <dbl>        <dbl>       <dbl>
##  1 ad - a      0.0481        0.206       0.746
##  2 c - a       0.111         0.275       0.614
##  3 c - ad      0.532         0.298       0.170
##  4 i - a       0.432         0.341       0.226
##  5 i - ad      0.793         0.176       0.0304
##  6 i - c       0.697         0.240       0.0636
##  7 s - a       0.237         0.332       0.430
##  8 s - ad      0.686         0.242       0.072
##  9 s - c       0.517         0.306       0.176
## 10 s - i       0.160         0.304       0.536
```

AQ by Socio-Economic Status

Figure J.24

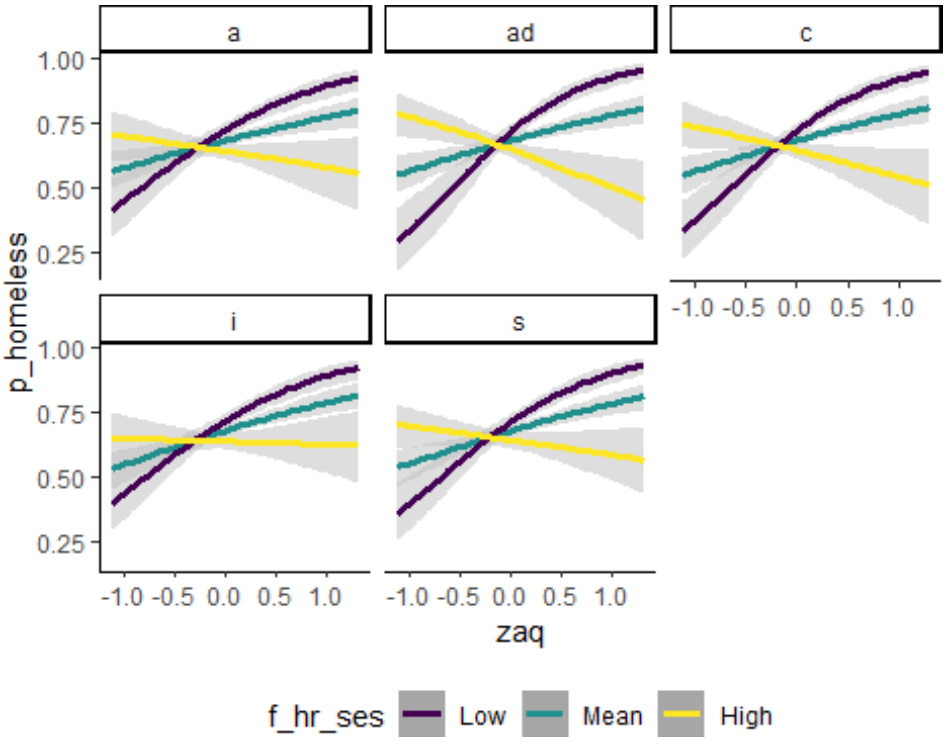
Probability of Homelessness According to AQ Score and SES



AQ =Autism Spectrum Quotient; SES =socio-economic status; P(homeless) = probability of homelessness; f_hr=homeless risk factor

Figure J.25

Probability of Homelessness According to AQ score and SES, Separated Into Risk Factors

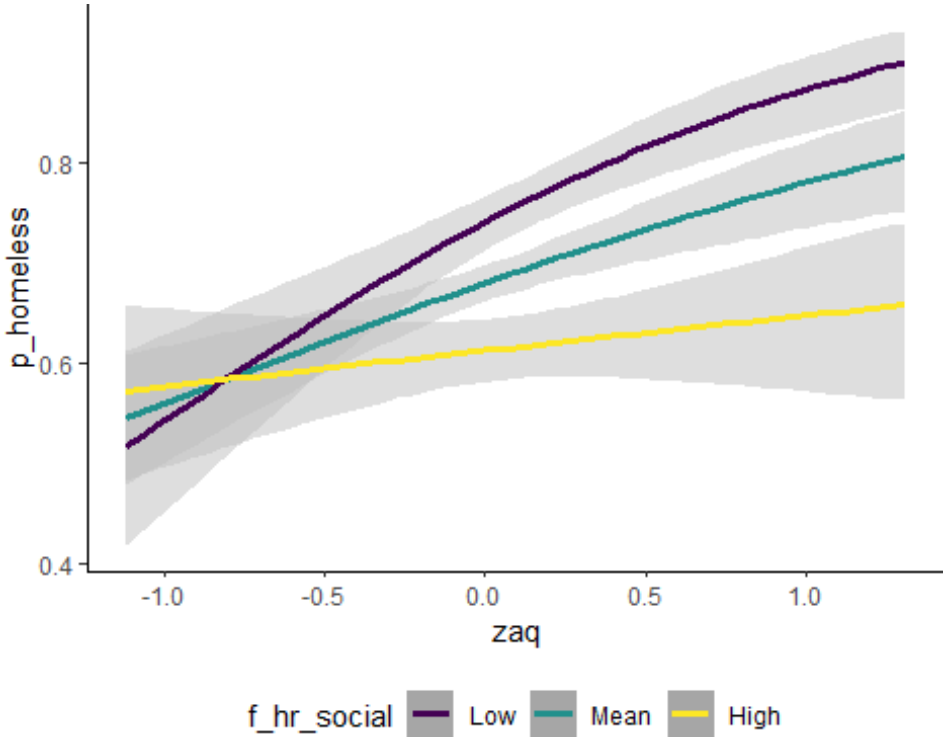


AQ = Autism Spectrum Quotient; SES = socio-economic status S=social skills
I=imagination; C= communication; Ad= attention to detail; A=attention switching

AQ by Social Supports

Figure J.26

Probability of Homelessness according to AQ Score and Number of Social Supports

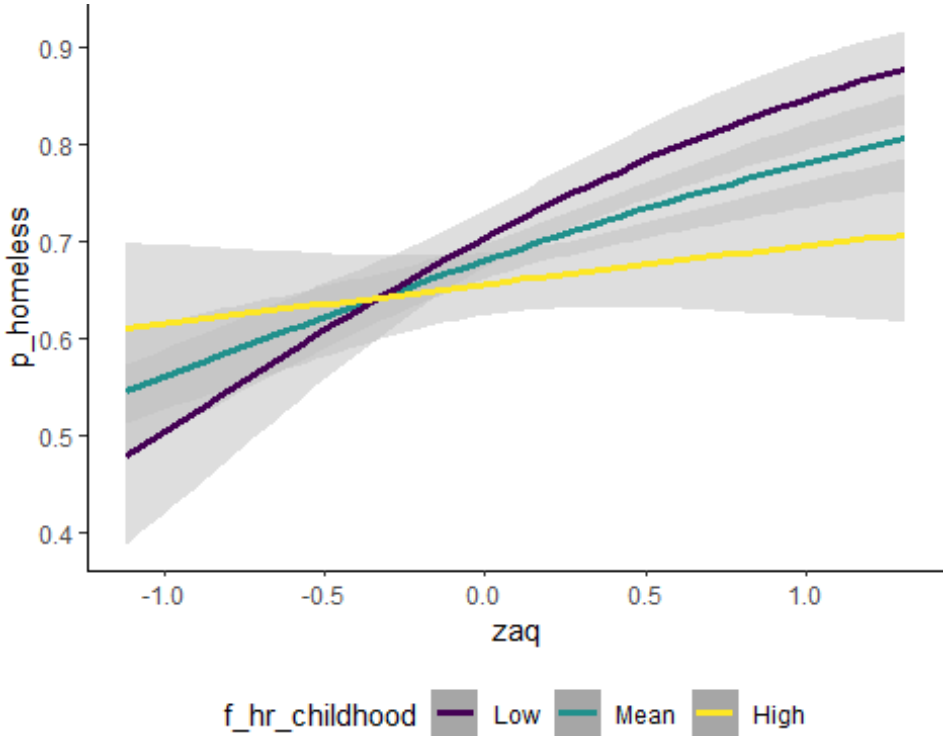


AQ = Autism Spectrum Quotient
P_homeless= probability of homelessness
F_Hr_social= number of social supports

AQ by Childhood-Related Risk Factors

Figure J.27

Probability of Homelessness, According to AQ factor Score and Childhood-Related Risk Factors

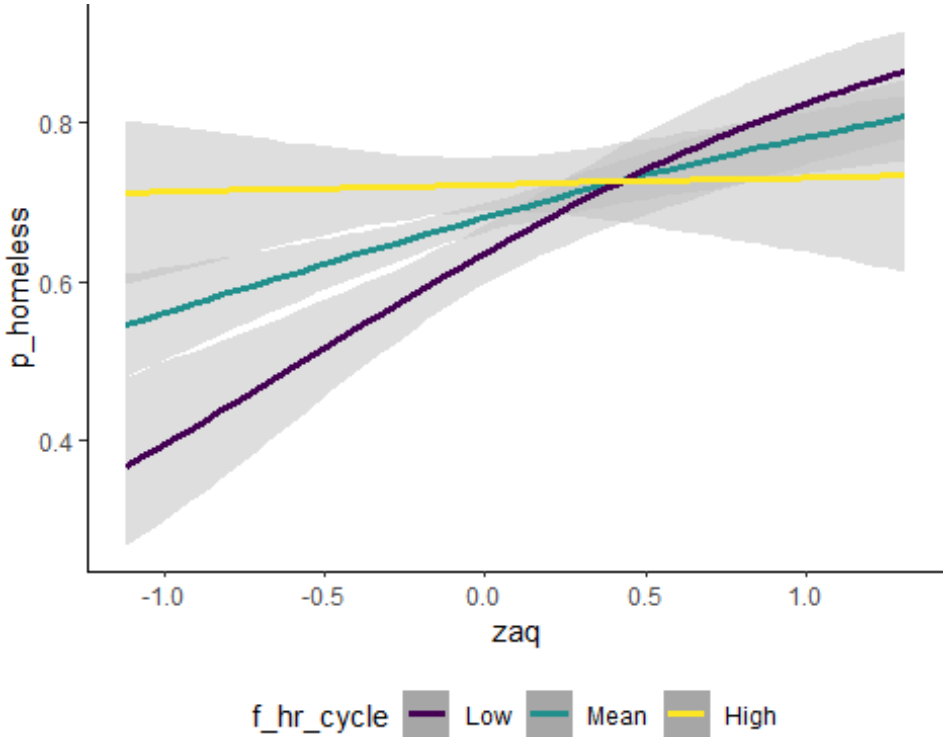


AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness
F_hr_childhood= number of negative childhood experiences

AQ by Homelessness Cycle

Figure J.28

Probability of Homelessness according to AQ Score, and Homelessness Cycles

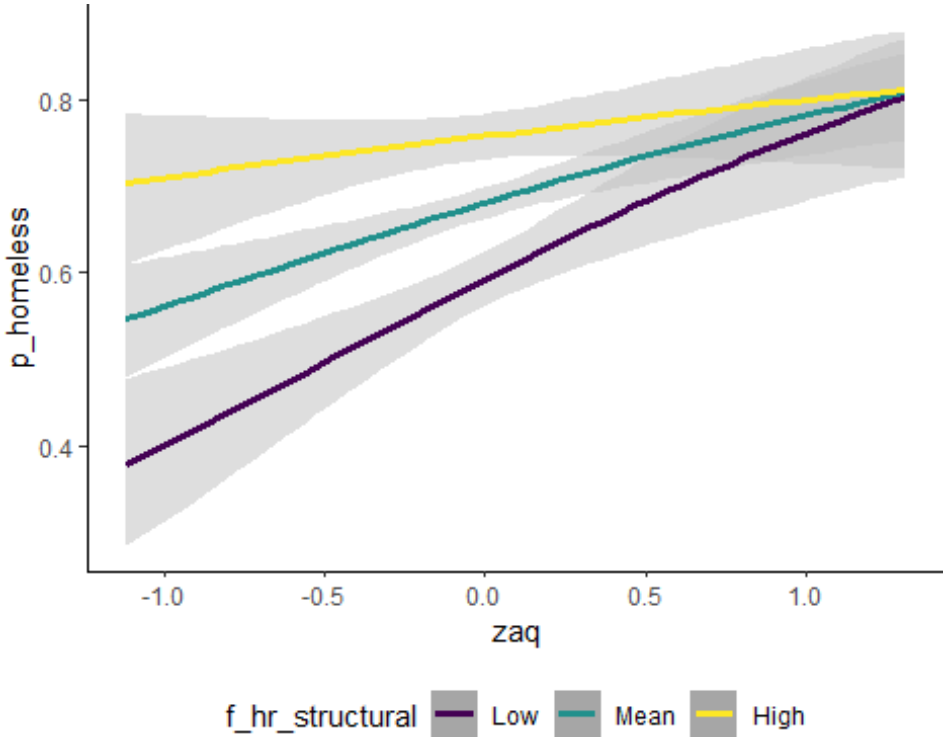


AQ = Autism Spectrum Quotient
cycle= homeless cycle
F_hr= factor, homeless risk
P(homeless) = probability of homelessness

AQ by Structural Risk Factors

Figure J.29

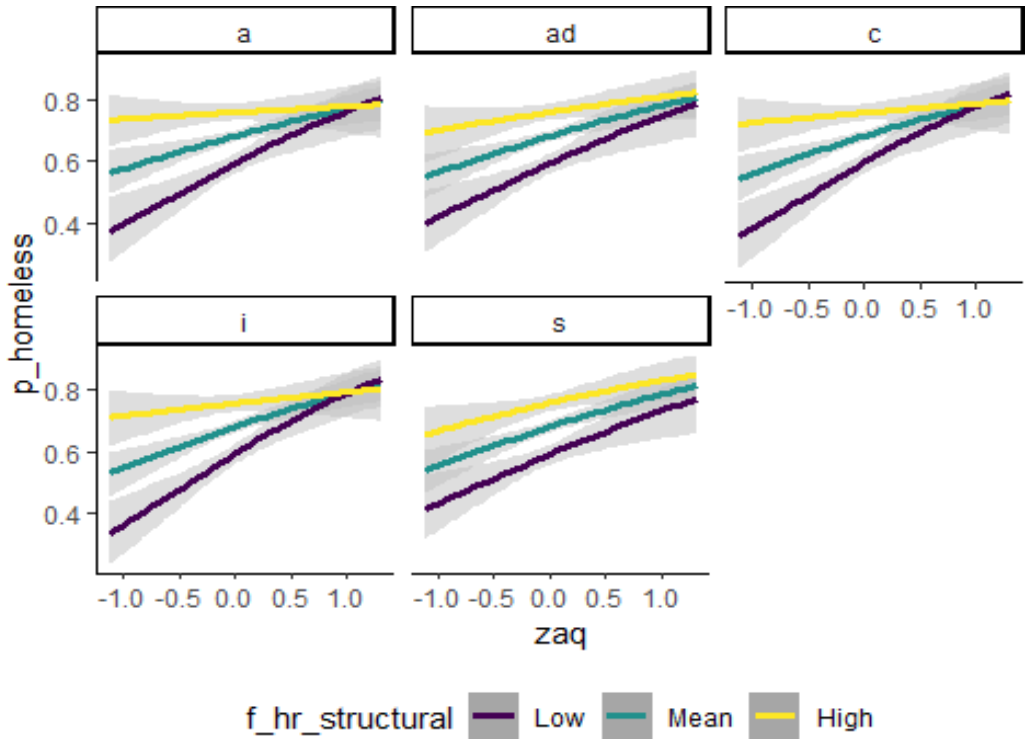
Probability of Homelessness According to AQ score, and Structural Risk Factors



AQ = Autism Spectrum Quotientv
F_hr= factor, homeless risk
P(homeless) = probability of homelessness
Structural= Affordable housing and service accessibility

Figure J.30

Probability of Homelessness According to AQ Score, and to Structural Risk Factors, Plotted Separately for Each Factor

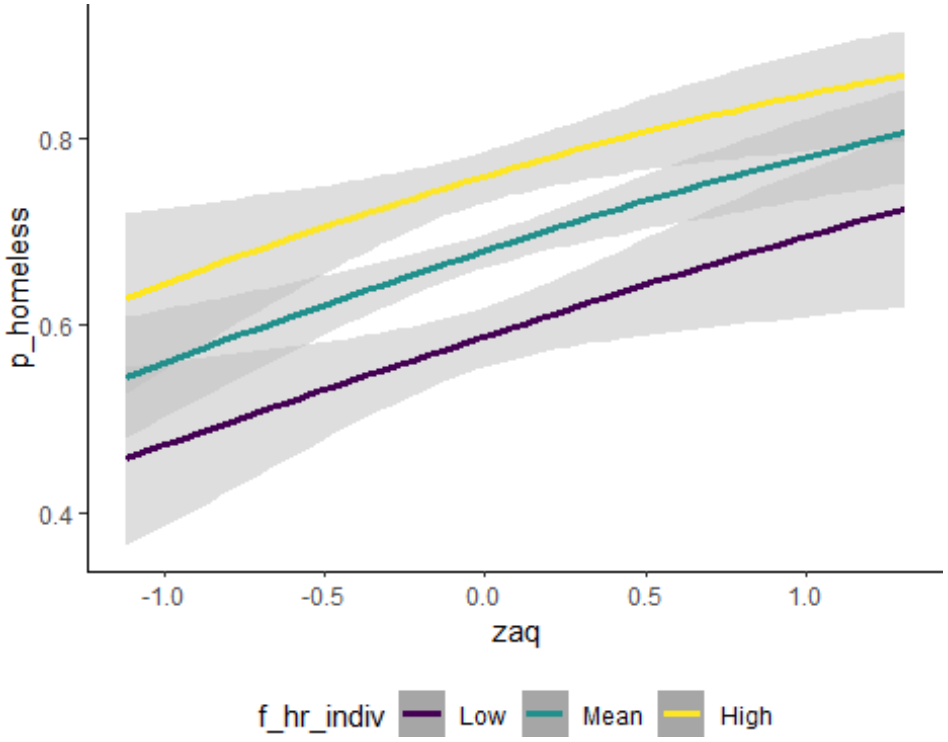


AQ = Autism Spectrum Quotient; Structural= Affordable housing and service accessibility S=social skills; I=imagination; C= communication; Ad= attention to detail; A=attention switching; P(homeless) = probability of homelessness

AQ by Individual Factors

Figure J.31

Probability of Homelessness According to AQ Score, According to Personal Risk Factors

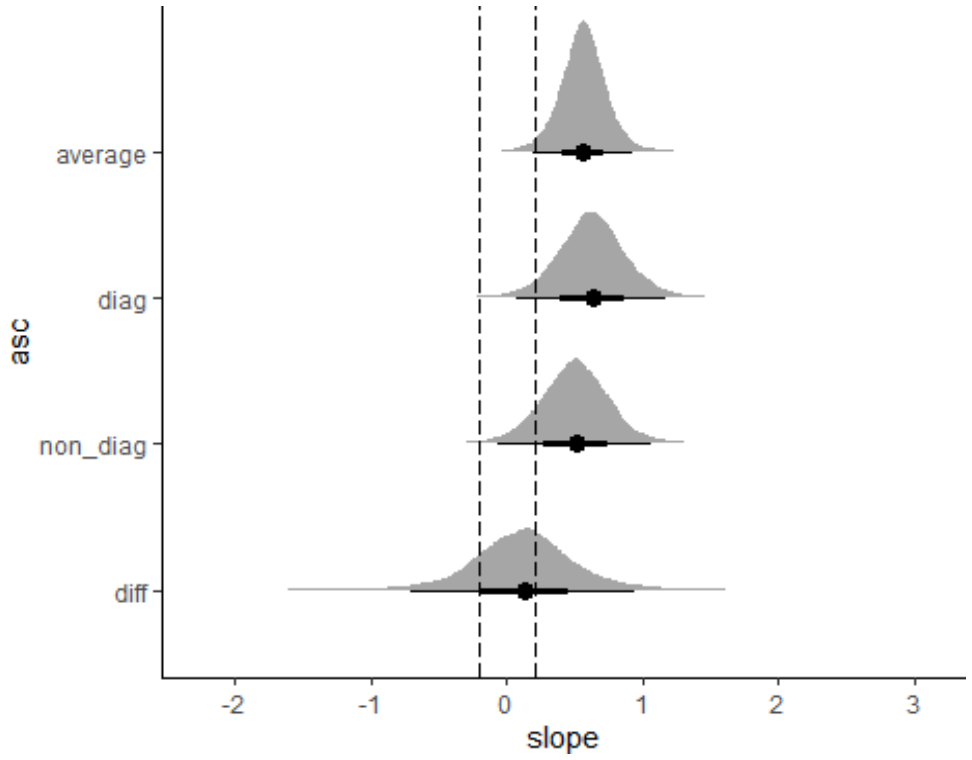


AQ = Autism Spectrum Quotient
P(homeless) = probability of homelessness indiv= personal risk factors
hr = homelessness risk

Risk Factors

Figure J.32

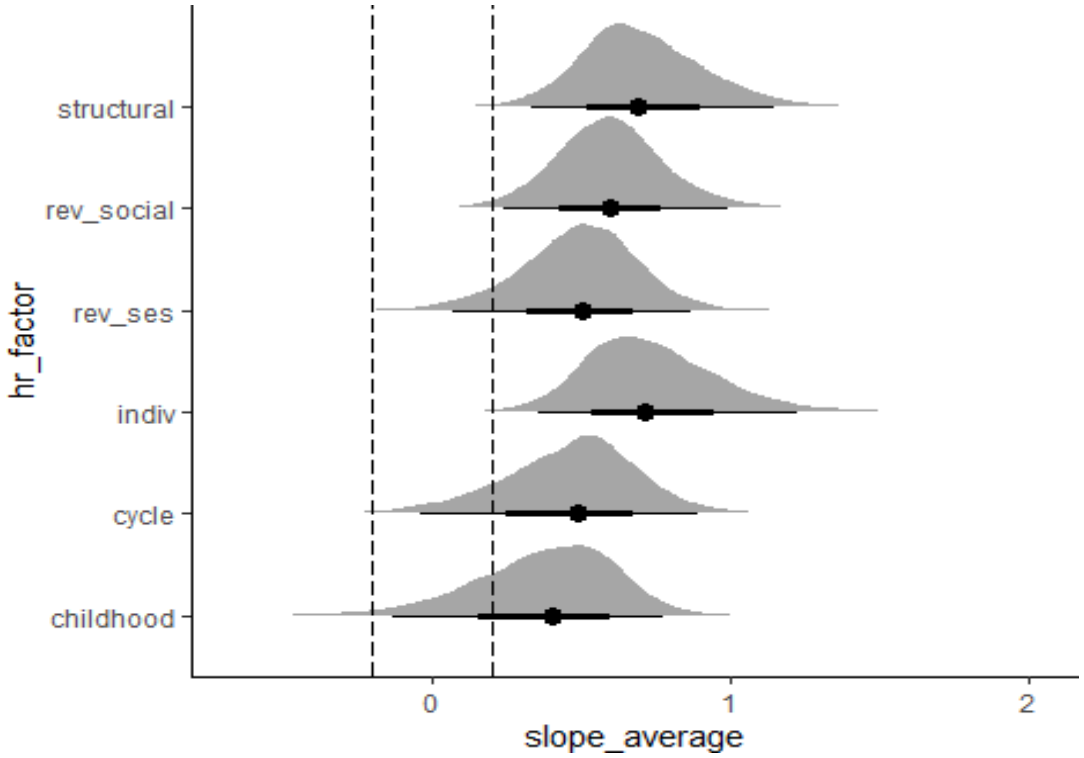
Probability of Homelessness Averaged Across Risk Factors and AQ-Based 'Diagnosis' (High Yes, Low No)



AQ = Autism Spectrum Quotient; diag = 'diagnosed' (i.e., high AQ score); non_diag=not diagnosed (low AQ score), diff= difference in scores

Figure J.33

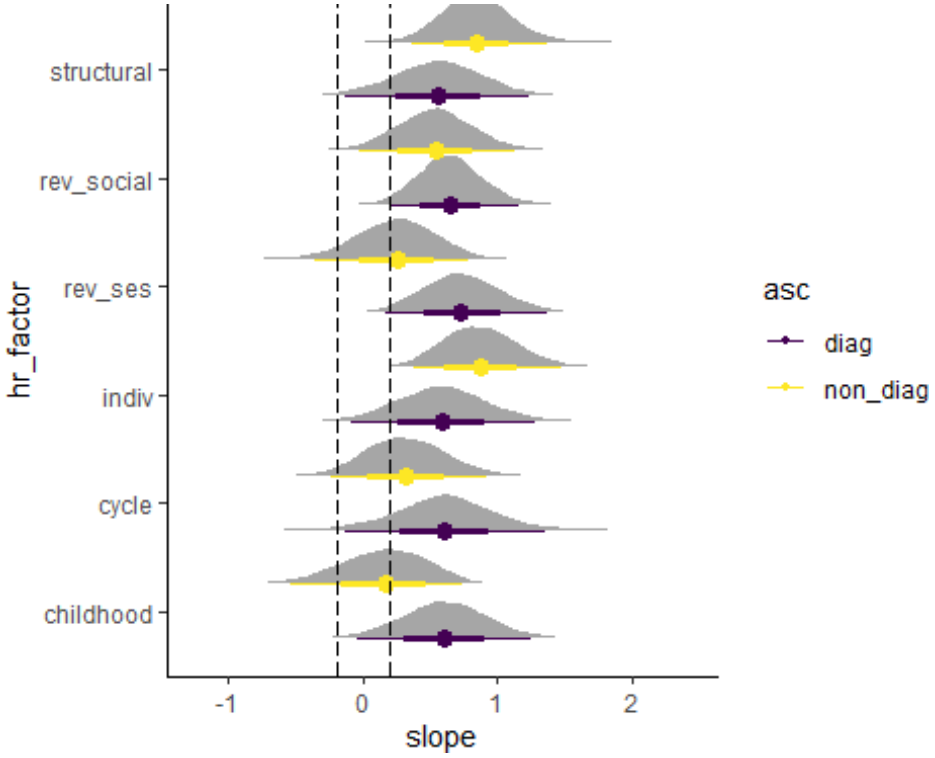
Probability of Homelessness, According to Individual Factors



hr = homelessness risk
Slope_average= most occurring posterior distribution averaged across groups.
rev_social= social support score reversed
rev_SES= social economic status score reversed
cycle= homeless cycle
indiv= personal risk factors
Childhood=negative childhood experiences

Figure J.34

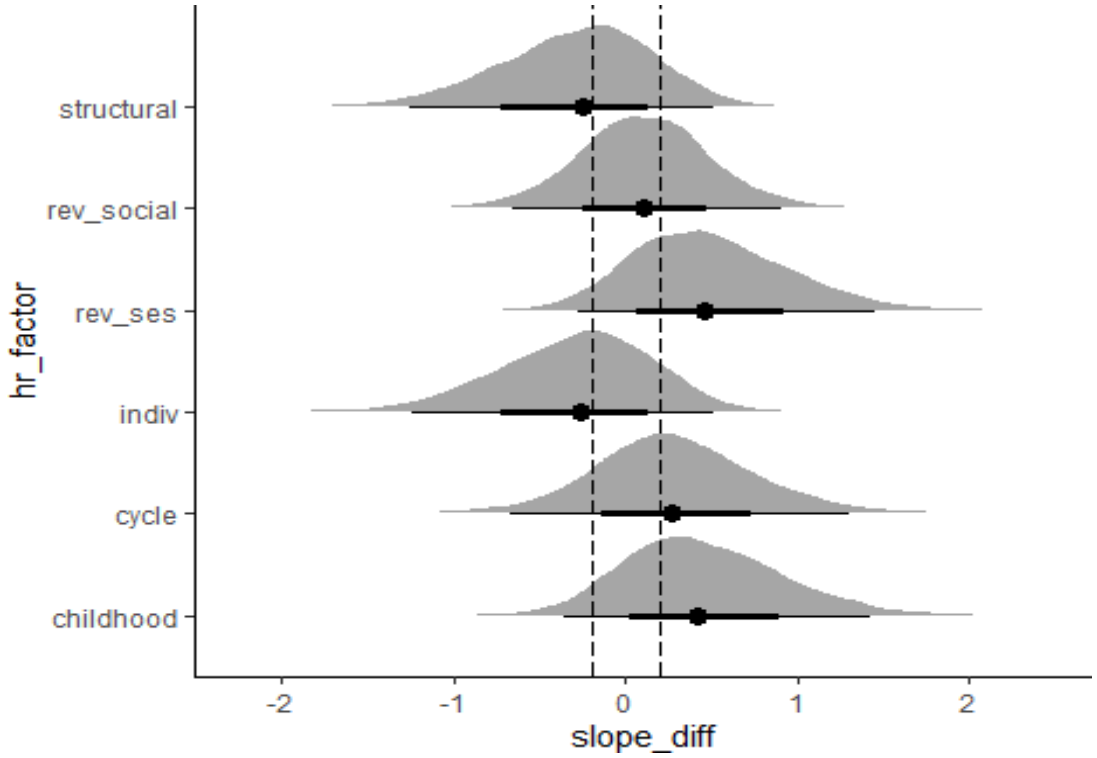
Probability of Homelessness, According to Individual Factors, Split by AQ-Based 'Diagnosis' (High Yes, Low No)



AQ = Autism Spectrum Quotient; diag = 'diagnosed' (i.e., high AQ score); non_diag= (i.e. low AQ score) Slope= most occurring posterior distribution.; rev_social= social support score reversed rev_SES= social economic status score reversed; cycle= homeless cycle; indiv= personal risk factors. Childhood=negative childhood experiences

Figure J.35

Interactive Effects of Homeless Risk Factors According to AQ Score



AQ = Autism Spectrum Quotient; Slope_diff= most occurring posterior distribution difference between groups.; rev_social= social support score reversed; rev_SES= social economic status score reversed; cycle= homeless cycle; indiv= personal risk factors;
Childhood=negative childhood experiences

Table J.14

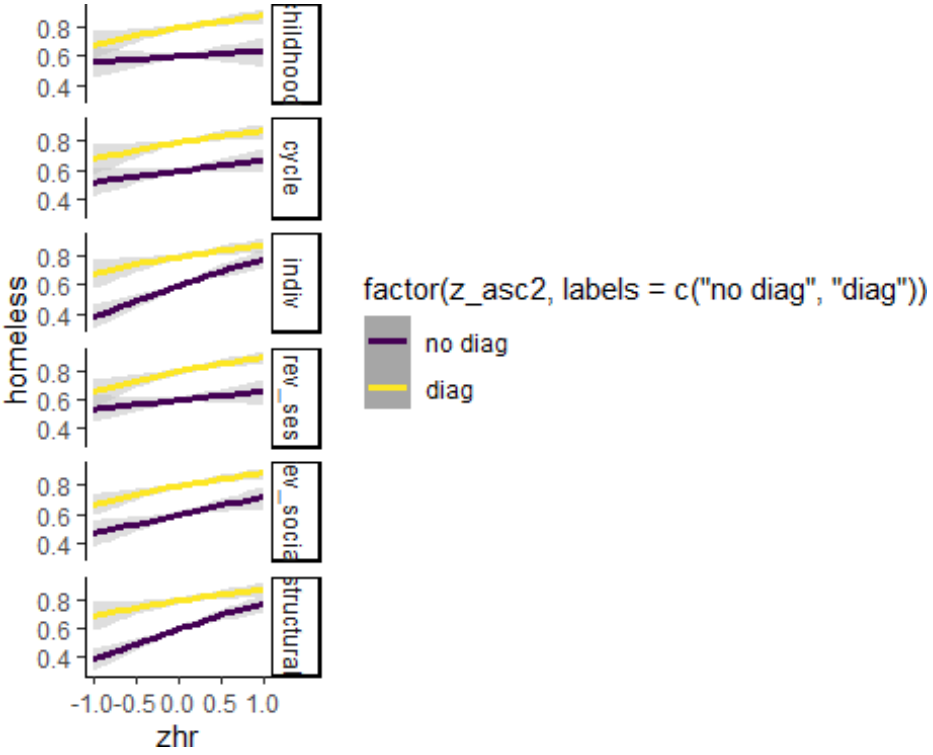
Probability That the True Effect Size is Below, Within, or Above the ROPE (Region of Practical Equivalence)

```
## # A tibble: 4 x 4
## # Groups:   asc [4]
##   asc       `P (< ROPE)` `P(in ROPE)` `P(>  ROPE)`
##   <fct>            <dbl>        <dbl>        <dbl>
## 1 diff           0.174        0.415        0.411
## 2 non_diag       0.0136       0.106        0.881
## 3 diag           0.00613      0.0460       0.948
## 4 average        0.00287      0.0236       0.974

## # A tibble: 6 x 4
## # Groups:   hr_factor [6]
##   hr_factor   `P(< ROPE)` `P(in ROPE)` `P(>  ROPE)`
##   <chr>             <dbl>        <dbl>        <dbl>
## 1 childhood       0.0152       0.198        0.786
## 2 cycle           0.00613      0.124        0.87
## 3 indiv           0            0.00238      0.998
## 4 rev_ses         0.00150      0.0736       0.925
## 5 rev_social      0            0.0160       0.984
## 6 structural      0            0.00450      0.996
```

```
## # A tibble: 6 x 4
## # Groups:   hr_factor [6]
##   hr_factor   `P(< ROPE)` `P(in ROPE)` `P(> ROPE)`
##   <chr>             <dbl>        <dbl>       <dbl>
## 1 childhood        0.0596        0.250       0.690
## 2 cycle            0.140         0.298       0.563
## 3 indiv            0.553         0.314       0.132
## 4 rev_ses          0.0440        0.231       0.725
## 5 rev_social       0.202         0.390       0.408
## 6 structural       0.543         0.328       0.130
```

Figure J.36

Interaction of the Estimated Probability of Homelessness Predicted by Each Risk Factor Variable Separately, According to AQ-Based 'Diagnosis' (High Yes, Low No)



AQ = Autism Spectrum Quotient; diag ='diagnosed' (i.e., high AQ score); non_diag= non diagnosed (i.e., low AQ scores).; rev_social= social support score reversed; rev_SES= social economic status score reversed; cycle= homeless cycle; indiv= personal risk factors;
Childhood=negative childhood experiences

Probability of Homelessness According to Support

Table J.15

Model Parameters for Predicting Probability of Homelessness According to Support, Estimating for the Different Types (Father, Friend, Mother, Partner, Service, Sibling)

```
##  Family: bernoulli

##   Links: mu = logit

## Formula: homeless ~ z_support + (1 + z_support | support_type)

##    Data: dat_support_long (Number of observations: 1998)
```

```
## Samples: 8 chains, each with iter = 2000; warmup = 1000; thin = 1;## total post-warmup
samples = 8000
##
## Group-Level Effects:
## ~support_type (Number of levels: 6)
##                                Estimate  Est.Error  l-95% CI  u-95% CI  Rhat
Bulk_ESS
## sd(Intercept)                      0.12       0.12      0.00      0.40  1.00
2334
## sd(z_support)                      1.19       0.51      0.56      2.48  1.00
2780
## cor(Intercept,z_support)          -0.06       0.54     -0.95      0.92  1.01
1458
##                                Tail_ESS
##  sd(Intercept)                     2697
## sd(z_support)                      3498
## cor(Intercept,z_support)           2817
##
## Population-Level Effects:
##                Estimate  Est.Error  l-95% CI  u-95% CI  Rhat  Bulk_ESS  Tail_ESS
##  Intercept         0.55       0.09      0.38      0.71  1.00      4427      2915
##  z_support        -0.44       0.52     -1.48      0.65  1.00      3079      3299
##
## Samples were drawn using sampling(NUTS). For each parameter, Bulk_ESS## and Tail_ESS are
effective sample size measures, and Rhat is the potential
## scale reduction factor on split chains (at convergence, Rhat = 1).
```

Figure J.37

Probability of Homelessness, According to Support (Yes or No), for Each Type of Support

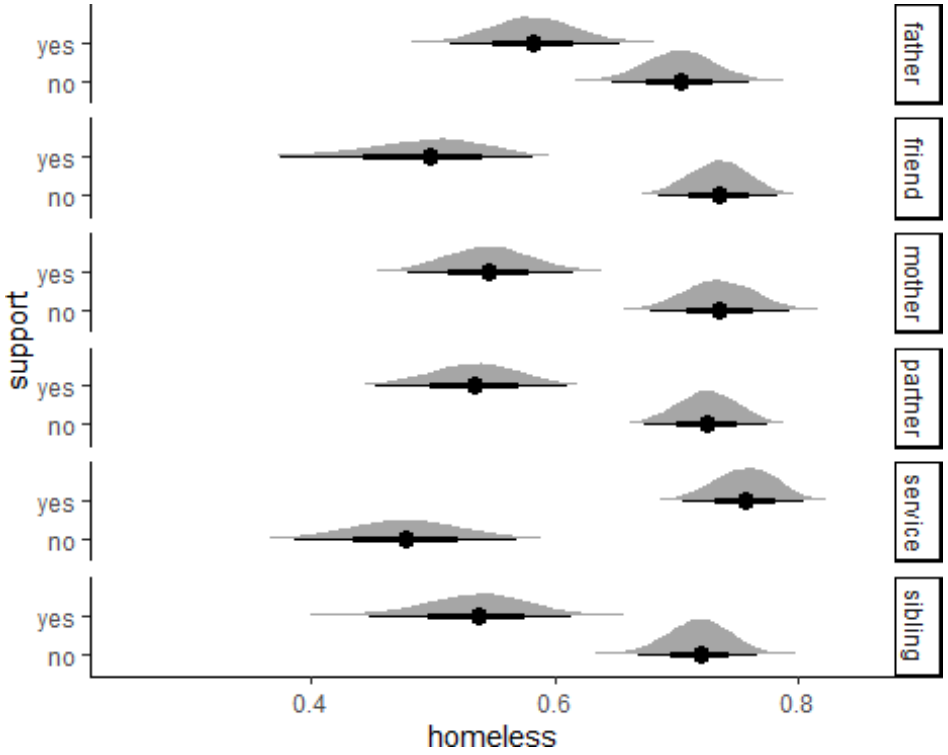


Figure J.38

Effect of the Presence of the Support (Yes v. No) on the Difference in the Probability of Homelessness

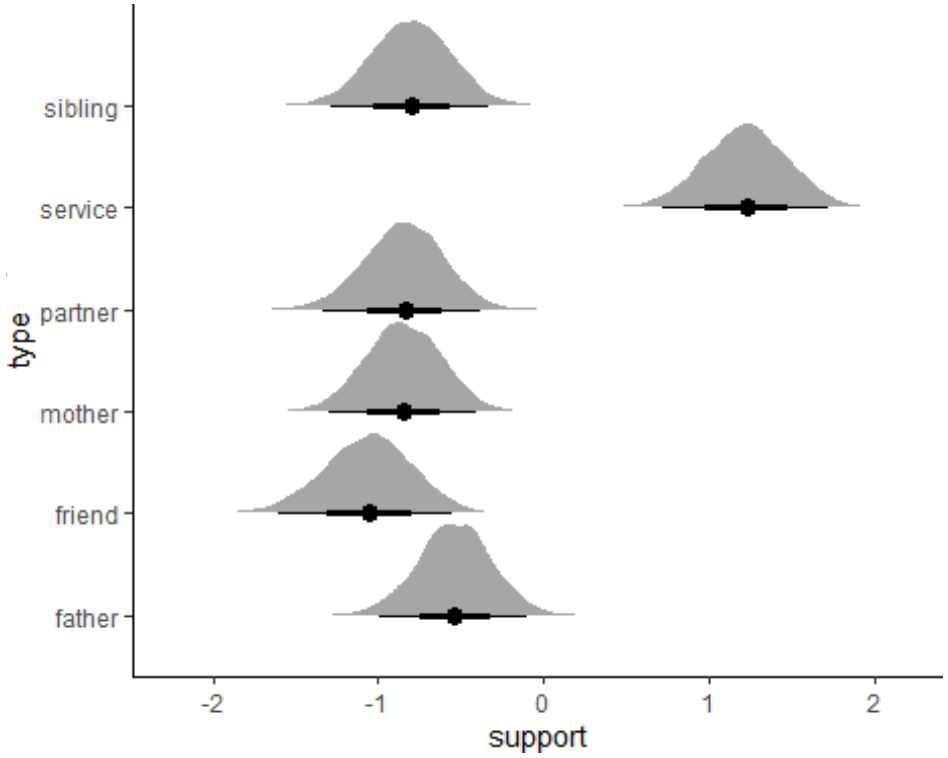


Table J.16

Model Parameters for Support According to ASD Diagnosis Status and × Support Interaction to the Model

```
##  Family: bernoulli
##   Links: mu = logit
## Formula: homeless ~ z_support * z_asc + (1 + z_support * z_asc |
support_type)
##    Data: dat_support_long (Number of observations: 1998)
## Samples: 8 chains, each with iter = 2000; warmup = 1000; thin = 1;
##          total post-warmup samples = 8000
##
```

Group-Level Effects:

~support_type (Number of levels: 6)

##	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat
## sd(Intercept)	0.12	0.11	0.00	0.38	1.00
## sd(z_support)	1.11	0.44	0.55	2.24	1.00
## sd(z_asc)	0.23	0.19	0.01	0.70	1.00
## sd(z_support:z_asc)	1.77	0.65	0.86	3.37	1.00
## cor(Intercept,z_support)	0.21	0.42	-0.68	0.87	1.01
## cor(Intercept,z_asc)	-0.10	0.46	-0.87	0.79	1.00
## cor(z_support,z_asc)	-0.26	0.42	-0.90	0.63	1.00
## cor(Intercept,z_support:z_asc)	-0.03	0.42	-0.80	0.75	1.00
## cor(z_support,z_support:z_asc)	-0.51	0.31	-0.93	0.22	1.00
## cor(z_asc,z_support:z_asc)	0.21	0.42	-0.68	0.88	1.00

##	Bulk_ESS	Tail_ESS
## sd(Intercept)	2908	3379
## sd(z_support)	3326	4331

```
##  sd(z_asc)                                2914        3288
##  sd(z_support:z_asc)                      4816        5303
##  cor(Intercept,z_support)                 2543        3926
##  cor(Intercept,z_asc)                     6505        5440
##  cor(z_support,z_asc)                     5784        6125
##  cor(Intercept,z_support:z_asc)           2717        4130
##  cor(z_support,z_support:z_asc)           5622        6362
##  cor(z_asc,z_support:z_asc)               4183        6124
##
##  Population-Level Effects:
##                      Estimate Est.Error  l-95% CI  u-95% CI  Rhat  Bulk_ESS
Tail_ESS
## Intercept               0.54      0.08      0.37      0.70  1.00      5742
5169
## z_support              -0.52      0.48     -1.44      0.49  1.01      2592
3589
## z_asc                   0.21      0.16     -0.11      0.52  1.00      5579
5039
## z_support:z_asc         0.91      0.74     -0.64      2.36  1.00      3388
4219
##
## Samples were drawn using sampling(NUTS). For each parameter, Bulk_ESS
## and Tail_ESS are effective sample size measures, and Rhat is the
potential
## scale reduction factor on split chains (at convergence, Rhat = 1).
```

Figure J.39

Estimated Probabilities of Homelessness, According to Support Type and Diagnosis

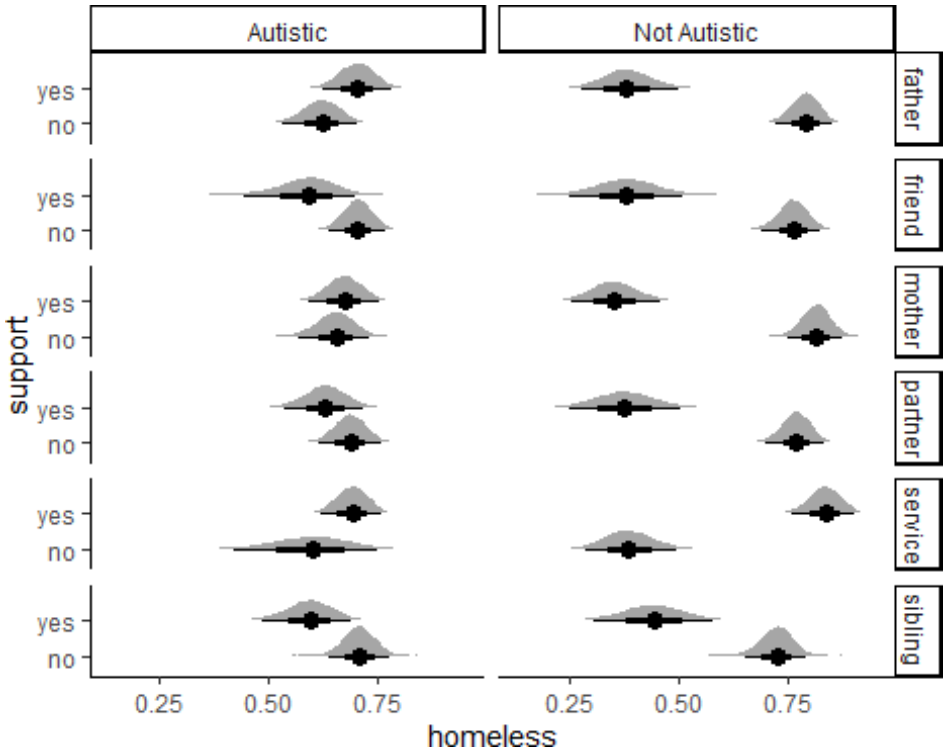
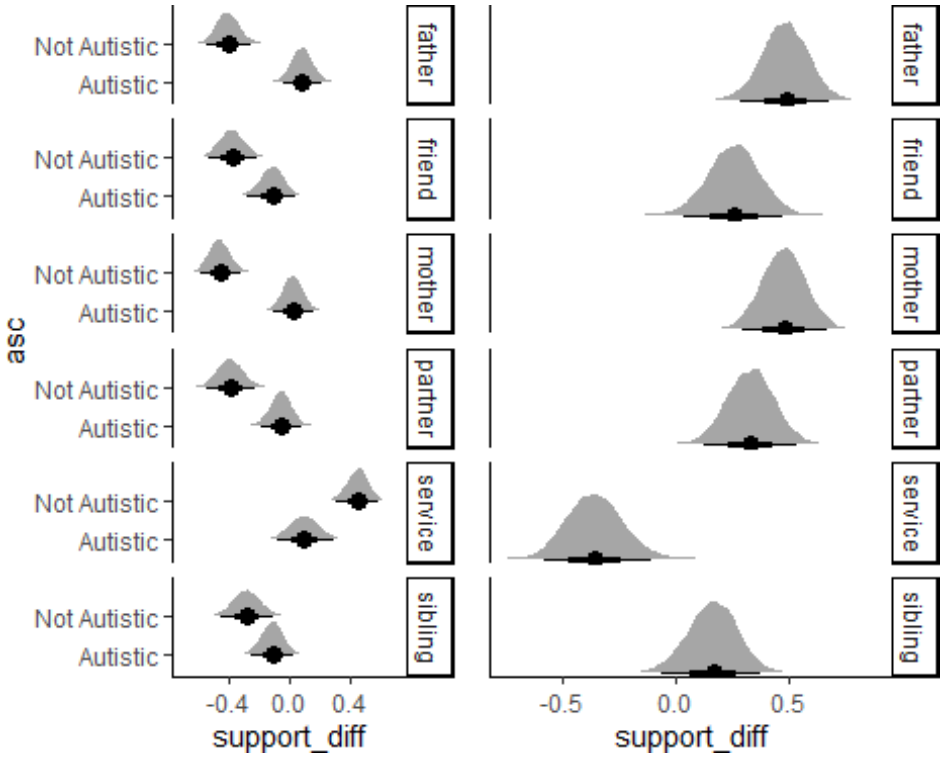


Figure J.40

Probability of Homelessness, According to Support v. No Support and Autistic v. Not Autistic



Left panel: support v. no support; right panel: autistic v. not autistic (yes–no difference).
diff = difference
Asc= ASD diagnosis

Table J.17

Model Parameters for Support, According to Autism Spectrum Quotient (AQ) Scores

```
## Family: bernoulli ##
         Links: mu = logit
## Formula: homeless ~ z_support * z_aq + (1 + z_support * z_aq |support_type)
##          Data: dat_support_long (Number of observations: 1998)
## Samples: 8 chains, each with iter = 2000; warmup = 1000; thin = 1;## total post-warmup
samples = 8000
##
## Group-Level Effects:
## ~support_type (Number of levels: 6)
```

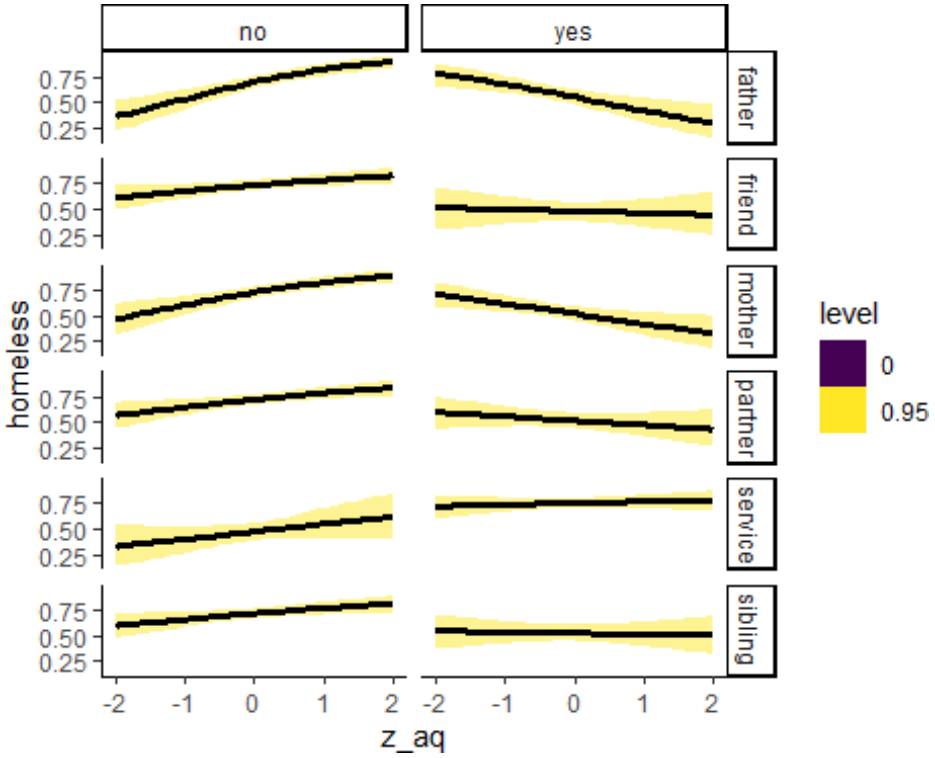
	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat
sd(Intercept)	0.09	0.09	0.00	0.32	1.00
sd(z_support)	1.25	0.55	0.58	2.63	1.00
sd(z_aq)	0.11	0.10	0.00	0.37	1.00
sd(z_support:z_aq)	0.69	0.38	0.23	1.62	1.00
cor(Intercept,z_support)	-0.01	0.44	-0.81	0.78	1.00
cor(Intercept,z_aq)	-0.02	0.44	-0.82	0.80	1.00
cor(z_support,z_aq)	0.21	0.45	-0.71	0.90	1.00
cor(Intercept,z_support:z_aq)	-0.14	0.45	-0.87	0.74	1.00
cor(z_support,z_support:z_aq)	0.12	0.37	-0.62	0.76	1.00
cor(z_aq,z_support:z_aq)	0.14	0.44	-0.72	0.86	1.00

	Bulk_ESS	Tail_ESS
sd(Intercept)	3936	4026
sd(z_support)	3277	4633

```
##  sd(z_aq)                                3720        3359
##  sd(z_support:z_aq)                      3554        4373
##  cor(Intercept,z_support)                2143        3745
##  cor(Intercept,z_aq)                     6945        5414
##  cor(z_support,z_aq)                     6958        6282
##  cor(Intercept,z_support:z_aq)           3071        4646
##  cor(z_support,z_support:z_aq)           6590        5758
##  cor(z_aq,z_support:z_aq)                3612        5867
##
##  Population-Level Effects:
##                      Estimate Est.Error  l-95% CI  u-95% CI  Rhat  Bulk_ESS
Tail_ESS
## Intercept               0.52      0.07      0.38      0.66  1.00      5656
5093
## z_support              -0.51      0.54     -1.57      0.57  1.00      2602
3503
## z_aq                    0.11      0.08     -0.05      0.28  1.00      5441
4126
## z_support:z_aq         -0.59      0.35     -1.23      0.12  1.00      3965
3803
##
## Samples were drawn using sampling(NUTS). For each parameter, Bulk_ESS
## and Tail_ESS are effective sample size measures, and Rhat is the
potential
## scale reduction factor on split chains (at convergence, Rhat = 1).
```

Figure J.41

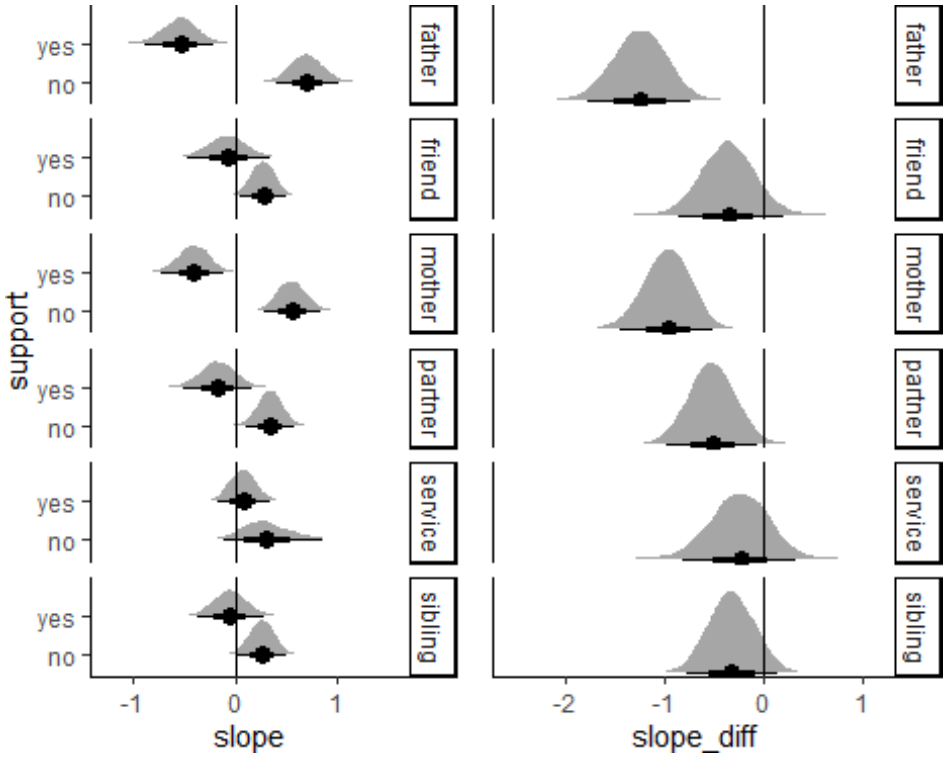
Estimated Probabilities of Homelessness, According to AQ Score, Plotted Separately for Support (Yes or No) and Type of Support



AQ = Autism Spectrum Quotient
Level = (0 =mean score, .95=credible interval)
Note= the probability of homelessness was compared against yes and no to compare the types of support. A person may have a parent in their support group but not a service for example.
Homeless = p(homeless)

Figure J.42

Probability of Homelessness, comparing Support Role According to AQ Slope



The left panel shows the estimated slopes and the right panel the interaction between support and no support according to AQ score.
AQ = Autism Spectrum Quotient
Slope= most occurring posterior distribution
Slope_diff= interaction of yes and no groups most occurring posterior distribution.

Table J.18

Output of Mediative effects of Executive Function on the Relationship between AQ score and Homeless Status.

Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 4.2 beta ***************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****

Model : 4

Y : Homeless

X : ASD2

M : ZGEC

Sample

Size: 334

****

OUTCOME VARIABLE:

ZGEC

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0568	,0032	,9998	1,0753	1,0000	332,0000	,3005

Model

	coeff	se	t	p	LLCI	ULCI
constant	,0439	,0692	,6344	,5263	-,0922	,1799
ASD2	-,1172	,1131	-1,0369	,3005	-,3396	,1052

****

OUTCOME VARIABLE:

Homeless

Coding of binary Y for logistic regression analysis:Homeless Analysis

,00	,00
1,00	1,00

Model Summary

-2LL	ModelLL	df	p	McFadden	CoxSnell	Nagelkrk
410,1910	14,5369	2,0000	,0007	,0342	,0426	,0592

Model

	coeff	se	Z	p	LLCI	ULCI
constant	,3788	,1409	2,6878	,0072	,1026	,6551
ASD2	,9565	,2618	3,6529	,0003	,4433	1,4697
ZGEC	-,0262	,1200	-,2187	,8269	-,2615	,2090

These results are expressed in a log-odds metric.

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Direct effect of X on Y

Effect	se	Z	p	LLCI	ULCI
,9565	,2618	3,6529	,0003	,4433	1,4697

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
ZGEC	,0031	,0196	-,0345	,0515

```
********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

NOTE: Direct and indirect effects of X on Y are on a log-odds metric.

------ END MATRIX -----
```

Table J.19

Output of Mediative effects of Adaptive Function on the Relationship between AQ score and Homeless Status Moderated by ID.

Run MATRIX procedure:

********** PROCESS Procedure for SPSS Version 4.2 beta **********

Written by Andrew F. Hayes, Ph.D.
www.afhayes.com
Documentation available in Hayes (2022).
www.guilford.com/p/hayes3

****
****

Model : 7
Y : HomelessX :
ASD2
M : ZABAS_TO
W : ID

Sample Size:
333

****
****
OUTCOME VARIABLE:
ZABAS_TO

Model Summary

R	R-sq	MSE	F	df1	df2	p
,2589	,0670	,9387	7,8769	3,0000	329,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	,1391	,0732	1,8991	,0584	-,0050	,2832
ASD2	-,0991	,1211	-,8183	,4138	-,3372	,1391
ID	-,8767	,1839	-4,7679	,0000	-1,2384	-,5150
Int_1	,6682	,2867	2,3305	,0204	,1042	1,2323

Product terms key: Int_1 : ASD2 x ID

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0154	5,4312	1,0000	329,0000	,0204

Focal predict: ASD (X)
Mod var: 2ID (W)

Conditional effects of the focal predictor at values of themoderator(s):

ID	Effect	se	t	pLLCI	ULCI
,0000	-,0991	,1211	-,8183	,4138	-,3372	,1391
1,0000	,5692	,2599	2,1898	,0292	,0578	1,0805

****
****
OUTCOME VARIABLE:
Homeless

Coding of binary Y for logistic regression analysis:Homeless Analysis

,00	,00
1,00	1,00

Model Summary

-2LL	ModelLL	df	p	McFadden	Cox-Snell	Nagelkrk
404,9073	19,0111	2,0000	,0001	,0448	,0555	,0771

Model

	coeff	se	Z	p	LLCI	ULCI
constant	,3744	,1422	2,6331	,0085	,0957	,6531
ASD2	,9804	,2634	3,7222	,0002	,4642	1,4966
ZABAS_TO	-,2485	,1210	-2,0544	,0399	-,4856	-,0114

These results are expressed in a log-odds metric.

***************** DIRECT AND INDIRECT EFFECTS OF X ON Y
****

Direct effect of X on Y

Effect	se	Z	p	LLCI	ULCI
,9804	,2634	3,7222	,0002	,4642	1,4966

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
ASD2 -> ZABAS_TO -> Homeless

ID	Effect	BootSE	BootLLCI	BootULCI
,0000	,0246	,0381	-,0437	,1111
1,0000	-,1414	,0965	-,3699	-,0003

Index of moderated mediation (difference between conditionalindirect effects):
Index BootSE BootLLCI BootULCI

ID -,1661 ,1111 -,4311 -,0018

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:95,0000

Number of bootstrap samples for percentile bootstrap confi-dence intervals:
5000

NOTE: Direct and indirect effects of X on Y are on a log-oddsmetric.

WARNING: Variables names longer than eight characters can pro-duce incorrect output when some variables in the data file have the same first eightcharacters. Shorter variable names are recommended. By using this output, you areaccepting all risk. and consequences of interpreting or reporting results that maybe incorrect.

------ END MATRIX -----

Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 4.2 beta ***************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****

Model : 4

Y : Homeless

X : ASD2

M : ZABAS_T

Sample

Size: 333

****

OUTCOME VARIABLE:

ZABAS_T

Model Summary

R	R-sq	MSE	F	df1	df2	p
,0000	,0000	1,0000	,0000	1,0000	331,0000	1,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	,0000	,0693	,0000	1,0000	-,1364	,1364
ASD2	,0000	,1132	,0000	1,0000	-,2226	,2226

****

OUTCOME VARIABLE:

Homeless

Coding of binary Y for logistic regression analysis:

Homeless	Analysis
,00	,00
1,00	1,00

Model Summary

-2LL	ModelLL	df	p	McFadden	CoxSnell	Nagelkrk
404,9073	19,0111	2,0000	,0001	,0448	,0555	,0771

Model

	coeff	se	Z	p	LLCI	ULCI
constant	,3744	,1422	2,6331	,0085	,0957	,6531
ASD2	,9804	,2634	3,7222	,0002	,4642	1,4966
ZABAS_T	-,2485	,1210	-2,0544	,0399	-,4856	-,0114

These results are expressed in a log-odds metric.

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Direct effect of X on Y

Effect	se	Z	p	LLCI	ULCI
,9804	,2634	3,7222	,0002	,4642	1,4966

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
ZABAS_T	,0000	,0319	-,0685	,0669

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:5000

NOTE: Direct and indirect effects of X on Y are on a log-odds metric.

------ END MATRIX -----

Table J20

Support type	ASD M(SD)	NonASD M(SD)	Total M(SD)
Money	.91(1.805)	3.04(7.339)	2.23(5.970)
Food	1.78(5.444)	3.28(6.952)	2.72(6.455)
Stay	1.82(5.436)	2.89(6.490)	2.48(6.123)
Emotion	1.77(5.402)	3.38(9.543)	2.77(8.247)
Care	1.79 (5.448)	3.47(8.958)	2.83(7.845)

Service type	ASD		Non-ASD		Total	
Housing service	31	17.5%	26	16.7%	57	26.5%
Mental health	35	19.8%	8	5.1%	43	20.0%
Case management	33	18.6%	24	15.4%	57	26.5%
Emergency support	7	4.0%	3	1.9%	10	4.7%
None	10	5.6%	38	24.4%	48	22.3%
Total	116	65%	99	63.5%		
NDIS	54	30.5%	4	2.6%	59	82.3%

Appendix K: Participant Information Sheet

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INFORMATION SHEET
Part 2: Homeless group

Title
Evaluating the Risk of Homelessness for Individuals with Autism Spectrum Disorder

Description of the study:

Elizabeth is currently undertaking a Doctorate of philosophy (Clinical) in the school of Psychology at Flinders University. Elizabeth is supervised by Professor Robyn Young and Dr Paul Williamson. The research conducted will help to contribute to the completion of her thesis titled 'Evaluating the risk of homelessness for individuals with Autism Spectrum Disorder'. The research will also be published in international journals. This study is part of a project investigation the relationship between Autism Spectrum Disorder (ASD) and homelessness. A number of factors increase an individuals risk of homelessness and other factors that offer protection. Individuals with ASD are thought to hold some of these risk factors, for example lack of social support. Those with ASD also may lack protective factors that prevent individuals becoming homeless. Our research hopes to identify the risk factors that contribute to those with ASD becoming homeless and if this group is more at risk than those without ASD. We also hope to identify if ASD specific behaviours contribute to an individual becoming homeless more so than the other well-known factors. This research project is supported by Flinders University College of Education, Psychology & Social Work. Participation in this study will not in any way impact the current services and support that you are receiving.

Purpose of the study:

The purpose of this study to examine if those with ASD are at greater risk of homelessness. ASD characteristics will be examined to see if these characteristics contribute to homeless risk more than other factors. The findings of this study will provide an indication the risk factors are most influential, this will be helped to design interventions that are targeted in order to reduce the chances of those with ASD becoming homeless.

What will I be asked to do?
You will be asked to fill out a questionnaire. This questionnaire will ask you questions about yourself, your childhood, your current mental health, drug use, experiences of homelessness, employment and engagement with services. Some questions you will rate on a scale how much each question relates to you. The questionnaires you will fill out will have questions relating to (1) homelessness risk factors (2) homeless protective factors, (3) ASD behaviours in general (4) and demographic information. Some of the questions are sensitive in nature for example asking about drug and

alcohol use, childhood abuse and current mental health conditions. Some examples of questions include; *have you ever experienced childhood abuse? Have you ever been diagnosed with a mental health condition? In the past month have you use marijuana?* Responses provided are on a four-point scale from agree to disagree. This will take approximately 1 hour and 30 minutes.

What benefit will I gain from being involved in this study?

Your participation will help us increase our understanding of how we can prevent homelessness for ASD communities.

Will I be identifiable by being involved in this study?

Any identifying information will be removed from the responses you provide us. Any questionnaires you complete or other information you provide us with will be stored in a de-identified format (i.e., the information will be given an identification number that will not be associated with your name) on a password protected computer that only the coordinators (Elizabeth Osborn, Professor Robyn Young and Dr Paul Williamson) or certain research assistants will have access to. Your name will not be directly linked to any information. If you have ASD and you have any contact with the researcher Professor Robyn Young in the future of your ASD treatment, she will not know who you are or that you have participated. Therefore, your participation will in no way impact the course of your ASD treatment.

Are there any risks or discomforts if I am involved?

The questionnaires will take approximately 1 hour and 30 minutes to complete, which may be an inconvenience for you. However, you can take breaks if needed as there is no time limit. The questionnaires also contain some sensitive questions about your life experiences and the severity of your ASD symptoms. If any of these questions make you uncomfortable, you do not have to answer them. You are also free to stop and withdraw from the study at any time without consequence. In the unlikely event that you are adversely affected by any aspect of this research please speak to the researchers, and you may also access free support services should you require them (Hutt st: 258 Hutt st, Adelaide. Phone available at Wescare address: 11 Millers Court, Adelaide: Lifeline 13 11 14, http://www.lifeline.org.au; Beyond Blue 1300 22 4636, www.beyondblue.org.au)

How do I agree to participate?
Participation is voluntary. You will be provided a consent form to complete. Through reading this information sheet and completing the consent form, you are providing your informed consent to participate in the study. You can begin participation immediately. You can complete the questionnaire independently or with the help of the researcher. You are also free to withdraw from the study at any time without effect or consequences.

Recognition of participants time
In recognition for the valuable time you spent completing the study, you will receive a $20 Woolworths gift card. Upon completion of the study, you will be asked to provided this gift card.

How will I receive feedback?
Outcomes from the project will be summarized and post on the following web page after the study is complete. You will receive this link once the results are available, please provide your email address bellow if you would like to receive this information. We will also be providing an information session at Hutt st Centre in September to communicate the results.

Thank you for taking the time to read this information sheet. We hope that you will accept our invitation to be involved. If you wish to participate in this study, please complete the consent form with the researcher.

Ethics Committee (SBREC ETHICS APPROVAL NUMBER WILL BE INSERTED AFTER APPROVA). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

Appendix J: Letter of Appreciation

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Letter of Appreciation

Thank you again for participating in the research project entitled:

Evaluating the Risk of Homelessness for Individuals with Autism Spectrum Disorder

In this session, you completed a series of different tasks, the data from which will help us to explore and discuss which ASD characteristics may relate to homelessness

The questions were derived from the diagnostic criteria for ASD and how this relates to the chance of becoming homeless.

From the completion of the focus group, we are hoping to gain an understanding of how specific ASD behaviours may lead to homelessness. Understanding this will allow us to target these behaviours when treating ASD, in order to prevent homelessness for this at risk community.

If you would like to know outcomes of the study, they will be uploaded to the following webpage after the study is complete [insert Qualtrics link]

If you have any concerns or questions about this research, you can contact Elizabeth Osborn on the number or email address provided.

This research is conducted under the supervision of Prof Young and Prof Brewer. In the unlikely event that you are adversely affected by any aspect of this research please speak to the researchers, and you may also access free support services should you require them (Lifeline 13 11 14, http://www.lifeline.org.au; Beyond Blue 1300 22 4636, www.beyondblue.org.au

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting report or other publications

Appendix K: Reprint of Published Article (Chapter 2 Systematic Review)

‘Elizabeth Osborn & Robyn Young (2022) Autistic and without a home: a systematic review and meta-ethnography of the presence and experiences of homelessness amongst autistic individuals, Journal of Social Distress and Homelessness, DOI: 10.1080/10530789.2022.2086669 available from: https://doi.org/10.1080/10530789.2022.2086669