A Person-centred Examination of Complex Trauma and Homelessness in Australia

Carol A. Keane

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A Person-centred Examination of Complex Trauma and Homelessness in Australia

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Supervisors:
Associate Professor Christopher A. Magee
Associate Professor Peter J. Kelly

This thesis is presented as part of the requirement for the conferral of the degree:
Doctor of Philosophy (Clinical Psychology)

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The University of Wollongong
School of Psychology

August 2018
Abstract

Over the past two decades there has been substantial gain in knowledge regarding the biopsychosocial correlates of complex trauma experiences (e.g. Briere & Spinazzola, 2009; Cook et al., 2005; Ford & Courtois, 2009). There is a pressing need to integrate, translate, and apply this knowledge across at-risk and marginalised groups. The objective of this doctoral thesis was to provide new and original insights into the nature and impact of complex trauma within the context of ecological vulnerability; undertaking a person-centred examination of the homelessness vulnerable in Australia. A thesis by compilation format was adopted, comprising of a theoretical chapter (Chapter 2) and four interconnected empirical examinations (Chapters 3 – 6). Each of the four empirical chapters utilised data collected in the Journeys Home (JH) Study – a six-wave longitudinal examination of a nationally representative sample (N = 1682) of Australian individuals identified as homeless or at risk of becoming homeless (Wooden et al., 2012). Chapter 2 involved development of a novel resources-perspective framework, informed by a leading psychological traumatic stress theory, Conservation of Resources theory (Hobfoll, 1988; 1989; 1991). A key proposition of this framework was use of the concept of ‘risk factor caravans’ (Layne, Beck et al., 2009; Layne, Olsen et al., 2010; Layne, Briggs, & Courtois, 2014) to reflect the manner in which complex traumatic stress sequelae influence person-in-environment processes. Practical application of this novel theoretical framework was then demonstrated in the series of empirical examinations. Chapter 3 (Empirical 1) examined personal resource states and their associations with childhood complex trauma exposure and homelessness. Latent class analysis (LCA) revealed four distinct personal resource states: Disconnected (n = 129), Engaged (n = 544), Surviving (n = 131), and Thriving (n = 858). Compared to the Thriving reference class, cumulative trauma exposure was significantly predictive of likely classification into the personal resource states of Disconnected (OR = 1.27, 95% CI [1.17, 1.37]), Engaged (OR = 1.28, [1.22, 1.34]), or Surviving (OR = 1.39, [1.29, 1.50]). Chapter 4 (Empirical 2) examined associations between childhood trauma and risky alcohol consumption, and the implications for housing stability. Logistic regression modelling was used to examine associations between alcohol consumption and childhood abuse, socio-demographic factors, and changes in homelessness status. The results demonstrated that self-reported recall of childhood experiences of violence was significantly associated with Low Risk (OR = 1.54, 95% CI [1.01, 2.35]) and Risky (OR = 2.35, [1.41, 3.94]) drinking. Recall of childhood neglect was associated with a lower likelihood of Risky drinking (OR = 0.57, [0.34, 0.96]). Additionally, Risky drinkers were significantly
more likely to remain homeless at follow-up (OR = 1.85, [1.16, 2.96]). Chapter 5 (Empirical 3) sought to model the ‘risk factor caravan’ concept and examined the nature of childhood complex trauma experiences using LCA. Six distinct childhood trauma history classes emerged Multiple (n = 262), Distal (n = 286), Proximal (n = 209), High Violence (n = 233), Indirect (n = 250) and Low (n = 423). Significant covariate differences between classes included: gender, biological relationship of primary carer at age 14 years, and time in foster care. Chapter 6 (Empirical 4) examined longitudinal patterns of psychological distress and associations with childhood complex trauma exposure. Growth mixture modelling revealed four distinct trajectories of psychological distress: Chronic (n = 335), Escalating (n = 93), Attenuating (n = 109), and Resistant (n = 957). Experiences of different types of trauma during childhood were associated with these psychological distress trajectories. In particular, adults experiencing chronic psychological distress were significantly more likely than those exhibiting distress resistance to have experienced multiple and varied childhood maltreatment, adjusted odds ratio (AOR) = 5.75, p = .002, 95% CI [2.37, 9.19]. Collectively, this body of work provides significant and original contributions to the traumatic stress domain. The proposed theoretical framework presents opportunity for translation of a resources perspective research approach to other vulnerable populations affected by complex trauma. Demonstration of the framework application using sophisticated statistical analysis techniques, gives new insights into the dynamic processes underpinning the relationship between complex trauma and homelessness. The value of person-centred longitudinal methodological approaches are highlighted. Evidence of psychological resilience in a large proportion of this sample population stands as a salient reminder of human capacities to survive and even thrive in the face of trauma and adversity. New insights present important clinical implications for potential avenues to improve access to and facilitation of social support services for individuals exposed to substantial ecological vulnerability and homelessness risk.
This thesis is dedicated in loving memory of my brother

Owen Michael Keane
2/05/1981 – 21/05/1991

“Forever in my Heart”
Acknowledgments

I would like to dedicate these acknowledgements in honour of the late Professor Don Iverson, who provided invaluable insight, vision and encouragement during the important formation stages of thesis conceptualisation and development. You continue to be greatly missed.

To my supervisors A/Prof Chris Magee and A/Prof Pete Kelly. This PhD journey would not have been possible without your unceasing support and guidance. I express deep gratitude and appreciation for the gift of my post-graduate experience being one that was filled with positivity, consistent encouragement and mutual respect. Thank you for your well-considered and constructive mentorship, your persistent challenge for me to extend my capacities and capabilities, and for your unwavering support during the difficult times. Thank you also for assisting with the sourcing of avenues for financial support, which enabled me to undertake this academic endeavour, and for additional opportunities to build my track record and research prowess in avenues extending beyond the parameters of my PhD. I look forward with quiet confidence and great anticipation to the next stage of my career.

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To JB. Thank you for the unquantifiable part you have played in my journey.

To my fellow Clinical Masters cohort, to the amazing ‘Pete Kelly’ crew past and present, to my self-care guru AB, to my CHI friends, to my PhD peers, to my colleagues at VAN, and to the many other people and friendships I hold dear in my heart, I thank each and every one of you for the part you have played in sustaining me along this journey.

Finally, to my family. I express deep appreciation and gratitude for all you have done to support and encourage me along the way. Thank you for everything…always.
Certification

I, Carol Keane, declare that this thesis submitted in fulfilment of the requirements for the conferral of the degree Doctor of Philosophy (Clinical Psychology), from the University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

Carol A. Keane
18 August 2018
Style of Thesis

This thesis has been prepared in journal article compilation-style format. With the exception of the general introduction and general discussion, the chapters in this thesis are based on publications that have been published or submitted for review in peer reviewed journals. This format was chosen as most appropriate manner to facilitate rigorous external peer review of both the theoretical and empirical research components in this thesis. Furthermore, this format ensured the candidate developed a high level of knowledge, skill, and general competence with respect to dissemination of research, as well as serving to contribute to building a track record and academic profile.
Publications from the Thesis

Published Manuscripts


Manuscripts under Review


Statement of Contribution of Others

These following statements identify the nature and extent of the intellectual input by this candidate and co-authors for the chapters that are based on journal articles.

Chapter 2: CAK proposed and developed the theoretical framework, and drafted the manuscript. Authors CAM and PJK contributed to the development of the framework and provided critical review of the manuscript. All authors contributed to the final version of the manuscript.

Chapter 3: CAK conceptualised the paper, conducted data analysis, and drafted the manuscript. Author CAM provided guidance on the design and data analysis. CAM and PAK provided critical review of the manuscript. All authors contributed to the final version of the manuscript.

Chapter 4: CAK conceptualised the paper, with contributions from CAM and JKL. CAK drafted the manuscript and conducted data analysis, with input provided by CAM and JKL. All authors contributed to the final version of the manuscript.

Chapter 5: CAK conceptualised the paper, conducted data analysis, and drafted the manuscript. Author CAM provided input into the statistical design and data analysis. CAM and PAK provided critical review of the manuscript. All authors contributed to the final version of the manuscript.

Chapter 6: CAK conceptualised the paper, conducted data analysis, and drafted the manuscript, with CAM providing input into the statistical design and data analysis. CAM and PAK provided critical review of the manuscript. All authors contributed to the final version of the manuscript.
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<th>Description</th>
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<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>COR</td>
<td>Conservation of Resources</td>
</tr>
<tr>
<td>CT</td>
<td>Complex Trauma</td>
</tr>
<tr>
<td>CTE</td>
<td>Childhood Trauma Experience</td>
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<tr>
<td>EC</td>
<td>Ecological Congruence</td>
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<tr>
<td>GMM</td>
<td>Growth Mixture Modelling</td>
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<tr>
<td>JH</td>
<td>Journey Home Study</td>
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<td>LCA</td>
<td>Latent Class Analysis</td>
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Chapter 1

General Introduction

“What we need in this world is a compassion that stands in awe at the burdens the poor have to carry rather than stands in judgement at the way they carry them” (Burns, 2014)
1. Overview

In the domain of psychological trauma, the term “Complex Trauma” denotes the experience of repeated and prolonged exposure to traumatic stressors which is often intentional and interpersonal in nature (Breslau & Kessler, 2001; Courtois & Ford, 2009). The effects of complex trauma can be cumulative and lead to compromised formation of self-concept, profound relational difficulties, and complex posttraumatic sequelae (Briere & Spinazzola, 2005). Collectively, these consequences have long-lasting implications for an individual’s well-being, functioning and socio-environmental engagement (Cook et al., 2005).

The personal, social, and economic costs associated with complex trauma are substantial (McCarthy et al., 2016). Homelessness and exposure to complex trauma are both growing and related issues in Australia (ABS, 2012; 2018). For example, complex trauma is particularly problematic in the ecologically vulnerable, such as those facing homelessness (Taylor & Sharpe, 2008), and the effects of complex trauma are likely compounded where there is substantial resource deficiency, such as circumstance of homelessness (O’Donnell et al., 2014). Together these issues represent a resource burden on the individual, the family unit, health care services and social support systems. (Buhrich, Hodder, & Teeson, 2000; Kim, Ford, Howard, & Bradford, 2010). Furthermore, the risk for intergenerational transmission of childhood adversity and trauma is particularly high in homelessness-vulnerable families; whereby, caregiving is affected by the care-givers’ own complex trauma history and subsequent biopsychosocial dysfunctions (Cutuli, Montgomery, Evans-Chase, & Culhane, 2017). There is therefore a pressing need for research that broadens understanding of the dynamic relationship between complex trauma and homelessness. More nuanced insight into this serious societal issue will serve to better inform policy development and strategic planning.

The objective of this thesis is to investigate complex trauma in individuals facing substantial ecological vulnerability, subsequently referred to as homelessness in this introduction. This involves adopting a person-centred approach, which places the individual as principal focus and acknowledges the heterogeneous nature and impact of both complex trauma and homelessness. Central to achieving this aim is the development of a resources perspective theoretical framework, which is guided by the Conservation of Resources theory (Hobfoll, 1989), the model of Ecological Congruence (Hobfoll, 1988), and the concept of ‘risk factor caravans’ (Layne et al., 2009; 2010; 2014). Application of this framework underpins subsequent empirical examinations, which seek to address key gaps in the current complex traumatic stress literature. The remainder of this introduction provides key background information on complex trauma and
ecological vulnerability in the context of homelessness. Following a brief overview of the supporting theory, the thesis aims and structure are then presented. Note, this doctoral thesis focuses within an Australian context; however, application is proposed to extend multi-nationally where there is similar socioeconomic and political climate.

1.1 Complex Trauma

Complex trauma experiences include interpersonal maltreatment such as physical, sexual, emotional and psychological abuse, neglect, witnessing of violence, and an unstable parent presence due to mental health difficulties, substance dependence, and incarceration (Courtois & Ford, 2009). Complex trauma exposure is typically first experienced early in life (e.g. during childhood or adolescence) and continues throughout life (Kessler, 2000). These traumatic incidents are most often perpetrated by the child’s primary caregiver and/or experienced within the child’s predominant primary care system by adults who would typically be expected to provide stability and safety (Lawson & Quinn, 2013). Poly-victimisation in childhood (Finkelor, Ormrod, & Turner, 2007) and re-victimisation in adulthood (Widom, Czaja, & Dutton, 2008) are common exposure patterns in complex trauma. Cumulative exposure to interpersonal trauma during childhood has been identified as one of the strongest contributors to symptom complexity (Cloitre et al., 2009)

1.1.1 Biopsychosocial impacts of complex trauma.

Adverse childhood experiences have the potential to adversely affect daily functioning (Anda et al., 2006; Jonkman, Verlinden, Bolle, Boer, & Lindauer, 2013). Violation of a child’s fundamental expectation of being ‘safe in their world’ is causally attributed to developmental disruption of self-concept development and broad biopsychosocial dysfunctions that exert influence throughout the lifetime (Briere, Kaltman, & Green., 2008; Cloitre et al., 2009; Courtois & Ford, 2009; Ford et al., 2005; van der Kolk, 2005). Specific areas of functioning affected by childhood trauma experiences include: attachment; neurological and physiological development process; cognitive capacities; behavioural and emotional regulation capabilities (Briere & Scott, 2015; Cook et al., 2005). It is recognised that a dynamic and interconnected relationship exists between these functions, one that is unique to each individual and further influenced by socio-environmental factors present pre-, during, and post-trauma (Cloitre, 2015). A brief elaboration of these vulnerability areas is presented below, emphasising their interconnectedness.

Attachment refers to the strong emotional bond that develops between child and caregiver (Cassidy & Shaver, 2002). Typically, and somewhat ideally, the primary attachment bond is formed between mother
and child at birth (Bowlby, 2005). Secondary, yet equally important attachments form with other central individuals within the child’s primary caregiving system (Teague, 2013). Disruption to, or absence of, these attachment processes has been found to hold serious deleterious consequences for the child’s self-perception, impacting sense of self within their environment and in relation to others (Lamagna, 2011). Subsequent problems with adult attachment are common and relate to lack of a well-developed internal working model, which allows an individual to accurately interpret and anticipate the behaviour of others in order to guide their own behaviours (Schore & Schore, 2008). As a consequence, intra- and inter-personal trust is a difficulty that stands as serious barrier to an individual’s life engagement.

Exposure to interpersonal trauma experiences during childhood and adolescence leads to complex structural and functional changes in brain development (Delima & Vimpani, 2011). Disruptions in neurobiological development can alter brain chemistry and hormone regulation, and as a consequence, associated deficits in ‘normal’ behavioural and cognitive development are indicated (Purvis, Brooks McKenzie, Cross, & Becker Razuri, 2013). Adequate development of cognitive function is essential for adaptive and intentional abilities that over-ride automatic thoughts or reactions and facilitate healthy interpersonal relations (Teague, 2013). Behavioural and emotional dysregulation and broad interpersonal dysfunction are often reported throughout the lifespan, where a less adaptive course of executive functioning development is experienced (Staudinger & Kunzmann, 2005).

Monitoring and regulating emotions requires conscious effort and cognitive ability to appropriately perceive, interpret, and act upon various states of arousal experiences (Teague, 2013). Through environmental and interpersonal interactions a child learns to give experiences meaning and consequently learns appropriate emotional self-regulation (Mohaupt, Holgersen, Binder & Nielsen, 2006). The interpersonal nature of complex trauma experiences has the potential to confound self-regulation process, which lead to maladaptive over-reaction, misinterpretation of experience meaning, and an inability to self soothe (Teague, 2013). A major consequence of an inability to regulate emotions is the manifestation of problematic behavioural control and/or dissociative behaviours (Elzy, Clark, Dollard, & Hummer, 2013).

Substance dependence, disordered eating patterns, risky sexual behaviour, self-harm and body mutilation, overt aggression, and extreme social withdrawal, are but a few of the myriad of maladaptive coping strategies that are treatment considerations for concern where problems of affect regulation, dissociation, and behavioural control are present (Elzy et al., 2013). Importantly, these maladaptive coping behaviours serve to both compound the interpersonal difficulties experienced by many individuals with
complex trauma histories and ameliorate re-experiencing symptoms of the traumatic incidents (Briere & Scorr, 2015; Courtois & Ford, 2009).

1.1.2 Prevalence of complex trauma across the lifespan

The consequences outlined above are particularly concerning given the current rates of complex trauma and domestic violence in Australia. Accurate prevalence estimates of complex trauma across the lifespan are difficult to assess, and available figures vary due to methodological issues with definition and measurement, as well as broader systemic and cultural factors. Moreover, the available data are likely to underestimate the incidence of complex trauma, particularly in at-risk and marginalised groups such as those facing ecological vulnerability which is the focus of this thesis (AIHW, 2018). Two recent governmental reports shed light on the extent of complex trauma exposure at present in Australia – key findings are discussed briefly below.

The most recent Child Protection Australia report indicated 355,935 notifications of child believed at-risk of harm were received in 2015-16; 162,175 of these children receiving child protection services (CPS), which is a rate of 30.2 per 1000 children in the general population aged 0-17 years (AIHW, 2017). To receive CPS, these children had experienced or were at high risk of abuse, neglect, or harm, and/or had primary carers who were unable to provide adequate care or protection. It is concerning that 73% of children receiving CPS were repeat presentations. Indigenous children were markedly over-represented, being seven times more likely to receive CPS. At the time the 2015-16 report was prepared, of those receiving CPS, cases for 45,714 children aged 0-17 (a rate of 8.5 per 1000) were substantiated (investigated and belief of perpetration upheld), with a further 7390 cases in ongoing investigation. Nationally, emotional abuse (45%) was the most common primary type of abuse reported in substantiated cases but also had the highest rate of secondary co-occurrence at an average of 32.5%. Co-occurrence with other primary type was physical abuse 50.8%, sexual abuse 23.0% and neglect 24.6% (AIHW, 2017).

An Australian Government report on family, domestic and sexual violence indicated 2 in 5 individuals have experienced at least one violent incident since the age of 15 (AIHW 2018). Physical and/or sexual abuse experiences before the age of 15 years were experienced by 1 in 6 (16%, or 1.5 million) women and 1 in 9 (11%, or 992 000) men. Perpetration of physical or sexual violence by a current or previous partner was experienced by 1 in 6 (17%, or 1.6 million) women and 1 in 16 (6.1%, or 0.5 million) men. Prevalence estimates for emotional abuse with similar perpetrator relationship were 1 in 4 (23%, or 2.2 million) women and 1 in 6 (16%, or 1.4 million) men. According to the National Aboriginal and Torres
Strait Islander Social Survey (NATSISS; ABS, 2016), Indigenous Australians have an elevated risk of sexual assault and violence compared with non-indigenous Australians.

### 1.2 Ecological Vulnerability and Homelessness

Ecological vulnerability is a concept that acknowledges the complexity of non-linearity and multiplicity of dynamics of an individual within their environment (Beroya-Eitner, 2016). An individual’s susceptibility to stressor exposure, sensitivity to the stressor, and potential for recovery from exposure, are key determinants in the assessment of vulnerability risk (Beroya-Eitner, 2016). In this thesis homelessness is conceptualised as circumstance of substantial ecological vulnerability. Adopting a broad definition of ecology, this thesis captures both social and environmental ecologies when accounting for indicators of vulnerability. A brief orientation to the concepts of absolute, relative and urban poverty is provided to contextualise substantial ecological vulnerability (i.e. homelessness) specific to the purpose of this thesis.

The concept of a ‘poverty line’ or ‘poverty index’ as a means of identifying ecologically vulnerable individuals dates back to around 1870 (Gillie, 1996). Determination of current ‘poverty line’ delineation criteria is a dynamic and complex process involving contextual examination of the individual’s access to essential resources. Differentiation between absolute and relative measurements of poverty ensures accurate determination of poverty index at both global and national levels (Gillie, 1996). Use of an income-based classification index is foundational for poverty threshold determinations, whereby the total annual cost of essential resource consumption (per average individual) is calculated. A globally applicable absolute poverty index is defined as earnings equating to less than the equivalent of US$1.90/day (World Bank, 2015), which identifies individuals unable to afford basic needs such as adequate food, clean drinking water and shelter.

In contrast, relative poverty indices are calculated with respect to the mean standard of living for a particular nation (Gillie, 1996). This allows for income potential and economic health adjustments in wealthier, more developed nations. Individuals whose weekly income is insufficient to meet essential resource demands (e.g. food, rent, electricity, basic health care and education) are identified. Depending on specific criterion employed, thresholds between 50% and 60% of median household income are used for relative poverty determinations (Gillie, 1996). In Australia the current income-based relative poverty line (including housing costs) is AU$513.12/week for a single person and AU$963.79/week for a couple, one of whom is working, with two children (Melbourne Institute, 2017).

Subsisting within the relative poverty domain is the concept of urban poverty; a policy response
to rapidly increasing rates of urbanisation in industrialised nations (Baker, 2008). A distinct set of issues for ‘urban-dwelling’ individuals living below relative poverty thresholds have been identified and found to generalise across nations of similar economic health (Baharoglu & Kessides, 2001). These issues have been categorised into five broad dimensions: income/consumption, health, education, security (tenure and personal), and empowerment, whereby the specific components of each are unique to a particular urban area or city. Ecological vulnerability describes the socio-environmental experience of urban-dwelling individuals subsisting well-below the relative poverty line who struggle to meet essential resource demand in these five broad domains. Individuals who are homeless or at-risk of homelessness are particularly at-risk for failure to meet resource demand in all domains.

It is widely recognised that homelessness is experienced in developed and developing countries. While there is no singular global definition of homelessness, highly developed countries (i.e. countries with a highly developed economy and advanced infrastructure) including Australia, generally adopt broad definition that recognises both rooflessness and inadequate shelter as being homeless (Busch-Geertsema, Culhane, & Fitzpatrick, 2016). Living in shelters, refuges or transitional housing, ‘couch surfing’, severe-overcrowding are captured within this broader definition of homelessness, with personal safety an important caveat of distinction for defining adequacy of shelter as a home (ABS, 2012). While Australia has experienced uninterrupted economic growth over the past 26 years (ABS, 2017), approximately 2.9 million Australians live in relative poverty, 25% of whom are children, which is about one in six of all children in Australia (ACOSS, 2016). These are alarming statistics in such a resource abundant nation. Perhaps even more alarming, is that the prevalence of homelessness continues to increase in Australia. Recent census data has identified a 4.6% increase in rates of homelessness over the past 5 years, with 116, 427 people classified as being homeless on census night (ABS, 2018). Youth aged 12 – 24 years are over-represented in the homeless, with 32% living in ‘severely’ crowded dwelling, 23% living in some type of supported accommodation, and 13% classified as ‘street homeless’ (ABS, 2018).

1.2.1 Homelessness and complex trauma

Complex trauma and domestic/family violence exposure increases vulnerability within ecological vulnerability. According to the 2016-17 specialist homelessness services report a total of 288,000 people received assistance from homelessness services in the reporting period (AIHW, 2018). One in 4 clients reported current mental health issues, with 53% indicating additional vulnerabilities of domestic and family violence (29%), problematic drug and/or alcohol use (15%), or both violence and problematic substance
use (10%). Of the 288,000 people receiving assistance, 56% were identified as high risk for becoming homeless, 40% of which reported experiences of domestic and family violence (AIHW, 2018). Phipps, Molloy & Visentin (2018) provided a nuanced insight into trauma prevalence for homelessness vulnerable consumers (N = 91) of an inner city mental health service in Australia. Type and rate of trauma were examined and revealed ‘physical attack with a weapon’ was the trauma type with the second highest reported prevalence (42.9%) after ‘bad accident’ at 49.5%. This was followed by other interpersonal trauma type of ‘physical attack without a weapon’ (40.0%), ‘witnessing someone killed or seriously injured’ (40.0%), and ‘physical force or threat to have sexual contact’ (33.7%).

The past two decades has seen substantial gains for clinical and theoretical insight into the biopsychosocial antecedents and consequences of complex trauma experiences; however, research examining complex trauma and ecological vulnerability is limited by a lack of a cohesive theoretical framework. There is a need for an integrated framework that captures the dynamic intricacies of complex trauma psychopathology when situated within an ecologically volatile environment. As noted in the Thesis Aims and Thesis Structure sections below, this thesis aims to address this gap in the literature by developing a framework drawing upon two interrelated resource theories – Conservation of Resources and Ecological Congruence. The development of this framework is presented in Chapter 2 of this thesis. A summary of these two theories is provided in the next section.

1.3 A Resources Perspective Theoretical Overview

Conservation of Resources theory (COR; Hofoll, 1988; 1989) is one of the leading stress theories to have emerged over the past 30 years. The basic premise of COR is that people are motivated to obtain, retain and protect resources throughout life. According to COR, resources cluster into four basic categories: objects (e.g. house), conditions (e.g. work-role), personal characteristics (e.g. sense of mastery) and energies (e.g. money), which in turn map onto dimensions of contextual and personal resources. Specific to circumstance of ecological vulnerability and homelessness, important contextual resources might include objects such as safe and stable housing, and conditions such as a work-role or being a recipient of social support services. Essential energies might include contextual resource of incomes support and personal resources such as functional capacities. Personal characteristic might include resources such as sense of agency, coping self-efficacy, as well as health and wellbeing. Resources are recognised as interdependent and occurring in an aggregated fashion known as resource caravans, which develop and are sustained by resource caravan passageways – socioecological states which, under ideal conditions, create and maintain
resource caravans (Hobfoll, 1998); a concept akin to the traditional definition of caravan, whereby groups of people, animals, vehicles etc. travel together on long journeys, pooling supplies and resources to achieve a common goal (Caravan, n.d.). Stress is proposed to occur when there is a) threat of resource loss, b) inadequate return on resource investment, and c) actual resources loss occurs. Consequence of resource loss and resource-loss recovery is understood within an ecological framework, whereby the family, society, and culture in which the individual situates are key avenues for resource recovery (Hobfoll, Freedy, Lane, & geller, 1990).

Specific application of COR to traumatic stress focuses on the rapid depletion of resources that accompanies trauma exposure (Hobfoll, 1991). Within COR some important corollaries are raised in relation to resource loss. The first corollary is that the lower the initial resource state, the greater the impact of resource loss at time of trauma exposure. Conversely, resource abundance at time of trauma exposure buffers against traumatic stress consequence. Second, loss spirals have greater velocity than resource gain spirals and this effect is compounded where an individual is situated within a resource-poor environment. Third, where resources are scarce an individual will adopt a defensive position and protect the few available resources, which impacts upon the natural process of complimentary loss-gain cycles required for resource gain i.e. using resource (initial loss) to gain resource (Hobfoll, Tirone, Holmgreen, & Gerhart, 2016).

A complimentary concept of risk factor caravans and risk factor caravan passageways provides an avenue by which resource loss cycles are explained (Layne et al., 2009; 2010; 2014). Similar to resource caravans, risk factor caravans are conceptualised as risk factors that tend to cluster together and co-occur, travelling with an individual throughout life. The impact of a risk factor caravan is understood to be influenced by resource availability and accessibility of an individual’s ecological framework. In this doctoral thesis, conceptualisation of complex trauma as a risk factor caravan, and situation of substantial ecological vulnerability (i.e. homelessness) as risk factor caravan passageway is proposed.

Hobfoll’s (1988) early model of Ecological Congruence (EC) facilitates exploration of stress resistance as a vital conduit between resource gain and loss. Specifically, EC supports examination of factors influencing an individual’s choice of target resource, their behavioural decisions in seeking to attain resources, and factors influencing likelihood of successfully attaining and/or utilising resources. In this thesis, the propositions of EC inform the focus on individual-difference in personal resource as key conduit between complex trauma risk factor caravan and the passageway of ecological vulnerability.
1.3.1 Person-centred approach

This thesis extends on previous research by adopting a person-centred approach, to investigate complex trauma. A person-centred approach is fundamental to a resources perspective examination of complex trauma within homelessness. Heterogeneity within trauma-exposed populations is becoming widely recognised as essential consideration in traumatic stress research (Briere & Scott, 2015). Furthermore, examinations into co-occurrence, multiple exposure and associated cumulative-risk effects of complex trauma have identified distinct patterns that suggest exposure may not be as random as previously considered (Cloitre, 2015). As such, there is growing recognition of potential homogeneous sub-groups of trauma-exposed individuals situated within a broader context of heterogeneity at population-level experience (O’Donnell et al., 2017). Person-centeredness situates within a biopsychosocial model and recognises the dynamic interplay of individual-within-environment process. Longitudinal analytic approaches that integrate person- and variable-centred analysis are most ideal for capturing the individual-within-environment processes at play in the complex trauma-homelessness vulnerability dynamic (Muthén, 2004).

1.4 Thesis Aims

The objective of this doctoral thesis is to provide new insights into the nature and impact of complex trauma in circumstance of substantial ecological vulnerability (i.e. homelessness). The thesis has the following specific aims:

1. Development of a resources perspective theoretical framework to support translation of current complex traumatic stress knowledge for application within the context of substantial ecological vulnerability.
2. Examination of the relationships between complex trauma and personal resources.
3. Investigation of the implications of complex trauma exposure for well-being and homelessness.

These aims are addressed across five chapters, which are comprised of a) a theoretical chapter that details the theoretical rationale and conceptual framework development underpinning this thesis, and b) four empirical chapters that apply this framework to address aims 2 – 4 in a series of interconnected studies. An overview of these chapters and the corresponding research question/aims are provided in Table 1.1. Further information on these chapters and the structure of this thesis is provided in section 1.4.1.
Table 1.1

Thesis structure and research aims/question addressed in each chapter

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Research Questions/Aims addressed</th>
</tr>
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| Chapter 2: Theoretical         | 1. Demonstrate the importance of person-centred approaches to gain nuanced insight into the nature and impact of complex trauma in situations of ecological vulnerability.  
                                  | 2. Conceptualise complex trauma as a ‘risk factor caravan’ that undermines resources, has strong reciprocal relationships with ecological vulnerability, and places the individual at risk of adverse consequences.  
                                  | 4. Develop the proposition that personal resources are particularly important in the context of complex trauma and ecological vulnerability. |
| Chapter 3: Empirical 1 Personal Resources | 1. Are there distinct personal resource states (based on mental and physical health, life satisfaction, social connectedness, and social isolation) in the ecologically vulnerable?  
                                  | 2. What are the characteristics (e.g. robust and intact or low) of these distinct resource states, and how are they associated with an individual’s homelessness status?  
                                  | 3. Are experiences of childhood complex trauma exposure associated with different personal resource states? |
| Chapter 4: Empirical 2 Trauma, maladaptive coping and homelessness | 1. Are there associations between childhood experiences of abuse associated and alcohol consumption in adulthood?  
2. Do these associations vary according to demographic factors, and/or a family history of substance abuse, mental health, and criminality?  
3. Is harmful consumption of alcohol a significant predictor of subsequent housing instability?  

Manuscript 3:  
|---|---|
| Chapter 5: Empirical 3 Risk factor caravans and complex trauma typology | 1. Are there distinct childhood trauma experience subgroups for Australian’s with low housing stability and what additional childhood experiences underlie class membership?  
2. How do different patterns of childhood trauma experience affect the likelihood of subsequent adult interpersonal trauma experiences?  
3. Do these identified individual differences have implications for homelessness?  

Manuscript 4:  
| Chapter 6: Empirical 4 Trajectories of psychological distress | 1. Are different typologies of childhood trauma experience associated with distinct and varied patterns of psychological distress trajectory in the homelessness vulnerable?  
2. Are there unique associations between different trajectories of psychological distress and recent experiences of interpersonal trauma in adulthood?  

Manuscript 5:  
1.4.1 Theoretical and conceptual development

As noted above, previous research has been limited by a lack of a cohesive theoretical framework to support empirical examinations of the dynamic and heterogeneous nature of complex trauma within homelessness. The main body of this doctoral thesis therefore commences with a theoretical chapter (Chapter 2) that contains a review of the literature and has as its key purpose, the development of a theoretical framework to inform longitudinal examinations of complex trauma and homelessness. An integrated resources perspective framework situating the concept of complex trauma as ‘risk factor caravan’ as central focus is proposed. Personal resources are highlighted as key for understanding resource loss and gain in this unique context. Longitudinal person-centred approaches as integral methodological considerations for future application of this proposed framework are examined.

Following the theoretical chapter are four empirical chapters, which a) demonstrate the utility of this theoretical framework to inform empirical investigation, and b) showcase application of advanced statistical methods for nuanced insight into the dynamic and heterogeneous nature of complex trauma within the context of homelessness. Chapters 3 – 6 represent a series of interconnected studies drawing upon data from the Journey’s Home Study which is explained in more detail below. The aim of Chapter 3 was to investigate the relationships between different types of childhood complex trauma experiences and five personal resources of key importance within the context of homelessness. The aim of Chapter 4 was to investigate the links between key trauma experiences and excessive alcohol use – behaviour reflective of personal resource state and consequence of complex trauma exposure. Implications of these links for homelessness (a key contextual resource) were also examined. The aim of Chapter 5 was to investigate patterns of childhood complex trauma experience in the homelessness-vulnerable using an integrated person-centred/variable-centred approach. Implications of identified individual-difference for additional trauma exposure and links with homelessness were also examined. The aim of Chapter 6 was to investigate whether identified subgroups of complex trauma exposure were associated with level of psychological distress (a key personal resource) and whether distinct and varied trajectories of psychological distress emerged over-time.

1.4.2 The Journeys Home Study

The four empirical chapters utilised data collected through the Journeys Home (JH) Study – a six-wave longitudinal examination of a nationally representative sample ($N = 1682$) of Australian individuals identified as homeless or at risk of becoming homeless (Wooden et al., 2012). In 2008 the Australian
government released a 12 year policy agenda targeting homelessness, with clear aims to a) halve the 2008 homelessness rates by 2020 and b) have capacity to provide supported accommodation to all ‘street homeless’ (AHT, 2008). An associated White Paper, *The Road Home*, noted that lack of large-scale panel data was likely impeding policy development and service provision (AHT, 2008). The JH study was an initiative developed in response to this identified need. The JH study was funded by the Australian Government through the Department of Social Services and to date is the most robust and comprehensive survey of homelessness in Australia (Wooden et al., 2012).

Importantly, the JH study uses a conceptually constructed definition of homelessness; one that recognises the important distinction between ‘rooflessness’ and being without a ‘home’ (ABS, 2012). Security of tenure, adequacy of dwelling, and ability to control the living space, are the key elements of focus when identifying individuals who are homelessness (ABS, 2012). This means that living in shelters or transitional housing and couch surfing – moving between various temporary housing arrangements with no alternative housing options – are captured within a conceptual definition of homelessness. This is a notable strength of the JH data and was considered an integral aspect for accurate examination of complex trauma and homelessness vulnerability within highly-developed nations such as Australia.

There is a strong rationale underpinning the use of JH data for this thesis, namely: 1) The data provided a rich source of information across a range of challenges unique to ecological vulnerability including: personal circumstance (significant life events, physical/mental health and well-being, employment, income and education/training); family circumstance and support networks; housing situation; and access of support services; 2) The contemporary and longitudinal nature (six waves collected at approximately 6-month intervals between 2012 – 2014) of the JH data provided robust opportunity to examine change over time processes, outcomes of which present as relevant and translatable to the current situation of homelessness in Australia; and 3) The JH sample size of 1,682 facilitated application of sophisticated statistical analytic methods to capture dynamic person-in-environment process from a person-centred perspective. Further details about the JH study and data (Bevitt et al., 2015) are provided in each of the empirical chapters, with each chapter providing additional information relevant to the specific aims of objectives of each study. Ethics approval for use of the Journeys Home data in this thesis was granted by the University of Wollongong.
1.5 Significance and Originality

This thesis makes a significant and original contribution to psychological research in the key areas of complex trauma and homelessness; two major social concerns that have strong interrelationships and long-term implications for individuals, families and society more broadly. Within the traumatic stress field, there has been an identified need for translation and application of current complex trauma knowledge across at-risk groups. The components of this thesis directly address this identified need and provide unique insights as a consequence of the following original contributions:

- The development and application of a uniquely tailored resources perspective theoretical framework to support examination of the nature and impact of complex trauma within the context of substantial ecological vulnerability.
- Use of a person-centred approach, ensured that the individual rather than the variable remained central focus in empirical examinations. This approach has provided new insights into a) resource states and b) complex trauma experiences within the homelessness vulnerable.
- Use of sophisticated longitudinal modelling techniques endeavoured to provide greater insights into how trauma-resource relationships unfold over time.
- Derivation of nuanced insights into complex traumatic stress within the context of ecological vulnerability provides important clinical implications for improving accessing and facilitation of social support services.
Chapter 2

Theoretical Framework Development

Complex Trauma and Ecological Vulnerability: Development of a Resources Perspective Framework to Inform Longitudinal Examinations

Manuscript under review
2.1 Abstract

There is a need for more research to understand the experiences and consequences of complex trauma knowledge across different at-risk groups, such as those experiencing ecological vulnerability (e.g., homelessness). Existing research in this area has been limited by lack of a cohesive theoretical framework that captures the dynamic and heterogeneous nature of complex trauma within individuals experiencing ecological vulnerability (e.g., homelessness). This paper aims to address these gaps by proposing an integrated resources perspective framework situating the concept of ‘risk factor caravans’ as central focus. We demonstrate how the ‘risk factor caravan’ representation captures current theoretical and clinical insights into the pervasive and enduring consequences of complex trauma exposure. Personal resources are highlighted as key for understanding resource loss and gain in the current context. Longitudinal person-centred approaches as integral methodological considerations for future application of this proposed framework are examined. Implications for reducing barriers to access of available support services are discussed.

Key words: complex trauma, homelessness, ecological vulnerability, resources, longitudinal, heterogeneous
2.2 Introduction

The relationship between complex trauma and ecological vulnerability is a knowledge gap in traumatic stress literature. The dynamic intricacies of complex trauma exposure and sequelae, when situated within an ecologically volatile environment, need to be better understood to improve service provision. The purpose of the present paper is to apply a resources perspective application as a framework to examine complex trauma experiences in ecologically vulnerable individuals. This new framework draws upon the Conservation of Resources theory (COR; Hobfoll, 1988; 1989; 1991) paradigm to understand the effects of complex trauma and its bi-directional relationships with ecological vulnerability.

This paper begins with an overview of complex trauma and its relationships with ecological vulnerability, with homelessness provided as a specific circumstance of vulnerability. The resources perspective framework, with unique application of the ‘risk factor caravan’ concept (Layne et al., 2009; 2010; 2014), is then presented and applied to complex trauma within homelessness. This involves addressing three main aims. The first aim is to demonstrate the importance of person-centred approaches to gain nuanced insight into the nature and impact of complex trauma in situations of ecological vulnerability. The second aim is to conceptualise complex trauma as a ‘risk factor caravan’ that undermines resources, has strong reciprocal relationships with ecological vulnerability, and places the individual at risk of adverse consequences. Third, we propose that personal resources are particularly important in the context of complex trauma and ecological vulnerability. We hypothesise that high personal resources may allow an individual to partially offset the adverse effects of the complex trauma risk factor caravans and regain resource stability. In contrast, low personal resources could contribute to a spiral of resource losses and exacerbate consequences of the complex trauma risk factor caravan. Translation of theory into practice and suggestions for application in trauma-informed service provision will be explicated with respect to these aims. The paper concludes by discussing methodological implications for future research in ecologically vulnerable populations such as the homeless. While the current paper focuses within an Australian context, utility of theoretical development and application is proposed to extend multi-nationally where there is similar socioeconomic and political climate.

2.2.1 Complex Trauma

Within the traumatic stress literature, the term complex trauma generally refers to trauma exposure that is often prolonged, experienced repeatedly and cumulatively, and occurs within specific contexts that include: childhood abuse and neglect; intimate partner, family and domestic violence; and situations such
war, refuges status and poverty (Courtois & Ford, 2009). Other single incident catastrophic events such as witnessing a traumatic death or rape are also captured within this definition (Courtois, 2008). The term complex trauma is also used to describe the unique symptoms and sequelae that occur as a result of exposure to this type of trauma (Kliethermes, Schacht, & Drewry, 2014). The often intentional and interpersonal nature of the trauma is recognised as contributing to the complexity of subsequent traumatic stress responses (Breslau & Kessler, 2001).

Fundamental differences have been observed in how an individual perceives, and responds to, complex trauma experiences (Herman, 1992; Terr, 2003). Despite these differences, the following key domains of bio-psychological adversity associated with complex trauma have been identified: inadequate attachment formation; biological/maturational deficits; affect regulation difficulties; over-developed avoidance strategies and dissociative tendencies; cognitive impairment; altered self-capacities; relational difficulties; maladaptive behavioural control and coping strategies (see for e.g. Briere & Scott, 2015; Briere & Spinazzola, 2005; Cook et al., 2005). Maladaptive coping strategies of an avoidant or impulsive nature typically manifest where affect regulation is impaired in response to trauma (Elzy, Clark, Dollard, & Hummer, 2013). Substance use is a dominant maladaptive coping strategy associated with adverse reactions to traumatic stress (Finlay & Lyons, 2007). In the absence of internal ability to regulate stress reactions and defensive states, the individual likely uses external means to aid regulation (e.g. substance use) and reduce distress (Verster, Brady, Galanter, & Conrod, 2012). Unfortunately, while maladaptive behaviours may serve to temporarily ameliorate post-trauma stress symptomology, the adverse consequences of such behavioural engagement likely perpetuate an individual’s distress (Courtois & Ford, 2009; APA, 2013).

Individuals who experience more complex traumatic stress reactions often require lengthy psychological intervention with varying degrees of positive prognostic outcome (Breslau & Kessler, 2001). Sequelae such as loss of self-worth, loss of a coherent sense of self and profound difficulties with trust and interpersonal interactions, are treatment resistant factors common to complex psychological trauma (Courtois & Ford, 2012; van der Kolk et al., 2005). Detrimental interpersonal consequences are particularly salient where the perpetrator was someone known to the child and within their primary care environment (Terr, 2003). Relational difficulties stand as a potential barrier in person-in-environment processes, which, from a resources perspective, may be particularly detrimental for the ecologically vulnerable needing to access and engage with available support services.
2.2.2 Complex Trauma in the Context of Ecological Vulnerability

Ecological vulnerability describes a potential-for-loss state within the relationship between individuals and their environment (physical, social, economic and political) (De Lange, Sala, Vighi, & Faber, 2010). Loss may be of a structural (e.g. home), contextual (e.g. income, work-role, social and family support networks) or personal (e.g. physical health, psychological and emotional wellbeing) nature, with the degree of loss susceptibility determined by factors such as exposure to adversity, consequent impacts of exposure, and an individual’s adaptive capacities (De Lange et al., 2010). Homelessness (or vulnerability to being homeless) represents a circumstance of substantial ecological vulnerability where there is a high potential-for-loss risk. This is because the circumstances in which an individual entered into homelessness, and the homeless experience itself, are often traumatic and complex (Anderson, 2003). For example, homelessness may have resulted following exposure to traumatic environmental adversities such as natural disasters (e.g. flood, drought, wildfire, and other extreme weather events) or man-made events (e.g. acts of terror, war, and economic collapse). Homelessness may also be both antecedent to and consequence of individual adversities that include poor physical and mental health, social exclusion, substance dependence, family conflict, unemployment, and housing instability (Chamberlain & Johnson, 2011; DeForge, Belcher, O’Rourke, & Lindsey, 2008). High prevalence of exposure to trauma and adversity early in life (AIHW, 2018; Sundin and Baguley, 2015) and high-risk for violations of personal safety and interpersonal victimisation (Gabowitz & Konnath, 2008) have also been identified among homeless populations. Therefore, potential-for-loss risk for ecologically vulnerable sub-groups such as those experiencing homelessness is likely compounded by complex trauma exposure; whereby, trauma sequelae may play a significant role in appraisal and coping in the face of adversity.

It is a well-established proposition that an interaction between individual differences and exposure to threat and adversity, rather than the characteristics of the threat event alone, determines the nature of an individual’s distress (Bowman, 2013). The manner in which adversity exposure is experienced, processed, and responded to, is recognised to be determined by unique person-in-environment processes (Bonanno, 2004). Knowledge of these unique processes within the context of the ‘complex trauma-ecological vulnerability’ dynamic is lacking. We suggest that research in this area has been limited by lack of a cohesive theoretical framework that captures the heterogeneous nature of these unique person-in-environment processes. The aim of this paper is to demonstrate the utility of a resources perspective application for such examinations.
2.2.3 Resources Perspective

In the following sections, we first provide a brief orienting of the reader to two complementary resource theories – COR and EC – which form the theoretical basis of this paper. We then examine some of the key propositions of these resource perspectives and apply them to further understand complex trauma in the context of ecological vulnerability. This includes demonstrating that complex trauma represents a major form of stress that places an individual at risk of adverse consequences due to resource losses. It is also proposed that complex trauma acts as a risk factor caravan, whereby, certain bio-psychopathologies are integrated into an individual’s developing psyche and are then carried with them throughout their lifetime. We assert that risk is experienced heterogeneously and is influenced by person-in-environment processes. It is our position that personal resource states are particularly important within the context of ecological vulnerability as a risk factor caravan passageway. Specifically, where complex trauma psychopathologies are involved, personal resource states have the potential to either contribute to or halt resource loss spiralling. Finally, we examine personal resources as an underutilised point of intervention focus in efforts to assist the ecologically vulnerable who have experienced complex trauma.

Conservation of Resources (COR; Hobfoll, 1989) theory and the associated model of Ecological Congruence (EC; Hobfoll, 1988) have been widely applied to understand the nature and impact of stress reactions across a range of contexts including specific applications to traumatic stress (Hobfoll, 1991). The basic tenet of the COR theory (Hobfoll, 1989) is that individuals naturally seek to obtain, retain and maximise resource gain (that which facilitates a positive life experience) and minimise resource loss (that which threatens an individual’s security and safety in the world) – initially for survival and ultimately for optimal life engagement. Hobfoll’s (1988) revised model of Ecological Congruence (EC) facilitates examination of factors influencing an individual’s choice of target resource, their behavioural decisions in seeking to attain resources, and factors influencing likelihood of successfully attaining and/or utilising resources.

The COR theory and EC model both conceptualise and classify resources into four categories (Hobfoll, 1989): (1) Objects – resources that have ‘physical’ value or that provide a means of secondary gain leading to attainment of a resource (e.g. a house); (2) Conditions – roles and relationships by which an individual defines themselves and creates a sense of self in relation to the world (e.g. work, family); (3) Personal characteristics – resources such as personality traits and skills that an individual utilises in order
to gain resources (sense of mastery); and (4) Energies – these resources are generally valued for their utility as expendable in order to attain further resources (e.g. money). Hobfoll (2002) posited that resources could be further distinguished when viewed through two dimensions. The first dimension explores the origins of the resource on a continuum ranging from personal resources (those proximal to the individual e.g. personal traits) to contextual resources (e.g. a house). The second dimension considers the stability of the resource from structural and stable (longer-lasting) through to transient and volatile (once utilised the resource is not replenished e.g. time).

According to COR, resources are interdependent and occur in an aggregated fashion known as resource caravans, which develop and are sustained by resource caravan passageways – socioecological states which, under ideal conditions, create and maintain resource caravans (Hobfoll, 1998). The resource caravan and passageway concepts are used to explain resource gain cycles i.e. how initial resource gain leads to further resource gain. The complimentary concepts of risk factor caravans and risk factor caravan passageways provides an avenue by which resource loss cycles are explained (Layne et al., 2009; 2010; 2014).

Resource loss and gain cycles stand as an expected function of daily life engagement; however, in the context of complex traumatic stress, the focus shifts to resource loss spiralling (i.e. rapid drain of resources). Complex trauma combined with ecological vulnerability, raises other important corollaries for consideration (Hobfoll, Tirone, Holmgreen, & Gerhart, 2016). First, fewer initial resources exacerbate the effects of resource loss in the face of traumatic crisis. Conversely, more abundant initial resources, leads to a more intact resource caravan passageway and a greater the resiliency to traumatic stress. Second, resource loss spirals are purported to have great velocity for resource-poor individuals, i.e. the loss cycles gather momentum and strength in the absence of resource rich environment and appropriate resource caravan passageways. Third, where there is a lack of resources, a defensive position is adopted in order to guard what few resources exist, thus keeping a maximum of resources readily available in case they are needed to offset future resource loss (Hobfoll et al., 2016). Ecological vulnerability is therefore a state with few resources to sustain gain cycles and, as a consequence, is also a state likely to perpetuate resource loss cycles and accelerate loss spiralling in the context of complex traumatic stress.

### 2.2.4 Complex Trauma as ‘Risk Factor Caravans’

In relation to COR, risk factor caravans are described as clusters of causal risk factors that tend to co-occur and accrue, with the resultant harmful effects travelling with an individual across time (see Layne,
et al., 2009, 2010 for a more detailed and comprehensive description). This makes the risk factor caravans an ideal conceptual vehicle for examination of complex trauma because it reflects current clinical insight regarding the development and impact trajectories of complex traumatic stress (Briere & Scott, 2015).

The risk factor caravan concept provides representation for the structure and dynamics of complex trauma exposure and symptom presentation. A detailed review of the vast body of complex trauma literature is beyond the scope of this paper; however, a few key considerations are outlined following for contextual reference to the risk factor caravan concept. First, heterogeneity of symptom presentation and progression associated with complex trauma is now widely evidenced in current traumatic stress literature (Briere & Scott, 2015), and is reflected in calls to action for adoption of person-centred research methodologies to ensure accurate translational application for service provision (e.g. Cloitre, 2015). Second, cumulative re-victimisation is firmly established as being associated with greater symptom severity and experiencing a broad range of dysfunctions that extend beyond formalised posttraumatic stress disorder symptomology (e.g. Briere et al., 2008; Cloitre et al., 2009; Ford, et al., 2005). Third, compared to single-type victimisation, poly-victimisation has also been identified as a strong predictor of psychological distress (Finkelhor, Ormrod, & Turner, 2009). We propose that modelling complex trauma as risk factor caravan provides an operationalisation function for application in empirical examination, which captures these multifarious issues that are essential considerations in complex trauma examinations.

From a clinical intervention perspective, self-structure disintegration and defensive transformation of self-concept has long been identified as a key overarching consequence of complex trauma (Schore, 2002). Lack of self-cohesion in the traumatised self leads to creation of rigid intra- and inter-personal boundaries in an attempt to contain psychic fragmentation (Luci, 2017). This rigid organisation of self is understood to contribute to the manifestation and maintenance of interpersonal difficulties and unhelpful self-protective behaviours. Where complex trauma has occurred during critical stages in early development, fundamental deviations from ‘normal’ self-concept acquisition (i.e. holding positive representations of self and other) become integrated into the evolving psyche (Schore, 2002). This integration must be accounted for as a point of fundamental difference an individual carries with them throughout their life because it influences their relational frame – i.e. their relationship with self, others and environment (Barnes Holmes, Y., Barnes Holmes, D., McHugh, & Hayes, 2004). These concepts are very relevant to the homeless population because they may hold important insights as to why some individuals struggle to regain purchase and adequate life functioning in the
aftermath of complex trauma and others appear to thrive and flourish despite living in circumstance of ecological vulnerability.

2.2.5 Complex Trauma ‘risk factor caravans’ and the Passageway of Ecological Vulnerability

Resource-poor socio-environmental states increase propensity for resource loss spiralling. Leniency of available resources, the unpredictability of resource stability and ongoing availability, and the traumatically stressful experience of perpetual resource deficit, combine to make ecological vulnerability a powerful risk factor caravan passageway for complex trauma sequelae. Resource loss, both proximal and distal to time of actual traumatic experience, has been identified as one of the best predictors for development of posttraumatic psychopathology (Hobfoll, 2002). We recall that COR theory attests that the fewer initial resources at the time of traumatic crisis the greater the resource loss impact. In addition, resource-poor environments accelerate loss spiralling, and where resources are few, a defensive position of protecting resources is adopted (Hobfoll, 2016). For the ecologically vulnerable, resources that are usually experienced as being stable, and therefore predictable and dependable, are instead experienced as volatile and therefore unpredictable and unreliable. This includes both contextual resources (e.g. housing/accommodation, employment, social network) as well as personal resources (e.g. physical and mental health, skills, experience). In addition, the purpose of resources that are transient in nature, such as money, are likely viewed differently where replenishment is not guaranteed (e.g. when unemployed). This situation can challenge the essential process of resource use for resource gain, particularly where investment of resource is needed to halt rapid resource loss spiral.

Hobfoll’s (1988) EC model can explain individual differences in how people respond to resource loss. EC places emphasis on the cognitive, biological, and unconscious processes that are operational in reaction to stress. Where complex traumatic stress is involved, the dynamic and heterogeneous nature of bio-psychological dysfunctions likely influences the state of congruence. According to EC, congruence depends upon a dynamic interplay between facets of: 1) resources, 2) need, 3) strain, and 4) time; with personal values and perception determining how these facets interact and ultimately the resultant valence of effect for an individual (Hobfoll, 1988). To expand – resources are the objects, conditions, personal characteristics and energies that have value to an individual and/or are of use to an individual because they serve as a means of attaining that which is valued. The extent to which an individual needs a resource is therefore determined by internal biological, emotional and cognitive requirements interacting with the environment to create demand.
From a perspective of ecological congruence, stress arises when satisfaction of internal need is threatened (Hobfoll, 1988). In the context of complex traumatic stress, interpersonal safety is violated and innate need for person-in-environment safety is compromised. In an ecologically vulnerable circumstance (e.g., homelessness), personal safety is precarious and there is a demonstrated high risk of interpersonal victimisation (Fazel, Geddes, Kushel, 2014). In combination, complex trauma and ecologically vulnerability represent a high-stress risk resulting from a failure to meet the basic internal need of a sense of personal safety within the environment. According to EC, the negative effects of stress and are experienced as both physiological and psychological strain, which requires mobilisation of resources to satisfy internal need and maintain ecological congruence (Hobfoll, 1988). As previously outlined, the physiological and psychological dysfunctions associated with complex traumatic stress are numerous and place a serious strain on an individual’s resources. Where repeated interpersonal trauma has been experienced since childhood, this strain likely travels with an individual throughout the lifespan – hence our proposition for conceptualising complex trauma as ‘risk factor caravan’. We also assert the need to consider the impact of this trauma ‘risk factor caravan’ on an individual’s approach to mobilisation of resources during times of stress. Specifically, in the context of chronic resource-poor states such as that experienced by the homeless and the homeless vulnerable.

We assert that complex trauma ‘risk factor caravan’ effect is likely to have a fundamental influence on an individual’s appraisal of resource value and need, which may at times be contrary to that of an individual not hindered by such a risk factor caravan. Furthermore, it is our position that an individual’s personal resources likely play an integral role in the appraisal and subsequent behaviour response in the context of ecologically vulnerable experiencing complex traumatic stress.

2.2.6 Personal Resources

Many individuals struggle to regain purchase and adequate life functioning in the aftermath of complex trauma (Courtois & Ford, 2009), while others appear to thrive and flourish despite living in circumstance of ecological vulnerability (Johnson & Chamberlain, 2011). We propose that personal resources act as an integral conduit between complex trauma risk factor caravan and resource passageways. We hypothesise that high personal resources may allow an individual to partially offset the adverse effects of the complex trauma risk factor caravans and regain resource stability. In contrast, low personal resources could contribute to a spiral of resource losses and exacerbate consequences of the complex trauma risk factor caravan. There are many potential personal resources that could be involved in these processes. To
illustrate how these are involved, we use personal agency as an example of a personal resource.

Personal agency is a key personal resource that underpins an individual’s capacity for positive appraisal of circumstance, which in turn facilitates adaptive behavioural engagement with the environment (Bandura, 2006). As a motivational construct, agency situates ideally as an explanatory mechanism for individual differences in response to resource loss. In particular, the robustness of a person’s agency likely influences the strength of the relationship between complex trauma risk factor caravan and passageway of ecological vulnerability. Forethought, self-reactiveness, and self-reflectiveness are proposed as three main agentic properties involved in psychosocial functioning (Bandura, 2018). In the context of complex trauma, identified difficulties with self-regulation and self-examination capacities are therefore likely to have adverse consequences for personal agency. According to EC, the value of a resource is determined by individual assessment of their utility, invest-ability, replenish-ability, and risk-ability (Hobfoll, 1989). This appraisal is believed to be influenced by an individual’s guiding principles or standards, which are in turn influenced by the way an individual views themselves within their environment (Hobfoll, 1989). In order to have a grounded sense of self in relation to the environment, and what resources one might need from the environment in times of stress, an individual must first have well-developed sense of self—i.e. integrated self-concept. The consequences of complex trauma related disintegration of self-structure, coupled with an ecological environment lacking in essential elements to support self-reintegration, therefore place high demand on an individual’s personal resources.

Compounding this issue is the increased risk for re-victimisation and further interpersonal abuse for individual’s living in such resource-poor circumstances (La Gory, Fitzpatrick, & Ritchey, 2001). Interpersonal safety is an integral component for person-in-environment resource exchange processes. An individual exists, not in isolation, but as part of an ecology; this proposition supported by COR focus on individual nested-in-family, nested-in-communities, nested-in-society, and so on (Hobfoll, 2001). When an individual experiences rapid drain on their available resources, the role of these additional networks is to be an auxiliary source of available resource to assist the individual to regain resource equilibrium. Adaptive relational capacities are necessary for successful engagement with these auxiliary sources of resource supply. Pervasive and chronic relational difficulties (both intra- and inter-personal) are common where an individual’s sense of interpersonal safety situate has been violated (Cloitre et al., 2009), particularly when this occurred in early childhood. In line with the complex trauma ‘risk factor caravan’ concept, interpersonal dysregulation and by extension poor personal agency, potentially hinders or undermine efforts
to halt resources loss spiralling through person-in-environment processes.

Three interrelated constructs of agency – self-efficacy, self-esteem, and optimism – specific to personal resource caravans are particularly relevant within the context of complex traumatic stress and ecological vulnerability. Self-efficacy is proposed to provide greatest insight into individual differences in agency for posttraumatic recovery, and is seen as foundational for motivation and perseverance in the face of adversity (Benight, & Bandura, 2004). High efficacy has been linked with high optimism (Hofoll, 2001a), which in turn has been related with higher levels of well-being (Scheier, Carver, & Bridges, 2001). Self-efficacy is also closely linked with self-esteem, whereby a) an individual with high self-esteem is less likely to see current life circumstance as a reflection of self-worth, and b) self-esteem has also been positively associated with well-being and traumatic-stress resistance (Hobfoll, 2002). Collectively, high levels of these three agentic resources (self-efficacy, self-esteem, optimism) potentially enhance traumatic stress coping and provide a buffering effect against resource loss spiralling. Conversely, low levels likely increase susceptibility to resource loss spiralling; particularly if an individual internalises responsibility for both trauma experience and current resource-poor circumstance.

Consideration of Antonovsky’s (1979) salutogenic model of health, stress and coping, further enriches a resources perspective understanding of individual differences in response to complex trauma exposure. While it is beyond the scope of this thesis to provide a detailed overview of the three decade development of salutogenic theory, the specific notion of ‘sense of coherence’ provides further context as to why some individuals have better capacity to overcome adversity and potentially even thrive in the face of adversity and the aftermath of traumatic experiences (Antonovsky, 1996). According to Antonovsky (1996), sense of coherence is a generalised perception an individual holds about the world that is comprised of three components: comprehensibility, manageability and meaningfulness. Specific to traumatic stress this would suggest a robust sense of coherence means an individual a) understand the challenge they face (comprehensibility), b) believe they have available resources to cope with the challenge (manageability), and c) are motivated, or have a wish to, cope (meaningfulness). Somewhat akin to COR theory, salutogenic theory identifies that individuals have within them generalised resistance resources that can be mobilised during times of stress and when faced with generalised resource deficit (Vinje, Langeland, & Bull, 2016). Possessing a robust sense of coherence is posited as the key mechanism of influence in the successful mobilisation of these resistance resources and is believed to reduce the perceived strain of generalised resource deficit in life (Mittelmark & Bauer, 2016).
In summary, personal resources likely behave as a motivational mechanism that influences resource appraisal and behavioural engagement to obtain and retain resources. Individual differences in the robustness of personal agency may influence an individual’s susceptibility to resource loss spiralling. High self-efficacy, good self-esteem, and an optimistic disposition, interdependently provide ideal buffering against the effects of complex trauma risk factor caravans. A robust sense of coherence likely provides an individual with a strong foundation to contextualise current and past traumatic stressors. There is potential for personal resources to be a protective factor in dynamic person-in-environment traumatic stress processes.

2.2.7 Implications for Future Research Directions

From a resources perspective, social support service and other government agencies can be conceptualised as resource passageways, with potential to support resource aggregation and reduce vulnerability to resource loss spiralling. Complex traumatic stress likely stands as serious psychological barrier for accessing auxiliary resources from available support avenues. Research that improves knowledge of what these barriers are and how they might be challenged would be invaluable for both agencies and their consumers. A recent examination of trauma and homelessness in Australia was the Trauma and Homelessness Initiative (THI) (O’Donnell et al., 2014). Spanning two years (2012 – 2014) the relationship between trauma exposure and long-term homelessness was examined, with specific focus on the manner in which trauma impacts the individual and their relationships with others. A key outcome of the THI was the development of The Trauma and Homelessness Service Framework (O’Donnell et al., 2014) – a theoretically derived explanatory and recovery model of the trauma-homelessness relationship. There is scope for the resources perspective framework put forward in this paper to stand as complimentary to the THI recovery model and further contribute to knowledge in this arena. Specifically, our proposed framework provides opportunity for early identification of vulnerability to homelessness as a consequence of the dynamic interplay complex trauma and ecological vulnerability.

We propose that examinations focusing specifically on personal resources may provide some additional insights into potential barriers and may also provide new avenues for intervention focus. In the current paper we proposed that personal resources potentially act as an important conduit between complex trauma risk factor caravan and resource passageways. Specifically, we hypothesised high personal resources may act as a buffer against the adverse effects of complex trauma and low personal resources may exacerbate these challenges. Exploration of the personal resource states of ecologically vulnerable
individuals with complex trauma histories stands as first step for understanding psychological barriers to support access. Interventions that work toward building and strengthening personal resources, in addition to providing much needed contextual resources (e.g. stable housing), may enhance overall outcomes for both consumers and providers.

Personal resources are potentially changeable, with capacity to develop and grow in certain circumstances (Luthans, Avey, Avolio, Norman, & Combs, 2006). This suggests efforts to personal resources (e.g. agentic properties such as self-efficacy) are an ideal future research focus within the domain of complex traumatic stress in the ecologically vulnerable. Specifically, in the context of acting as a conduit between complex trauma risk factor caravans and passageways. For example, we previously mentioned substance use as a dominant maladaptive coping strategy associated with adverse reactions to traumatic stress (Finlay & Lyons, 2007). Substance use has also been consistently identified as one of five major pathways into homelessness (Chamberlain & Johnson, 2011). Examinations of the mediating role of personal resources on the ‘complex traumatic stress – substance use’ dynamic, within the context of ecological vulnerability, may provide insight into a new avenue for intervention focus. Extension of focus on personal resources to include building an individual’s social support networks is another important area for intervention focus. Social supports can be an important avenue for resource access and may also provide protective mechanism against personal resource loss when faced with traumatic adversity (Hobfoll, Feedy, Lane, & Geeller, 1990; Rice, Kurzban, & Ray, 2012).

In line with the propositions of the current paper, there are some key methodological issues to be considered for future research. The first concerns identified heterogeneity of complex trauma experience and complex traumatic stress sequelae. Research designs using person-centred approaches are key to capturing individual differences. To ensure effective research translation into real-world application, a true person-centred approach must also extend to include the individual’s environmental context. The notion of individual-within-family-within-society is key in COR theory, with the view that examination of the individual alone severely limits our understanding of broader contextual influences involved in traumatic stress responses (Hobfoll, 2001). Therefore, methodologies that capture dynamic and heterogeneous person-in-environment processes are proposed as key for examinations of relationships between complex trauma and ecological vulnerability. A second closely related consideration follows the concept of complex traumatic stress sequelae as travelling with an individual throughout their life, thus influencing person-in-environment resource exchange processes. We argue there is methodological utility for future research to
adopt the ‘risk factor caravan’ concept as a means of operationalising complex trauma in empirical research. Furthermore, advancements in statistical approaches (e.g. latent structure processes) mean analytic modelling of complex trauma as ‘risk factor caravan’ is a feasible proposition for future research (Muthen, 2004).

A final methodological recommendation is for consideration of longitudinal investigations in research design. From a resources perspective, time is a key element for understanding individual differences in response to traumatic stress (Hobfoll et al., 2016). When a stressor moves from proximal to distal but remains impactful (e.g. a prolonged stress reaction such as that of complex traumatic stress), there is a need to shift focus to include, not only precipitants of the distress, but also factors that are perpetuating the distress. This would include factors related to current socio-environmental situation as well as maladaptive traumatic stress coping behaviours such as substance use. Research that is longitudinal in nature also supports use of advanced statistical modelling techniques that capture non-linear dynamic shifts in functioning (e.g. growth mixture modelling) (Muthén, 2004). Movement beyond simple linear cause and effect relationships is a vital for future research in domain of complex traumatic stress, particularly when seeking to gain nuanced insight into the dynamic interplay of person-in-environment processes experienced by at-risk and marginalised groups.

2.2.8 Conclusion

We have proposed the utility of a resources perspective framework to support examination of complex trauma within ecologically vulnerable groups such as the homeless. Nuanced application of the concept of risk factor caravans and resource passageways, with particular focus on personal resources, has been demonstrated as future direction focus for understanding barriers to access of available support services. Methodological considerations arising from this theoretical examination highlight the need for future research to adopt person-centred approaches that accommodate dynamic person-in-environment processes across time.
Chapter 3

Empirical 1

Personal Resource States, Homelessness and Effects of Childhood Complex Trauma Exposure: A Person-Centred Examination of Australians Facing Substantial Ecological Vulnerability

Manuscript under review

3.1 Abstract

Homelessness has considerable implications for the well-being of individuals and their families, and is recognised as a major social issue. Strong associations between homelessness and childhood adversity have been identified and the effects likely influence person-in-environment process. The objective of this paper was to examine personal resource states in a sample of 1662 homelessness vulnerable Australians with reported experiences of childhood adversity and trauma. Data was collected as part of Wave 1 in the large-scale Journeys Home Study ($N = 1682$). Latent class analysis (LCA) revealed four distinct personal resource states: *Disconnected* ($n = 129$), *Engaged* ($n = 544$), *Surviving* ($n = 131$), and *Thriving* ($n = 858$). Despite living in substantial ecological vulnerability where there is high-risk of homelessness, relatively intact and robust self-perception of personal resource states emerged. The distinct personal resource states were significantly related to demographic characteristics, childhood complex trauma and homelessness status. Further to this, when compared to the *Thriving* reference class, cumulative trauma exposure was significantly predictive of likely classification into the personal resource states of *Disconnected* ($OR = 1.27$, 95% CI [1.17, 1.37]), *Engaged* ($OR = 1.28$, [1.22, 1.34]), or *Surviving* ($OR = 1.39$, $p < .001$, [1.29, 1.50]). These findings have important implications for new approaches to address the homelessness crisis; in particular, highlighting the need to identify, strengthen and build personal resources as a potential pathway out of homelessness.
3.2 Introduction

Homelessness is a major and growing social challenge that has considerable implications for the well-being of individuals and their families. In 2008 the Australian government released a 12 year policy agenda targeting homelessness, with a clear aim to halve the 2008 homelessness rates by 2020 (AHT, 2008). However, despite substantial economic investment from the government to address the homelessness issue, rates of homelessness continue to increase in Australia. For example, recent census data indicated a 4.6% increase in homelessness in the five years spanning 2011 – 2016 (ABS, 2018). Of particular concern is that over half of all identified homeless were aged 25 years or younger and almost 20% of these young people were under the age of 12 years (ABS, 2018). There is therefore a pressing need to better understand why homeless continues to be a serious problem in a resource abundant nation such as Australia.

Thus, the purpose of this paper was to examine personal resource states in a representative sample of homelessness vulnerable Australians, of which the majority reported experiences of childhood adversity and trauma. A person-centred resources perspective examination was conducted, drawing upon Hobfoll’s (1989) Conservation of Resources (COR) theory. This research focused specifically on investigation of the nature of personal resource states and their relationships with experiences of adversity and homelessness. The remainder of this introduction defines homelessness and provides background on person-in-environment approaches. Homelessness, complex trauma and personal resources links are then discussed within the context of COR theory. Reiteration of study aims and statement of research questions conclude this introductory section.

3.2.1 Homelessness and Person-in Environment Approaches

While there is no singular global definition of homelessness, highly developed countries (i.e. countries with a highly developed economy and advanced infrastructure) generally adopt broad definition that recognises both rooflessness and inadequate shelter as being homeless (Busch-Geertsema, Culhane, & Fitzpatrick, 2016). Security of tenure, adequacy of dwelling, and ability to control the living space, are the key elements of focus when identifying individuals who are home-less (ABS, 2012). Living in shelters or transitional housing and couch surfing – moving between various temporary housing arrangements with no alternative housing options – are captured within this conceptual definition of homelessness, with personal safety an important caveat of distinction for defining adequacy of shelter as a home.

It is widely recognised that homelessness arises from both systemic (e.g. lack of affordable housing) and individual issues (e.g. physical and mental health issues) (Anderson & Christian, 2003). A
person-in-environment approach, which considers the individual within the context of their current socio-environmental conditions, is best able to capture the complex and dynamic interplay between systemic and individual factors in vulnerable populations (Hare, 2004). Person-in-environment approaches are particularly relevant to homelessness research because they more accurately account for the extent to which individuals are able to control the structural or contextual circumstances (e.g., lack of affordable housing and unemployment) that leave them vulnerable to homelessness (Fitzpatrick, 2005). Furthermore, individual differences in personal resources and capacity for survival in the face of adversity are better represented within a person-in-environment approach (Bonanno, 2004). Such insights may hold important implications for new approaches to address the homelessness crisis; in particular, focusing on identifying, strengthening and building personal resources as an essential element of homelessness prevention strategies.

3.2.2 Homelessness and Complex Trauma

The enduring effects of childhood abuse and household dysfunction on an individual’s physical and mental health have been widely documented in large scale epidemiologic examinations (e.g. Anda, Felitti, Bremner, et al., 2006; Jones, Narius, Song, & Fleming, 2018). The link between complex childhood trauma and substance abuse in later-life has also been well established; often with particular focus on the role of substance use as a maladaptive coping behaviour to ameliorate the effects of complex traumatic stress dysregulation (Elzy, Clark, Dollard, & Hummer, 2013). Disturbances in self-regulatory capacities, with marked difficulties in interpersonal skills, are characteristic features of problematic dysfunction experienced by individuals with complex trauma experiences (Cook et al., 2005). These intra- and interpersonal difficulties are potential barriers in work-roles and in help-seeking. Furthermore, intergenerational transmission of childhood adversity risk is currently viewed as a serious consequence of social disadvantage; whereby, children born into social disadvantage are at risk for exposure to adversity and trauma in childhood, and at-risk for homelessness throughout their lifetime (Cutuli, Montgomery, Evans-Chase, & Culhane, 2017).

Strong associations between homelessness and childhood trauma and adversity have also been established (Taylor & Sharpe, 2008); however, the link between complex trauma and the key pathways to homelessness remains poorly understood, thereby providing only a partial understanding of homelessness risk factors (Clapham, 2002). A ‘pathways framework’ is a person-in-environment application that is widely utilised in homeless research and has facilitated identification of key pathways of particular
vulnerability, namely: systemic housing crisis; unemployment and loss of income; domestic violence and breakdown of the family unit; substance abuse; physical and mental health; and a first experience of homelessness before aged 18 years (e.g. Chamberlain & Johnson, 2011; Fazel, Geddes, & Kushel, 2014). Accounting for complex childhood adversity and trauma exposure is essential in homelessness examinations; particularly when seeking to understand the interplay between personal and contextual resources and homelessness pathways. Conservation of Resources (COR; Hobfoll, 1989; 1991) provides a useful theoretical framework to understand these resource dynamics and the associated effects of exposure to trauma and adversity.

3.2.3 Resource Dynamics of Person-in-Environment Processes

Person-in-environment processes are a central focus in COR, with specific emphasis on the dynamics of resource exchange. COR proposes that individuals are naturally motivated to place themselves in a state of valued-resource surplus so as to optimise socio-environmental functioning (Hobfoll, 1989). This includes both contextual resources (e.g. a house, a work-role) and personal resources (e.g. personal characteristics such as a sense of mastery, health, wellbeing) (Hobfoll, 2002). The concept of resource loss and gain cycles are central in COR and are influenced by interactions between personal and contextual resources. In a gain cycle, for example, an individual’s sense of mastery toward skills required for a particular work-role likely influences how well they perform. In turn, good work performance increases the likelihood of job retention, which positively effects an individual’s self-esteem and self-efficacy in relation to work-role capability. By extension, consistent and reliable income from a work-role provides resource (money) required to acquire and retain suitable and adequate housing. The availability of resources is therefore a clear caveat to a successful resource gain cycle, whereby an individual uses resources (initial loss) in order to gain resource.

Resource loss spirals can be conceptualised as non-recoverable resource loss cycles, i.e. there are insufficient resources available for an individual to draw upon to offset resource loss. According to COR theory, trauma exposure results in a sudden and dramatic drain on resources, with consequent traumatic stress difficulties perpetuating resource loss and impeding resource gain (Hobfoll, 1991). Furthermore, a low initial resource state can exacerbate the effect of trauma, resulting in a more rapid and pronounced loss spiralling and reticence to use scant extant resources to offset loss spiralling (Hobfoll, Tirone, Holmgreen, & Gerhart, 2016). A combination of factors place the homeless at high-risk for resource loss spirals, namely: low availability of resources and poor initial resource state – contextual and personal; the highly stressful
of the lived-experience of homelessness and risk for trauma exposure placing repeated rapid drain on scare extant resources; and potential for low initial personal resource state as a consequence of childhood trauma exposure (Anderson, 2003; Shelton, Taylor, Bonner, & van den Bree, 2009).

### 3.2.4 Personal Resource States

According to COR, personal resources include characteristics, skills, and attributes that are intrinsic to the individual, and influence situational appraisal, decision making, and behavioural choices (Hobfoll, 1989). Furthermore, social resources are considered integral to a person’s identity, with social support being the main mechanism by which an individual can widen their domain of potential resource access (Hobfoll, Feedy, Lane, & Geeller, 1990). People therefore strive to maintain social support to preserve their resources and to also protect and maintain their identity (Hobfoll et al., 1990). Establishing and maintaining social connections can be challenging for individuals experiencing homelessness (Goodman, Saxe, & Harvey, 1991). There is evidence however, that the existence of these connections can have strong protective mechanisms for mental health (Rice, Kurzban, & Ray, 2012). Consequently, it is useful to consider personal and social resources as collectively influencing overall personal resource state of the homelessness vulnerable.

An individual’s personal resource state during times of high stress and resource loss can influence their appraisal, and subsequent use, of available resources (Hobfoll, 1989). Moreover, self-perception of personal resource state likely reflects individual-difference in psychological constructs such as agency and coping self-efficacy, which in turn influences the way personal resources are utilised in loss-gain cycles (Bandura, 2006; Benight and Bandura, 2004). Where contextual resource availability is low and gain is potentially beyond the control of the individual alone (e.g. lack of affordable housing), the role of personal resource states for successful resource use and gain cycles is heightened. In accordance with COR corollaries, robust and intact personal resource states likely buffer against resource loss spiralling in response to stress (Hobfoll, 2016). Within the context of ecological vulnerability and person-in-environment process, personal resources identified as likely to interact with resource loss-gain cycles are an individual’s health, wellbeing, and satisfaction with current quality of life (Zwiebach, Rhodes, & Roemer, 2010). In the current study we focus on five key indicators of personal and social resources – mental and physical health, life satisfaction, social connectedness, and social isolation (Cornwell & Waite, 2009).

In COR, resources are recognised as interdependent, with a tendency to co-occur and aggregate in
response to environmental conditions (Hobfoll, 2016). Aggregation of resources are conceptualised as resource caravans that are either supported or undermined by socio-environmental conditions that act as resource caravan passageways (Hobfoll, 2016). In line with this premise, a person-centred LCA methodological approach is applied in the current examination, which considers differential and distinct aggregation of personal resources into personal resource states or caravans, within the passageway of ecological vulnerability. The potential effect of childhood complex trauma exposure on personal resource manifestation is also accommodated within a person-centred approach. This is important because individual difference in developmental consequence of childhood complex trauma exposure is widely recognised (Cook et al., 2017) and there is evidence of strong relationships between historical trauma exposure and increased ecological vulnerability (Shelton et al., 2009).

3.2.5 Aims and Research Questions

We propose that strengthening an individual’s personal resource state is a key avenue for building resistance and resilience to the burden of ecological vulnerability and consequences of complex trauma exposure. Moreover, robust personal resources are potentially a pathway out of homelessness and away from becoming at-risk to homelessness. As a first step toward increased knowledge in this area, we examined personal resource states in a representative sample of ecologically vulnerable Australian’s who are homeless or at-risk of becoming homeless, of which the majority reported experiences of childhood adversity and trauma. Adopting a person-centred resources perspective focus we addressed the following research questions:

1. Are there distinct personal resource states (based on mental and physical health, life satisfaction, social connectedness, and social isolation) in the ecologically vulnerable?

2. What are the characteristics (e.g. robust and intact or low) of these distinct resource states, and how are they associated with an individual’s homelessness status?

3. Are experiences of childhood complex trauma exposure associated with different personal resource states?

3.3 Method

3.3.1 Participants and Procedure

For this study we utilised data collected as part of the Journeys Home (JH) study, a six-wave longitudinal examination of 1,682 Australian individuals who were homeless or at high risk of homelessness throughout study duration (Wooden et al., 2012). The data were collected through face-to-
face structured interviews administered by trained professionals (2011 – 2014). Wave 1 was conducted between September – November 2011 and follow-up interviews (Waves 2 – 6) were conducted at approximate 6-monthly intervals (Wooden et al., 2012). The surveys collected information on personal, social and economic factors related to housing instability for this specific population subset. The current paper focused on the baseline (Wave 1) data; \( N = 1682 \), of which 54.6% were male and 39.6% aged 15 – 24 years of age. Approximately half (50.7%) of all participants reported a homeless experience in the past 6-months. Indigenous Australians comprised 17.2% of the total baseline (Wave 1) sample. In the current study a further 20 participants were excluded at final model specification due to missing cases on x-variables. This resulted in a final sample of 1662 participants.

The population for the JH study was sampled from income support recipients in the Centrelink (the Australian government social security service) customer database who had been identified as ‘homeless’ or ‘at-risk of homelessness’ – as determined by use of a Homeless Indicator screening tool, which contains a list of factors statistically determined to predict homeless-risk (University of Melbourne, 2012). In addition, individuals who had been statistically identified as ‘vulnerable to homelessness’ were also included in the sampling pool. Detailed information about the JH study (e.g. design, sampling procedures, exclusion criteria, administration, and response coding) is available in the JH Technical Report (University of Melbourne, 2012). Ethics approval was granted by the University of Wollongong.

3.3.2 Measures

The JH study survey included a section that assessed health and well-being of respondents and another section that explored their support services and networks. Key items that provided information about an individual’s in-the-moment self-perception of health, well-being and connectedness were utilised in the current study.

3.3.2.1 Personal resources.

Mental and Physical Health.

Mental health was assessed via the Kessler 6 (K6; Kessler et al., 2002), a 6-item measure of non-specific psychological distress. Participants indicated on a 5-point Likert scale (0 = all of the time to 4 = none of the time) how often in the past 30 days they experienced a particular indicator of psychological distress (e.g. everything was an “effort”, “worthless”). Consistent with scoring guidelines, scores were inverted and summed to provide a total psychological distress score (range 0-24), where a higher score indicates greater level of distress. Cut-points identified in other studies measuring psychological distress in Australian sample populations are: \(<8 = \text{non-symptomatic}, 8 – 13 = \text{symptomatic}, \text{and } >13 = \text{clinically} \).
elevated (Giallo, 2014). Physical health was assessed via a single-item question from the SF-36 Health Survey, a widely used survey to evaluate patient-perceived physical and emotional health status (Ware & Kosinski 2001). Use of a single-item to assess self-rated health status has been supported as suitably appropriate for population studies (Bowling, 2005). Respondents were asked “In general, would you say your health is...” and were provided with option to select one of the following responses (1 = excellent; 2 = very good; 3 = good; 4 = fair; 5 = poor), which were then scored as shown on a 5-point Likert scale.

**Life-satisfaction.**

Life-satisfaction was assessed using a single-item – “All things considered, how satisfied are you with your life?” Respondents were asked to indicate level of satisfaction on an 11-point scale, where 0 = totally dissatisfied and 10 = totally satisfied. The use of a single-item to assess life-satisfaction has been widely utilised, with demonstrated reliability as a valid indicator of life-satisfaction (Diener, Oishi, & Lucas, 2003) comparable with multiple item assessment (Realo & Dobewall, 2011).

**Social Connectedness and Isolation.**

Respondent’s sense of social connectedness and social isolation were assessed using items that were also based on the HILDA survey (Watson & Wooden, 2002). Following the HILDA scoring protocol (e.g. Qu, Baxter, Weston, Moloney & Hayes, 2012), a social isolation score was calculated by summing responses (measured on a 5-point Likert scale; 1 = strongly agree – 5 = strongly disagree) to three items (Often need help from others but can’t get any; Have someone to lean on in times of trouble; Often feel lonely) and a social connectedness score was calculated by summing responses (measured as above) to two items (Have someone who can always cheer you up; Talking with people can make you feel better). Lower scores indicated poorer sense of social connectedness and greater sense of social isolation.

### 3.3.2.2 Childhood complex trauma exposure

The JH Study examined childhood adversity histories of participants using survey items based on the Adverse Childhood Experiences Study and the 2005 Australian Bureau of Statistics Personal Safety Survey—specified in the JH user Manual (Bevitt, Chigavazira, Scutella, Tseng, & Watson, 2014). Preparatory work for the current study involved categorising participant’s responses to these items into distinct types of childhood adversity that have been identified in traumatic stress literature as complex trauma type (i.e. physical, sexual and emotional abuse, neglect, witnessing of violence, and a primary carer with substance use, mental health, incarceration issues). Issues of perpetrator proximity, gender of primary carer with difficulties, and the direct or indirect nature of exposure were also considered important.
delineations to clarify. In total, ten distinct categories of childhood complex trauma exposure were created according to type including: primary carers who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems, witnessing of violence, physical and sexual harm/assault, and whether perpetrator was within or outside the primary care environment. Dichotomised YES/NO responses indicating a respondent endorsing recollection of such an experience in childhood (i.e. aged 14 years or younger). A count score of number of YES responses to each of the ten childhood complex trauma exposure was also calculated and labelled ‘CTtotal’.

3.3.2.3 Homelessness and demographic characteristics

Homelessness status was based on the Australian Bureau of Statistics (ABS, 2012) homeless classification that stratifies according to housing type i.e. housed or marginally housed at time of interview, tertiary homeless (housing situation below community standards), secondary homeless (accommodation is temporary e.g. refuge), and primary homeless (unconventional accommodation e.g. tent). For the purposes of the current study these four categories were collapsed into two – 1) housed/marginally housed, and 2) primary/secondary/tertiary homeless. The JH interview collected information on a number of demographic characteristics that are relevant to this paper. These include: age, sex, indigenous status, highest level of education attained (coded as Year 9 or below, Year 10 or 11, Year 12 or equivalent, tertiary) and relationship status (coded as never married/single, widowed/divorced/separated, married/de facto).

3.3.3 Data Analysis

Latent Class Analysis (LCA) was conducted to investigate presence of distinct personal resource states based on the five domains of: self-assessed health status, K6, life-satisfaction, social isolation and social connectedness. A multi-step LCA approach recommended by Muthen (2004) was conducted, using Mplus Version 6.11 (Muthen & Muthen, 1998 – 2010) and SPSS Version 23. The first step involved testing of sequential LCA models (without covariates) to identify optimal number of personal resource classes (Muthen, 2004). The optimal number of classes is defined as the minimum number of classes that identify individuals who share similar personal resource states but who have distinctively different states to an alternate group. Several fit indices were consulted in the determination of the best fitting model (Table 3.1): Akaike information criteria (AIC), Bayesian information criteria (BIC), sample-size-adjusted BIC, and bootstrap likelihood ratio tests (BLRT) (Nylund, Asparouhov, & Muthen, 2007). Additional information relating to class size (small class size may not meaningful), entropy (a value below .80 suggests caution should be used when interpreting classification accuracy) and singular
inspection that class distinctiveness is meaningful and parsimonious, were also considered in final determination of best fit model (Jung & Wickrama, 2008).

Following identification of optimal class specification, multinomial logistic regression models were tested to examine whether age, sex, indigenous status, education, and relationship status significantly predicted class membership. A full LCA was then conducted, specifying the optimal number of classes previously identified and including significant covariates (age, sex, and relationship status).

The bivariate associations of personal resource classes with demographic characteristics, complex trauma exposure, and homeless status were then examined using Pearson’s Chi Square Test of Contingency conducted with SPSS v23. Two multivariate models were then tested using SPSS v23. The first model examined additive childhood trauma exposure (using the count score ‘CTtotal’) predicting most likely class personal resource state including demographic characteristics as covariates. The second model examined personal resource states predicting homelessness status, including the demographic characteristics as covariates.

3.4 Results

3.4.1 Classes

Table 3.1 shows the model fit criteria for each of the LCA models. These results support a 4-class solution; furthermore, inspection of these four classes indicated that they were distinct from one another which is an important consideration when conducting these analyses. Figure 3.1 displays the personal resource characteristics of these four classes. The four classes are described in detail below. Descriptive statistics are provided in Table 3.2.

Class 1, comprised 7.8% (n = 129) of the total sample. Individuals in this class had fair-good levels of general health and low-symptomatic levels of psychological distress. Life satisfaction was fairly neutral (i.e., neither satisfied nor dissatisfied), suggesting ambivalence. This class also had high levels of social isolation and low levels of social connectedness. Class 1 was labelled ‘Disconnected’.

Class 2, comprised 32.7% (n = 544) of the total sample and was labelled ‘Engaged’ to highlight most salient point of contrast with class 1. Individuals in this class had fair-good general health and a high-symptomatic level of psychological distress. Overall life satisfaction was also neutral and like class 1 suggests ambivalence. However, in contrast to Class 1, these individuals had high levels of social connectedness.

Class 3, comprised 7.9% (n = 131) of the total sample. Individuals in this class had the poorest
general health combined with clinically elevated levels of psychological distress and poor life satisfaction. In addition, these individuals had high social isolation and low social connectedness. This suggests a group of individuals experiencing a low overall person resource state. As a result, this class was labelled ‘Surviving’.

Class 4, comprised 51.6% (n = 858) of the total sample and was labelled ‘Thriving’. This class was identified as a class of high personal resource state (relatively speaking) and were used as the reference group in comparative analyses.

Table 3.1

Fit indices for Latent Class Models (N = 1682)

<table>
<thead>
<tr>
<th>Model</th>
<th>AIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>BIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Adjusted BIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Entropy&lt;sup&gt;c&lt;/sup&gt;</th>
<th>BLRT&lt;sup&gt;p&lt;/sup&gt; value</th>
<th>LMR&lt;sup&gt;d&lt;/sup&gt; Adjusted LRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38013.162</td>
<td>38067.434</td>
<td>38035.665</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>36306.341</td>
<td>36393.176</td>
<td>36342.346</td>
<td>0.78</td>
<td>&lt;0.001</td>
<td>1681.097*</td>
</tr>
<tr>
<td>3</td>
<td>35951.118</td>
<td>36070.515</td>
<td>36000.624</td>
<td>0.77</td>
<td>&lt;0.001</td>
<td>359.164*</td>
</tr>
<tr>
<td>4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>35807.326</td>
<td>35959.287</td>
<td>35870.334</td>
<td>0.80</td>
<td>&lt;0.001</td>
<td>152.372**</td>
</tr>
<tr>
<td>5</td>
<td>35695.823</td>
<td>35880.346</td>
<td>35772.332</td>
<td>0.73</td>
<td>&lt;0.001</td>
<td>120.793</td>
</tr>
<tr>
<td>6</td>
<td>35634.675</td>
<td>35851.761</td>
<td>35724.686</td>
<td>0.68</td>
<td>&lt;0.001</td>
<td>71.542**</td>
</tr>
</tbody>
</table>

Note: <sup>a</sup> Best fit model; <sup>b</sup> Lower AIC, BIC and Adjusted BIC values indicate better fit; <sup>c</sup> Entropy should be greater than 0.7, values closer to 1 are better; <sup>d</sup> Model fit comparison (current with previous)

* P < 0.001; ** P < 0.05;
Figure 3.1. Personal resource characteristics of the four personal resource states.
Table 3.2

*Descriptive information of the four distinct personal resource states (N = 1662)*

<table>
<thead>
<tr>
<th></th>
<th>Disconnected</th>
<th>Engaged</th>
<th>Surviving</th>
<th>Thriving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 129</td>
<td>n = 544</td>
<td>n = 131</td>
<td>n = 858</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - 24</td>
<td>22.5</td>
<td>34.0</td>
<td>13.0</td>
<td>48.5</td>
</tr>
<tr>
<td>25 - 34</td>
<td>19.4</td>
<td>22.6</td>
<td>26.0</td>
<td>20.6</td>
</tr>
<tr>
<td>35 - 44</td>
<td>27.9</td>
<td>24.3</td>
<td>25.2</td>
<td>14.8</td>
</tr>
<tr>
<td>45 - 54</td>
<td>20.2</td>
<td>15.4</td>
<td>26.0</td>
<td>10.4</td>
</tr>
<tr>
<td>55+</td>
<td>10.1</td>
<td>3.7</td>
<td>9.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20.9</td>
<td>52.0</td>
<td>52.7</td>
<td>43.8</td>
</tr>
<tr>
<td>Male</td>
<td>79.1</td>
<td>48.0</td>
<td>47.3</td>
<td>56.2</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>72.9</td>
<td>63.6</td>
<td>50.4</td>
<td>60.3</td>
</tr>
<tr>
<td>Widowed/Divorced/Separated</td>
<td>20.9</td>
<td>23.0</td>
<td>45.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Married/De facto</td>
<td>6.2</td>
<td>13.4</td>
<td>4.6</td>
<td>23.1</td>
</tr>
<tr>
<td>Resource</td>
<td>M</td>
<td>SE</td>
<td>M</td>
<td>SE</td>
</tr>
<tr>
<td>Self-assessed health status</td>
<td>3.26</td>
<td>0.14</td>
<td>3.58</td>
<td>0.08</td>
</tr>
<tr>
<td>K6</td>
<td>9.04</td>
<td>0.99</td>
<td>12.98</td>
<td>0.54</td>
</tr>
<tr>
<td>Life-satisfaction</td>
<td>5.73</td>
<td>0.24</td>
<td>5.09</td>
<td>0.21</td>
</tr>
<tr>
<td>Social isolation</td>
<td>7.71</td>
<td>0.39</td>
<td>8.61</td>
<td>0.15</td>
</tr>
<tr>
<td>Social connectedness</td>
<td>5.25</td>
<td>0.41</td>
<td>8.11</td>
<td>0.10</td>
</tr>
</tbody>
</table>

**Note:** Age, $\chi^2 (12, N = 1662) = 117.80, p < .001, Cohen’s $w = 0.266$; Sex, $\chi^2 (3, N = 1662) = 44.43, p < .001, Cohen’s $w = 0.164$; Relationship status, $\chi^2 (6, N = 1662) = 93.06, p < .001, Cohen’s $w = 0.237$

**Sig. at $p < .001$**
3.4.2 Univariate Relationships

Pearson’s chi square tests of contingencies were conducted to evaluate whether personal resource state was related to a) demographic characteristics; b) ten childhood complex trauma experience types; and c) homelessness status. All associations were statistically significant at an alpha level of .001. See Tables 3.3 and 3.4 for detailed results.

3.4.3 Multivariate Models

A multinomial logistic regression identified ‘CTtotal’ significantly predicted likely class membership into ‘Disconnected’ (OR = 1.27, \( p < .001, 95\% \text{ CI}[1.17, 1.37] \)), ‘Engaged’ (OR = 1.28, \( p < .001, 95\% \text{ CI}[1.22, 1.34] \)), or ‘Surviving’ (OR = 1.39, \( p < .001, 95\% \text{ CI}[1.29, 1.50] \)) personal resource state, compared to the reference class ‘Thriving’, model \( \chi^2 (24) = 395.38, p < .001, R^2 = 0.21 \) (Cox-Snell), 0.23 (Nagelkerke). The covariate results for this model are shown in Table 3.5.

A second multinomial logistic regression, model \( \chi^2 (15) = 72.96, p < .001, R^2 = 0.06 \) (Cox-Snell), 0.11 (Nagelkerke), identified individual’s in the ‘Disconnected’ personal resource state class were 1.9 times (\( p = .022, 95\% \text{ CI}[1.10, 3.27] \)) more likely than those in the ‘Thriving’ class to be experiencing primary/secondary/tertiary homelessness rather than being housed/marginally housed. Males were 2.03 times (\( p < .001, 95\% \text{ CI}[1.36, 3.01] \)) more likely than females to be living in primary/secondary/tertiary housing than being housed or marginally housed. Younger individuals were significantly less likely to be primary/secondary/tertiary housed than individuals aged 55+ (age15-24, \( p = .001, 95\% \text{ CI}[0.08, 0.32] \); age25-34, \( p = .001, 95\% \text{ CI}[0.11, 0.48] \); age35-44, \( p = .043, 95\% \text{ CI}[0.26, 0.98] \)).
Table 3.3

*Association between demographics and the four distinct personal resource states (N = 1662)*

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>1 (Disconnected) n = 129 (7.8%)</th>
<th>2 (Engaged) n = 544 (32.7%)</th>
<th>3 (Surviving) n = 131 (7.9%)</th>
<th>4 (Thriving) n = 858 (51.6%)</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 24</td>
<td>22.5</td>
<td>34.0</td>
<td>13.0</td>
<td>48.5</td>
<td></td>
</tr>
<tr>
<td>25 - 34</td>
<td>19.4</td>
<td>22.6</td>
<td>26.0</td>
<td>20.6</td>
<td></td>
</tr>
<tr>
<td>35 - 44</td>
<td>27.9</td>
<td>24.3</td>
<td>25.2</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>45 - 54</td>
<td>20.2</td>
<td>15.4</td>
<td>26.0</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>55+</td>
<td>10.1</td>
<td>3.7</td>
<td>9.9</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>44.43**</td>
</tr>
<tr>
<td>Female</td>
<td>20.9</td>
<td>52.0</td>
<td>52.7</td>
<td>43.8</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>79.1</td>
<td>48.0</td>
<td>47.3</td>
<td>56.2</td>
<td></td>
</tr>
<tr>
<td>Relationship Status</td>
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<td></td>
<td></td>
<td></td>
<td>93.06**</td>
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<tr>
<td>Never Married</td>
<td>72.9</td>
<td>63.6</td>
<td>50.4</td>
<td>60.3</td>
<td></td>
</tr>
<tr>
<td>Widowed/Divorced/Separated</td>
<td>20.9</td>
<td>23.0</td>
<td>45.0</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>Married/De facto</td>
<td>6.2</td>
<td>13.4</td>
<td>4.6</td>
<td>23.1</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Age, $\chi^2 (12, N = 1662) = 117.80$, $p < .001$, Cohen’s $w = 0.266$; Sex, $\chi^2 (3, N = 1662) = 44.43$, $p < .001$, Cohen’s $w = 0.164$; Relationship status, $\chi^2 (6, N = 1662) = 93.06$, $p < .001$, Cohen’s $w = 0.237$

**Sig. at $p < .001$**
Table 3.4

Association between childhood complex trauma exposure and the four distinct personal resource states (N = 1662)

<table>
<thead>
<tr>
<th>Trauma type</th>
<th>1 (Disconnected)</th>
<th>2 (Engaged)</th>
<th>3 (Surviving)</th>
<th>4 (Thriving)</th>
<th>( \chi^2 )</th>
<th>( w )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PFC – J/MH/SU(^b)</td>
<td>20.9</td>
<td>29.4</td>
<td>32.1</td>
<td>21.2</td>
<td>16.89**</td>
<td>0.101</td>
</tr>
<tr>
<td>2. PMC – J/MH/SU(^c)</td>
<td>33.3</td>
<td>39.7</td>
<td>39.7</td>
<td>30.1</td>
<td>15.62**</td>
<td>0.107</td>
</tr>
<tr>
<td>3. Witnessing Violence</td>
<td>58.1</td>
<td>55.9</td>
<td>56.5</td>
<td>43.6</td>
<td>27.22**</td>
<td>0.128</td>
</tr>
<tr>
<td>4. Neglect</td>
<td>21.7</td>
<td>18.4</td>
<td>28.2</td>
<td>10.1</td>
<td>42.93**</td>
<td>0.161</td>
</tr>
<tr>
<td>5. PCE(^d) – threat harm</td>
<td>38.0</td>
<td>43.0</td>
<td>45.8</td>
<td>23.4</td>
<td>71.65**</td>
<td>0.208</td>
</tr>
<tr>
<td>6. PCE – physical harm</td>
<td>51.2</td>
<td>49.6</td>
<td>58.0</td>
<td>33.8</td>
<td>54.81**</td>
<td>0.182</td>
</tr>
<tr>
<td>7. PCE – sexual assault</td>
<td>12.4</td>
<td>17.1</td>
<td>31.3</td>
<td>8.4</td>
<td>61.38**</td>
<td>0.192</td>
</tr>
<tr>
<td>8. non-PCE(^e) – threat harm</td>
<td>48.1</td>
<td>52.2</td>
<td>49.6</td>
<td>33.7</td>
<td>52.64**</td>
<td>0.178</td>
</tr>
<tr>
<td>9. non-PCE – physical harm</td>
<td>55.0</td>
<td>54.2</td>
<td>55.7</td>
<td>36.1</td>
<td>57.31**</td>
<td>0.186</td>
</tr>
<tr>
<td>10. non-PCE – sexual assault</td>
<td>20.9</td>
<td>27.2</td>
<td>32.8</td>
<td>13.8</td>
<td>51.65**</td>
<td>0.176</td>
</tr>
</tbody>
</table>

Note: \( df (3, N = 1662) \) for all comparisons; \( w = \) Cohen’s \( w \) effect size where 0.1 = small effect, 0.3 = medium effect, 0.5 = large effect (Cohen, 1988)

\(^a\) Frequencies represent % of respondents who indicated they had recollection of experiencing this type of trauma in childhood i.e. before age 14 years

\(^b\) Primary female carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems

\(^c\) Primary male carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems

\(^d\) PCE – Perpetrator within primary care environment

\(^e\) non-PCE – Perpetrator outside the primary care environment

** Sig. at \( p = <.001 \)
Table 3.5

Summary of the multinomial logistic regression for CTtotal predicting personal resource state class with inclusion of covariate effects

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>OR</th>
<th>95%CI</th>
<th>Wald</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTtotal</td>
<td>.237</td>
<td>.040</td>
<td>1.268</td>
<td>[1.173 1.370]</td>
<td>35.763</td>
<td>.000</td>
</tr>
<tr>
<td>Married/Defacto</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>15-24 years</td>
<td>-1.852</td>
<td>.415</td>
<td>.157</td>
<td>[.070 .354]</td>
<td>19.927</td>
<td>.000</td>
</tr>
<tr>
<td>25-34 years</td>
<td>-1.164</td>
<td>.418</td>
<td>.312</td>
<td>[.138 .708]</td>
<td>7.757</td>
<td>.005</td>
</tr>
<tr>
<td>35-44 years</td>
<td>-2.29</td>
<td>.391</td>
<td>.795</td>
<td>[.370 1.712]</td>
<td>.342</td>
<td>.558</td>
</tr>
<tr>
<td>45-54 years</td>
<td>-3.17</td>
<td>.402</td>
<td>.728</td>
<td>[.331 1.601]</td>
<td>.623</td>
<td>.430</td>
</tr>
<tr>
<td>55+ years</td>
<td>Ref</td>
<td>Ref</td>
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Note: aThe reference category for classes is Thriving; Ref indicates reference category for each covariate: relationship status, age and sex.
3.5 Discussion

In the current study we aimed to provide insight into individual-difference in personal resource states of ecologically vulnerable individuals with complex trauma histories. Key contributions from the results include: a) the presence of distinct and differential personal resource states within individuals who are homeless or at risk of homelessness, b) these personal resource states provide new insights for understanding homelessness, and c) exposure to serious adversity and complex trauma in childhood is associated with distinct class of personal resource state, a relationship that is nuanced according to type of trauma and additive effect of multiple exposure.

3.5.1 Distinct personal resource states and homelessness

Four distinct personal resource state classes were identified. While each one is uniquely separable from another, there are two contrasting pairs that raise interesting points of note for future focus. The first contrast of note is between the Disconnected and Engaged classes. Individuals in both these classes reported that they were neither satisfied nor dissatisfied with current life circumstances, all things considered. This suggests some sense of ambivalence that is in fact reflective of general population responses in economically developed countries, i.e. satisfaction in some areas of life and desire for improvement in other areas (Deiner, Oishi, & Lucas, 2012). Self-assessed general health responses were also similar for these two classes, with endorsed responses in the fair to good range.

A more noticeable difference between the Disconnected and Engaged classes emerged for non-specific level of psychological distress, with those in the Disconnected class reporting low-symptomatic experience of distress as measured by the K6 and those in the Engaged class reporting high-symptomatic experience. When considered in the context of the defining characteristic used to delineate these two classes i.e. sense of social connectedness and isolation, the pattern of psychological distress seems counterintuitive. Previous research has identified social connectedness and isolation as independently associated with self-perceived physical health and yet somewhat interdependently with respect to mental health in vulnerable populations (Cornwell & Waite, 2009). In the current study, self-perceived social isolation was relatively similar in both the Disconnected and Engaged classes but sense of social connectedness was notably dissimilar, with those in the Engaged class reporting better sense of social connectedness than the disengaged.

The combination of more elevated psychological distress but greater sense of social connectedness in the Engaged class raises some important questions for further consideration. Potentially this pattern can
be explained through closer inspection of life-satisfaction scores, which reveal marginally lower life satisfaction for the Engaged class compared to the Disconnected class. It may be the case that, as a consequence of greater social connection, individuals in the Engaged class feel slightly less isolated but at the same time are more aware of current self-circumstance in relation to others i.e. they are less entrenched in the homelessness culture (Osborne, Karlin, Baumann, Osborne, & Doyle, 1993). In turn this awareness may increase level of psychological distress, particularly if positive change in contextual resource circumstance is not readily apparent. Hence the slightly lower ambivalent endorsement of life-satisfaction, all things considered. By contrast, the slightly higher ambivalent life-satisfaction endorsed by respondents in the Disengaged class may be more reflective of a passive acceptance of current life-circumstance i.e. there are things that are okay, things that could be better. Overall, creating less psychological distress because they are disengaged from social connection – thereby less exposed to better alternative comparison and potentially more entrenched in homelessness culture (Osborne, et al., 1993). It is also possible that being socially disconnected is serving a protective function for these individuals who may be homeless as a consequence of DV and/or other complex trauma exposure, whereby connection with others is potentially more likely to increase psychological distress than disconnection from others. This issue will be further explored following explication of the second aforementioned contrast.

The second contrast of note concerned the classes labelled Thriving and Surviving. These labels were informed by traumatic stress literature that draws attention to the human capacity to not only survive but also thrive in the face of adversity (Bonnano, 2004). It was therefore intended that the terms surviving and thriving represent end markers on a continuum of adaptive functioning despite living in circumstance of ecological vulnerability, rather than a dichotomised perception of functioning or non-functioning. There is a clear contrast across all five of the personal resources for the Surviving and Thriving classes i.e. distinctive low personal resource state compared to high personal resource state. The contrasting scores on life-satisfaction scale are notable, with the Surviving class endorsing strong dissatisfaction compared to the Thriving class, which endorsed relatively high satisfaction despite current circumstance of ecological vulnerability. It would be reasonable to surmise this contrast is a reflection of differences in self-perceived health and wellbeing together with greater or lesser sense of social connectedness and isolation; however, attention is drawn a key result in the current study. Individuals in the Disconnected class were 1.9 times more likely than those in the Thriving class to be experiencing primary/secondary/tertiary homelessness than some type of housing. The Thriving class was also younger than the Disconnected class. Further
research is required to quantify exact causal implications for this pattern of results. Questions for future focus might include: Is there a buffering effect of youth on personal resources even when living in circumstance of ecological vulnerability? What is the effect of long-term housing instability and homelessness on personal resource states?

Some additional points of note arise when comparing the four personal resource classes. First, there were significant associations of difference across the four personal resource states and sex, age, and relationship status. Notable points of interest include: a) almost half the Thriving class were aged 15 – 24 years, comparative to more disperse age distribution across the other three classes; b) sex distribution was relatively even across each of the four classes except for the Surviving class, which was eighty-percent male; and c) across all four classes, the majority of each class reported never being married. For the Thriving class this may be attributable to the large proportion of young people comprising this class; however, this is not the case across the other classes, suggesting relationship status influences overall personal resource state within the context of ecological vulnerability. The Surviving class had comparative proportions of either never being married or having a situation of being widowed/divorced/separated and almost three-quarters of the Disconnected class reported never being married. Collectively, this pattern of results potentially provides insight into the self-reported sense of social disconnection and isolation in the personal resource state of the Disconnected and Surviving classes.

A second point of note is that the largest of the four personal resource state classes was the Thriving class, comprising a little over half of the total study sample. Despite living in substantial ecological vulnerability where there is high-risk of homelessness, relatively intact and robust self-perception of personal resource states (as measured and operationalised in the current context) emerged. This finding is in some manner analogous with that of a strong body of person-centred research, which identifies posttraumatic psychological resilience as not uncommon response to adversity (Bonnano & Mancini, 2008). This finding also provides challenge for stigmatising attitudes of society toward the disadvantaged and homeless, for example, that all homeless are mentally unwell (Cozzarelli, Wilkinson, & Tagler, 2001). In the current study, low psychological distress scores contributing to overall robust personal resource states provide challenge to this presumption.

3.5.2 Personal resources and childhood complex trauma exposure

Bio-psychological effects of exposure to childhood adversity and trauma are known to have long-lasting implications for an individual’s well-being, functioning and socio-environmental engagement (Cook
et al., 2005). High prevalence of recollections of childhood complex trauma exposure emerged in the current sample, highlighting potential increased vulnerability as a consequence of complex trauma sequelae (Cook et al., 2005). Moreover, the collective challenges of complex trauma sequelae and living in circumstance of ecological vulnerability likely places considerable drain on an individual’s personal resources. Some particularly salient results emerged with respect to trauma exposure and personal resource states.

Most notably, significant differences across each of the four personal resource states and each of the ten childhood complex trauma exposure types were observed. Addressing research question three of this paper, this finding provides strong support that different experiences of childhood adversity are associated with different types of personal resource states in the homelessness vulnerable. Comparison of class proportions for each of the ten trauma types revealed some interesting patterns. Recollections of experiencing sexual assault, either within or outside the primary care environment, were endorsed most highly in the Surviving class. Potentially, this reflects a higher level of interpersonal dysfunction, which has been identified as a salient consequence of childhood sexual abuse across a body of research (DiLillo, 2001). Further, endorsement of sexual assault perpetrated by someone within the primary care environment for the Surviving class was almost twice that of the Engaged class. In accordance with betrayal trauma theory (Freyd, 1996), this pattern of results may reflect an additional negative impact on interpersonal trust in adult relationships as a consequence of perceived betrayal by a primary carer (Ullman, 2007).

Another salient point of note is that levels of trauma exposure were considerably lower in the Thriving class comparative to the other three classes. It is possible that this finding reflects an experience of resource gain in spite of traumatic stress exposure; a phenomenon that is conceptualised in various manners in the traumatic stress literature (i.e. resilience, adaptive coping, coping self-efficacy, flourishing, posttraumatic growth) (see for e.g. Bonnano 2004; Benight & Bandura, 2004). On the other hand, the cumulative total of ‘yes’ responses significantly predicted class membership to be other than the Thriving class, i.e. the more ‘yes’ responses the less likely to be experiencing high personal resource state as measured in the current study. There was some variation in the mean ‘CTotal’ scores for the Disconnected, Engaged and Surviving classes and the contrast with those in the Thriving class is informative. The Thriving class endorsed an average of 2.5 cumulative experiences of different types of childhood complex trauma exposure, comparative to an average of approximately four ‘yes’ responses across the other three personal resource. It is also noted that the Surviving class had the highest mean cumulative total across all four
classes. These findings are analogous with other complex trauma research in high-income countries, which identifies increased risk of long-term physical and psychological health difficulties as a result of exposure to multiple types and repeated maltreatment in childhood (Gilbert et al., 2009).

The results in this section raise some important considerations for further investigation. In the current study the ‘yes’ responses indicate at least one experience of type of trauma, research suggests there is a need to consider that an endorsement of ‘yes’ may represent multiple experiences of the same type (Creamer, Burgess, & McFarlane, 2001). By association this issues has implications for the true cumulative total of childhood trauma experiences reported in the current sample, which in turn may differentially influence personal resource state associations. Furthermore, a recent review of person-centred examinations of childhood trauma exposure has identified distinct patterns of types of trauma exposure suggestive of homogeneous sub-groups within heterogeneous populations (O’Donnell et al., 2017). This suggests that an important next step is exploration of sub-groups of trauma exposure in ecologically vulnerable samples and examination of the relationship with personal resource states. Furthermore, investigation into the impact of complex trauma sequelae on personal resource states may provide additional insight into person-in-environment process and personal-contextual resource dynamic of loss-gain cycles.

3.5.3 Strengths and Limitations

There are some limitations to note in this study. First, childhood complex trauma exposure was based on retrospective self-report thereby raising potential for issues of under-reporting, over-reporting and reporting accuracy (McKinney, Harris, & Caetano, 2009). Additionally, effects of exposure to trauma in childhood have potential neurobiological consequences that may impede memory formation and recollection of trauma exposure (Howe, 2013). The stressful and potentially traumatic nature of being homeless or at-risk of homelessness may have also influenced accuracy of childhood trauma exposure (Colman et al., 2016). Second, while self-assessed health status is widely utilised as subjective assessment of an individual’s current functional health experience, general-population validated survey instruments are potentially contextually insensitive for such as the homeless (Larson, 2002). For example, the 12-item Short-Form – a popular survey instrument used in large-scale research to assess subjective health-related quality of life, contains items that refer to work and home roles as well as social activities (Larson, 2002). As such, a single-item measure was used in the current study. While there is strong support for validity of single-item assessment, there is potential for variability in interpretation of the item according to an individual’s choice of referent e.g. primary focus on physical or mental health in response (Bowling, 2005).
Finally, to ensure analytic stability and identification of final solution that was both meaningful and parsimonious, it was necessary to limit the number of variables included in the final model. Therefore, factors such as substance use were excluded in the current study; however, they are noted as important considerations in future longitudinal examinations of personal resource states.

Despite these limitations there are some notable strengths of this study. First, use of a person-centred approach situated the individual rather than variables as central focus, which modelled person-in-environment approaches that are proposed to better capture the complex and dynamic interplay between systemic and individual factors in vulnerable populations (Hare, 2004). Second, a focus on personal resources addresses a current gap in the homeless literature and contributes a more nuanced insight into individual differences in personal resource states in the ecologically vulnerable. Research suggests that homeless individuals are accurate self-reporters of accessing health services (Hwang, Chambers, & Katic, 2016). Potential for extrapolation of this trend to self-perceived health and wellbeing suggests findings in the current study can be interpreted as relatively accurate reflections personal resource states.

3.5.4 Conclusion

Homelessness is a major and growing social challenge within highly developed countries that has considerable implications for the well-being of individuals and their families. Childhood complex trauma exposure is a serious risk-factor that both contributes to and is a consequence of homelessness. Person-centred insights into personal resource states may hold important implications for new approaches to address the homelessness crisis. The emergence of seemingly intact and robust personal resource states in the current study suggests identifying, strengthening and building personal resources is an important focus as a potential pathway out of homelessness.
Chapter 4

Empirical 2

Childhood Trauma and Risky Alcohol Consumption:
A study of Australian Adults with Low Housing Stability.

Manuscript published in the journal *Drug and Alcohol Review* in January 2015


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4.1 Abstract

This paper examined whether recall of childhood trauma was associated with adult alcohol consumption in a sample of Australian’s with low housing security. The secondary aim was to examine whether risky alcohol consumption predicted subsequent housing instability. Socio-demographic factors were examined as potential moderators of these associations. This paper utilised data collected through the Journeys Home Study, a longitudinal study of a representative sample of individuals at risk of homelessness or are homeless. This paper focused on 1224 participants aged 18 years and over. Data on alcohol use, childhood trauma, and socio-demographic characteristics were collected through interviews at baseline. Subsequent homeless status at 6 to 12 month follow up was assessed via interview. Logistic regression modelling was used to examine associations between alcohol consumption and childhood abuse, socio-demographic factors, and changes in homelessness status. The results demonstrated that self-reported recall of childhood experiences of violence was significantly associated with Low Risk (OR = 1.54 [1.01, 2.35]) and Risky (OR = 2.35 [1.41, 3.94]) drinking. Recall of childhood neglect was associated with a lower likelihood of Risky drinking (OR = 0.57 [0.34, 0.96]). Additionally, Risky drinkers were significantly more likely to remain homeless at follow-up (OR = 1.85 [1.16, 2.96]). These results demonstrate that traumatic experiences during childhood (particularly violence) was significantly associated with risky alcohol consumption in later life and may be most pronounced in those facing the greatest social disadvantage. Furthermore, risky consumption may contribute to subsequent housing instability.
4.2 Introduction

Homelessness is a major indicator of social disadvantage and is associated with adverse outcomes including poorer health, depression, substance abuse, social exclusion, family conflict, and unemployment (Deforge, Belcher, O’Rourke, & Lindsey, 2008; Hwang, 2001; Zlotnick, Tam, & Roberson, 2003). According to the Australian Bureau of Statistics (ABS, 2012) approximately 0.5% of the population were homeless on census night, whereby an individual was considered homeless if they did not have suitable accommodation alternatives, or if their living arrangements were inadequate, temporary, or did not facilitate adequate social relations. Furthermore, prevalence of specialist homelessness services use over a 12-month period is currently estimated to be approximately one in 200 Australians (3% of the population), with around 60% of homelessness services consumers housed but identified as at-risk for homelessness (AIHW, 2012). Despite concentrated government attention targeting a 20% reduction in homelessness by 2013 and a further 30% reduction by 2020 (Australian Government, 2009), homelessness continues to be a serious social issue.

Substance abuse, including harmful alcohol consumption, is a major issue for individuals who are homeless or at-risk of homelessness. For example, 43% of homeless Australians meet the criteria for substance use disorder (alcohol dependence is the most common form) (Johnson & Chamberlain, 2008). Homeless individuals are three times more likely to have an alcohol-use disorder compared with the general population (Teeson, Hodder, & Buhrich, 2003). These figures are concerning given the adverse health, social, and economic consequences of excessive alcohol use (Collins & Lapsley, 2008). For example, alcohol increases the risk of physical (e.g., cardiovascular disease, cancers, liver diseases) and mental health conditions (e.g., depression and anxiety) (Eyre et al., 2004), self-harm and suicide, and criminal behaviour and violence (including domestic violence) (NHMRC, 2010). Alcohol is the second leading cause of hospitalisations in Australia (Stenbacka, Leifman, & Romelsjo, 2010) and the life expectancy of people with a history of alcohol or other substance abuse disorders is approximately three decades less than the general population (NHMRC, 2010).

Alcohol use may be a contributor to, and a consequence of, homelessness. For example, alcohol use elevates the risk of homelessness via financial distress, family breakdowns, loss of employment, and poor mental and physical health (Hwang, 2001; Fountain, Howes, Marsden, Taylor, & Strang, 2003). Many homeless individuals consume alcohol as a way cope with and adapt to homelessness (Johnson & Chamberlain, 2008). Irrespective of causal direction, harmful alcohol consumption is likely to compound
the social, economic, and health disadvantages experienced by homeless individuals (Fountain et al., 2003).

Alcohol misuse in homeless individuals could reflect many factors including family history of substance abuse, socio-demographic factors (e.g., age, gender, ethnicity), and mental illness (Early, 2005; O’Toole et al., 2004). It is also possible that traumatic childhood experiences (e.g. exposure to sexual and physical abuse, and neglect) contribute to substance abuse in homeless populations. Childhood experiences of abuse, particularly physical abuse, have been found to predict substance abuse in the general population (Lansford, Dodge, Pettit, & Bates, 2010; Lo & Cheng, 2007; Widom, White, Czaja, & Marmarosh, 2007; Young-Wolff, Kendler, Ericson, & Prescott, 2011). Research in homeless populations is less extensive but indicates that early life abuse also predicts harmful use of alcohol and other illicit substances in adulthood (Stein, Leslie, & Nyamathi, 2002; McMorris, Tyler, Whitbeck, & Hoyt, 2002).

This is particularly important as homeless individuals are more likely to have been exposed to these forms of abuse and other trauma compared with the general population. For example, recent Australian data indicate that 98% of homeless participants had experienced at least one traumatic event in their lifetime and for 71% this occurred before the age of 16 (Sacks, McKendrick, & Banks, 2008; Taylor & Sharpe, 2008). Therefore, there is strong possibility that alcohol consumption and adverse childhood experiences are related in homeless individuals and may contribute to further housing instability. However, previous research has been limited by small and selective samples (e.g., homeless individuals attending drug and alcohol treatment services), and it is not clear whether these findings can be generalised to homeless individuals more broadly (e.g. Stein, Leslie, & Nyamathi, 2002; Sacks, McKendrick, & Banks, 2008; Brems, Johnson, Neal, & Freemon, 2004).

This paper aimed to further investigate the relationships between adverse childhood experiences and alcohol consumption using data from the Journeys Home Study, a longitudinal study of a representative sample of 1682 Australians who face housing instability (i.e., currently homeless or at risk of being homeless) (Scutella, Johnson, Moschion, Tseng, & Wooden, 2012; Wooden et al., 2012). The current paper had two specific aims. The first was to examine whether childhood experiences of abuse (i.e., physical abuse, sexual abuse, and neglect) were significantly associated with adult alcohol consumption and whether these associations were moderated by demographic factors, and family history of substance abuse, mental health, and criminality. The second aim was to investigate whether harmful consumption of alcohol was a significant predictor of subsequent housing instability.
4.3 Methods

4.3.1 Participants

The present paper utilised data collected through the Journeys Home Study, which is a longitudinal study that follows a representative sample of Australians exposed to high levels of housing insecurity (Scutella et al., 2012; Wooden et al., 2012). The study is funded by the Australian Government Department of Social Services and administered by the Melbourne Institute of Applied Economic and Social Research (University of Melbourne). Participants were recruited through Centrelink, which is the Australian Government agency responsible for delivery payments and services to groups of Australians including retirees, the unemployed, and individuals living with disabilities (Scutella et al., 2012).

The study population was sampled from three sub-groups of Centrelink customers: (1) customers flagged as homeless; (2) customers flagged as ‘at risk of homeless’; and, (3) other customers identified as vulnerable to homelessness (customers in the top 2% of all income support recipients not identified in the previous 2 groups). This represented a population of 138,091 individuals. This population was then stratified into geographic clusters, and participants were randomly selected from within each cluster. A total of 2992 individuals distributed across 36 geographic clusters were randomly selected; 273 individuals were considered out of scope (e.g., they had moved prior to recruitment or were unavailable due to imprisonment, institutionalisation etc). This resulted in a sample of 2719, with 1682 (62%) agreeing to participate and providing data.

The authors of the present paper received approval from the Journeys Home Study to access the data and utilise it to address the stated research aims. This paper focuses on data collected in Waves 1 and 3 of the Journeys Home study. Wave 1 data collection occurred in late 2011. Wave 3 data collection occurred in September to November 2012. Participants were excluded if they were aged < 18 years (n = 160), had missing data for childhood trauma (n = 204), or missing data on relevant covariates (n = 94). This resulted in a final sample of 1224 participants.

4.3.2 Materials

Data were collected from participants through face-to-face or telephone interviews conducted by trained interviewers. The interview included structured questions about housing and living arrangements, education, employment, income, relationships, and health. The variables used in the present study are described below.
**Homelessness.**

Homelessness status at Wave 1 was based on the Australian Bureau of Statistics (ABS; ABS, 2012) definition of homeless which includes four categories: not homeless, primary homeless (i.e., living without conventional accommodation), secondary homeless (e.g., living in a refuge, temporary accommodation), and tertiary homeless (i.e., individuals are living in a situation classed as below community standards for housing). According to the ABS (ABS, 2012) definition, individuals living in conditions considered primary, secondary, or tertiary by choice are not classed as being homeless. As the cell sizes for the different homeless categories were small at Wave 1, these were collapsed to provide a broad indication of homeless status (i.e., currently homeless versus not currently homeless) at baseline. At Waves 2 and 3, participants were asked whether they had spent any time in the primary homeless category, had lived with friends/family, or had lived in a caravan, hotel, or boarding house in the past 6 months.

**Alcohol Consumption.**

The interview collected information on substance use, including alcohol consumption. Consistent with the 2010 National Drug Strategy Household Survey (AIHW; AIWH, 2011), the interview asked participants to indicate whether they had consumed alcohol in the past 12 months. Participants who responded yes were then asked to indicate how often they had one standard drink (every day, 5 – 6 days per week, 3 – 4 days per week, 1 – 2 days per week, 1 – 3 days per month, and < once a month) and the number of standard drinks they typically had on each drinking occasion (continuous response). Responses to these two questions were used to categorise participants according to their levels of alcohol risk, with respect to alcohol-related harm over a lifetime and risk of injury on a single occasion of drinking in accordance with Australian guidelines to reduce health risks from drinking alcohol (NHMRC, 2009). This first involved taking the mid-points of all frequency response categories (e.g., 3.5 days for 3 – 4 days per week) and multiplying this value by the number of standard drinks consumed on each drinking occasion (Stockwell et al., 2004). This provided an estimate of standard drinks consumed each day, which was used to categorise participants as: (1) *Abstainers* (non-drinkers), (2) *Low Risk* drinkers (on average no more than 2 standard drinks per day); and, (3) *Risky* drinkers (on average, more than 2 standard drinks per day).

**Childhood Experiences.**

Adverse childhood experiences were assessed using retrospective recall. Adult participants were asked if, as a child, they had experienced emotional abuse/neglect (i.e., left without food and shelter,
threatened with harm, family, friends, or pets threatened with harm), physical violence, or sexual abuse (i.e., had been forced or pressured into sexual acts). All items were assessed on a dichotomous scale (i.e., yes or no).

Socio-demographic Characteristics.

The interview collected information on demographics such as age, sex, marital status (coded as single versus married/defacto), highest level of education attained (coded as year 9 or below, year 10 or 11, completed year 12 or equivalent, tertiary qualification), and an indication of an individual’s gross weekly income (coded as < $200/week, $200 - $399/week, $400 - $599/week, and > $600/week). Furthermore, participants were asked whether their childhood primary caregivers had a substance problem, had a criminal history, or had spent at least one night in hospital for mental health problems. Information was also obtained regarding an individual’s current level of psychological distress, which was assessed using the Kessler 6 scale (K6) and broken into categories of low and high distress using established cut-offs (Kessler et al., 2003).

4.3.3 Statistical Analyses

The relationships between childhood experiences and alcohol consumption were examined using multinomial logistic regression modelling. Alcohol consumption was modelled as the dependent variable, with Abstainers forming the reference category. Emotional abuse/neglect, physical abuse, and sexual abuse were modelled as independent variables (‘no’ was the reference category for each variable). Demographic factors and caregiver problems of substance abuse, mental health, and criminality were modelled as covariates. The results are reported as adjusted odds ratios (ORs), with 95% confidence intervals (CIs).

Interaction terms were added separately to the model, examining whether the associations between each childhood experience variable and alcohol consumption varied by the covariates. The significance of each interaction term was examined using a likelihood ratio test; this compared the model fit between models with and without the interaction terms. A significant difference in model fit indicated that the interaction term was significant. The significance of interaction terms and the ORs were determined by \( p \) values < .05.

A second model examined whether alcohol consumption at Wave 1 predicted changes in homeless status between Wave 2 and Wave 3. This involved creating four categories: (1) remained in stable housing; (2) remained homeless; (3) became homeless; (4) moved into stable housing. This model controlled for the covariates listed above and homelessness status at Wave 1. Interaction terms were then added separately
to the model to examine whether the association between alcohol consumption and changes in homelessness status varied significantly by socio-demographic factors.

4.4 Results

The sample consisted of 1224 adults aged 18 years and over, of whom 56.7% were male, 86.3% had been born in Australia, and 84.1% were single (Table 4.1). Half of participants (49.5%) indicated they had been homeless in the previous 6 months; at the Wave 1 interview, 53.3% of participants were in stable housing, 17.1% were marginally housed, and 17.3% were categorised as homeless. Between Time 2 and Time 3, 12.7% of the sample became homeless while 26.9% remained homeless. Alcohol consumption was common in this sample, with 49.7% categorised as Low Risk and 24.0% categorised as Risky drinkers. Childhood experiences of violence (60.0%) and emotional abuse/neglect (58.3%) were reported by more than half of the sample, with nearly one-third (27.3%) reporting being the victim of sexual abuse as a child.

4.4.1 Recall of Child Experiences and Alcohol Consumption

The results (Table 4.2) indicate that individuals who recalled experiencing childhood violence were significantly more likely to be Low Risk (OR = 1.54 [1.01, 2.35]) and Risky (OR = 2.35 [1.41, 3.94]) drinkers relative to Abstainers. Individuals who recalled childhood neglect were also more likely to be Risky drinkers (OR = 0.57 [0.34, 0.96]) compared with Abstainers.

Several demographic factors were associated with alcohol consumption. Males were significantly more likely than females to be Low Risk (OR = 1.72 [1.26, 2.34]) and Risky (OR = 4.70 [3.16, 6.98]) drinkers. Compared with participants aged 50 years and over, younger participants were more likely to be Low Risk and Risky drinkers. Individuals born in Australia were less likely to be Low Risk (OR = 0.50 [0.34, 0.74]) and Risky (OR = 0.37 [0.21, 0.63]) drinkers relative to those born overseas. Participants who indicated that they had been homeless in the previous 6 months were less likely to be Risky drinkers (OR = 0.69 [0.49, 0.98]) compared with participants who had been in housing in the previous 6 months. Individuals with high psychological distress were less likely to be Low Risk drinkers (OR = 0.68 [0.50, 0.94]). Finally, individuals who reported a family history of substance abuse were less likely to be Risky drinkers (OR = 0.58 [0.39, 0.85]).
## Table 4.1

**Demographic characteristics of the current sample.**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>694</td>
<td>56.7</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 29 years</td>
<td>541</td>
<td>44.2</td>
</tr>
<tr>
<td>30 – 39 years</td>
<td>288</td>
<td>23.5</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>249</td>
<td>20.3</td>
</tr>
<tr>
<td>50 years and over</td>
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<td>11.9</td>
</tr>
<tr>
<td>Born in Australia</td>
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</tr>
<tr>
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<tr>
<td>Year 10 or 11</td>
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</tr>
<tr>
<td>Year 12</td>
<td>159</td>
<td>13.0</td>
</tr>
<tr>
<td>Tertiary</td>
<td>383</td>
<td>31.3</td>
</tr>
<tr>
<td>Income</td>
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<td></td>
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<tr>
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<td>10.9</td>
</tr>
<tr>
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<td>627</td>
<td>51.2</td>
</tr>
<tr>
<td>$400 – 599</td>
<td>269</td>
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<tr>
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<td>194</td>
<td>15.8</td>
</tr>
<tr>
<td>Homeless Status at T1</td>
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<td></td>
</tr>
<tr>
<td>Stable housing</td>
<td>653</td>
<td>53.3</td>
</tr>
<tr>
<td>Marginally housed</td>
<td>209</td>
<td>17.1</td>
</tr>
<tr>
<td>Tertiary homeless</td>
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<td>9.7</td>
</tr>
<tr>
<td>Secondary homeless</td>
<td>63</td>
<td>5.1</td>
</tr>
<tr>
<td>Primary homeless</td>
<td>30</td>
<td>2.5</td>
</tr>
<tr>
<td>Missing</td>
<td>150</td>
<td>11.3</td>
</tr>
<tr>
<td>Experienced Homeless in past 6 months (T1)</td>
<td>606</td>
<td>49.5</td>
</tr>
<tr>
<td>Change in Homeless status (T2 to T3)(^a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remained in housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moved into stable housing</td>
<td>405</td>
<td>37.7</td>
</tr>
<tr>
<td>Became homeless</td>
<td>244</td>
<td>22.7</td>
</tr>
<tr>
<td>Remained homeless</td>
<td>137</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>289</td>
<td>26.9</td>
</tr>
<tr>
<td>Alcohol Consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstainer(^b)</td>
<td>322</td>
<td>26.3</td>
</tr>
<tr>
<td>Low Risk(^c)</td>
<td>608</td>
<td>49.7</td>
</tr>
<tr>
<td>Risky(^d)</td>
<td>294</td>
<td>24.0</td>
</tr>
<tr>
<td>Childhood Experience of Violence</td>
<td>735</td>
<td>60.0</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>334</td>
<td>27.3</td>
</tr>
<tr>
<td>Emotional Abuse/neglect</td>
<td>714</td>
<td>58.3</td>
</tr>
</tbody>
</table>

\(^a\) 149 participants had missing data for this variable.

\(^b\) Abstainers: defined as not having consumed alcohol in previous 12 months.

\(^c\) Low risk: defined as drinking no more than 2 drinks (on average) on a single drinking occasion.

\(^d\) Risky: defined as drinking more than 2 drinks (on average) on a single drinking occasion.
Table 4.2
Relationships among childhood abuse, socio-demographic factors and adult alcohol consumption.

<table>
<thead>
<tr>
<th></th>
<th>Low Risk versus Abstainer</th>
<th>Risky versus Abstainer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.72* [1.26, 2.34]</td>
<td>4.70* [3.16, 6.98]</td>
</tr>
<tr>
<td>Female</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 29 years</td>
<td>2.92* [1.82, 4.69]</td>
<td>2.15* [1.20, 3.83]</td>
</tr>
<tr>
<td>30 – 39 years</td>
<td>2.56* [1.57, 4.19]</td>
<td>2.35* [1.30, 4.25]</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>2.14* [1.30, 3.50]</td>
<td>1.77 [0.97, 3.23]</td>
</tr>
<tr>
<td>50 years and over</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ Year 9</td>
<td>0.92 [0.60, 1.40]</td>
<td>1.43 [0.86, 2.36]</td>
</tr>
<tr>
<td>Year 10 or 11</td>
<td>0.97 [0.69, 1.38]</td>
<td>1.52 [0.99, 2.33]</td>
</tr>
<tr>
<td>Year 12</td>
<td>1.28 [0.80, 2.04]</td>
<td>1.56 [0.86, 2.82]</td>
</tr>
<tr>
<td>Tertiary</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $200</td>
<td>1.10 [0.61, 1.98]</td>
<td>0.88 [0.43, 1.83]</td>
</tr>
<tr>
<td>$200 – 399</td>
<td>0.87 [0.57, 1.32]</td>
<td>0.82 [0.49, 1.34]</td>
</tr>
<tr>
<td>$400 – 599</td>
<td>0.92 [0.58, 1.45]</td>
<td>0.78 [0.43, 1.39]</td>
</tr>
<tr>
<td>≥ $600</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1.28 [0.87, 1.89]</td>
<td>1.22 [0.76, 1.96]</td>
</tr>
<tr>
<td>Partnered</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td><strong>Country of birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Other Country</td>
<td>0.50* [0.34, 0.74]</td>
<td>0.37* [0.21, 0.63]</td>
</tr>
<tr>
<td><strong>Homeless Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Homeless</td>
<td>0.82 [0.61, 1.09]</td>
<td>0.69* [0.49, 0.98]</td>
</tr>
<tr>
<td>Not homeless</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Psychological distressa</td>
<td>0.68* [0.50, 0.94]</td>
<td>1.39 [0.96, 2.01]</td>
</tr>
<tr>
<td><strong>Family History of</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminality</td>
<td>1.11 [0.69, 1.78]</td>
<td>1.19 [0.68, 2.07]</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>0.93 [0.67, 1.29]</td>
<td>0.58* [0.39, 0.85]</td>
</tr>
<tr>
<td>Mental health problems</td>
<td>0.97 [0.63, 1.50]</td>
<td>0.83 [0.51, 1.42]</td>
</tr>
<tr>
<td><strong>Childhood Experience of</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Abuse/Neglect</td>
<td>0.82 [0.53, 1.25]</td>
<td>0.57* [0.34, 0.96]</td>
</tr>
<tr>
<td>Violence</td>
<td>1.54* [1.01, 2.35]</td>
<td>2.35* [1.41, 3.94]</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>1.09 [0.76, 1.56]</td>
<td>0.92 [0.59, 1.44]</td>
</tr>
</tbody>
</table>

*Note: Results are reported as odds ratios, with 95% confidence intervals shown in parentheses - Abstainer is the reference category; * Reference category is ‘no’; Ref = reference category

*p < .05;
The relationship between recall of childhood violence and alcohol consumption varied significantly by income category ($\chi^2$ for difference = 19.12, $p = .004$), with significant relationships observed only in the two lowest income groups. The relationship between recall of childhood violence and alcohol consumption varied significantly by age ($\chi^2$ for difference = 12.69, $p = .048$). Further analyses indicated that the association was evident in adults aged 18 – 29 years (OR = 5.74 [2.23, 12.97]) and 30 – 39 years (OR = 4.79 [1.48, 15.46]) but not in adults aged 40 – 49 years (OR = 0.86 [0.30, 2.49]) or 50 years and over (OR = 0.52 [0.09, 2.95]). The relationship between recall of childhood violence and alcohol also varied by country of birth ($\chi^2$ for difference =15.94, $p < .001$). The results indicated that the association between childhood violence and Risky drinking was more pronounced in individuals born overseas (OR = 25.26 [4.44, 143.60]) compared to those living in Australia (OR = 1.85 [1.05, 3.27]). The relationship between recall of childhood sexual abuse and alcohol consumption also varied by country of birth ($\chi^2$ for difference =13.68, $p = .008$). In particular, sexual abuse was associated with Low Risk drinking in individuals born overseas (OR = 5.39 [1.35, 21.54]) but not in those born in Australia (OR = 0.99 [0.67, 1.46]).

### 4.4.2 Alcohol Consumption and Subsequent Housing Transitions

The results of the model examining whether alcohol consumption predicted housing transitions are shown in Table 4.3. The results indicated that Risky drinkers were significantly more likely to remain homeless at follow-up (OR = 1.85 [1.16, 2.96]) compared with Abstainers.
Table 4.3

Association between alcohol consumption and change in homelessness status

<table>
<thead>
<tr>
<th>Characteristics at T1</th>
<th>Remained Homeless</th>
<th>Became Homeless</th>
<th>Moved into Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abstainer</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Low Risk</td>
<td>1.23 [0.83, 1.84]</td>
<td>1.05 [0.63, 1.75]</td>
<td>1.20 [0.81, 1.79]</td>
</tr>
<tr>
<td>Risky</td>
<td>1.85* [1.16, 2.96]</td>
<td>1.22 [0.65, 2.27]</td>
<td>1.19 [0.72, 1.98]</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.07* [1.43, 2.99]</td>
<td>1.14 [0.72, 1.81]</td>
<td>0.93 [0.64, 1.34]</td>
</tr>
<tr>
<td>Female</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 29 years</td>
<td>0.62 [0.36, 1.07]</td>
<td>1.80 [0.86, 3.76]</td>
<td>1.49 [0.80, 2.79]</td>
</tr>
<tr>
<td>30 – 39 years</td>
<td>0.67 [0.38, 1.17]</td>
<td>0.79 [0.36, 1.77]</td>
<td>1.17 [0.61, 2.22]</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>0.67* [0.33, 0.98]</td>
<td>0.29* [0.11, 0.73]</td>
<td>1.02 [0.54, 1.93]</td>
</tr>
<tr>
<td>50 years and over</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ Year 9</td>
<td>1.05 [0.66, 1.69]</td>
<td>1.01 [0.53, 1.91]</td>
<td>1.07 [0.64, 1.76]</td>
</tr>
<tr>
<td>Year 10 or 11</td>
<td>0.94 [0.63, 1.39]</td>
<td>0.88 [0.53, 1.47]</td>
<td>0.96 [0.64, 1.44]</td>
</tr>
<tr>
<td>Year 12</td>
<td>0.79 [0.45, 1.38]</td>
<td>1.15 [0.60, 2.21]</td>
<td>1.18 [0.69, 2.01]</td>
</tr>
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<td>Tertiary</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Income</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $200</td>
<td>1.37 [0.69, 1.73]</td>
<td>1.23 [0.56, 2.67]</td>
<td>1.27 [0.65, 2.49]</td>
</tr>
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<td>$200 – 399</td>
<td>1.38 [0.87, 2.20]</td>
<td>1.35 [0.75, 2.42]</td>
<td>1.14 [0.71, 1.81]</td>
</tr>
<tr>
<td>$400 – 599</td>
<td>0.80 [0.47, 1.35]</td>
<td>0.43* [0.20, 0.89]</td>
<td>0.63 [0.38, 1.07]</td>
</tr>
<tr>
<td>≥ $600</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Marital Status</td>
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</tr>
<tr>
<td>Single</td>
<td>1.09 [0.70, 1.69]</td>
<td>1.43 [0.82, 2.49]</td>
<td>1.82* [1.11, 2.96]</td>
</tr>
<tr>
<td>Partnered</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Country of Birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Other Country</td>
<td>0.63 [0.38, 1.04]</td>
<td>0.65 [0.33, 1.29]</td>
<td>0.89 [0.55, 1.45]</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>1.29 [0.90, 1.84]</td>
<td>0.94 [0.59, 1.52]</td>
<td>1.04 [0.72, 1.51]</td>
</tr>
<tr>
<td>Family History of a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminality</td>
<td>0.94 [0.56, 1.59]</td>
<td>1.09 [0.55, 2.16]</td>
<td>1.12 [0.64, 1.76]</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>0.88 [0.62, 1.27]</td>
<td>1.07 [0.67, 1.70]</td>
<td>0.98 [0.68, 1.43]</td>
</tr>
<tr>
<td>Mental health problems</td>
<td>1.18 [0.72, 1.94]</td>
<td>1.09 [0.57, 2.06]</td>
<td>0.84 [0.52, 1.35]</td>
</tr>
<tr>
<td>Childhood Experience of a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violence</td>
<td>0.78 [0.48, 1.27]</td>
<td>1.09 [0.58, 2.04]</td>
<td>0.92 [0.56, 1.52]</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>1.30 [0.86, 1.96]</td>
<td>0.62 [0.35, 1.10]</td>
<td>1.19 [0.78, 1.80]</td>
</tr>
<tr>
<td>Neglect</td>
<td>1.41 [0.87, 2.28]</td>
<td>1.39 [0.75, 2.58]</td>
<td>1.21 [0.73, 1.98]</td>
</tr>
</tbody>
</table>

Note: Results are reported as odds ratios, with 95% confidence intervals shown in parentheses - reference category is remained in housing; * Reference category is ‘no’; Ref = reference category

*p < .05;
4.5 Discussion

Australian adults facing housing instability are a largely understudied population that faces considerable social, health, and economic disadvantage. The present results provide novel insights into the associations between adverse childhood experiences and alcohol consumption behaviour, in a large sample of these individuals. Almost three-quarters (73.7%) of participants reported alcohol consumption in the previous twelve months; 24.0% engaged in Risky drinking behaviour, which is slightly higher than the general Australian population (21.1%) (MCDS, 2011). These figures are concerning given that alcohol increases the risk of health problems including liver diseases, cancers, diabetes, mental health conditions, and self-harm (Roerecke & Rehm, 2013).

Recall of traumatic childhood experiences was significantly associated with alcohol consumption. In particular, individuals who recalled exposure to violence from a primary caregiver during childhood were more likely to consume alcohol at risky levels. Recall of childhood sexual abuse was not significantly associated with alcohol use in the entire sample, consistent with non-significant findings in other samples (Lo & Cheng, 2007). Single item measures of sexual abuse may not be sufficient to capture the complexity of this form of abuse, which is likely to be multidimensional and perhaps underreported (Lo & Cheng, 2007). However, the interaction results indicated some significant results by country of birth, suggesting that culture could be an important moderator of some of these relationships (as discussed below) (Graham et al., 2011; Stoltenborgh, van Ijzendoorn, Euser, & Brajkermans-Kranenburg, 2011).

The relationship between recall of childhood violence and alcohol consumption was most pronounced in individuals with lower incomes and those born overseas. The findings for income are concerning because these individuals could be most at risk of social disadvantage, and risky alcohol consumption could compound these effects. A significant relationship between childhood sexual abuse and alcohol consumption was observed in individuals born overseas. Research indicates that the prevalence of child abuse differs according to differences in cultural beliefs and values, and appears to be more pronounced in developing countries (Stoltenborgh et al., 2011). Additionally, cultural diversity has been linked to high prevalence of negative consequences associated with heavy alcohol consumption (Graham et al., 2011). This suggests that individuals from this population born overseas could be at even greater risk for childhood trauma and subsequent effects in later life.

The relationships of recall of childhood violence and sexual abuse with adult alcohol consumption are likely to be complex and involve multiple direct and indirect pathways. For instance, individuals
exposed to childhood trauma could consume alcohol at risky levels as a coping mechanism (Hasking, Lyvers, & Carlpio, 2011). On the other hand, childhood trauma could increase the risk of subsequent abuse and mental health problems in later life, which also occur with substance use disorders (Dube, Anda, Felitti, Edwards, & Croft, 2002). For instance, homeless individuals who have experienced childhood trauma are more vulnerable to mental health problems due to the persistent and pervasive stressful nature of their daily experience (Lo & Cheng, 2007).

It is important to note that childhood trauma experiences rarely occur in isolation but rather they tend to co-occur and reflect common environmental factors. These factors include poverty, parental substance abuse and mental health problems, and lack of adequate family support and appropriate social interaction (Horwitz, Widom, McLaughlin, & White, 2001). Additionally, these factors may have compounding effects on alcohol use and other outcomes related to health and well-being. However, contrary to expectations, in this sample non-abstaining individuals who recalled childhood experience of emotional abuse/neglect were 76% less likely to be Risky drinkers. It is possible that experience of emotional abuse/neglect co-occurred with problematic substance use of the primary carer. Thus, participants may develop an aversion to excessive alcohol consumption, despite the expected modelling pattern of childhood exposure to alcohol abuse and subsequent abuse in adulthood (Dube et al., 2002). This supposition is partially supported by the significant finding for a 72% decreased likelihood of homeless individuals being Risky drinkers where there is a family history of substance abuse.

The present results also indicate that Risky drinking predicted future homelessness. In particular, Risky drinkers were more likely to remain homeless compared with those who remained in stable housing. Even though individuals who had been homeless in the previous six months were less likely to be Risky drinkers, it is possible that factors contributing to a change in homelessness status mitigated involuntary change in alcohol consumption behaviour. For example, lack of available funds to purchase alcohol where government assistance payments are garnisheed for rent contribution before payment to the individual – as is often the case in government assisted rehabilitation programs (AIHW, 2013).

4.5.1 Strengths and Limitations

There are some important methodological limitations associated with the present study. First, alcohol consumption was derived from self-report items on the frequency and amount of alcohol consumption. Self-reported measures could lead to biased and less accurate data. Although the specific alcohol items in the present paper are widely used (Stockwell et al., 2004), other measures such as the
AUDIT scale (McKinney, Harris, & Caetano, 2009), which consider alcohol-related problems and alcohol dependence in addition to consumption, may serve to inform a more comprehensive understanding of alcohol use. Second, adverse childhood experiences were based on retrospective self-report, which posed several issues. For instance, the measures of sexual and physical abuse did not provide insight into the magnitude or extent of the traumatic experience. Participants may also under-report traumatic childhood experiences (especially sexual abuse), possibly obscuring or diminishing true extent of associations (McKinney, Harris, & Caetano, 2009; Wooden et al., 2012).

Despite these limitations, there are several major strengths of the paper. In particular, this paper assessed a comparatively large sample of a group of individuals facing social disadvantage. Although many previous studies have investigated homeless samples, often these have been small, unrepresentative samples. The Journeys Home data allowed an innovative and novel insight into these issues because of the large and broadly representative sample of Australians facing housing instability. Furthermore, because the sample size was large, there was adequate statistical power to examine these associations with sufficient sensitivity and test interactions, which provide a powerful insight into alcohol use in these individuals.

4.5.2 Conclusion

*Risky* alcohol consumption in this population elevates the risk of: mental and physical health problems; increased family conflict; and promotion of further housing instability – likely related to greater financial distress and social exclusion. Furthermore, the associations between harmful levels of alcohol consumption and adverse childhood experiences are concerning, given the high prevalence of such experiences reported by this homeless population sample. Consequently, there is a strong need for continued development and implementation of strategies aimed at minimising the adverse effects of alcohol consumption in this vulnerable population – a considerable challenge given the complex, intertwined factors that influence these behaviours. Nonetheless, perhaps an important place to start is effecting change for children in families experiencing housing instability where *Risky* alcohol consumption is problematic. Breaking this cycle of negative home environment for these children has the potential to reduce their risk of exposure to adverse childhood experiences and future physical and mental health problems.
Chapter 5

Empirical 3

Is There Complex Trauma Experience Typology for Australian’s Experiencing Extreme Social Disadvantage and Low Housing Stability?

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The PDF version of this publication is included in Appendix 2 – produced with copyright permission
5.1 Abstract

Traumatic childhood experiences predict many adverse outcomes in adulthood including Complex-PTSD. Understanding complex trauma within socially disadvantaged populations has important implications for policy development and intervention implementation. This paper examined the nature of complex trauma experienced by disadvantaged individuals using a latent class analysis (LCA) approach. Data were collected through the large-scale Journeys Home Study (N = 1682), utilising a representative sample of individuals experiencing low housing stability. Data on adverse childhood experiences, adulthood interpersonal trauma and relevant covariates were collected through interviews at baseline (Wave 1). Latent class analysis (LCA) was conducted to identify distinct classes of childhood trauma history, which included physical assault, neglect, and sexual abuse. Multinomial logistic regression investigated childhood relevant factors associated with class membership such as biological relationship of primary carer at age 14 years and number of times in foster care. Of the total sample (N = 1682), 99% reported traumatic adverse childhood experiences. The most common included witnessing of violence, threat/experience of physical abuse, and sexual assault. LCA identified six distinct childhood trauma history classes including high violence and multiple traumas. Significant covariate differences between classes included: gender, biological relationship of primary carer at age 14 years, and time in foster care. Identification of six distinct childhood trauma history profiles suggests there might be unique treatment implications for individuals living in extreme social disadvantage. Further research is required to examine the relationship between these classes of experience, consequent impact on adulthood engagement, and future transitions though homelessness.
5.2 Introduction

Individuals facing extreme social disadvantage have a high prevalence of exposure to early life abuse (Kim, Ford, Howard, & Bradford, 2010) and are at increased risk for ongoing interpersonal traumatic experiences (Buhrich, Hodder, & Teeson, 2000). Biopsychosocial factors increasing trauma vulnerability in the socially disadvantaged include: a lack of stable and safe housing; limited financial resources; difficulty accessing appropriate support services; poor physical and/or mental health difficulties; and vulnerability to maladaptive coping behaviour such as use of alcohol and other drugs (Anderson, 2003). Traumatic stress coping responses are often concomitant with considerable personal and societal cost in highly vulnerable individuals (DeForge, Belcher, O’Rourke, & Lindsey, 2008). This has important implications for policy development and strategic planning, which target successful exiting from the perpetuating cycle of social disadvantage and housing instability.

An identified challenge to successful intervention implementation is breakdown in initial engagement with offered support structures (Hopper, Bassuk, & Olivet, 2010). Research seeking to understand individual differences in traumatic experiences is important in developing strategies to engage with at risk individuals and facilitate better access to support structures. Unfortunately, very little is known about the nature of individual differences in complex trauma experiences. This paper aims to address this gap in the literature by adopting a person-centred approach to investigate the nature of interpersonal trauma experiences in individuals experiencing extreme social disadvantage.

5.2.1 Complex Trauma

Traumatic stress experiences are conceptualised as occurring along a continuum of experiences, which vary considerably, from single-incident events that are often somewhat accidental in nature, through to multiple, repeated, and intentional traumatic events (Breslau & Kessler, 2001). Complex Trauma refers specifically to exposure to those traumatic stressors of an intentional and interpersonal nature (e.g. physical, emotional, and sexual abuse) (Kessler, 2000). It is widely recognised that interpersonal trauma is highly likely to be experienced repeatedly across prolonged periods of time (Kira, 2001; Kira, Lewandowski, Templin et al., 2008); however, any history of interpersonal trauma exposure, even single event exposure (e.g. a sexual assault), has the potential for long term psychological distress (Weaver & Clum, 1995). Detrimental outcomes such as loss of self-worth, frequent re-victimisation, loss of a coherent sense of ‘self’ and profound difficulties with trust and interpersonal interactions, are life-functioning impairments common in population sub-groups experiencing interpersonal trauma (Courtois & Ford, 2012; van der
Complex trauma is often conceptualised and examined in relation to interpersonal trauma experiences during early childhood or adolescence (Cloitre et al., 2009). These experiences are relatively common with many people growing up with at least four adverse experiences during childhood (Anda et al., 2006). Interpersonal traumatic incidents are most often perpetrated by the child’s primary caregiver, and/or experienced within the child’s predominant primary care system by adults who would typically be expected to provide stability and safety (Lawson & Quinn, 2013). Common trauma experiences during childhood include: emotional, physical and sexual abuse; neglect; witnessing of violence; an unstable parent presence; and living with primary carers who have mental health issues and/or problematic drug and alcohol use and/or who have spent time in jail (Courtois & Ford, 2009).

Complex trauma extends beyond childhood adversity to encompass adulthood interpersonal trauma experiences (Herman, 1992; Terr, 1991). Adult trauma can arise from being: a soldier or civilian involved in armed combat and civil unrest; a refugee or asylum seeker; an abusive domestic situation; and/or exposure to daily poverty (e.g. Briere & Spinazzola, 2005; Ford & Courtois, 2009). Similar to childhood trauma, the interpersonal aspects of such adulthood traumatic experiences contribute to increased likelihood of pervasive and enduring psychic distress (Scaer, 2005; 2014). The present paper therefore views complex trauma within the context of interpersonal traumatic experiences occurring across the lifespan.

5.2.1.1 Limitations of existing approaches to examining complex trauma

Complex trauma experiences can be very difficult to quantify due to a range of factors. These include: differences in how individuals perceive of and experience direct and/or indirect interpersonal trauma experiences; the evaluation of environmental and contextual risk vulnerability; individually weighted assessment of traumatic stress impact; and pervasive and enduring difficulties resulting from chronic interpersonal trauma; and must all be accounted for when examining the nature and impact of complex trauma.

Currently, there are three main approaches used to assess complex trauma. First, many studies have focused on the lifetime impact of childhood adversity, informed largely by findings from The Adverse Childhood Experiences (ACE) Study (Felitti, Anda, Nordenberg, et al., 1998). The ACE study defines childhood adversity broadly and examines eleven distinct types, which include household and primary carer dysfunction in addition to direct and indirect maltreatment exposure (Brown, Anda, Felitti, et al., 2010).
Second, other studies have addressed the issue of high prevalence and subsequent impact of poly-victimisation (e.g. Finkelhor, Ormrod, Turner, & Hamby, 2005a); these studies indicate that poly-victimisation is a stronger predictor of future psychic distress compared with measures of specific victimisation types (e.g. sexual assault) (Finkelhor, Ormrod, & Turner, 2009). Third, studies have focused on cumulative traumatic stress experiences across an individual’s lifespan and the impact of this on consequent life-functioning. A substantial body of research provides strong evidence for direct associations between multiple childhood and/or adulthood interpersonal traumatic experiences and subsequent symptomatic dysfunction across a broad range of biopsychosocial functioning (e.g. Briere et al., 2008; Cloitre et al., 2009; Ford, et al., 2005). Importantly, experiences of cumulative exposure to interpersonal traumatic stressors have been associated with elevated symptom severity, independent of consideration for impact of trauma type (Briere et al., 2008).

These three approaches have substantially improved current understanding of the nature of complex trauma experiences across the lifespan. Particular strengths include adoption of broadened contextual complex trauma definition and measurement considerations extending beyond rudimentary additive methods. Moreover, robust sample sizes of the formative studies associated with these approaches (e.g. ACEs and JVC) improves generalisability of findings within the complex trauma domain. Despite the contributions of these approaches, they still provide only a partial insight into the nature of complex trauma and as discussed below there are some important gaps in the literature that need to be addressed.

5.2.1.2 Person-centred views of complex trauma

The first main gap in the literature is that very little is known about individual differences in the nature of complex trauma experiences. This is important because complex trauma experiences are not homogenous. Rather, individuals may have very unique complex trauma experiences that have distinct antecedents and outcomes. Person-centred approaches (e.g., latent class analysis [LCA]) allow such individual differences to be captured, and could yield an improved understanding of complex trauma experiences.

Person-centred approaches to investigating complex trauma have only begun to emerge in the past decade. Analytic approaches such as LCA has identified subgroups of individuals with distinct victimisation experiences (Shelvin & Elklit, 2008; Ford, Elhai, Connor, & French, 2010b; Ford, Wasser, & Connor, 2011b). Additionally, examinations have revealed predictive associations between subgroup type and clinical psychopathology (Ford, et al., 2010b; Ford, et al., 2011b; Shelvin & Elklit, 2008).
Encouragingly, these person-centred studies have identified distinct individual experiences within diverse populations. Most recently, in an adult population sample, Ballard and colleagues (2015) found three distinct classes of childhood traumatic experiences (sexual assault, violence exposure, low trauma), with clear gender effect and instance of psychopathology influencing categorisation. Additionally, three distinct classes characterised by various combinations of family violence and victimisation emerged in a recent study of high risk, ethnically diverse young children (Hagan, Sulik & Lieberman, 2015).

Despite the contribution of these papers, there remains a strong need for more person-centred research that adopts a broadened contextualisation of the nature of complex trauma – particularly research that seeks to inform Trauma Informed Care (TIC) models of service support (Hopper, Bassuk, & Olivet, 2010). Accounting for environmental risk and personal vulnerability factors is paramount, particularly when seeking clarification around the nature and consequent impact of individual differences in trauma experiences for vulnerable populations (Hodges, et al., 2013). For example, gender differences in childhood trauma exposure (e.g. Ballard et al., 2015) and environmental risk factors unique to the socially disadvantaged (Hagan, Sulik & Lieberman, 2015) are critical considerations within the context of complex trauma.

5.2.2 Complex Trauma in Socially Disadvantaged Populations

The second main gap in the literature is that most previous research has focused on large representative samples or clinical population subgroups (e.g. Felitti, et al., 1998). Although such research has been informative, complex trauma experiences need to be examined in highly vulnerable populations that are at greater risk of complex trauma, such as those facing social disadvantage. Focusing on vulnerable populations could aid in tailoring TIC services to better suit these specific populations (Hopper, Bassuk, & Olivet, 2010).

In the present paper, we addressed this gap in the literature by focusing on individuals experiencing extreme social disadvantage and high housing instability. This is important for several reasons. First, they are an under-researched sub-population, whose daily lived experiences place them at increased vulnerability to violations of personal safety and interpersonal victimisation (Gabowitz & Konnath, 2008). Second, within this sub-population are further sub-groups identified as particularly vulnerable to on-going interpersonal trauma exposure, namely: females, children/youth, elderly and minority groups (Hopper, Bassuk, & Olivet, 2010). Third, the cumulative impact of: 1) An increased likelihood of antecedent traumatic experience such as adverse childhood experiences (Herman, Susser, Struening, & Link, 1997);
2) The traumatic nature of the lived experience of extreme social disadvantage (Anderson, 2003); and 3) increased likelihood of consequent traumatic encounter exposure (La Gory, Fitzpatrick, & Ritchey, 2001); heightens vulnerability to development of complex trauma related pathology in these individuals (Taylor & Sharpe, 2008).

5.2.3 The Present Study

The current study utilised a person-centred approach to examine complex trauma experiences in a sample of Australians with low housing security. The study assessed the relationship between specific types of childhood adversity associated with complex trauma and subsequent adulthood interpersonal trauma. The study further explored the relationships between different types of complex trauma experience and homelessness experiences. The research aimed to address these broad research questions: 1) Are there distinct childhood trauma experience subgroups for Australian’s with low housing stability and what additional childhood experiences underlie class membership? 2) How do different patterns of childhood trauma experience affect the likelihood of subsequent adult interpersonal trauma experiences? 3) Do these identified individual differences have implications for homelessness?

5.3 Methods

5.3.1 Participants

The Journeys Home Study ($N = 1682$) is a longitudinal study of a representative sample of Australians exposed to high levels of housing insecurity (Wooden, et al., 2012). Detailed information regarding sample design, survey administration procedures and sample response coding procedures and characteristics is available in the Journeys Home Technical Report (University of Melbourne, 2012). In brief, the Journeys Home study population was sampled from Centrelink (the Australian government social security and health support services program) customers in receipt of income support services. A Homelessness Indicator tool, utilised by Centrelink staff since 2010, identified three sub-groups of: (1) customers flagged as homeless; (2) customers flagged as ‘at risk of homeless’; and, (3) other customers identified as vulnerable to homelessness (customers in the top 2% of all income support recipients not identified in the previous 2 groups), which represented a population of 138,091 individuals. Geographical cluster stratification of individuals, followed by a random sampling procedure, resulted in a final target sample of 2719, with 1682 (62%) agreeing to participate and providing data. Sample demographics are presented in Table 5.1. The data were collected using structured interviews (see below and Journeys Home technical report) administered by trained professional interviewers.
Table 5.1

*Journeys Home Sample socio-demographic characteristics (n = 1682)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sample %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>54.6</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>15 – 24</td>
<td>39.6</td>
</tr>
<tr>
<td>25 – 34</td>
<td>21.6</td>
</tr>
<tr>
<td>35 – 44</td>
<td>19.7</td>
</tr>
<tr>
<td>45 +</td>
<td>19.2</td>
</tr>
<tr>
<td>Indigenous</td>
<td>17.2</td>
</tr>
<tr>
<td>Country of Birth</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>87.3</td>
</tr>
<tr>
<td>English speaking</td>
<td>6.1</td>
</tr>
<tr>
<td>Non-English speaking</td>
<td>6.6</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>93.0</td>
</tr>
<tr>
<td>Married</td>
<td>0.7</td>
</tr>
<tr>
<td>Defacto</td>
<td>5.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>0.5</td>
</tr>
<tr>
<td>Homeless experience in past 6 months</td>
<td>50.7</td>
</tr>
</tbody>
</table>

5.3.2 Measures

5.3.2.1 Childhood Trauma Experiences.

Participants were asked numerous questions about their childhood history, referring to events at age 14 years and under (e.g. “As a child someone living with you used physical violence or force against you” Y/N?). Survey items assessing childhood trauma experiences were modelled on the Adverse Childhood Adversity Study (Felitti et al., 1998) and ABS Personal Safety Survey (2005), as specified in the Journeys Home user manual (Bevitt, Chigavazira, Scutella, Tseng, & Watson, 2014). Consistent with recent research methods (e.g. Courtois & Ford, 2009), we categorised responses to these questions to create ten Childhood Trauma Experience (CTE) variables (Table 5.2). Matters of perpetrator proximity and primary care environment were also included as integral factors for consideration, with research identifying both safety and security within the primary care environment (Forkey & Szilagyi, 2014) and the victim-perpetrator relationship (Frewen, Brown, DePierro, D’Andrea, & Schore, 2015) as key considerations when understanding the lifetime impact of complex trauma experiences.
Table 5.2

*Childhood trauma experiences included in LCA*

<table>
<thead>
<tr>
<th>Trauma Experience Descriptor</th>
<th>n/N = 1672</th>
<th>%/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PFJMHDA – Primary female carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems</td>
<td>411</td>
<td>25.7</td>
</tr>
<tr>
<td>2. PMJMHDA – Primary male carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems</td>
<td>569</td>
<td>39.8</td>
</tr>
<tr>
<td>3. WITV – Witnessing of violence</td>
<td>828</td>
<td>53.8</td>
</tr>
<tr>
<td>4. NEG – Experienced physical and/or emotional deprivation</td>
<td>252</td>
<td>16.3</td>
</tr>
<tr>
<td>5. THARLW – Experienced a real threat of harm from someone within their primary care environment</td>
<td>544</td>
<td>35.0</td>
</tr>
<tr>
<td>6. PHARMLW – Experienced actually physical harm perpetrated by someone outside their primary care environment</td>
<td>701</td>
<td>45.1</td>
</tr>
<tr>
<td>7. THARMSE – Experienced a real threat of harm from someone outside the primary care environment</td>
<td>702</td>
<td>45.1</td>
</tr>
<tr>
<td>8. PHARMSE – Experienced actual physical harm perpetrated by someone outside the primary care environment</td>
<td>750</td>
<td>48.2</td>
</tr>
<tr>
<td>9. SALW – Experienced sexual assault perpetrated by someone within the primary care environment</td>
<td>222</td>
<td>15.2</td>
</tr>
<tr>
<td>10. SASE – Experienced sexual assault perpetrated by someone outside the primary care environment</td>
<td>336</td>
<td>23.0</td>
</tr>
</tbody>
</table>

**5.3.2.2 Contextual Childhood Covariates**

Contextual variables for covariate consideration when investigating the childhood experiences of the sample were: age (categorical), gender (male/female), age left school (categorical), having been in Juvenile detention (ever/never), having been in residential/kin/foster care (yes/no), biological/non-biological nature of the primary carers (two biological carers/two carers (one biological)/ one biological carer/non-biological carer/s), growing up feeling safe, secure, loved and protected within the family environment (ever/never), and growing up feeling someone in the family hated you and/or having emotionally hurtful or insulting things said to you (ever/never).

**5.3.2.3 Adulthood Interpersonal Trauma Experiences and Reactions**

Adulthood interpersonal traumatic experiences of sexual assault, physical assault, and threat of
violence modelled as dichotomous indicators were assessed for: 1) ever in lifetime since aged 18 years; 2) ever in the past 6 months; 3) multiple experiences; and 4) perpetrator proximity (similar to childhood trauma experiences – distal, proximal, and stranger). Survey items assessing adulthood trauma experiences were influenced by the ABS Personal Safety Survey (2005), as specified in the Journeys Home user manual (Bevitt, et al., 2014).

5.3.2.4 Homelessness

Information about an individual’s homelessness history prior to baseline was extrapolated and recoded into viable variables for inclusion in final analysis. Variables included: current homelessness status, ever homeless prior to baseline, homeless in the six months prior to baseline, homeless in the age of first homeless experience, duration of first homeless experience, and total time spent homeless prior to baseline.

5.3.3. Statistical Analyses

Prior to conducting the primary analyses, 10 participants in the data set were excluded because they did not report at least one CTE. This resulted in a sample of 1672 participants. A multiple step analysis approach was then conducted, based on recent recommendations for Latent Class Analysis (LCA) (Muthen, 2004) utilising Mplus Version 6.11 (Muthen & Muthen, 1998 – 2010) and SPSS Version 21.

First, sequential LCA models were tested (without covariates) to identify the optimal number of CTE latent classes (Muthen, 2004). Latent class modelling facilitated identification of the minimum number of CTE sub-groups, which best described both the comparable experiences of individuals within the same class and the distinctly different experiences for individuals in alternate classes. The best fit model (Table 5.3) was determined based on numerous statistical fit indices frequently employed as reliable sources of information (Nylund, Asparouhov, & Muthen, 2007), specifically: Akaike information criteria (AIC), Bayesian information criteria (BIC), sample-size-adjusted BIC, and bootstrap likelihood ratio tests (BLRT). Sample-size-adjusted Lo-Mendell-Rubin tests were also inspected to aid accurate model identification, where determination between 6- and 7-class solutions was indistinct (Jung & Wickrama, 2008). Class size (very small classes may not be meaningful), entropy (a measure of classification accuracy where values below .80 need to be treated with caution), and inspection of class singularity to ensure meaningful and parsimonious solution, were also considered in final determination of best fit model (Bauer & Curran, 2003; Jung & Wickrama, 2008).

The next step of the analysis involved testing multinomial logistic regression models to examine whether demographics (e.g. age, gender, education) as well as additional variables likely to influence
childhood experience (e.g. experience in foster/kin care, having been in juvenile detention, and other environmental factors influencing sense of security and safety) predicted class membership. A full LCA was then conducted, specifying previously identified optimal class model and including identified significant covariates. A further nine participants were excluded at this stage of the analyses due to missing data on all covariates, resulting in a final sample of 1663 participants.

Finally, univariate ANOVA (continuous) and Chi Square (categorical) analyses were then conducted using SPSS to examine associations between the six CTE latent classes and: 1) adulthood interpersonal trauma experiences, 2) homelessness history, and 3) current homelessness status, of individuals within these CTE sub groups.

Table 5.3

*Fit indices for Latent Class Models (N = 1672)*

<table>
<thead>
<tr>
<th>Model</th>
<th>AIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>BIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Adjusted BIC&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Entropy&lt;sup&gt;c&lt;/sup&gt;</th>
<th>BLRT p value</th>
<th>LMR&lt;sup&gt;d&lt;/sup&gt; Adjusted LRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18540.604</td>
<td>18594.768</td>
<td>18562.999</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16377.496</td>
<td>16491.240</td>
<td>16424.526</td>
<td>0.774</td>
<td>&lt;0.001</td>
<td>2158.648*</td>
</tr>
<tr>
<td>3</td>
<td>15885.739</td>
<td>16059.063</td>
<td>15957.404</td>
<td>0.81</td>
<td>&lt;0.001</td>
<td>507.535*</td>
</tr>
<tr>
<td>4</td>
<td>15617.936</td>
<td>15850.840</td>
<td>15714.236</td>
<td>0.783</td>
<td>&lt;0.001</td>
<td>286.294*</td>
</tr>
<tr>
<td>5</td>
<td>15528.526</td>
<td>15821.010</td>
<td>15649.460</td>
<td>0.788</td>
<td>&lt;0.001</td>
<td>110.061*</td>
</tr>
<tr>
<td>6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>15465.815</td>
<td>15817.880</td>
<td>15611.384</td>
<td>0.749</td>
<td>&lt;0.001</td>
<td>83.581**</td>
</tr>
<tr>
<td>7</td>
<td>15434.430</td>
<td>15846.075</td>
<td>15604.643</td>
<td>0.737</td>
<td>&lt;0.001</td>
<td>52.620</td>
</tr>
</tbody>
</table>

*<sup>a</sup> P < 0.001; ** P < 0.05; <sup>b</sup> Best fit model; <sup>c</sup> Lower AIC, BIC and Adjusted BIC values indicate better fit; <sup>c</sup> Entropy should be greater than 0.7, values closer to 1 are better; <sup>d</sup> Model fit comparison (current with previous)

5.4 Results

5.4.1 Classes

The LCA analyses indicated that a six-class solution model provided the best model fit. The characteristics of the six classes are shown in Figure 5.1 and are described below.

Class 1, labelled ‘Multiple CTE’, comprised 15.8% (n = 262) of the total sample. This class was characterised by high probability of multiple adverse childhood experiences across the broad spectrum of trauma type. Individuals in this class reported childhood experiences of physical and sexual abuse from both an individual within their primary care system and also by a perpetrator from outside this care system.
These individuals also reported experiencing serious threat of harm from others both proximal and distal to their primary care environment. Additionally, witnessing of violent acts between other individuals and frequent experiences of neglect were reported by those in this Multiple CTE class. Importantly the individuals in this Multiple CTE class reported both male and female primary carers with at least one of either mental health issue requiring hospitalisation at one point in time, problematic substance use, and having spent some time in jail.

Two further distinct CTE classes emerged, which were delineated by perpetrator proximity – labelled ‘Distal CTE’ ($n = 286; 17.2\%$) and ‘Proximal CTE’ ($n = 209; 12.6\%$). The Distal CTE classification identified high probability that trauma experiences for these individuals were most likely experienced at the hands of someone from outside the primary care environment. Probability of threat of harm, physical and sexual abuse as perpetrated by someone not living with them in the primary care environment were high for these individuals. There was also a high probability of having a male primary carer with at least one of mental health and substance use problems and/or having spent time in jail. Additionally, witnessing of violence during childhood was a high probability for individuals in the Distal CTE class.

The Proximal CTE class identified a group of individuals characterised by high probability trauma experiences were experienced at the hands of someone within their primary care environment. In contrast to those in the Distal CTE class, experience of sexual abuse within their primary care environment was a relatively high probability for the Proximal CTE individuals. It was noted that there was also a relatively high probability of sexual abuse by someone from outside their primary care environment for these group of individuals. The Proximal CTE class was further characterised by relatively high probability of witnessing of violence and having both male and female primary carers with mental health and substance use issues and/or jail experiences.

Class 4, labelled ‘High Violence CTE’ ($n = 233; 14.0\%$), had a high probability of witnessing of violence and experiencing threat of harm and/or physical abuse from both within and outside their primary care environment. Experiences of sexual abuse during childhood were identified as a relatively low probability in this High Violence CTE. Experiences constituting neglect were identified as a moderately probable.

Class 5, labelled ‘Indirect CTE’ ($n = 250; 15.0\%$), had a higher probability that trauma experiences were likely a result of living with either/both male and female primary carers with at least one of mental health issues, problematic drug and/or alcohol use, or time spent in jail. Additionally, witnessing of violence
during childhood was a high probability for these individuals.

The sixth class that emerged was characterised by relatively low probability of childhood CTE across all types included in analysis, with the witnessing of violence item endorsed as highest probability likelihood. As such this class was labelled ‘Low CTE’ \( (n = 423; 25.4\%) \) and was used as the reference group throughout comparative analyses.

![Figure 5.1](image_url)

**Figure 5.1.** The six distinct latent classes of childhood complex trauma experiences in the sample \( (N = 1663) \) of Australian’s with low housing stability. Childhood complex trauma experiences descriptions are detailed in Table 1.

### 5.4.2 Correlates of classes

Multinomial logistic regression identified that contextual childhood variables of age; gender; growing up feeling safe, secure, loved and protected within the family environment; growing up feeling hated by someone in the family and/or having emotionally hurtful or insulting things said to you; experience in kin/residential/foster care; having been in juvenile detention; age left school; and biological/non-biological nature of primary carer dyad; were likely to significantly influence individual’s class classification. A full LCA was subsequently conducted allowing for inclusion of these significant covariates while the classes were forming. The effects of covariates on class formation were examined as Odds Ratios (Table 5.4), whereby estimates reflect the odds of class membership for each covariate relative to the covariate reference category and relative to the LCA reference group, which is *low CTE* (Class 6).
Table 5.4
Results of the multinomial logistic regression examining covariates associated with latent class membership (Low CTE is the reference category).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple</th>
<th>High</th>
<th>Proximal Threat</th>
<th>Indirect Threat</th>
<th>Distal Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.95</td>
<td>0.58**</td>
<td>0.86</td>
<td>0.79</td>
<td>0.70**</td>
</tr>
<tr>
<td>Female gender</td>
<td>2.81**</td>
<td>0.14**</td>
<td>1.68</td>
<td>1.42</td>
<td>0.81</td>
</tr>
<tr>
<td>Felt safe growing up - Ever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.32**</td>
<td>1.07</td>
<td>0.47*</td>
<td>0.91</td>
<td>0.62*</td>
</tr>
<tr>
<td>Felt unsafe growing up - Ever</td>
<td>2.72**</td>
<td>0.86</td>
<td>1.99*</td>
<td>0.95</td>
<td>1.49</td>
</tr>
<tr>
<td>Care experience – Yes</td>
<td>6.17**</td>
<td>1.13</td>
<td>1.77</td>
<td>1.32</td>
<td>1.44</td>
</tr>
<tr>
<td>Juvenile Detention – Yes</td>
<td>1.17</td>
<td>1.81</td>
<td>3.01*</td>
<td>1.91</td>
<td>1.10</td>
</tr>
<tr>
<td>Age left school</td>
<td>3.0*</td>
<td>0.76</td>
<td>0.66</td>
<td>1.99</td>
<td>1.12</td>
</tr>
<tr>
<td>≤13 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 – 15 years</td>
<td>3.05**</td>
<td>1.88</td>
<td>0.95</td>
<td>2.95*</td>
<td>2.02*</td>
</tr>
<tr>
<td>16 – 17 years</td>
<td>1.23</td>
<td>1.34</td>
<td>1.27</td>
<td>3.94*</td>
<td>1.43</td>
</tr>
<tr>
<td>≥18 years</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Primary Carer status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Biological</td>
<td>0.33*</td>
<td>0.31*</td>
<td>0.38</td>
<td>0.40</td>
<td>0.85</td>
</tr>
<tr>
<td>1 biological, 1 non biological</td>
<td>1.81</td>
<td>1.21</td>
<td>1.45</td>
<td>1.46</td>
<td>1.67</td>
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<tr>
<td>1 non biological</td>
<td>1.11</td>
<td>1.08</td>
<td>1.05</td>
<td>2.16</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
</tbody>
</table>

Note: * estimates reflect the odds of class membership for each covariate relative to the covariate reference category and relative to the LCA reference group, which is low CTE (Class 6); ** Sig.<0.001; * Sig.<0.05

Compared with those individuals in the Low (ref) class, females were more likely to be in the Multiple CTE class (OR = 2.81, \( p < .001 \)), as were those individuals who grew-up experiencing hatred and emotional negativity (OR = 2.72, \( p < .001 \)), left school at age 14 or 15 years (OR = 3.05, \( p = .003 \)), were in residential/kin/foster care as a child (OR = 6.17, \( p < .001 \)), and did not have a primary carer dyad comprised two biological parents (OR = 0.33, \( p = .005 \)). Younger individuals were more likely to be in the Distal CTE class than the Low CTE class (OR = 0.70, \( p < .001 \)), as were those individuals without recollections of ever feeling safe growing up (OR = 0.62, \( p = .038 \)) and those who left school aged 14 or 15 years (OR = 2.02, \( p = .033 \)). Individuals who grew-up experiencing hatred and emotional negativity were more likely to be in the Proximal CTE class (OR = 1.99, \( p = .01 \)) than the reference class. Similarly for individuals with at least one experience of contact with the justice system and having been in Juvenile detention (OR = 3.01, \( p = .001 \)). Females were less likely to be in the High-Violence CTE class (OR = 0.14, \( p < .001 \)), when compared to those in the reference group. Individuals were likely to be younger (OR = 0.58, \( p < .001 \)) in the High-Violence class and to have had a primary carer dyad comprising of other than
two biological parents (OR = 0.31, \( p = .008 \)), than those in the reference class. Age leaving school was the only significant \( (p = .005) \) correlate influencing classification into the Indirect CTE class. These individuals were 3.94 times more likely to have left school aged 16 or 17 years.

### 5.4.3 Classes and Adulthood Interpersonal Trauma Experiences

Pearson’s chi-square tests of contingencies were conducted to evaluate whether aspects of individual’s adulthood interpersonal trauma experiences (AITE) were related to an individual’s childhood CTE typology. Participants aged 17 years and under \((n = 159)\) were excluded from these analyses. Table 5.5 presents a summary of these results, which identified a significant association for all adulthood trauma experiences with CTE type. Table 5.6 displays frequency information regarding adulthood trauma experiences with perpetrator type.

#### Table 5.5

*Association between class and adulthood complex trauma experiences \((N = 1504)^1\)*

<table>
<thead>
<tr>
<th>Class</th>
<th>Multiple (n = 234)</th>
<th>High Violence (n = 202)</th>
<th>Proximal Threat (n = 182)</th>
<th>Indirect (n = 222)</th>
<th>Distal Threat (n = 256)</th>
<th>Low (ref) (n = 408)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>91.5</td>
<td>82.7</td>
<td>72.2</td>
<td>42.2</td>
<td>80.6</td>
<td>49.7</td>
</tr>
<tr>
<td>Last 6 months</td>
<td>29.1</td>
<td>30.3</td>
<td>15.3</td>
<td>10.8</td>
<td>27.4</td>
<td>7.6</td>
</tr>
<tr>
<td>Multiple events</td>
<td>20.2</td>
<td>18.4</td>
<td>6.2</td>
<td>4.2</td>
<td>14.1</td>
<td>4.6</td>
</tr>
</tbody>
</table>

#### Physical Assault

<table>
<thead>
<tr>
<th></th>
<th>% within class</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple events</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Threat Violence

<table>
<thead>
<tr>
<th></th>
<th>% within class</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple events</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sexual Assault

<table>
<thead>
<tr>
<th></th>
<th>% within class</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple events</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: \(^1\) Sample aged 18 years and older – class sizes adjusted accordingly; ** Sig. at \( p < .001 \); *Sig. at \( p < .05 \).
Table 5.6

Class frequencies of perpetrator type for adulthood interpersonal trauma experience

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiple Violence</td>
<td>High Violence</td>
<td>Proximal Threat</td>
<td>Indirect Threat</td>
<td>Distal Threat</td>
<td>Low Threat (ref)</td>
</tr>
<tr>
<td>% within class</td>
<td>Physical Assault</td>
<td>Threat Violence</td>
<td>Sexual Assault</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stranger</td>
<td>30.6</td>
<td>37.5</td>
<td>18.5</td>
<td>27.3</td>
<td>41.2</td>
<td>25.0</td>
</tr>
<tr>
<td>Partner a</td>
<td>35.5</td>
<td>16.1</td>
<td>40.8</td>
<td>27.2</td>
<td>26.4</td>
<td>42.9</td>
</tr>
<tr>
<td>Other b</td>
<td>33.9</td>
<td>46.4</td>
<td>40.7</td>
<td>45.5</td>
<td>32.4</td>
<td>32.1</td>
</tr>
<tr>
<td>Stranger</td>
<td>33.7</td>
<td>41.0</td>
<td>4.7</td>
<td>25.0</td>
<td>31.6</td>
<td>29.3</td>
</tr>
<tr>
<td>Partner a</td>
<td>25.2</td>
<td>8.4</td>
<td>39.5</td>
<td>28.1</td>
<td>22.5</td>
<td>39.0</td>
</tr>
<tr>
<td>Other b</td>
<td>41.1</td>
<td>50.6</td>
<td>55.8</td>
<td>46.9</td>
<td>45.9</td>
<td>31.7</td>
</tr>
<tr>
<td>Stranger</td>
<td>50.0</td>
<td>20.0</td>
<td>0.0</td>
<td>40.0</td>
<td>25.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Partner a</td>
<td>33.3</td>
<td>60.0</td>
<td>0.0</td>
<td>20.0</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other b</td>
<td>16.7</td>
<td>20.0</td>
<td>100.0</td>
<td>60.0</td>
<td>25.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Note: a partner current and/or previous; b someone other than partner known to victim

Individuals in the Multiple CTE class had the highest class proportion of reported physical assault (91.5%), threat of violence (72.5%), and sexual assault (39.2%). For these individuals the physical assault was most frequently a partner (35.5%) and threat of violence perpetrator was most frequently someone they knew other than a partner (41.1%), with sexual assault most frequently perpetrated by a stranger (50.0%).

The High Violence CTE class had a high proportion of physical assault (82.7%) and threat of violence was relatively high (61.8%), with lower frequency reported for sexual assault (6.3%). For these individuals the perpetrator of physical assault (46.4%) and threat of violence (50.6%) were most frequently identified as someone they knew other than a partner. For the small percent that reported sexual assault experience as an adult, the perpetrator was most frequently (60.0%) a current and/or previous partner.

Individuals in the Proximal Threat CTE and Distal Threat CTE classes reported similar proportions of occurrence for each of the AITE; however differences between these two classes were identified in frequency distribution of perpetrator type (see Table 5 and Table 6). All sexual assault experiences for those in the Proximal CTE class were reported as perpetrated by someone other than a partner known to victim.
In the Distal CTE class sexual assault perpetrator was most frequently (50%) reported as a current or previous partner. The Indirect CTE class reported the lowest proportion of responses for experiencing AITE – physical assault (42.2%), threat of violence (36.0 %), and sexual assault (7.6%). For these individuals the perpetrator most frequently reported for all AITE type was someone else they knew other than a partner.

The Low CTE (ref.) class revealed a relatively high proportion of individuals experiencing physical assault (49.7%) and threat of violence (40.2%) in adulthood. These occurrences were proportionately higher than those reported by individuals in the Indirect CTE group. Sexual assault as an adult (9.9%) was proportionately higher in this class than both the High Violence CTE and Indirect CTE; however, this proportionality relationship was inversed when sexual assault occurred in the last six months. Sexual assault perpetrator was reported with equal frequency of being stranger (50.0%) or someone other than a partner known to victim (50.0%).

5.4.4. Classes and Homelessness History

The mean age of first homeless experience for the overall sample was 19.89 years (SD 12.71). There was a significant relationship between age of first homeless experience and class, $F(1, 5) = 33.87, p <.00$. Across all six classes the highest proportion of individuals in each group indicated a first homeless experience between 15 – 19 years of age.

Pearson’s chi-square tests of contingencies were conducted to evaluate whether aspects of individual’s homeless history were related to an individual’s class classification. Table 5.7 summarises the results of these analyses and illustrates a general overall significant effect of homelessness on class, indicating a relationship between homelessness and childhood complex trauma experiences.

Approximately 50% of individual’s in each of the six classes reported being homeless in the past six months. In the Multiple CTE class, one-quarter of individuals reported a lifetime total of homelessness greater than five years, with the highest proportion (42.4%) of individual’s reporting a total time spent homeless as between 1 - 5 years. In comparison, for the remaining five classes, most individuals reported that the total time spent homeless was less than 12 months duration. Across all six classes, the majority of individuals reported a first homeless experience lasting less or equal to six months in duration. Where individuals reported a first homeless experience duration of greater than 6 months, proportionality was highest for the Multiple CTE group.
Table 5.7

*Association between class and homelessness history prior to baseline (N = 1663)*

<table>
<thead>
<tr>
<th></th>
<th>Multiple Violence (n=262)</th>
<th>High Violence (n=233)</th>
<th>Proximal Threat (n=209)</th>
<th>Indirect Threat (n=250)</th>
<th>Distal Threat (n=286)</th>
<th>Low (ref) (n=423)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless prior to baseline</td>
<td>98.5</td>
<td>97.9</td>
<td>97.1</td>
<td>88.8</td>
<td>96.5</td>
<td>87.9</td>
<td>65.50**</td>
</tr>
<tr>
<td>Homeless in the past 6 months</td>
<td>52.7</td>
<td>52.4</td>
<td>51.7</td>
<td>46.4</td>
<td>54.9</td>
<td>46.3</td>
<td>20.69*</td>
</tr>
<tr>
<td>Total time homeless prior to baseline</td>
<td>33.3</td>
<td>44.1</td>
<td>49.3</td>
<td>54.1</td>
<td>51.4</td>
<td>55.4</td>
<td>47.93**</td>
</tr>
<tr>
<td>&lt; 12 months</td>
<td>42.4</td>
<td>39.6</td>
<td>36.5</td>
<td>34.3</td>
<td>37.1</td>
<td>33.8</td>
<td></td>
</tr>
<tr>
<td>1 – 5 years</td>
<td>24.3</td>
<td>16.3</td>
<td>14.3</td>
<td>11.6</td>
<td>11.5</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>62.7</td>
<td>73.4</td>
<td>72.1</td>
<td>77.4</td>
<td>70.3</td>
<td>70.4</td>
<td>13.99*</td>
</tr>
<tr>
<td>Duration of first homeless experience prior to baseline</td>
<td>37.3</td>
<td>26.6</td>
<td>27.9</td>
<td>22.6</td>
<td>29.7</td>
<td>29.6</td>
<td></td>
</tr>
</tbody>
</table>

Note: ** Sig. at p <.001; * Sig. at p <.05

5.5 Discussion

This study provides a novel insight into the nature of complex trauma in a sample of Australian individuals experiencing extreme social disadvantage and high housing instability. The LCA indicated six distinct groups of individuals who differed in relation to the type and co-occurrence of complex trauma experiences: 1) Individuals who experienced multiple direct and indirect trauma types from a mix of those within and outside their primary care environment – Multiple, 2) Individuals whose trauma was most likely perpetrated by someone within their primary care environment – Proximal, 3) Individuals whose trauma was likely perpetrated by someone from outside their primary care environment – Distal, 4) Individuals whose trauma was predominated by direct and indirect experiences of physical violence – High Violence, 5) Individuals whose trauma was most likely experienced as the result of primary carer issues and
witnessing violence, and 6) individuals with low probability of childhood trauma exposure across more than one type – Low. The current study extends upon earlier person-centred investigations into childhood adversity typologies (e.g. Ballard, et al., 2015; Hagan, Sulik & Lieberman, 2015; Ford, et al., 2010b; Ford, et al., 2011b; Shelvin & Elklit, 2008) by modelling perpetrator proximity and primary carer considerations as primary rather than auxiliary variables of interest (Wong, Clarke & Marlotte, 2014). This approach allowed for a more comprehensive insight into the nature of individual differences in complex trauma for individuals facing extreme social disadvantage.

Notably, individuals in the Multiple CTE class appeared more likely to have had both male and female primary carers who had substance abuse issues, mental health difficulties and/or had spent time in jail. In contrast, for those individuals in all other classes, the probability of having a primary male carer with these same difficulties was approximately twice that of a primary female carer. Where an individual’s likely class membership was not primarily defined by perpetrator proximity, the probability that perpetrator was distal or proximal to primary care environment was similar across all other classes. This pattern of results raises two important considerations: 1) In addition to being a potentially traumatic experience in and of itself, having a primary carer with such aforementioned issues may be a significant risk factor for direct interpersonal trauma exposure in childhood. These results suggest this risk may be heightened where it is the primary male carer experiencing such difficulties; and 2) Where perpetrator proximity was not clearly demarcated as proximal or distal to primary care environment, individuals appeared to have been equally likely experience various trauma type perpetrated by someone either within or outside their primary care environment.

The second main contribution of this paper is that we identified covariates significantly associated with class membership. Previous trauma literature has identified gender differences in childhood trauma exposure as a critical vulnerability consideration within trauma research (e.g. Ballard et al., 2015). Significant associations between gender and trauma typology emerged in the current study. Notably, male gender was significantly associated with high probability of exposure to a range of physical violence experiences, replicating previous research identifying males more likely than females to experience non-sexual assaultive trauma during childhood (Jonas, et al., 2014). Female gender was associated with a higher probability of exposure to multiple types of direct and indirect childhood trauma experiences, including sexual assault. This finding is consistent with some previous research, whereby females were significantly more likely than males to have experienced multiple different interpersonal trauma experiences (Jonas, et
al., 2014) and sexual assault in childhood (Tolin & Foa, 2006) – with greater disparity for exposure to childhood sexual assault in females previously identified among the homeless (Kushel, et al., 2003). The current study further elucidated that homeless females were highly vulnerable to sexual assault from someone both within and outside their primary care environment during childhood. This delineation added a critical element of understanding to risk vulnerability knowledge and addressed an identified limitation of previous LCA examinations into childhood trauma clustering where perpetrator information was lacking (Ballard, et al., 2015).

An additional salient finding was that class membership for the Multiple CTE class was significantly influenced by all covariates, excepting age and juvenile detention experience. These individuals reported high likelihood of having no recollection of ever having felt safe while growing up and experiencing hatred and emotional negativity. They were also very highly likely to have had lived in care at some stage before the age of 14 years and were unlikely to have had two primary carers both of which being biological parents. Some additional significant covariate influences of interest were noted. First, similar to the Multiple CTE class, high likelihood of experiencing hatred and emotional negativity while growing up was identified for the Proximal CTE class. However, contrasting with the Multiple CTE class, there was a high probability of these individuals having been in Juvenile detention but not in care. Second, individuals in the Distal CTE group were likely to be younger than those in the reference group and were also likely to have had some experience of feeling safe growing up. Third, individuals who had trauma experiences that were largely indirect in nature were more likely to have left school before completion of year 12 (aged 18 years).

These findings provide crucial insight into vulnerability factors that increase likelihood of experiencing specific types of childhood trauma, with important implications for early intervention prevention of trauma exposure. Notably, it appears that exposure to multiple negative contextual childhood experiences significantly increases risk vulnerability for multiple complex trauma experiences before the age of 14 years. Furthermore, the findings suggest this vulnerability is greater for females, particularly in the case of sexual assault. The protective nature of feeling safe within the primary care environment is also highlighted within the current study context. This finding is consistent with treatment focused examinations, which persistently identify creating a safe space for children who have experienced complex trauma as first priority of therapeutic interventions (Greenwald, 2014). Furthermore, there is evidence to suggest that trauma-informed care environments facilitating healing and growth are an essential component of therapeutic change (Bath, 2008). It therefore stands to reason that feeling safe within a primary care
environment, even in the face of complex childhood trauma experience, may serve to ameliorate in part consequent psychological distress.

A second aim of this study was to investigate possible patterned links between typology of childhood trauma experience and subsequent adulthood trauma experiences. The results indicated that childhood trauma experiences were associated with adult trauma. Most notably the nature of adulthood trauma type appeared to correspond with childhood trauma type in most of the classes. Specifically, individuals in the Multiple CTE class reported the highest frequency of adulthood interpersonal trauma experience across all type; individuals in the High Violence CTE class reported high frequency of physical assault and threat of violence but low frequency of sexual assault; and lowest frequency across all adulthood trauma type was reported by those in the Indirect CTE class. Keeping in mind the aforementioned contextual factors also influencing class membership, these findings suggest that greater exposure to multiple childhood trauma experiences significantly increases the risk of subsequent multiple adulthood interpersonal trauma exposure. Furthermore, this pattern of associations may indicate that trauma exposure type during childhood predisposes an individual to adulthood trauma exposure of the same type.

Sexual re-victimisation examinations highlighting transition from child victim to adult victim (Arata, 2000), may also provide rationale for higher proportionate report of any experience sexual assault in adulthood in the low CTE class. The finding of proportionate incidence of sexual assault in the preceding six-months for individuals in the low CTE class is perhaps more indicative of reduced exposure to risky situations, relative to individuals in other classes with higher prevalence of sexual assault in the previous six months. Longitudinal examination of these associations, with consideration of additional time- variate covariate influences (such as homeless transitioning), are suggested for future research consideration.

Addressing the final aim of this study, important implications of complex trauma typology for homelessness experiences were revealed. Of particular significance was that individuals in the Multiple CTE class had the highest proportion of individuals reporting a homeless experience of one to five years prior to baseline. This was in comparison to the other five classes where the highest proportion of individuals reported total homeless time prior to baseline of less than twelve months. Further to this, while a ‘first homeless experience of less than six-months duration’ was reported by more than 50% of individuals in all six classes, a larger relative proportion of ‘greater than 6 months first homeless experience’ was identified in the Multiple CTE class. This pattern of results highlights increased vulnerability for individuals who have experienced multiple childhood trauma experiences across a range of type.
5.5.1 Limitations and Strengths

Findings from this research were limited by several factors. Issues relating to the potential under-reporting and over-reporting must be considered when interpreting findings based on retrospective reporting of childhood trauma experiences (Hardt & Rutter, 2004; McKinney, Harris & Caetano, 2009). Disturbances in self-regulatory capacities, with marked difficulties in interpersonal skills, are characteristic features of problematic dysfunction experienced by individuals with complex trauma experiences (Cook et al., 2005). These factors could have influenced reporting accuracy of intimate and private issues and must be considered in future research, particularly given the identified challenge of establishing trust between the homeless and health care providers (van den Berk-Clark & McGuire, 2014). Thirdly, the use of structured questions to gather information about participant’s childhood experiences and family history likely constrained reporting.

Despite these limitations this paper provides some important contributions to complex trauma research. Adoption of a person-centred approach to examine complex trauma has extended our understanding of individual differences in trauma experiences for those experiencing extreme social disadvantage. Previous research has suggested a need to move beyond cumulative and additive examinations of direct interpersonal trauma experiences (Hodges, et al., 2013). The current study adopted a broadened conceptualisation of complex trauma, which included direct and indirect trauma experiences together with environmental and contextual risk vulnerability factors. Ballard and colleagues (2015) identified a need for closer examination of perpetrator proximity and associated risk factors in cases of childhood trauma. In the current study, significant covariate effects were associated with emergence of class delineation by perpetrator proximity. These findings provide important insight into vulnerability risk factors for exposure to interpersonal trauma both within and outside the primary care environment. A further strength of this study was identification of particularly vulnerable sub-groups within an already vulnerable population. Echoing findings from the past two decades of research (Bassuk et al., 1996; Kushel, Evans, Perry, Robertson, & Moss, 2003) females continue to be most at risk for interpersonal trauma where housing stability is low.
5.5.2 Conclusion

This study provides new insights into the nature of complex trauma in a socially disadvantaged population. These findings are important because they could inform policy development and intervention strategies targeting successful exiting from the perpetuating cycle of social disadvantage and housing instability. Furthermore, the detection of extremely high prevalence of lifetime interpersonal trauma exposure provides insight into possible barriers to initial engagement with available support services. It is recommended that further research is conducted to clarify the nature and impact of these complex trauma profiles in different populations.
Chapter 6

Empirical 4

Trajectories of Psychological Distress in Australians Experiencing High Housing Instability: The Impact of Interpersonal Trauma

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6.1 Abstract

Childhood maltreatment and interpersonal trauma experience is an important factor underpinning the apparent perpetuation of the cycle of social disadvantage experienced by homeless adults. This paper aimed to examine longitudinal patterns of psychological distress in a sample of 1,504 socially disadvantaged adult participants from the Journeys Home Study in Australia. The current paper utilized the conservation of resources theory and the concept of risk factor caravans to investigate the nature and implications of childhood trauma in the context of homelessness. Growth mixture modelling revealed four distinct trajectories of psychological distress as measured by the Kessler 6 across six time points (covering a period of 2.5 years): chronic, escalating, attenuating, resistant. Our results also indicated that experiences of different types of trauma during childhood were associated with these psychological distress trajectories. In particular, adults experiencing chronic psychological distress were significantly more likely than those exhibiting distress resistance to have experienced multiple and varied childhood maltreatment, adjusted odds ratio (AOR) = 5.75, \( p = .002 \), 95% CI [2.37, 9.19]. Furthermore, adult experiences of assault were found to be associated with psychological distress. These findings have important implications for mental health and for interventions aimed at breaking the cycle of urban poverty. Specific focus on interpersonal trauma vulnerabilities is important. Prioritizing socioecological stability, with mental health needs assessed on an individual level, may be most appropriate. This work also highlights the need to direct future attention to barriers to access and facilitation of social support services.
6.2 Introduction

Compared with the general population, individuals vulnerable to homelessness are at greater risk of interpersonal traumatic experiences (Fazel, Geddes, & Kushel, 2014) and are highly likely to have histories of childhood maltreatment (Keane, Magee, & Kelly, 2016). The lived experience of homelessness has long been recognized as psychologically traumatic (Goodman, Saxe, & Harvey, 1991), and the dynamic interplay between antecedents and consequences of interpersonal trauma and homelessness can impede effective access and facilitation of social support services. As homelessness continues to rise alarmingly in industrialized nations, there is a need to better understand the impacts and legacies of trauma experiences in these disadvantaged populations. In the current study, we built on previous research (Keane et al., 2016) and investigated the nature of psychological distress patterning in homelessness-vulnerable individuals, where childhood trauma experience and adulthood interpersonal trauma are the central foci.

Interpersonal trauma refers to assaultive experiences perpetrated with intent by an individual upon another individual (e.g., physical, emotional, sexual, or psychological abuse), and exposure to multiple assaults and varied trauma types are common (Ford & Courtois, 2009). Interpersonal trauma is often first experienced in infancy, with revictimisation common throughout the lifespan. Childhood trauma may also include experiences within the primary care environment, such as mental illness, substance abuse, incarceration, and domestic violence (Cloitre et al., 2009). The effects are compounded if the perpetrator is known to the young person or within the primary care environment (Ford & Courtois, 2009).

Interpersonal trauma experiences are believed to be perceived, encoded, and conceptualized in a manner distinct from noninterpersonal trauma (Kisiel et al., 2014). In adulthood, for example, interpersonal traumas have been shown to have greater implications for psychiatric and behavioral dysfunction (e.g., Landa et al., 2013). Various studies have shown that interpersonal trauma experiences that occurred during childhood have additional biopsychosocial implications, such as difficulties with healthy attachment formation and interpersonal relating (Cloitre et al., 2009), impaired neurological and cognitive development (Purvis, McKenzie, Cross, & Razuri, 2013), and behavioral and emotional dysregulation (Staudinger & Kunzmann, 2005). Adverse interpersonal childhood experiences have also been linked to adult medical disease and psychological disorder (Anda et al., 2006); this suggests that trauma vulnerabilities developed in childhood remain chronic and pervasive throughout the lifespan. Co-occurring trauma types, accumulative experiences, and accrual of posttraumatic stress responses need to be considered when examining childhood trauma (Layne, Briggs, & Courtois, 2014). In ecologically vulnerable populations...
(e.g., the homeless), the dynamic interplay between posttraumatic responses and socioenvironmental conditions adds unique complexity.

For the current study, we drew upon the “conservation of resources” (COR; Hobfoll, 1989) theory to investigate the nature and implications of childhood trauma in the context of homelessness. The COR theory proposes that people are driven to accumulate and protect valued resources. Stress arises when an individual loses, or is threatened with the loss, of these resources (e.g., objects or energies); regaining resource equilibrium requires successfully navigating resource loss and gain cycling. “Resource caravans” and “passageways” are additional features of COR that propose that in order to offset resource loss, an individual needs either a personal resource surplus (caravans) upon which to draw or access to needed resources (passageways). The concept of “risk factor caravans” (Layne et al., 2014) has particular relevance within the context of complex trauma, as it proposes that certain types of risk factors cluster together and travel with an individual throughout his or her lifetime. These risk factors impede capacities to both halt resource loss spiralling and to regain them to maintain resource equilibrium (Layne et al., 2014). Detrimental biopsychological responses to trauma are captured within this proposition, whereby the functional impacts of risk factor clusters associated with childhood adversity across the lifespan are depicted (Layne et al., 2014). Relatedly, the notion of “risk factor caravan passageways” rationalizes how particular ecologies contribute to the formation and transmission of risk factor caravans. Thus, COR theory provides an important framework with which to examine interpersonal trauma in the homelessness-vulnerable population. This is because childhood traumas represent risk factor caravans that predispose individuals to adverse consequences (e.g., psychological distress). Homelessness represents a unique ecological risk factor caravan passageway in which the risk for revictimization subsists.

As noted, for the present study we drew upon COR theory and risk factor caravans to investigate the associations among childhood trauma, adult trauma, and psychological distress. We examined psychological distress as an outcome for three main reasons. First, it provides a global assessment of posttraumatic response and functioning. Second, resource losses and risk factor caravans have clear implications for psychological distress (e.g. Hobfoll, Tracey, & Galea, 2006). Third, childhood trauma experiences represent a risk factor caravan that predisposes individuals to resource loss, trauma experiences during adulthood, and, consequently, increased psychological distress. For the present paper, we adopted a person-centred approach to examine these associations. A person-centred approach is relevant because trauma experiences are diverse, and different experiences could have varying implications for psychological
distress. For example, Hodges and colleagues (2013) identified that cumulative exposure to multiple trauma types in childhood predicted posttraumatic symptom complexity. Prototypical trajectories of trauma responding (e.g., chronic dysfunction, delayed reactions, and “heathy” or “typically expected” responses) have also been identified across various populations and trauma types (Bonanno & Mancini, 2012). The heterogeneity of trauma responding has notable implications for clinical interventions (Ford & Courtois, 2009) and suggests that person-centred examinations of psychological distress trajectories are needed (e.g., Choi et al., 2012). Person-centred approaches, such as growth mixture modelling (GMM), are particularly ideal for capturing the dynamic and nonlinear processes associated with trauma antecedents and consequences and are recommended in this context (Benight, Shoji, & Delahanty, 2017).

A final consideration is that research that has examined psychological distress trajectories in the socially disadvantaged (including individuals with a high level of housing instability) is scarce. Further, temporal associations between childhood trauma histories and concurrent interpersonal trauma experiences and psychological distress for the homelessness vulnerable-population remain unexamined. In the present paper, we sought to address these gaps by examining longitudinal patterns of psychological distress in homelessness-vulnerable adults with childhood trauma histories, a group at risk of interpersonal trauma revictimization. The chosen analytic approach (GMM) was informed by a COR framework and acknowledged heterogeneity of trauma experience and nonlinearity of distress—essential considerations for the development of strategies aimed at facilitating successful exiting from the cycle of urban poverty.

In the present paper, we built upon the findings of Keane et al. (2016), who used latent class analysis to identify six distinct childhood trauma experiences in a sample of homeless individuals. These six classes had the following characteristics: (a) Multiple Trauma class (15.8%), characterized by direct and indirect trauma experiences perpetrated by individuals both within and external to the primary care environment; (b) High Violence class (14.0%), characterized by trauma experiences that were predominantly physically assaultive in nature; (c) Distal class (17.2%), in which the perpetrator of trauma experiences was outside the primary care environment; (d) Proximal class (12.6%), in which the perpetrator was within the primary care environment; (e) Indirect class (15.3%), characterized by trauma experiences that were most likely due to the witnessing of violence and primary caregiver issues; and (f) Low Trauma class (25.4%), in which trauma exposure was likely of a single type. In the present paper, these latent classes are conceptualized as risk factor caravans that would have distinct and varied patterns of psychological distress experience. We anticipated that findings would be in some manner analogous with previously identified prototypical trauma
responses. At a minimum, we expected the emergence of differentiation between chronic and resilient and/or resistant psychological distress patterning. Following from the COR theory of traumatic stress and associated propositions regarding risk factor caravans and resource loss spirals, we proposed the following hypothesis: Childhood trauma classes would be associated with distinct longitudinal patterns of psychological distress experience. We expected that individuals who had experienced more complex types of childhood trauma would be more likely to demonstrate chronically elevated or escalating psychological distress across time. A final aim of this paper was to examine associations between each of the distinct psychological distress trajectories and recent (i.e., within the last 6 months) adulthood interpersonal trauma (i.e., physical and/or sexual assault).

6.3 Method

6.3.1 Participants and Procedure

For this study, we utilized data collected in the Journeys Home (JH) Study—a six-wave longitudinal examination of a nationally representative sample \( N = 1,682 \) of Australian individuals identified as homeless or at risk of becoming homeless (Wooden et al., 2012). The JH study population was sampled from customers receiving income support from the Australian Government’s social security and health support services program (Centerlink) during May 2011 (University of Melbourne, 2012). Customers flagged as “homelessness vulnerable” by the Homelessness Indicator screening tool (an extensive list of statistically determined predictor variables, such as tenure security, utilized by Centerlink since 2010 to flag at-risk individuals) formed the subpopulation from which we derived the JH sample. Potential participants were excluded if they met any of the following five criteria: in prison, overseas, interpreter required, Centrelink file indicated they were not willing to participate in research studies, or their file was marked as “sensitive.” Trained professionals collected data through the use of structured interviews. The surveys collected information across many personal, living, and housing challenges for this specific population subset. The Wave 1 survey was conducted between September 2011 and November 2011. All participants entered the study at Time 1 (Wave 1). Follow-up interviews were conducted at intervals (approximately every six months) and the final wave (Wave 6) concluded in May 2014. Detailed information about the JH study (e.g., design, sampling procedures, exclusion criteria, administration, and response coding) is available in the JH Technical Report (University of Melbourne, 2012). Ethics approval was granted by The University of Wollongong. As noted earlier, in the present paper, we extended on a previous trauma-focused examination of the JH Study participants (Keane et al., 2016), which included
1,663 participants. To keep the focus on adults, participants aged 17 years and under \((n = 159)\) were excluded from this paper, resulting in a sample of 1,504 adults (i.e., individuals aged 18 years or older) at Time 1. After we excluded individuals with missing data across three or more time points \((n = 10)\), the final sample size for this paper was 1,494.

### 6.3.2 Measures

#### 6.3.2.1 Psychological distress.

The Kessler 6 (K6; Kessler et al., 2002) assessed current nonspecific psychological distress at each wave. For each of the six items in the measure, participants indicated on a 5-point Likert scale \((1 = \text{all of the time} \quad \text{to} \quad 5 = \text{none of the time})\) how often in the past 30 days they experienced a particular indicator of psychological distress (e.g., everything was an “effort,” “worthless”). A total psychological distress score (range: 0 – 24) was calculated and the summed score was inverted, with a higher score indicating a greater level of distress. We utilized cut-off values that were previously identified in studies measuring psychological distress in Australian sample populations: a score of 8 or less indicated the participant was non-symptomatic, a score of 8 to 13 indicated the patient was symptomatic, and a score greater than 13 indicated the participant’s psychological distress was clinically elevated (Giallo, 2014).

#### 6.3.2.2 JH Study data.

The JH Study examined the childhood adversity histories of participants using survey items based on the Adverse Childhood Experiences Study and the 2005 Australian Bureau of Statistics Personal Safety Survey (as specified in the JH user Manual; Bevitt, Chigavazira, Scutella, Tseng, & Watson, 2014). As reported in Keane et al. (2016), these experiences were examined using latent class analysis (LCA), which involved preparatory work of categorizing participants’ responses to the childhood adversity survey items into 10 childhood trauma experience (CTE) variables and dichotomizing responses into “yes” or “no” to indicate recollection of having had a particular experience during childhood (i.e., when the participant was aged 14 years or under). Contextual childhood variables (e.g., composition of primary career dyad) were also included in the LCA. Dummy codes were created to capture the six latent classes for the purposes of the present analyses; the “low” class was coded as the referent.

In GMM approaches each additional variable increases the risks of impaired model convergence and weakened associations with the primary outcome focus of interest (Diallo, Morin, & Lu, 2017). Therefore, the number and nature of covariates for inclusion in this study were carefully considered to ensure a parsimonious solution that maximized the trauma-specific focus of the current study. In addition
to the contextual childhood variables that were accounted for in the CTE classifications, antecedent factors conceptually nonseparable from the individual (i.e., age, gender, education level, and indigenous status) were modelled as categorical time-invariant covariates.

The use of preexisting data restricted measurement of adulthood trauma experiences to the bounds of the JH study. We selected two survey items for use in the current study: “Have you experienced physical violence in the last 6 months?” and “Have you experienced sexual assault in the last 6 months?” These items were coded a 0 = no and 1 = yes (Bevitt et al., 2014).

6.3.3 Data Analysis

We employed GMM using Mplus, version 6.11 (Muthén & Muthén, 1998–2010) to examine the association between trauma and psychological distress across the six waves (a period of 2.5 years). The GMM allowed for the identification of distinct growth curves of psychological distress (Jung & Wickrama, 2008). We examined whether CTE classes, age, and gender (all time-invariant covariates) predicted the trajectory growth functions and trajectory class membership. Specific details on the modelling approach are provided later in this article.

The GMM analyses were guided by existing GMM recommendations (Muthén & Muthén, 1998–2010) and involved the following: (a) identification of number of latent trajectories, (b) multinomial logistic regression analysis to identify significant covariates associated with the trajectories, and (c) testing a final GMM model that included these covariates and the CTE typologies identified earlier in (a). We examined nonlinear GMM growth parameters (intercept, slope, and quadratic), allowing within-class variation accommodations through freeing of slope constraints and fixing quadratic variance components to zero. Thus, we avoided issues of convergence and improper solutions (Jung & Wickrama, 2008).

Initial identification of the optimal number of trajectories involved an iterative class specification process, whereby bootstrap likelihood ratio tests (BLRTs) indicated whether a \( k \) class model provided a better fit than the previous \( k-1 \) model. In addition, we examined Akaike information criteria (AIC), Bayesian information criteria (BIC), and sample-size adjusted BIC (ABIC), with lower values indicative of improved model fit. Entropy (class classification accuracy indicator) and size of identified classes were considered to ensure a well-fitting and parsimonious final model specification. As predicted, we found significant associations between each typology and psychological distress trajectory. Gender and age were also identified as significant time-invariant covariates of influence and were included with CTE typologies in the final full GMM. Results of the categorical latent variable regressions for each GMM class are reported.
as adjusted odds ratios (AOR), as CTE type and covariates are accounted for in the final model formation. For CTE type, the low CTE type was modelled as the reference category for within-GMM class examination of CTE type. Neither indigenous status nor level of education were identified as having a significant influence in this analysis and were thus excluded from the final model. Consistent with recommendations, individuals with data missing on more than 50% of the time points \((n = 10)\) were excluded. For the remaining participants, missing data were handled using full information maximum likelihood estimation (Dong & Peng, 2013).

We conducted post hoc analyses to examine the association between adult trauma experiences and psychological distress trajectory membership. This was conducted by assigning individuals to trajectory groups based on their posterior probabilities of most likely class classification. Pearson’s chi-square tests for association were then conducted at each time point to examine whether trajectory membership was associated with adult trauma experiences at each time point. Results are reported as chi-squared values using a conservative \(p\) value of .001 to account for multiple post hoc comparisons.

### 6.4 Results

We conducted initial GMM analyses specifying one- to six-class solutions. Goodness of fit indices results are displayed in Table 6.1. Entropy increased slightly for the six-class solution and small improvements were identified for AIC, ABIC, and BLRT; however, an increase in BIC and an identified sixth class that was too small \((n = 6; 0.004\%)\) to be meaningfully interpreted (Nylund, Asparouhov, & Muthén, 2007) indicated that a five-class solution was optimal. Logistic regression analyses identified that the six CTE latent classes were significantly associated with the psychological distress trajectories, as was age. We tested a final conditional model GMM that specified five classes and included these significant covariates of influence. When this model was fitted, as expected, there were some minor changes to the size and nature of these classes (Muthén, 2004); however, two of the classes overlapped considerably in the full model and were not distinct from one another, which suggests the possibility of a slight distortion of results in the initial unconditional model due to initial class specification being based only on the observed outcome variable of interest (Jung & Wickrama, 2007). As a result, a four-class final conditional model was specified, resulting in a resolution of the issue of nondistinction and a parsimonious solution identifying four distinct trajectories of psychological distress.
Table 6.1

*Information Criteria and Model Fit for Quadratic Growth Mixture Modelling (GMM) One to Six Classes with Comparative Linear Indices for GMM One to Six Classes*

<table>
<thead>
<tr>
<th>Number of Classes</th>
<th>AIC</th>
<th>BIC</th>
<th>ABIC</th>
<th>BLRT</th>
<th>Entropyb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1c</td>
<td>45962.21</td>
<td>46137.41</td>
<td>46032.58</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1d</td>
<td>46136.32</td>
<td>46194.72</td>
<td>46159.78</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2c</td>
<td>45951.61</td>
<td>46052.48</td>
<td>45992.12</td>
<td>-23027.44*</td>
<td>0.68</td>
</tr>
<tr>
<td>2d</td>
<td>45934.13</td>
<td>46019.08</td>
<td>45968.25</td>
<td>-23057.16*</td>
<td>0.52</td>
</tr>
<tr>
<td>3c</td>
<td>45883.99</td>
<td>46006.10</td>
<td>45933.04</td>
<td>-22946.10*</td>
<td>0.73</td>
</tr>
<tr>
<td>3d</td>
<td>45836.27</td>
<td>45947.76</td>
<td>45881.05</td>
<td>-22951.07*</td>
<td>0.55</td>
</tr>
<tr>
<td>4c</td>
<td>45782.89</td>
<td>45926.23</td>
<td>45840.46</td>
<td>-22912.46*</td>
<td>0.72</td>
</tr>
<tr>
<td>4d</td>
<td>45795.83</td>
<td>45933.87</td>
<td>45851.28</td>
<td>-22897.14*</td>
<td>0.62</td>
</tr>
<tr>
<td>5ca</td>
<td>45757.74</td>
<td>45906.39</td>
<td>45817.45</td>
<td>-22880.01*</td>
<td>0.74</td>
</tr>
<tr>
<td>5d</td>
<td>45766.38</td>
<td>45930.96</td>
<td>45832.49</td>
<td>-22871.92</td>
<td>0.69</td>
</tr>
<tr>
<td>6c</td>
<td>45743.77</td>
<td>45913.67</td>
<td>45812.01</td>
<td>-22850.87*</td>
<td>0.76</td>
</tr>
<tr>
<td>6d</td>
<td>45743.91</td>
<td>45935.04</td>
<td>45820.68</td>
<td>-22852.19*</td>
<td>0.65</td>
</tr>
</tbody>
</table>

*Note:* AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = Adjusted Bayesian information criterion; BLRT = bootstrap likelihood-ratio test.
aBest-fit model with lower BIC indicating better fit. Increasing BIC, entropy below 0.7, and nonsignificant BLRT, *p = .100*, in five-class solution within linear model and also in comparison with quadratic model support quadratic model as best fit (outlined by box). bEntropy should be greater than 0.7, values closer to 1 are better. cFit indices for quadratic model solution. dComparative fit indices for linear model solutions. *p < .001.

With respect to Hypothesis 1 (psychological distress trajectories analogous with prototypical), characteristics of the trajectories are illustrated in Figure 6.1 and Table 6.2, and Table 6.3 reflects the functions for each trajectory when the growth factors were regressed onto the CTE classes and time-invariant covariates (age and gender). Cross tabulation of the six CTE classes and four psychological distress trajectories are displayed in Table 6.4. Salient features of each trajectory are discussed herein.
Figure 6.1. The four distinct trajectories of psychological distress as measured by estimated means of the latent variables with estimated standard error bars. Dashed line at Kessler 6 (K6) scores 8 and 13 delineates $< 8 = $ non-symptomatic, $8 - 13 = $ symptomatic, and $> 13 = $ clinically elevated (Giallo, 2014).
### Table 6.2

*Age, Gender, and Kessler 6 (K6) Information for Psychological Distress Trajectories*

| Variable | Escalating  
| (n = 93; 6.2%) | Attenuating  
| (n = 109; 7.3%) | Chronic  
| (n = 335; 22.4%) | Resistant  
| (n = 957; 64.1%) |
|------------|---------------|---------------|---------------|---------------|
| Gender     | n | % | M  | SE | n | % | M  | SE | n | % | M  | SE | n | % | M  | SE |
| Female     | 41 | 44.1 | 37.6 | 41 | 54.0 | 181 | 54.0 | 378 | 39.5 |
| Male       | 52 | 55.9 | 62.4 | 68 | 46.0 | 154 | 46.0 | 579 | 60.5 |
| Age        | n | % | M  | SE | n | % | M  | SE | n | % | M  | SE | n | % | M  | SE |
| 18–24      | 34 | 36.6 | 17.4 | 19 | 18.8 | 63 | 18.8 | 371 | 38.8 |
| 25–34      | 25 | 26.9 | 26.6 | 29 | 24.2 | 81 | 24.2 | 221 | 23.1 |
| 34–44      | 23 | 24.7 | 29.4 | 32 | 29.0 | 97 | 29.0 | 175 | 18.3 |
| 45–54      | 8  | 8.6 | 22.0 | 24 | 21.8 | 73 | 21.8 | 128 | 13.4 |
| 55–64      | 3  | 3.2 | 3.7 | 4  | 5.7 | 19 | 5.7 | 50  | 5.2  |
| ≥ 65       | 0  | 0  | 1.9 | 1  | 0  | 2  | 0  | 12  | 1.3  |
| K6         |     |     |     |     |     |     |     |     |     |
| Time 1     | 10.29 | 0.58 | 12.31 | 0.54 | 14.95 | 0.27 | 6.39 | 0.15 |
| Time 2     | 6.36  | 0.42 | 13.79 | 0.49 | 14.33 | 0.27 | 5.11 | 0.14 |
| Time 3     | 6.06  | 0.43 | 14.56 | 0.48 | 14.28 | 0.27 | 4.83 | 0.14 |
| Time 4     | 7.30  | 0.48 | 13.47 | 0.46 | 14.15 | 0.26 | 4.64 | 0.13 |
| Time 5     | 9.69  | 0.54 | 8.74  | 0.53 | 14.14 | 0.28 | 5.20 | 0.15 |
| Time 6     | 15.34 | 0.33 | 5.71  | 0.34 | 14.39 | 0.22 | 4.31 | 0.12 |

*Note. N = 1,494.*
### Table 6.3
Intercept, Linear, and Quadratic Functions for Psychological Distress Trajectories in Growth Mixture Modelling

<table>
<thead>
<tr>
<th>K6 trajectories</th>
<th>Intercept</th>
<th>Linear</th>
<th>Quadratic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SE$</td>
<td>$M$</td>
</tr>
<tr>
<td>Escalating distress</td>
<td>11.88*</td>
<td>2.33</td>
<td>2.13*</td>
</tr>
<tr>
<td>Attenuating distress</td>
<td>9.04*</td>
<td>0.76</td>
<td>-3.29</td>
</tr>
<tr>
<td>Chronic distress</td>
<td>14.40*</td>
<td>0.55</td>
<td>-0.39</td>
</tr>
<tr>
<td>Resistant distress</td>
<td>6.18*</td>
<td>0.30</td>
<td>-0.78</td>
</tr>
</tbody>
</table>

*Note:* Estimated mean ($M$) and standard error ($SE$) of intercept, slope, and quadratic functions when growth factors are regressed on covariates.

*p < .001.

The largest trajectory ($n = 957; 64.1\%$) of the four and reflected a persistent low level of nonsymptomatic psychological distress across the study duration. Consistent with previous literature, this trajectory was labeled “Resistant Distress” (Norris, Tracy, & Galea, 2009). We chose this trajectory to be the reference category throughout comparative analyses. A second trajectory ($n = 109; 7.3\%$), labeled “Attenuating Distress,” was characterized by an initial increase in psychological distress that peaked at Time 3 followed by a marked reduction in psychological distress over the remainder of study duration. Individuals reported experiencing clinically elevated levels of psychological distress at Times 2 and 3; however, by Time 6, their levels of psychological distress were nonsymptomatic. This trajectory had lower proportions of individuals from the High Violence and Proximal CTE classes compared with the other trajectories. Neither age nor gender was associated with this trajectory, and the growth factors were not significant.

A third trajectory ($n = 93; 6.2\%$), labeled “Escalating Distress,” showed an increase in psychological distress across time that was reflected by a significant negative linear effect, $B = -3.35, p < .001$, and a significant quadratic effect, $B = 0.95, p < .001$. This trajectory was characterized by symptomatic elevations of psychological distress at Time 1 that attenuated further at Time 2 and remained nonsymptomatic until Time 5, at which point symptomatic elevations re-emerged. At Time 6, distress then returned to clinically elevated levels. Individuals assigned to the Escalating Distress trajectory were significantly more likely to be in the Multiple, $AOR = 5.75, p = .002, 95\% \text{ CI}[2.37, 9.19]$, or High Violence, $AOR = 3.47, p = .029, 95\% \text{ CI}[0.01, 6.94]$, CTE classes than in the Low CTE class compared to those in the Resistant Distress trajectory.
A fourth trajectory (n = 335; 22.4%) was characterized by clinically elevated levels of psychological distress levels that were fairly stable across time, as reflected by the nonsignificant linear, $B = 0.06, p = .905$, and quadratic, $B = 0.035, p = .705$, functions. As the mean levels of distress for this trajectory remained in the clinically elevated range across all six time points, this trajectory was labeled “Chronic Distress.” Individuals in this trajectory group were significantly more likely to have been assigned to the Multiple CTE class, $AOR = 3.30, p = .002, 95\% \text{ CI} [0.37, 6.05]$, than the Low CTE class compared to those in the Resistant Distress trajectory group. We identified a significant effect of age, $AOR = 1.33, p < .001, 95\% \text{ CI} [0.79, 3.45]$, with individuals who reported clinically elevated levels of distress likely to have been older than those with stable low levels of distress.

Post hoc Pearson’s chi-square tests for association analyses indicated significant differences in prevalence of self-reported adult trauma experiences of physical and sexual assault at all time-points for each of the four psychological distress trajectories. See Tables 6.5 and 6.6 for detailed results.
Table 6.4

Cross Tabulation Between the Six Childhood Trauma Experience (CTE) Latent Classes and Four Kessler 6 Psychological Distress Growth Trajectories

<table>
<thead>
<tr>
<th>K6 Distress Trajectories</th>
<th>Escalating (n = 93; 6.2%)</th>
<th>Attenuating (n = 109; 7.3%)</th>
<th>Chronic (n = 335; 22.4%)</th>
<th>Resistant (n = 957; 64.1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>CTE Classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple (n = 232; 15.5%)</td>
<td>34</td>
<td>36.6</td>
<td>24</td>
<td>22.0</td>
</tr>
<tr>
<td>High Violence (n = 200; 13.4%)</td>
<td>20</td>
<td>21.5</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Proximal (n = 182; 12.2%)</td>
<td>13</td>
<td>14.0</td>
<td>4</td>
<td>3.7</td>
</tr>
<tr>
<td>Indirect (n = 221; 14.8%)</td>
<td>7</td>
<td>7.5</td>
<td>7</td>
<td>6.4</td>
</tr>
<tr>
<td>Distal (n = 255; 17.1%)</td>
<td>10</td>
<td>10.8</td>
<td>19</td>
<td>17.4</td>
</tr>
<tr>
<td>Low (n = 404; 27.0%)</td>
<td>9</td>
<td>9.7</td>
<td>53</td>
<td>48.6</td>
</tr>
</tbody>
</table>

Note. $\chi^2(15, N = 1,494) = 149.30, p < .001.$
Table 6.5

Cross Tabulation between the Four Kessler 6 Psychological Distress Growth Trajectories and Physical Assaulta

<table>
<thead>
<tr>
<th>Assault experience</th>
<th>Escalating (n = 93; 6.2%)</th>
<th>Attenuating (n = 109; 7.3%)</th>
<th>Chronic (n = 335; 22.4%)</th>
<th>Resistant (n = 957; 64.1%)</th>
<th>( \chi^2 )</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Time 1</td>
<td>19 20.4</td>
<td>16 14.7</td>
<td>71 21.2</td>
<td>154 16.1</td>
<td>5.65</td>
<td>.130</td>
</tr>
<tr>
<td>Time 2</td>
<td>20 21.5</td>
<td>14 12.8</td>
<td>84 25.1</td>
<td>133 13.9</td>
<td>24.87</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Time 3</td>
<td>16 17.2</td>
<td>22 20.2</td>
<td>71 21.2</td>
<td>128 13.4</td>
<td>13.22</td>
<td>.004</td>
</tr>
<tr>
<td>Time 4</td>
<td>18 19.4</td>
<td>18 16.5</td>
<td>66 19.7</td>
<td>96 10.0</td>
<td>24.78</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Time 5</td>
<td>20 21.5</td>
<td>18 16.5</td>
<td>72 21.5</td>
<td>84 8.8</td>
<td>43.63</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Time 6</td>
<td>20 21.5</td>
<td>5  4.6</td>
<td>60 17.9</td>
<td>80  8.4</td>
<td>38.08</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Note: aPhysical assault experiences in the 6-month period prior to each wave that were reported to interviewer. Binary coded as yes or no indicating whether the participant experienced at least one assault in 6-month period. Data are reported are based on “yes” responses.

bChi-square analysis compared each trajectory at each time point; df = 3, N = 1494 for all comparisons.
Table 6.6

Cross Tabulation between the Four Kessler 6 (K6) Psychological Distress Growth Trajectories and Sexual Assault

<table>
<thead>
<tr>
<th>Assault experience</th>
<th>Escalating (n = 93; 6.2%)</th>
<th>Attenuating (n = 109; 7.3%)</th>
<th>Chronic (n = 335; 22.4%)</th>
<th>Resistant (n = 957; 64.1%)</th>
<th>$\chi^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>6</td>
<td>6.5</td>
<td>2</td>
<td>1.8</td>
<td>11</td>
<td>3.3</td>
</tr>
<tr>
<td>Time 2</td>
<td>3</td>
<td>3.2</td>
<td>1</td>
<td>0.9</td>
<td>11</td>
<td>3.3</td>
</tr>
<tr>
<td>Time 3</td>
<td>1</td>
<td>1.1</td>
<td>3</td>
<td>2.8</td>
<td>10</td>
<td>3.0</td>
</tr>
<tr>
<td>Time 4</td>
<td>2</td>
<td>2.2</td>
<td>2</td>
<td>1.8</td>
<td>13</td>
<td>3.9</td>
</tr>
<tr>
<td>Time 5</td>
<td>3</td>
<td>3.2</td>
<td>1</td>
<td>0.9</td>
<td>15</td>
<td>4.5</td>
</tr>
<tr>
<td>Time 6</td>
<td>7</td>
<td>7.5</td>
<td>7</td>
<td>0.9</td>
<td>10</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Note: aSexual assault experiences in the 6-month period prior to each wave that were reported to interviewer. Binary coded as yes or no, indicating whether the participant experienced at least one assault in 6-month period. Data are reported are based on “yes” responses. bChi-square analysis compared each trajectory at each time point; df = 3, $N = 1494$ for all comparisons.
6.5 Discussion

In this study, we examined the nature of psychological distress patterning in homelessness-vulnerable Australians, with a focus on the implications of childhood maltreatment and adulthood interpersonal trauma. As discussed later in this section, the results represent a key contribution to urban poverty literature, bringing unique insight into interpersonal trauma and psychological distress in this population. The results indicated four distinct patterns of psychological distress—Escalating Distress (6.2%), Attenuating Distress (7.3%), Chronic Distress (22.4%), and Resistant Distress (64.1%)—which demonstrate considerable heterogeneity of stress response in individuals vulnerable to homelessness. These trajectories align with Bonanno and Mancini’s (2012) proposed prototypical patterns of response to traumatic stress and are similar to those reported in recent person-centred posttrauma examinations of adults (Bonanno & Mancini, 2008) and children (La Greca et al., 2013).

Consistent with our first hypothesis, we found that classes of childhood trauma were associated with distinct longitudinal patterns of psychological distress. In particular, individuals who had experienced more complex types of childhood trauma (Multiple CTE) were more likely to demonstrate chronic or escalating patterns of psychological distress. Individuals who had experienced interpersonal violence during childhood were also more likely to show an escalating pattern of psychological distress and were less likely have an attenuation of psychological distress. No significant associations emerged between any of the six CTE classes and the Resistant Distress trajectory. These findings are consistent with previous research that found that cumulative childhood trauma (Briere, Kaltman, & Green, 2009) and multiple types of trauma exposures (Cloitre et al., 2009) predict psychological symptom complexity. As discussed later in this section, the results can be understood within the context of the COR theory and the concept of risk factor caravans.

Trauma experienced during childhood is known to impair cognitive, behavioral, and interpersonal functioning throughout an individual’s life and lead to poor self-concept development (Cook et al., 2005). According to the COR theory, these lifespan dysfunctions likely behave as risk factor caravans, undermining an individual’s resources (e.g., self-regulation capacities), which can promote heightened stress and ultimately psychological distress. Furthermore, these experiences can impede future gains in resources, which can have a range of implications, including impeding access to, and facilitation of, support services for the homelessness-vulnerable population. This can further exacerbate psychological distress, which may explain the observed associations between membership in the Multiple and High Violence CTE
classes and chronic and/or escalating distress. As an example, childhood maltreatment has been strongly linked to disorganized attachment patterns in adulthood (Murphy et al., 2014), which are associated with poor ability to accurately interpret and anticipate the behavior of others in order to guide self-behaviors (Schore & Schore, 2008). “Betrayal trauma theory” (Freyd, 1996) posits fundamental difficulties with interpersonal trust following childhood traumas, particularly when they were perpetrated by a primary caregiver or a trusted individual within the primary care environment. Therefore, complex-trauma interpersonal vulnerabilities may inhibit effective engagement with service providers and thus promote poorer outcomes, such as higher levels of psychological distress.

The secondary analyses examining within-trajectory prevalence of adulthood trauma experiences warrant further investigation. The results of this study indicated that across all trajectories, there were a proportion of individuals who experienced at least one experience of interpersonal trauma (physical and/or sexual assault) in adulthood. Individuals in the Chronic and Escalating Distress trajectory groups had higher rates of adult trauma experiences; these findings are comparable to those reported by Scutella and Johnson (2017), who identified that within a homeless population, the experience of physical and sexual assault were consistently associated with higher levels of psychological distress. Given the exploratory nature of the current study secondary analyses, further extrapolation of these findings was limited; however, with respect to reported incidence of sexual assault, the following issue is highlighted: Schwartz (2000) argued that methodological limitations attached to research ethics potentially result in conservative prevalence data for sexual violence. Additionally, underreporting of sexual assault is particularly prevalent in vulnerable populations, such as the homeless (Morabito, Pattavina, & Williams, 2016). It is therefore possible that the actual prevalence of sexual assault in the current study was higher than reported. This is important to note because, compared with other forms of interpersonal trauma, sexual assault is associated with significant psychological dysfunction across varying populations (Dworkin, Menon, Bystrynski, & Allen, 2017). These preliminary findings of the current research indicate that adult interpersonal trauma is a necessary consideration for future research that examines factors impacting psychological distress in the homeless. Trauma-informed methodological approaches to data collection may facilitate improved reporting rates, which in turn would support more robust and dynamic analysis of the psychological impact of adulthood trauma in the homelessness-vulnerable population.

In the present study, we found that age was also associated with psychological distress. In particular, older individuals were more likely to experience Chronic Distress; this is consistent with general
population studies in which the youngest and oldest participants have reported higher levels psychological
distress (e.g., Kessler et al., 1992). The initial stages of the analyses indicated that gender was also
associated with the trajectories; however, the effect of gender was not significant in the final GMM model.
Despite the nonsignificant result, previous research has indicated that gender is an important consideration
in the context of both complex trauma and psychological distress. Therefore, it is recommended that gender
continue to be examined as an important covariate in future research.

It is likely that our findings reflect the current opinion that heterogeneity of trauma experience and
response impacts clarity of gender differences in posttraumatic stress (Altemus, Sarvaiya, & Epperson,
2014). However, many other factors (e.g., homelessness transitioning, physical illness, and relationship
status) are likely to influence psychological distress and need to be examined in future studies. The inclusion
of such variables, as well as more rigorous measures of trauma experiences, could help to clarify the
complex associations between trauma experiences and psychological distress.

The present results indicate that all individuals in the current sample experienced childhood
maltreatment and many reported ongoing interpersonal trauma in adulthood. However, two-thirds of this
sample had levels of psychological distress that were below clinical cutoffs. Previous studies have indicated
that not all individuals with adverse childhood experiences or prolonged interpersonal victimization in
adulthood develop intrusive pathologies that significantly impact upon daily life functioning (Jonkman,
Verlinden, Bolle, Boer, & Lindauer, 2013). Our findings suggest that this holds true for the homelessness-
vulnerable population and also supports a challenge to the preconception that most homeless individuals
are mentally unwell (Johnson & Chamberlain, 2011). Trajectory analysis showed this pattern was likely to
continue even in light of ongoing high housing instability and ongoing risk of exposure to traumatic
stressors. One possible explanation is adaption, acculturation, and desensitization over time to the lived
experience of social disadvantage—a pattern identified in earlier research (Johnson, Gronda, & Coutts,
2008). Alternatively, or additionally, there may be a biological predisposition to cope more successfully
with adversity for these individuals (Hamann, 2005). It is also possible the findings underscore the human
capacity to survive, and potentially thrive, despite experiencing extreme adversity (Bonanno, 2004).

A key limitation of this paper was underreporting and overreporting in terms of retrospective recall
of childhood trauma (e.g., McKinney, Harris, & Caetano, 2009). Increasing levels of psychological distress
have been associated with an increased likelihood of reporting previously unreported childhood adversity
and a decreased likelihood of forgetting previously reported events (Colman et al., 2016). Neurobiological
impacts of childhood trauma on accuracy of memory formation, consolidation, and storage, combined with adulthood memory retrieval processes, may also impact recollection accuracy (Howe, 2013). Experiences of extreme stress have also been known to impair memory processes, whereas moderate stress may serve as memory consolidation (Schwabe, Joëls, Roozendaal, Wolf, & Oitzl, 2012). Accurate reporting of adulthood trauma is a further issue. Barriers for reporting include impaired memory issues, trust in disclosure to the researchers, concern regarding legal ramifications, and fear of perpetrator retaliation (Morabito et al., 2016). Our chosen analytic approach had important capabilities; however, the complexity of associations between variables placed limitations on further examinations, such as cross-lagged effects of adulthood trauma. Further, work is required to understand these complex processes and associations, such as the cumulative effect of adulthood interpersonal trauma and other biopsychosocial influences on psychological distress trajectories. Although the analytic approach facilitated exploration of nonlinear aspects, alternative approaches with the capacity to handle dynamic behavior of time-variant factors are important considerations for future direction.

In conclusion, despite clear psychological resiliency in the current sample, the longer individuals remain in their current circumstances of high housing instability, the greater their risk for increasing psychological distress (Scutella & Johnson, 2017). Childhood trauma and revictimization in adulthood further compound this risk. Supporting a successful exit from homelessness risk remains a priority. Psychological resistance in adversity provides useful insight for identification and prioritizing of nonmaterial resources support. Although mental health services may not be a primary resource-gain passageway of need, a trauma-informed care approach is essential (Hopper, Bassuk, & Olivet, 2010), thus building upon current adaptive behaviors and resiliency skills and providing a rich opportunity for resource gain.
Chapter 7

General Discussion

And

Conclusion
7. General Discussion

The objective of this doctoral thesis was to provide new insights into the nature and effects of complex trauma in individuals facing substantial ecological vulnerability, focusing specifically on individuals who are homeless or at-risk for homelessness. A longitudinal, person-centred, resources perspective examination was used to accommodate the dynamic person-in-environment processes. The thesis had the following specific aims:

1. Development of a resources perspective theoretical framework to support translation of current complex traumatic stress knowledge for application within the context of substantial ecological vulnerability.
2. Examination of the relationships between complex trauma and personal resources.
3. Investigation of the implications of complex trauma exposure for well-being and homelessness.

This chapter will summarise the major findings of this thesis, including the contributions from the proposed theoretical framework (aim 1) and the results of the four empirical chapters, which addressed thesis aims 2 – 4 through a series of interconnected studies. The theoretical and practical implications of these findings are then discussed, followed by an examination of the thesis limitations and strengths of this thesis, and recommendations for future research.

7.1 Theoretical Framework Development – Chapter 2

This chapter reviewed the current state of complex trauma knowledge within the context of ecological vulnerability, and in particular homelessness. This review demonstrated that research in this area is scarce, and limited by a lack of a cohesive theoretical framework to inform empirical research. This chapter addressed these issues by developing a resources perspective framework that draws upon the Conservation of Resources theory (COR; Hobfoll, 1988; 1989; 1991). A key proposition of this framework was use of the concept of ‘risk factor caravans’ (Layne et al., 2009; 2010; 2014) to reflect the manner in which complex traumatic stress sequelae travel with an individual throughout their lifetime and influence day-to-day functioning. This is important because it recognises the long-lasting consequences of complex trauma. A further contribution of this chapter was explication of current clinical insights regarding heterogeneity of trauma experience and the importance of person-centred approaches to ensure the individual remains the central focus within traumatic stress research. This involved demonstrating the ways
in which resources vary from person to person, change across time, and interact uniquely and dynamically with socio-environmental factors. A novel proposition in this chapter was that modelling complex trauma as risk factor caravan provides a unique operational mechanism to empirically examine the dynamic interplay between complex trauma and homelessness. The utility and practical applicability of this proposition was explored theoretically within the context of homelessness as a resource-poor caravan passageway and a potential avenue for perpetuation of complex trauma sequelae. The bidirectional nature of the association between complex trauma and homelessness are also explained through this framework. That is, complex trauma (representing a risk factor caravan), may serve to uniquely influence resource loss and gain cycles of the homeless. In turn, homelessness is characterised by a lack of resources that may predispose someone to complex trauma and/or limit their ability to deal with complex trauma.

A further unique contribution of the framework development was the proposition that personal resources serve an important function in resource loss and gain cycles of homeless individuals, where contextual resources are scant and not readily available (e.g. lack of available and affordable housing). It was also proposed that personal resources may protect against resource loss spiralling, and this requires further investigation particularly within the particular context of complex trauma risk factor caravan and resource-poor passageway of ecological vulnerability. The purpose of the subsequent empirical chapters was to examine several of the propositions developed through this theoretical paper. As outlined in more detail below, the person-centred longitudinal nature of these studies significantly contributes to current knowledge of the dynamic relationships between complex trauma and homelessness.

7.2 Empirical Chapters

7.2.1 Chapter 3

The aim of Chapter 3 was to apply a person-centred approach to examine the nature of personal resource states in individuals experiencing homelessness. As noted in Chapter 2, while resources are likely to explain the adverse experiences of this population, little is known about the nature of personal resources in these individuals. This study demonstrated that there were considerable individual differences in personal resource states in this population, which had different associations with complex trauma. That is, latent class analysis (LCA) revealed four distinct personal resource states based on key indicators of personal and social resources (Disconnected, Engaged, Surviving, and Thriving). The identification of these classes are important because it indicates the heterogeneity of resources in this population. This means that this population is very distinct and highlights that a one-size fits all approach would not be ideal. This is an
important contribution because it reinforces recent propositions that there are individual difference in capacities to adapt and survive in the face of adversity (Bonanno, 2004) and that there are unique person-in-environment dynamics to consider even within vulnerable populations (Hare, 2004). It is also notable that the \textit{Thriving} class was the largest, comprising a little over half of the total study sample. This class reflected relatively intact and robust self-perception of personal resource states, despite living in substantial ecological vulnerability where there is high-risk of homelessness. Potentially, this reflects the presence of resilience in response to adversity, which is a phenomenon identified in posttraumatic stress research (Bonnano & Mancini, 2008). At the very least there is now evidence to suggest that identifying, strengthening and building personal resources and improving social connections may be a potential pathway of focus for transitioning out of homelessness. Correspondingly, identification of a sub-group of individuals with low personal resources raises awareness of those at-risk for remaining in in the perpetuating cycle of social disadvantage and homelessness vulnerability.

An important contribution of this finding is that social connectedness and isolation were key factors that distinguished between individuals within this vulnerable population. Social connectedness and isolation differed substantially between the four classes. Classes with these characteristics had improved health and well-being. Establishing and maintaining social connections is known to be challenging for the homeless (O’Donnell et al., 2014); however, the results of Chapter 3 suggest increasing social connectedness of the homeless could help to replenish personal resources in this population. Potentially, the current findings provide the first insight into the dynamic interplay between wellbeing and sense of social connectedness for individuals who are homeless vulnerable. This insight is valuable because it highlights that social support may be a particularly important target for homeless recovery programs, one that is recognised as important (Hopper, Bassuk, & Olivet, 2009; O’Donnell et al., 2014) but perhaps remains under-prioritised in current service provision.

A further contribution of Chapter 3 is that several demographic characteristics, childhood complex trauma, and homelessness status were associated with these resource states. This is important because it helps us to identify which types of people may be more at risk of harmful resource combinations and who may require targeted interventions. Cumulative trauma exposure was significantly predictive of likely classification into distinct personal resource states. Notably, the highest mean cumulative total score was found in the \textit{Surviving} class, which was the group of individuals reporting lowest personal resource state. Higher cumulative scores were also noted for the \textit{Engaged} and \textit{Disconnected} classes compared to the
Thriving class. This an important finding because it reflects a trend identified widely in traumatic stress literature; that cumulative exposure to complex trauma in childhood is one of the strongest contributors to symptom complexity and reduced functional capacities (Cloitre et al., 2009). It appears that this effect holds true for homeless individuals with respect to symptoms and functional capacities related to personal resource states. Some demographic characteristics also varied between the classes (e.g., gender and age), suggesting that certain segments of the population (e.g., older males) could be at greater risk of low personal resources.

7.2.2 Chapter 4

Chapter 4 investigated the links between key childhood trauma experiences of sexual abuse, violence and neglect, and excessive alcohol use. Connecting with the first empirical examination (Chapter 3) excessive alcohol consumption is a key outcome of complex trauma, is strongly related to homelessness, and could be an outcome strongly influenced by personal resource states. Problematic alcohol consumption is also a behaviour thought to be reflective of maladaptive coping associated with complex trauma exposure (McMorris et al., 2002) and an identified pathway into homelessness (Johnson, Gronda, & Coutts, 2008). This chapter also indicates that childhood trauma experiences are associated with risky alcohol consumption in adults experiencing housing instability, and also predicts future homelessness. These associations depended on the nature of childhood trauma. That is, childhood experiences of violence from a primary care-giver were significantly associated with risky levels of alcohol consumption, a pattern identified in earlier adverse childhood experiences research (Dube, Anda, Felitti, et al., 2001); however, in the current study emotional abuse/neglect in childhood was associated with a reduced likelihood of risk alcohol consumption. Furthermore, results revealed a significant decreased likelihood of homeless individuals drinking at risky levels where there is a family history of substance dependence. Potentially these findings reflect two sides of the same situation i.e. growing up witnessing problematic alcohol use and experiencing the consequences of alcohol misuse results in a modelling of either like behaviour or opposite behaviour. Use of alcohol may also serve a dual function as a maladaptive coping mechanisms for the effects complex traumatic stress (Widom et al., 2007) and homelessness (Johnson & Chamberlain, 2008). Specific to the theoretical framework of this thesis, certain patterns of adverse childhood experiences (particularly multiple type and frequent exposure) likely increase development of alcohol-related problems in young adults (Shin, McDonald, & Conley, 2018), which in turn may undermine personal resource development and increase risk for homelessness.
Interestingly, recall of childhood sexual abuse was not significantly associated with alcohol use; however, this is a consistent finding in other sample populations and potentially indicates there are additional contributing factors to explain the finding of no association between childhood sexual abuse and alcohol use in adulthood (Lo & Cheng, 2007). Significant interaction effects of country of birth other than Australia in the models that were tested, raises as a key consideration for future research about the role of culture in both reporting childhood sexual abuse and alcohol consumption (Graham et al., 2011; Stoltenborgh, et al., 2011). Risky alcohol consumption in this population elevates the risk of mental and physical health problems, increased family conflict, and ongoing housing instability, with potential to increase financial distress and social exclusion. Continued development and implementation of strategies aimed at minimising the adverse effects of alcohol consumption in the homeless are needed. Collectively the results in Chapter 4 provided preliminary insight into the manner in which knowledge about an individual’s experience of childhood adversity and trauma can inform vulnerability for substance use (in this case excessive alcohol consumption) pathway into homelessness.

## 7.2.3 Chapter 5

In Chapters 3 and 4 (empirical examinations 1 & 2), childhood adversities were examined individually and in a cumulative context. While informative, such approaches are limited because they do not capture individual difference of complex trauma exposure that are known to have distinct antecedents and outcomes (Briere & Scott, 2015). Furthermore, there is a need for person-centred research that also considers the dynamic process of complex trauma within vulnerable populations. Chapter 5 (empirical examination 3) addressed a major gap in the homelessness literature and contributed to a growing body of research within the traumatic stress literature, namely, better understanding of individual differences in type of childhood complex trauma exposure within the context of homelessness vulnerability. The issue of heterogeneity and subgroups have been acknowledged within traumatic stress literature across a range of topics including: resilience (Bonnano & Mancini, 2012), psychological assessment (Briere & Spinazzola, 2009; Cloitre, et al., 2009), and treatment (Courtois & Ford, 2009; 2012); however, this is the first study to examine heterogeneity and subgroups of complex trauma within ecologically vulnerable populations in a sophisticated manner using latent class analysis. Practical application of the resource perspective theoretical framework underpinning this thesis was then demonstrated through the modelling of complex trauma typologies as ‘risk factor caravans’ and examinations of associations with adulthood interpersonal trauma and homelessness.
Latent Class Analysis identified six distinct childhood trauma history classes, which were labelled: *Multiple, Distal, Proximal, High Violence, Indirect and Low*. Relationship to perpetrator (i.e. within or external to the primary care environment) and direct or indirect experience of assault were key differentiators among classes, which provides a key contribution to current complex trauma knowledge about the nature of trauma experiences within the homelessness vulnerable. Specifically, this findings suggest it may be important to consider additional interpersonal challenges that may be travelling with an individual throughout life as a consequence of betrayal sequelae, particularly where the perpetrator was someone within the primary care environment (Bernstein & Freyd, 2014). Furthermore, these findings hold important implications for future research. For example, conducting comprehensive assessment of trauma exposure that extends beyond a category of type, which will ensure the full breadth and complexity of each individual’s unique experience is reflected. Significant covariate differences between classes were identified, providing additional insight into individual differences underpinning exposure to specific type of trauma. These included an individual’s gender, the biological relationship with primary carer/s when aged 14 years, and whether there had been time spent in foster care. Collectively, these findings provide crucial insight into vulnerability factors that increase likelihood of experiencing specific types of childhood trauma, with important implications for early intervention prevention of trauma exposure.

As previously outlined on several occasions throughout this thesis, cumulative exposure to multiple type of complex trauma is strongly associated with complexity of posttraumatic symptomology (Breslau & Kessler, 2001). It was hypothesised that those individuals who reported cumulative and multiple type of trauma exposure would emerge as most at-risk within the sample population. The results supported this hypothesis with individuals in the *Multiple* class identified as most at-risk for both re-victimisation in adulthood and a life-time homeless experience. This finding suggests that even within a vulnerable population such as the homeless, there is likely a sub-group of particularly vulnerable individuals as a consequence of a complex history of childhood trauma and adversity. Potentially this vulnerability is a consequence of trauma-related biopsychosocial vulnerabilities impacting day-to-day functioning. Comprehensive assessment of complex trauma exposure presents many ethical challenges for service providers; however, assessment of complex trauma sequelae may assist in identifying those most at-risk of re-victimisation and ongoing homelessness vulnerability. The identification of six distinct childhood trauma history profiles contributes significantly to a current gap in literature and provides novel insight that suggest there may be treatment implications for those who are homeless and at high-risk of homelessness.
7.2.4 Chapter 6

Chapter 6 (empirical examination 4) represents a synthesis of practical application of the theoretical framework (Chapter 2) and information gleaned from empirical examinations 1 – 3 (Chapter 3 – 5). Previously identified complex trauma typologies (six classes from empirical examination 3) were modelled as ‘risk factor caravans’ and operationalized as effecting upon resources within the caravan passageway of homelessness. Linking with the early proposition of personal resources as important central focus for the homeless, psychological distress experiences were the outcome of focus in the final examination. Continuity of the proposition that person-centred longitudinal approaches are most appropriate for examination of dynamic person-in-environment approaches was maintained through application of growth mixture modelling statistical analysis. Four distinct trajectories of psychological distress emerged and were labelled *Chronic*, *Escalating*, *Attenuating*, and *Resistant*, according to trajectory pattern and how they aligned with Bonanno and Mancini’s (2012) proposed prototypical patterns of response to traumatic stress. The results demonstrate that experiences of different types of trauma during childhood are associated with these psychological distress trajectories. In particular, adults experiencing chronic psychological distress are significantly more likely than those exhibiting distress resistance to have experienced multiple and varied childhood maltreatment. This pattern of results provides further support that cumulative and multiple interpersonal trauma exposure places individuals particularly at-risk for mental health difficulties, which in turn likely increases risk for day-to-day functioning difficulties (Breslau & Kessler, 2001). It was also identified that the longer some individuals are homeless, the greater their risk for escalation of psychological distress to clinically significant levels. Furthermore, adult experiences of assault were found to be associated with psychological distress experience. Thus, the urgency to provide safe and stable housing is reinforced so as to minimise re-victimisation and reduce potential for escalating psychological distress and reinforcement or exacerbation of complex trauma sequelae.

On a positive note, low and stable levels of psychological distress were reported by a substantial proportion of this sample population. This is a key finding that challenges the preconception that most homeless individuals are mentally unwell (Johnson & Chamberlain, 2011) and reflects current traumatic stress knowledge that not all individuals with adverse childhood experiences or prolonged interpersonal victimization in adulthood develop intrusive pathologies that significantly impact upon daily life functioning (Jonkman, Verlinden, Bolle, Boer, & Lindauer, 2013). This final chapter holds important implications for understanding the mental health of homelessness vulnerable individuals. A key point of
note being that assessing mental health needs on an individual basis and prioritizing socioecological stability may be the most appropriate intervention strategy for homelessness risk.

7.3 Implications and Clinical Contributions

The findings of this thesis have some important practical and clinical implications which are discussed below. First, it is evident that exposure to childhood adversity and trauma is highly prevalent within the homelessness vulnerable in Australia. It is also clear there are distinct sub-groups of individuals who have different experiences of childhood adversity (i.e., complex trauma). Of these sub-groups, those who experienced multiple type and cumulative exposure were particularly at-risk for re-victimisation, impaired functioning in adulthood, and susceptibility to commonly identified pathways to homelessness (e.g. substance use and mental health difficulties). Multiple type and cumulative exposure to complex trauma in childhood also appears to place individuals most at-risk for impaired personal resource states, i.e. greater trauma exposure is associated with poorer personal resource outcomes.

Second, this pattern of results suggests reduced functional capacities and life-engagement challenges of the ecologically vulnerable, and particularly the homeless, may be partially explained by the effects of complex trauma sequelae. Effects that are compounded where there has been repeated exposure to multiple type of trauma. From a resource perspective, modelling of complex trauma as risk factor caravan therefore has potential utility for identifying most at-risk individuals within vulnerable populations. Low and unstable contextual resource circumstance were also identified for this most at-risk group; a trend that was consistent across the different contexts of focus in each empirical study. In line with the theoretical proposition put forward in this thesis, there is some evidence for an effect of complex trauma exposure on the dynamic interplay between personal and contextual resource loss and gain cycles.

Third, sexual abuse in childhood was associated with increased risk of sexual assault re-victimisation in adulthood within the JH sample. Further, high housing instability was an associated risk where there was an experience of historical sexual abuse. It is noted that sexual abuse in childhood was most prominent in the sub-group of individuals reporting multiple and cumulative trauma exposure. This raises the question of whether it is the experience of sexual abuse that makes these individuals particularly at-risk. As previously outlined, within the traumatic stress literature there is strong evidence indicating increased risk for impaired functioning associated with sexual abuse in comparison with other complex trauma exposure type. This is believed to be attributable to the particularly invasive and interpersonal nature of sexual abuse, resulting in poor self-concept formation and profound difficulties with interpersonal trust.
It is possible these difficulties increase vulnerability to remaining in circumstance of ecological vulnerability and at-risk of homelessness because interpersonal difficulties stand as serious barrier for accessing support services. Nuanced interpretation of the specific impact of childhood sexual abuse for homelessness goes beyond the scope of this thesis; however, it is highlighted as an important direction for future focus.

Fourth, relatedly and somewhat paradoxically, application of an individual-difference perspective also highlighted that many individuals in this representative sample demonstrated great capacity for resilience in the face of adversity and childhood trauma exposure. Sub-groups of relatively well-functioning individuals were identified across the various contexts of the four empirical studies. Relatively intact personal resource states across physical, mental and social functioning emerged. Contextual resources of these individuals were also more robust comparative to those of the individuals identified as particularly at-risk. Notably, while these individuals also reported experiences of childhood adversity and trauma, they were less likely to have experienced severe multiple type and cumulative exposure to complex trauma in childhood. Therefore, the need to consider the effect of complex trauma sequelae on functional capacities is re-iterated, as this body of research has identified a consistent pattern of poorer functioning associated with greater trauma exposure and greater functioning with less exposure, even when contextual factors of ecological vulnerability are considered. A proposition of this thesis was that personal resources may buffer against the effects of complex trauma sequelae and may support resource gain cycles. These findings provide preliminary evidence that this may be the case, warranting consideration for further research.

Clinically, these outcomes support the growing focus on trauma-informed person-in-environment approaches as best-practice for providing assistance to individuals experiencing substantial ecological vulnerability and risk of homelessness (Hopper, Bassuk, & Olivet, 2010; Levenson, 2017; O’Donnell et al., 2014). As further consideration, a more comprehensive assessment of an individual’s complex trauma history and sequelae may help to better identify those most at-risk of impaired functioning and re-victimisation, as well as providing potential insight into trauma related barriers to service access and provision. Additionally, if it can be reliably established that personal resources behave in a protective manner as outlined above, a focus on personal resources as a potential pathway out of homelessness holds important clinical implications for services. Informed by the findings within this thesis, it is suggested that a focusing more equitably on both contextual and personal resources might lead to better outcomes. Potentially, such an approach will establish a more robust dynamic resource exchange process, whereby
personal resource gain better supports capacity to retain contextual resources, which in turn serves to sustain personal resource gain i.e. establishing a gain begets gains cycles. Furthermore, strengthening an individual’s personal resource states may also serve to ameliorate to some extent the effects of complex trauma sequelae that many homelessness vulnerable individuals carry with them throughout life.

7.4 Limitations and Strengths

There are some general limitations of the empirical work in this thesis that are important considerations for future research. First, childhood complex trauma exposure was based on retrospective self-report, which raises potential for issues with under-reporting, over-reporting and reporting accuracy. It is acknowledged that epidemiologic studies examining test-retest reliability in retrospective responses about adverse childhood experiences (ACEs) have found reporting to be relatively stable across time (e.g. Dube, Williamson, Thompson, Felitti, & Anda, 2004); however, this reliability is yet to be thoroughly examined in vulnerable populations. This is likely an issue affecting the broader complex traumatic stress literature. How these issues are addressed remains a barrier for complex traumatic stress research and it is important potential avenues for improvement are considered in research methodologies. A potential consideration is to move beyond item-response methodology toward a mixed-method approach whereby additional administration of structured interview may facilitate more nuanced insight into an individual’s recollections of childhood adversity. Additionally, the effects of exposure to trauma in childhood have potential neurobiological consequences that may impede memory formation and recollection of trauma exposure. The stressful and potentially traumatic nature of being homeless or at-risk of homelessness may have also influenced accuracy of childhood trauma exposure.

Second, disturbances in self-regulatory capacities, with marked difficulties in interpersonal skills, are characteristic features of problematic dysfunction experienced by individuals with complex trauma experiences. These factors could have influenced reporting accuracy of intimate and private issues and must be considered in future research, particularly given there is already an identified challenge of establishing trust between the homeless and health care providers. Third, the use of structured questions to gather information likely constrained reporting and restricted gathering of more individualised personal information. Furthermore, the quantitative only nature of the data likely limited potential for more nuanced insights into the complex dynamics under investigation in this thesis, insights that a mixed method approach may better provide.

A final limitation was that outcomes for Indigenous Australians were likely under-represented
(17.2% of total sample \(N = 1682\) identified as Indigenous), particularly when considering associations with complex trauma exposure and personal resource states. While indigenous status was included as a covariate in the analyses throughout this thesis, no significant differences in vulnerability were identified. This finding was somewhat counterintuitive based on the JH study final report indicating that Aboriginal or Torres Strait Islanders (ATSI) were more likely than non-ATSI individuals to be homeless or primary homeless (Bevitt, et al., 2015).

Despite these limitations there are some major strengths of this thesis. First, application of a person-centred approach situated the individual rather than variables as central focus in this thesis. This modelled person-in-environment approaches that are proposed to more accurately capture the complex and dynamic interplay between systemic and individual factors in vulnerable populations. Second, use of the Journeys Home data provided a rich source of information across a range of challenges unique to ecological vulnerability, including exposure to childhood adversities and trauma. Furthermore, this data was a comparatively large and representative sample of Australians facing housing instability, which was important because many previous studies investigating homeless samples have often been small, unrepresentative samples. In addition, use of a broad conceptual definition of homelessness that distinguishes between ‘rooflessness’ and being without a ‘home’ (i.e. homeless) ensured that not only the street homeless but also individuals living in shelters or transitional housing and couch surfing – moving between various temporary housing arrangements with no alternative housing options – were represented in this sample. Third, the large sample size \(N = 1682\) and particularly low attrition rate (84% at Wave 6 – 2.5 years after study commencement) for such a disadvantaged population, ensured there was adequate statistical power to examine dynamic associations with sufficient sensitivity. The longitudinal nature of the research supported robust examination of non-linear trends across time, which provided powerful insight into person-in-environment processes and resource dynamics in the context of ecological vulnerability and complex traumatic stress.

7.5 Recommendations for Future Direction

To conclude this thesis some distinct yet interconnected recommendations for future direction are outlined. First, it is recommended that a broader conceptualisation of homelessness (i.e. extending beyond the contextual issue of ‘rooflessness’) is adopted in ecological vulnerability research, particularly in well-developed resource abundant countries such as Australia. There is increasing recognition of the deleterious physiological and psychological consequences associated with living in circumstance that fail to meet the
minimum community standard of living e.g. high housing instability, lack of tenure security, living in overcrowded dwellings, and couch-surfing. The findings in this thesis have demonstrated the level of vulnerability within the population under this broader definition of homelessness. Where research is conducted to inform policy change and strategic planning, it is important that the full breadth and scope of this major social issue is captured.

Second, it seems imperative that future research continue to assess the nature and impact of complex trauma exposure in the ecologically vulnerable. As evidenced strongly in this thesis, exposure to complex trauma likely increases vulnerability for homelessness and also increases biopsychosocial risk within low socio-economic circumstance. More in-depth examination of complex trauma as risk factor caravan may provide further insight for pathways into homelessness and potential barriers for exit pathways. Contextual insight into interpersonal difficulties and behavioural consequence associated with complex traumatic stress, may serve to better inform how to improve access and facilitation of social support and housing services.

Third, a concerted focus to tailor research methodology to account for person-in-environment process will facilitate better translation of complex traumatic stress knowledge for ecologically vulnerable populations such as the homeless. Adopting person-centred approaches will ensure the individual and the effects of their unique life-experience are held as central focus. In this manner, biopsychosocial difficulties are better contextualised beyond mere pathological interpretation of a list of behaviours and symptoms. Use of dynamic non-linear analytic techniques is essential for more accurate and nuanced understanding of person-in-environment process. In conjunction, longitudinal research is important for assessing how these dynamic relationships change over time. Establishing and maintaining trust is a foundational consideration for trauma research, particularly in highly vulnerable populations. Mixed-method approaches would potentially better facilitate establishing of trust and as a consequence gather more robust and truly representative data from vulnerable populations, particularly where complex traumatic stress sequelae are at-play.

Fourth, reducing risk of intergenerational transmission of trauma exposure and extreme social disadvantage is imperative. Children born into circumstance of substantial ecological vulnerability and homelessness are at increased risk for exposure to childhood adversity and traumatic abuse and for remaining in a perpetuating cycle of disadvantage. In turn, these children transition into adulthood potentially carrying bio-psychological legacies of complex traumatic exposure that impact on their own
person-in-environment process and potentially transmit onto the next generation. Practically, a potential point of immediate focus might be to gain a better understanding of familial homelessness as a consequence of domestic violence.

7.6 Conclusion

Homelessness and exposure to complex trauma are both growing issues in Australia. The link between complex trauma and substantial ecological vulnerability, including homelessness, represents a considerable resource burden on the individual, the family unit, health care services and social support systems. Furthermore, the effects of complex trauma are compounded where there is substantial resource deficiency, such as homelessness. This thesis addressed an important and growing need for research that broadens understanding of the dynamic relationship between complex trauma and homelessness. The development of a resources perspective theoretical framework is significant and original, and has utility to inform and support empirical examination of complex trauma within the context of ecological vulnerability. Furthermore, demonstration of practical applications of this framework has provided novel insights into the nature and impact of complex trauma in the homelessness vulnerable. Importantly, individual differences have been highlighted as key consideration when seeking to better understand pathways in and out of homelessness. Identification of potential avenues for improved service provision, future policy development and trauma-informed strategic planning, is an important step forward for assisting the homelessness vulnerable.
List of References


Appendix A: Chapter 4 Publication


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Appendix B: Chapter 5 Publication


Is there Complex Trauma Experience typology for Australian's experiencing extreme social disadvantage and low housing stability?

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ABSTRACT

Traumatic childhood experiences predict many adverse outcomes in adulthood including Complex PTSD. Understanding complex trauma within socially disadvantaged populations has important implications for policy development and intervention implementation. This paper examined the nature of complex trauma experienced by disadvantaged individuals using a latent class analysis (LCA) approach. Data were collected through the large-scale Journeys Home Study (N = 1082), utilizing a representative sample of individuals experiencing low housing stability. Data on adverse childhood experiences, adulthood interpersonal trauma and relevant covariates were collected through interviews at baseline [Wave 1]. Latent class analysis (LCA) was conducted to identify distinct classes of childhood trauma history, which included physical assault, neglect, and sexual abuse. Multinomial logistic regression investigated childhood relevant factors associated with class membership such as biological relationship of primary carer at age 14 years and number of times in foster care. Of the total sample (N = 1082), 21% reported traumatic adverse childhood experiences. The most common included witnessing of violence, threat/experience of physical abuse, and sexual assault. LCA identified six distinct childhood trauma history classes including high violence and multiple traumas. Significant covariate differences between classes included: gender, biological relationship of primary carer at age 14 years, and time in foster care. Identification of six distinct childhood trauma history profiles suggests there might be unique treatment implications for individuals living in extreme social disadvantage. Further research is required to examine the relationship between these classes of experience, consequent impact on adulthood engagement, and future transitions through homelessness.

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1. Introduction

Individuals facing extreme social disadvantage have a high prevalence of exposure to early life abuse (Kim, Ford, Howard, & Bradford, 2010) and are at increased risk for ongoing interpersonal traumatic experiences (Kuhlman, Huddler, & Turrent, 2009). Biopsychosocial factors increasing trauma vulnerability in the socially disadvantaged include: a lack of stable and safe
housing; limited financial resources; difficulty accessing appropriate support services; poor physical and/or mental health difficulties; and vulnerability to maladaptive coping behaviour such as use of alcohol and other drugs (Anderson, 2003). Traumatic stress coping responses are often comorbid with considerable personal and societal cost in highly vulnerable individuals (DeForge, Belcher, O'Rourke, & Lindsey, 2008). This has important implications for policy development and strategic planning, which target successful exit from the perpetuating cycle of social disadvantage and housing instability.

An identified challenge to successful intervention implementation is breakdown in initial engagement with offered support structures (Hopper, Bassuk, & Oliver, 2010). Research seeking to understand individual differences in traumatic experiences is important in developing strategies to engage with at-risk individuals and facilitate better access to support structures. Unfortunately, very little is known about the nature of individual differences in complex trauma experiences. This paper aims to address this gap in the literature by adopting a person-centred approach to investigate the nature of interpersonal trauma experiences in individuals experiencing extreme social disadvantage.

1.1. Complex trauma

Traumatic stress experiences are conceptualised as occurring along a continuum of experiences, which vary considerably, from single-incident events that are often somewhat accidental in nature, through to multiple, repeated, and intentional traumatic events (Breslau & Keeler, 2001). Complex Trauma refers specifically to exposure to those traumatic stressors of an intentional and interpersonal nature (e.g., physical, emotional, and sexual abuse) (Kessler, 2000). It is widely recognised that interpersonal trauma is highly likely to be experienced repeatedly across prolonged periods of time (Kins, 2001; Kins, Lewandowski, Tempkin, et al., 2009); however, any history of interpersonal trauma exposure, even single event exposure (e.g., a sexual assault), has the potential to cause long-term psychological distress (Weaver & Clum, 1995). Detrimental outcomes such as loss of self-worth, frequent re-victimisation, loss of a coherent sense of self and profound difficulties with trust and interpersonal interactions, are life-functioning impairments common in population sub-groups experiencing interpersonal trauma (Courtois & Ford, 2013; van der Kolk,otten, Paskowitz, Sunday, & Spinazzola, 2005).

Complex trauma is often conceptualised and examined in relation to interpersonal trauma experiences during early childhood or adolescence (Cloitre et al., 2009). These experiences are relatively common with many people growing up with at least four adverse experiences during childhood (Anda et al., 2006). Interpersonal traumatic incidents are most often perpetrated by the child’s primary caregiver, and/or experienced within the child’s predominant primary care system by adults who would typically be expected to provide stability and safety (Lawson & Quin & Quin, 2013). Common traumatic experiences during childhood include emotional, physical, and sexual abuse; neglect; witnessing of violence; an unstable parent presence; and living with primary carers who have mental health issues and/or problematic drug and alcohol use and/or who have spent time in jail (Courtois & Ford, 2009).

Complex trauma extends beyond childhood adversity to encompass adulthood interpersonal trauma experiences (Herman, 1992; Terr, 1991). Adult trauma can arise from being a soldier or civilian involved in armed combat and civil unrest; a refugee or asylum seeker; an abusive domestic situation; and/or exposure to poverty (e.g., Briere & Spinazzola, 2005; Ford & Courtois, 2001). Similar to childhood trauma, the interpersonal aspects of such adulthood traumatic experiences contribute to increased likelihood of pervasive and enduring psychic distress (Scaer, 2005, 2014). The present paper therefore views complex trauma within the context of interpersonal traumatic experiences occurring across the lifespan.

1.1.1. Limitations of existing approaches to examining complex trauma. Complex trauma experiences can be very difficult to quantify due to a range of factors. These include: differences in how individuals perceive and experience direct and/or indirect interpersonal trauma experiences; the evaluation of environmental and contextual risk vulnerability; individually weighted assessment of traumatic stress impact; and pervasive and enduring difficulties resulting from chronic interpersonal trauma; and must all be accounted for when examining the nature and impact of complex trauma.

Currently, there are three main approaches used to assess complex trauma. First, many studies have focused on the lifetime impact of childhood adversity, informed largely by findings from The Adverse Childhood Experiences (ACE) Study (Felitti, Anda, Nordenberg et al., 1998). The ACE study defines childhood adversity broadly and examines eleven distinct types, which include household and primary care dysfunction in addition to direct and indirect maltreatment exposure (Brown, Anda, Felitti et al., 2010). Second, other studies have assessed the issue of high prevalence and subsequent impact of poly victimisation (e.g., Frankel, Ottoson, Turner, & Hanby, 2005); these studies indicate that poly victimisation is a stronger predictor of future psychic distress compared with measures of specific victimisation types (e.g., sexual assault) (Rinkelhag, Ottoson, & Turner, 2009). Third, studies have focused on cumulative traumatic stress experiences across an individual’s lifespan and the impact of this on consequent life functioning. A substantial body of research provides strong evidence for direct associations between multiple childhood and/or adulthood interpersonal traumatic experiences and subsequent symptomatic dysfunction across a broad range of biopsychosocial functioning (e.g., Briere, Kohan, & Green, 2008; Cloitre et al., 2006; Ford et al., 2005). Importantly, experiences of cumulative exposure to interpersonal traumatic stressors have been associated with elevated symptom severity, independent of consideration for impact of trauma type (Briere et al., 2008).

These three approaches have substantially improved current understanding of the nature of complex trauma experiences across the lifespan. Particular strengths include adoption of broadened contextual complex trauma definition and measurement considerations extending beyond rudimentary additive methods. Moreover, robust sample sizes of the for-
mative studies associated with these approaches (e.g. ACEs and JVC) improves generalizability of findings within the complex trauma domain. Despite the contributions of these approaches, they still provide only a partial insight into the nature of complex trauma and as discussed below, there are some important gaps in the literature that need to be addressed.

1.1.2. Person-centred views of complex trauma. The first main gap in the literature is that very little is known about individual differences in the nature of complex trauma experiences. This is important because complex trauma experiences are not homogeneous. Rather, individuals may have very unique complex trauma experiences that have distinct antecedents and outcomes. Person-centred approaches (e.g., latent class analysis (LCA)) allow such individual differences to be captured, and could yield an improved understanding of complex trauma experiences.

Person-centred approaches to investigating complex trauma have only begun to emerge in the past decade. Analytic approaches such as LCA has identified subgroups of individuals with distinct victimization experiences (Ford, Elhai, Connor, & French, 2010; Ford, Wainer, & Connor, 2011; Shevlin & Elklit, 2008). Additionally, examining these subgroups has identified distinct individual experiences within diverse populations. Most recently, in an adult population sample, Ballard et al. (2015) found three distinct classes of childhood traumatic experiences (sexual assault, violence exposure, low trauma), with clear gender effects and instance of psychopathology influencing categorisation. Additionally, three distinct classes characterised by various combinations of family violence and victimisation emerged in a recent study of high risk, ethnically diverse young children (Hagan, Sulik & Lieberman, 2015).

Despite the contribution of these papers, there remains a strong need for more person-centred research that adopts a broadened contextualisation of the nature of complex trauma – particularly research that seeks to inform Trauma Informed Care (TIC) models of service support (Hopper, Bassuk, & Oliver, 2010). Accounting for environmental risk and personal vulnerability factors is paramount, particularly when seeking clarification around the nature and consequent impact of individual differences in trauma experiences for vulnerable populations (Hodges et al., 2013). For example, gender differences in childhood trauma exposure (e.g. Ballard et al., 2015) and environmental risk factors unique to the socially disadvantaged (Hagan, Sulik & Lieberman, 2015) are critical considerations within the context of complex trauma.

1.2. Complex trauma in socially disadvantaged populations

The second main gap in the literature is that most previous research has focused on large representative samples or clinical population subgroups (e.g. Politi et al., 1998). Although such research has been informative, complex trauma experiences need to be examined in highly vulnerable populations that are at greater risk of complex trauma, such as those facing social disadvantage. Focusing on vulnerable populations could aid in tailoring TIC services to better suit these specific populations (Hopper, Bassuk, & Oliver, 2010).

In the present paper, we addressed this gap in the literature by focusing on individuals experiencing extreme social disadvantage and high housing instability. This is important for several reasons. First, they are an under-researched subgroup, with people living in precarious experiences place them at increased vulnerability to violence, physical and interpersonal victimisation (Gaborowitz & Konnath, 2008). Second, within this sub-population are further sub-groups identified as particularly vulnerable to on-going interpersonal trauma exposure, namely: females, children/youth, elderly and minority groups (Hopper et al., 2010). Third, the cumulative impact of: 1) An increased likelihood of antecedent traumatic experience such as adverse childhood experiences (Herman, Susser, Straussng, & Ulrich, 1997); 2) The traumatic nature of the lived experience of extreme social disadvantage (Anderson, 2003); and 3) Increased likelihood of consequent traumatic encounter exposure (Gaborowitz & Konnath, 2001); heightens vulnerability to development of complex trauma related pathology in these individuals (Taylor & Sharpe, 2008).

1.3. The present study

The current study utilised a person-centred approach to examine complex trauma experiences in a sample of Australians with low housing security. The study assessed the relationship between specific types of childhood adversity associated with complex trauma and subsequent adulthood interpersonal trauma. The study further explored the relationships between different types of complex trauma experience and homelessness experiences. The research aimed to address these broad research questions: 1) Are there distinct childhood trauma experience subgroups for Australian’s with low housing stability and what additional childhood experiences underlie class membership? 2) How do different patterns of childhood trauma experience affect the likelihood of subsequent adult interpersonal trauma experiences? 3) Do these identified individual differences have implications for homelessness?

2. Methods

2.1. Participants

The Journeys Home Study (N = 1862) is a longitudinal study of a representative sample of Australians exposed to high levels of housing insecurity (Wooden et al., 2012). Detailed information regarding sample design, survey administration procedures
Table 1: Childhood trauma experiences included in LCA.

<table>
<thead>
<tr>
<th>Trauma Experience Descriptor</th>
<th>n/N = 1672</th>
<th>%N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PVIHBA – Primary female carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems</td>
<td>411</td>
<td>24.7</td>
</tr>
<tr>
<td>2. PVIHBA – Primary male carer who spent time in jail and/or spent time as in-patient for mental health issues and/or spent time in rehabilitation for drug and alcohol problems</td>
<td>359</td>
<td>21.5</td>
</tr>
<tr>
<td>3. WTV – Witnessing of violence</td>
<td>828</td>
<td>50.0</td>
</tr>
<tr>
<td>4. WEC – Experienced physical and/or emotional deprivation</td>
<td>253</td>
<td>15.0</td>
</tr>
<tr>
<td>5. PHARLW – Experienced a real threat of harm from someone within their primary care environment</td>
<td>544</td>
<td>32.6</td>
</tr>
<tr>
<td>6. PHARLW – Experienced actual physical harm perpetrated by someone outside their primary care environment</td>
<td>201</td>
<td>12.0</td>
</tr>
<tr>
<td>7. PHARLW – Experienced a real threat of harm from someone outside the primary care environment</td>
<td>202</td>
<td>12.0</td>
</tr>
<tr>
<td>8. PHARLW – Experienced actual physical harm perpetrated by someone outside the primary care environment</td>
<td>750</td>
<td>45.0</td>
</tr>
<tr>
<td>9. SDW – Experienced sexual assault perpetrated by someone within the primary care environment</td>
<td>273</td>
<td>16.8</td>
</tr>
<tr>
<td>10. SADW – Experienced sexual assault perpetrated by someone outside the primary care environment</td>
<td>226</td>
<td>13.5</td>
</tr>
</tbody>
</table>

Table 2: Journeys Home Sample socio-demographic characteristics (n = 1672).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Male</td>
<td>546</td>
</tr>
<tr>
<td>Age 15–24</td>
<td>396</td>
</tr>
<tr>
<td>Age 25–34</td>
<td>314</td>
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<tr>
<td>Age 35–44</td>
<td>197</td>
</tr>
<tr>
<td>Age 45+</td>
<td>182</td>
</tr>
<tr>
<td>Indigenous Yes</td>
<td>172</td>
</tr>
<tr>
<td>Country of Birth Australia</td>
<td>873</td>
</tr>
<tr>
<td>English speaking</td>
<td>61</td>
</tr>
<tr>
<td>Non-English speaking</td>
<td>66</td>
</tr>
<tr>
<td>Marital Status Single</td>
<td>530</td>
</tr>
<tr>
<td>Married</td>
<td>67</td>
</tr>
<tr>
<td>De facto</td>
<td>57</td>
</tr>
<tr>
<td>Unknown</td>
<td>55</td>
</tr>
<tr>
<td>Homeless experience in past 6 months Yes</td>
<td>507</td>
</tr>
</tbody>
</table>

and sample response coding procedures and characteristics is available in the Journeys Home Technical Report (University of Melbourne, 2011). In brief, the Journeys Home study population was sampled from Centremlink (the Australian government social security and health support services program) customers in receipt of income support services. A Homelessness Indicator tool, utilised by Centremlink staff since 2010, identified three sub-groups of: (1) customers flagged as homeless; (2) customers flagged as ‘at risk of homelessness’; and (3) other customers identified as vulnerable to homelessness (customers in the top 2% of all income support recipients not identified in the previous 2 groups), which represented a population of 138,261 individuals. Geographical cluster stratification of individuals, followed by a random sampling procedure, resulted in a final target sample of 2,719, with 1,082 (62.5%) agreeing to participate and providing data. Sample demographics are presented in Table 2. The data were collected using structured interviews (see below and Journeys Home technical report) administered by trained professional interviewers.

2.2. Measures

2.2.1. Childhood trauma experiences. Participants were asked numerous questions about their childhood history, referring to events at age 14 years and under (e.g. “As a child someone living with you used physical violence or force against you” Y(N)). Survey items assessing childhood trauma experiences were modelled on the Adverse Childhood Adversity Study (Felitti et al., 1998) and ABS Personal Safety Survey (2005), as specified in the Journeys Home user manual (Sevitt, Chiparelli, Sculler, Tieniig, & Watesi, 2015). Consistent with recent research methods (e.g. Courteny & Ford, 2001), we categorised responses to these questions to create ten Childhood Trauma Experience (CTE) variables (Table 1). Matters of perpetrator proximity and primary care environment were also included as integral factors for consideration, with research identifying both safety and security within the primary care environment (Frankel & Suttley, 2014) and the victim-perpetrator relationship (Breman, Brown, De Pio, D’Andrea, & Schoen, 2015) as key considerations when understanding the lifetime impact of complex traumas experiences.

2.2.2. Contextual childhood covariates. Contextual variables for covariate consideration when investigating the childhood experiences of the sample were: age (categorical), gender (male/female), age left school (categorical), having been in juvenile detention (ever/never), having been in residential/kin/foster care (yes/no), biological/non-biological nature of the primary
Table 3
Fit indices for Latent Class Models (N = 1672).

<table>
<thead>
<tr>
<th>Model</th>
<th>AIC</th>
<th>BIC</th>
<th>Adjusted BIC</th>
<th>Entropy</th>
<th>BLRT p value</th>
<th>LMR *Adjusted LRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>384.40.594</td>
<td>394.49.748</td>
<td>394.45.949</td>
<td>1.00</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>2</td>
<td>163.47.946</td>
<td>164.49.140</td>
<td>164.44.346</td>
<td>0.74</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>3</td>
<td>158.09.739</td>
<td>159.59.963</td>
<td>159.55.164</td>
<td>0.54</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>4</td>
<td>155.12.816</td>
<td>156.62.040</td>
<td>156.57.240</td>
<td>0.76</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>5</td>
<td>155.57.576</td>
<td>157.12.710</td>
<td>157.07.910</td>
<td>0.78</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>6</td>
<td>154.12.816</td>
<td>155.17.110</td>
<td>155.12.310</td>
<td>0.40</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
<tr>
<td>7</td>
<td>153.66.410</td>
<td>155.21.600</td>
<td>155.16.800</td>
<td>0.70</td>
<td>&lt;0.001</td>
<td>218.46.98</td>
</tr>
</tbody>
</table>

* P < 0.001

** P < 0.05.

* Best fit model.

** Lower AIC, BIC and Adjusted BIC values indicate better fit.

Entropy should be greater than 0.7 values closer to 1 are better.

\* Model fit comparison (current with previous).

careers (two biological careers/two careers (one biological)/one biological career/non-biological careers), growing up feeling safe, secure, loved and protected within the family environment (ever/never), and growing up feeling someone in the family hated you and/or having emotionally hurtful or insulting things said to you (ever/never).

2.2.3. Adulthood interpersonal trauma experiences and reactions. Adulthood interpersonal traumatic experiences of sexual assault, physical assault, and threat of violence modelled as dichotomous indicators were assessed for: 1) ever in lifetime since aged 18 years; 2) ever in the past 6 months; 3) multiple experiences; and 4) perpetrator proximity (similar to childhood trauma experiences — distal, proximal, and stranger). Survey items assessing adulthood trauma experiences were influenced by the ABS Personal Safety Survey (2005), as specified in the Journeys Home user manual (Bevitt et al., 2014).

2.2.4. Homelessness. Information about an individual’s homelessness history prior to baseline was extracted and recoded into viable variables for inclusion in final analysis. Variables included: current homelessness status, ever homeless prior to baseline, homeless in the six months prior to baseline, homeless in the age of first homeless experience, duration of first homeless experience, and total time spent homeless prior to baseline.

2.3. Statistical analyses.

Prior to conducting the primary analyses, 10 participants in the data set were excluded because they did not report at least one CTE. This resulted in a sample of 1672 participants. A multiple step analysis approach was then conducted, based on recent recommendations for Latent Class Analysis (LCA) (Muthén, 2004) utilizing Mplus Version 6.11 (Muthén & Muthén, 1998–2010) and SPSS Version 21.

First, sequential LCA models were tested (without covariates) to identify the optimal number of CTE latent classes (Muthén, 2004). Latent class modelling facilitated identification of the minimum number of CTE sub-groups, which best described both the comparable experiences of individuals within the same class and the distinctly different experiences for individuals in alternate classes. The best fit model (Table 3) was determined based on numerous statistical fit indices frequently employed as reliable sources of information (Nyv ind & Asparouhov, 2007). Specifically: Akaike information criteria (AIC), Bayesian information criteria (BIC), sample-size-adjusted BIC, and bootstrap likelihood ratio tests (BLRT). Sample-size-adjusted Lo-Mendell-Rubin tests were also inspected to aid accurate model identification, where determination between 6- and 7-class solutions was indistinct (Lo, Mendell & Rubin, 2008). Class size (very small classes may not be meaningful), entropy (a measure of classification accuracy where values below 0.80 need to be treated with caution), and inspection of class singularity to ensure meaningful and parsimonious solution, were also considered in final determination of best fit model (Bauer & Curran, 2003; Jung & Wickrama, 2008).

The next step of the analysis involved testing multinomial logistic regression models to examine whether demographics (e.g. age, gender, education) as well as additional variables likely to influence childhood experience (e.g. experience in foster/home care, having been in juvenile detention, and other environmental factors influencing sense of security and safety) predicted class membership. A full LCA was then conducted, specifying previously identified optimal class model and including identified significant covariates. A further nine participants were excluded at this stage of the analyses due to missing data on all covariates, resulting in a final sample of 1663 participants.

Finally, univariate ANOVA (continuous) and Chi Square (categorical) analyses were then conducted using SPSS to examine associations between the six CTE latent classes and: 1) adulthood interpersonal trauma experiences, 2) homelessness history, and 3) current homelessness status, of individuals within these CTE sub groups.
3. Results

3.1. Classes

The LCA analyses indicated that a six class solution model provided the best model fit. The characteristics of the six classes are shown in Fig. 1 and are described below.

Class 1, labelled ‘Multiple CTE’, comprised 15.8% (n = 262) of the total sample. This class was characterised by high probability of multiple adverse childhood experiences across the broad spectrum of trauma type. Individuals in this class reported childhood experiences of physical and sexual abuse from both an individual within their primary care system and also by a perpetrator from outside this care system. These individuals also reported experiencing serious threat of harm from others, both proximal and distal to their primary care environment. Additionally, witnessing of violent acts between other individuals and frequent experiences of neglect were reported by those in this Multiple CTE class. Importantly, the individuals in this Multiple CTE class reported both male and female primary carers with at least one of either mental health issue requiring hospitalisation at one point in time, problematic substance use, and having spent some time in jail.

Two further distinct CTE classes emerged, which were delineated by perpetrator proximity—labelled ‘Distal CTE’ (n = 286; 17.2%) and ‘Proximal CTE’ (n = 208; 12.6%). The Distal CTE classification identified high probability that trauma experiences for these individuals were most likely experienced at the hands of someone from outside the primary care environment. Probability of threat of harm, physical and sexual abuse as perpetrated by someone not living with them in the primary care environment were high for these individuals. There was also a high probability of having a male primary carer with at least one of mental health and substance use problems and/or having spent time in jail. Additionally, witnessing of violence during childhood was a high probability for individuals in the Distal CTE class.

The Proximal CTE class identified a group of individuals characterised by high probability trauma experiences were experienced at the hands of someone within their primary care environment. In contrast to those in the Distal CTE class, experience of sexual abuse within their primary care environment was a relatively high probability for the Proximal CTE individuals. It was noted that there was also a relatively high probability of sexual abuse by someone from outside their primary care environment for these group of individuals. The Proximal CTE class was further characterised by relatively high probability of witnessing of violence and having both male and female primary carers with mental health and substance use issues and/or jail experiences.

Class 4, labelled ‘High Violence CTE’ (n = 233; 14.0%), had a high probability of witnessing of violence and experiencing threat of harm and/or physical abuse from within and outside their primary care environment. Experiences of sexual abuse during childhood were identified as a relatively low probability in this High Violence CTE. Experiences constituting neglect were identified as a moderately probable.

Class 5, labelled ‘Indirect CTE’ (n = 259; 15.0%), had a higher probability that trauma experiences were likely a result of living with either both male and female primary carers with at least one of mental health issues, problematic drug and/or alcohol use, or time spent in jail. Additionally, witnessing of violence during childhood was a high probability for these individuals.

The sixth class that emerged was characterised by relatively low probability of childhood CTE across all types included in analysis with the witnessing of violence item endorsed as highest probability likelihood. As such this class was labelled ‘Low CTE’ (n = 423; 25.4%) and was used as the reference group throughout comparative analyses.
Table 4

Results of the multivariate logistic regression examining covariates associated with latent class membership (low CTE is the reference category).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple</th>
<th>High</th>
<th>Proximal Threat</th>
<th>Indirect</th>
<th>Distal Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.95</td>
<td>0.85*</td>
<td>0.86</td>
<td>0.70</td>
<td>0.97*</td>
</tr>
<tr>
<td>Female gender</td>
<td>2.31**</td>
<td>1.24*</td>
<td>1.68</td>
<td>1.42</td>
<td>0.81</td>
</tr>
<tr>
<td>Felt safe growing up - Ever</td>
<td>0.75**</td>
<td>0.85</td>
<td>0.47*</td>
<td>0.91</td>
<td>0.52*</td>
</tr>
<tr>
<td>Felt unsafe growing up - Ever</td>
<td>2.72**</td>
<td>0.86</td>
<td>1.90*</td>
<td>0.95</td>
<td>1.40</td>
</tr>
<tr>
<td>Care experience - Yes</td>
<td>6.17**</td>
<td>1.13</td>
<td>1.77</td>
<td>1.32</td>
<td>1.44</td>
</tr>
<tr>
<td>Juvenile detention - Yes</td>
<td>1.17</td>
<td>1.81</td>
<td>2.91*</td>
<td>1.91</td>
<td>1.10</td>
</tr>
<tr>
<td>Age left school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤13 years</td>
<td>3.9*</td>
<td>0.76</td>
<td>0.65</td>
<td>1.86</td>
<td>1.17</td>
</tr>
<tr>
<td>14 – 15 years</td>
<td>2.95*</td>
<td>1.89</td>
<td>0.95</td>
<td>2.95*</td>
<td>2.02*</td>
</tr>
<tr>
<td>≥16 years</td>
<td>1.33</td>
<td>1.14</td>
<td>1.22</td>
<td>1.54*</td>
<td>1.41</td>
</tr>
<tr>
<td>Primary Care status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological, 1 nonbiological</td>
<td>0.12*</td>
<td>0.21*</td>
<td>0.13</td>
<td>0.40</td>
<td>0.85</td>
</tr>
<tr>
<td>Biological</td>
<td>1.91</td>
<td>1.21</td>
<td>1.45</td>
<td>1.46</td>
<td>1.67</td>
</tr>
<tr>
<td>1 biological</td>
<td>1.14</td>
<td>1.08</td>
<td>1.95</td>
<td>2.16</td>
<td>2.36</td>
</tr>
</tbody>
</table>

Note: * estimates reflect the odds of class membership for each covariate relative to the covariate reference category and relative to the LCA reference group, which is low CTE (Class 6); ** Sig=0.001; * Sig=0.05.

3.2 Correlates of classes

Multinomial logistic regression identified that contextual childhood variables of age; gender; growing up feeling safe, secure, loved and protected within the family environment; growing up feeling hated by someone in the family and/or having emotionally hurtful or insulting things said to you; experience in kin/residential/foster care; having been in juvenile detention; age left school; and biological/non-biological nature of primary carer dyad were likely to significantly influence individual's class classification. A full LCA was subsequently conducted allowing for inclusion of these significant covariates while the classes were forming. The effects of covariates on class formation were examined as Odds Ratios (Table 4), whereby estimates reflect the odds of class membership for each covariate relative to the covariate reference category and relative to the LCA reference group, which is low CTE (Class 6).

Specifically, compared with those individuals in the Low (ref) class, females were more likely to be in the Multiple CTE class (OR=2.31, p=0.001), as were those individuals who grew up experiencing hatred and emotional negativity (OR=2.72, p=0.001), left school at age 14 or 15 years (OR=3.95, p=0.003), were in residential/foster care as a child (OR=1.47, p=0.001), and did not have a primary carer dyad comprised two biological parents (OR=1.33, p=0.005).

Younger individuals were more likely to be in the Distal CTE class than the low CTE class (OR=0.70, p=0.001), as were those individuals without recollections of ever feeling safe growing up (OR=0.62, p=0.038) and those who left school aged 14 or 15 years (OR=2.07, p=0.033).

Indians who grew up experiencing hatred and emotional negativity were more likely to be in the Proximal CTE class (OR=2.95, p=0.001) than the reference class. Similarly for individuals with at least one experience of contact with the justice system and having been in juvenile detention (OR=3.02, p=0.001). females were less likely to be in the High-Violent CTE class (OR=0.14, p=0.001), when compared to those in the reference group. Individuals were less likely to be younger (OR=0.58, p=0.001) in the High Violence class and to have had a primary carer dyad comprising of other than two biological parents (OR=2.31, p=0.008), and those in the reference class.

Age leaving school was the only significant (p=0.005) correlate influencing classification into the indirect CTE class. These individuals were 3.04 times more likely to have left school aged 16 or 17 years.

3.3 Classes and adulthood interpersonal trauma experiences

Pearson's chi-square tests of contingencies were conducted to evaluate whether aspects of individual's adulthood interpersonal trauma experiences (AITE) were related to an individual's childhood CTE typology. Participants aged 17 years and under (n=156) were excluded from these analyses. Table 5 presents a summary of these results, which identified a significant association for all adulthood trauma experiences with CTE type. Table 6 displays frequency information regarding adulthood trauma experiences with perpetrator type.

Individuals in the Multiple CTE class had the highest class proportion of reported physical assault (91.5%), threat of violence (72.5%), and sexual assault (35.2%). For these individuals the physical assault was most frequently a partner (35.5%) and threat of violence perpetrator was most frequently someone they knew other than a partner (41.1%), with sexual assault most frequently perpetrated by a stranger (50.0%).

The High Violence CTE class had a high proportion of physical assault (82.7%) and threat of violence was relatively high (61.8%), with lower frequency reported for sexual assault (6.3%). For these individuals the perpetrator of physical assault (46.4%) and threat of violence (50.0%) were most frequently identified as someone they knew other than a partner. For the
small percent that reported sexual assault 2as an adult, the perpetrator was most frequently (60.0%) a current and/or previous partner. Individuals in the Proximal Threat CTE and Distal Threat CTE classes reported similar proportions of occurrence for each of the AITE: however, differences between these two classes were identified in frequency distribution of perpetrator type (see Tables 5 and 6). All sexual assault experiences for those in the Proximal CTE class were reported as perpetrated by someone other than a partner known to victim. In the Distal CTE class sexual assault perpetrator was most frequently (50%) reported as a current or previous partner. The Indirect CTE class reported the lowest proportion of respondents for experiencing AITE – physical assault (42.2%), threat of violence (36.0%), and sexual assault (3.0%). For these individuals the perpetrator most frequently reported for all AITE type was someone else they knew other than a partner.

The Low CTE (ref) class revealed a relatively high proportion of individuals experiencing physical assault (49.7%) and threat of violence (40.2%) in adulthood. These occurrences were proportionately higher than those reported by individuals in the Indirect CTE group. Sexual assault as an adult (50.0%) was proportionately higher in this class than both the High Violence CTE and Indirect CTE; however, this proportionality relationship was inversely when sexual assault occurred in the last six months. Sexual assault perpetrator was reported with equal frequency of being stranger (50.0%) or someone other than a partner known to victim (50.0%).

3.4. Classes and homelessness history

The mean age of first homelessness experience for the overall sample was 19.89 years (SD 12.71). There was a significant relationship between age of first homelessness experience and class, F (1, 5)=33.87, p<0.001. Across all six classes the highest proportion of individuals in each group indicated a first homeless experience between 1.5 and 19 years of age.
Table 7

Association between class and homelessness history prior to baseline (N = 1663):

<table>
<thead>
<tr>
<th></th>
<th>Multiple (n=969)</th>
<th>High Violence (n=231)</th>
<th>Proximal Threat (n=289)</th>
<th>Indirect (n=250)</th>
<th>Total Threat (n=360)</th>
<th>Low (n=423)</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless prior to baseline</td>
<td>96.5</td>
<td>92.9</td>
<td>92.1</td>
<td>88.8</td>
<td>96.5</td>
<td>87.6</td>
<td>66.5**</td>
</tr>
<tr>
<td>Homeless in the past 6 months</td>
<td>52.7</td>
<td>52.4</td>
<td>51.7</td>
<td>46.4</td>
<td>54.9</td>
<td>46.3</td>
<td>20.6*</td>
</tr>
<tr>
<td>Total time homeless prior to baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;12 months</td>
<td>33.3</td>
<td>44.1</td>
<td>40.3</td>
<td>54.1</td>
<td>51.4</td>
<td>55.4</td>
<td>47.9**</td>
</tr>
<tr>
<td>1-5 years</td>
<td>42.4</td>
<td>29.6</td>
<td>36.2</td>
<td>24.3</td>
<td>27.1</td>
<td>24.8</td>
<td>10.8</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>24.3</td>
<td>16.3</td>
<td>14.3</td>
<td>11.6</td>
<td>11.5</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>Duration of first homeless experience prior to baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;6 months</td>
<td>67.7</td>
<td>73.4</td>
<td>77.1</td>
<td>77.4</td>
<td>70.3</td>
<td>70.4</td>
<td>13.9**</td>
</tr>
<tr>
<td>&gt;6 months</td>
<td>32.3</td>
<td>26.6</td>
<td>22.9</td>
<td>22.6</td>
<td>29.7</td>
<td>29.6</td>
<td></td>
</tr>
</tbody>
</table>

Note: ** Sig at p < 0.001; * Sig at p < 0.05.

Pearson's chi-square tests of contingencies were conducted to evaluate whether aspects of individual's homeless history were related to an individual's class classification. Table 7 summarises the results of these analyses and illustrates a general overall significant effect of homelessness on class, indicating a relationship between homelessness and childhood complex trauma experiences. Approximately 50% of individuals in each of the six classes reported being homeless in the past six months. In the Multiple CTE class, one-quarter of individuals reported a lifetime total of homelessness greater than five years, with the highest proportion (42.4%) of individuals reporting both a total time spent homeless as between 1 and 5 years. In comparison, for the remaining five classes, most individuals reported that the total time spent homeless was less than 12 months duration. Across all six classes, the majority of individuals reported a first homeless experience lasting less or equal to six months in duration. Where individuals reported a first homeless experience duration of greater than 4 months, proportionality was highest for the Multiple CTE group.

4. Discussion

This study provides a novel insight into the nature of complex trauma in a sample of Australian individuals experiencing extreme social disadvantage and high housing instability. The LCA indicated six distinct groups of individuals who differed in relation to the type and co-occurrence of complex trauma experiences: 1) Individuals who experienced multiple direct and indirect trauma types from a mix of those within and outside their primary care environment – Multiple, 2) Individuals whose trauma was most likely perpetrated by someone within their primary care environment – Proximal, 3) Individuals whose trauma was most likely perpetrated by someone outside their primary care environment – Bital, 4) Individuals whose trauma was predominately by direct and indirect experiences of physical violence – High Violence, 5) Individuals whose trauma was most likely experienced as the result of primary care issues and witnessing violence, and 6) Individuals with low probability of childhood trauma exposure across more than one type – Low. The current study extends upon earlier person-centred investigations into childhood adversity typologies (e.g. Ballard et al., 2015; Hagan, Sulik & Eberman, 2015; Ford et al., 2015; Ford et al., 2011; Shevlin & Uberti, 2009) by modelling perpetrator proximity and primary caretaker considerations as primary rather than auxiliary variables of interest (Wong, Clarke & Maitrith, 2016). This approach allows for a more comprehensive insight into the nature of individual differences in complex trauma for individuals facing extreme social disadvantage.

Notably, individuals in the Multiple CTE class appeared more likely to have had both male and female primary carers who had substance abuse issues, mental health difficulties and/or had spent time in jail. In contrast, these individuals in all other classes, the probability of having a primary male carer with these same difficulties was approximately twice that of a primary female carer. Where an individual's likely class membership was not primarily defined by perpetrator proximity, the probability that perpetrator was proximal to primary care environment was similar across all other classes. This pattern of results raises two important considerations: 1) In addition to being a potentially traumatic experience in and of itself, having a primary carer with such aforementioned issues may be a significant risk factor for direct interpersonal trauma exposure in childhood. These results suggest this risk may be heightened where it is the primary male carer experiencing such difficulties; and 2) Where perpetrator proximity was not clearly demarcated as proximal or distal to primary care environment, individuals appeared to have been equally likely experience various trauma type perpetrated by someone either within or outside their primary care environment.

The second main contribution of this paper is that we identified covariates significantly associated with class membership. Previous trauma literature has identified gender differences in childhood trauma exposure as a critical vulnerability consideration within trauma research (e.g., Ballard et al., 2015). Significant associations between gender and trauma typology emerged in the current study. Notably, male gender was significantly associated with high probability of exposure to a range of physical violence experiences, replicating previous research identifying males more likely than females to experience non-sexual assaultive trauma during childhood (Simara et al., 2014). Female gender was associated with a higher probability.
of exposure to multiple types of direct and indirect childhood trauma experiences, including sexual assault. This finding is consistent with some previous research, whereby females were significantly more likely than males to have experienced multiple different interpersonal trauma experiences (Jonas et al., 2014) and sexual assault in childhood (Toinim & Foa, 2006) — with greater disparity for exposure to childhood sexual assault in females previously identified among the homeless (Kushel et al., 2003). The current study further elucidated that homeless females were highly vulnerable to sexual assault from someone close to within and outside their primary care environment during childhood. This delineation added a critical element of understanding to risk vulnerability knowledge and addressed an identified limitation of previous LCA examinations into childhood trauma clustering where perpetrator information was lacking (Ballard et al., 2015).

An additional salient finding was that class membership for the Multiple CTE class was significantly influenced by all covariates, excepting age and juvenile detention experience. These individuals reported high likelihood of having no recollection of ever having been trained while growing up and experiencing physical and emotional neglect. They were also very likely to have had lived in care at some stage before the age of 14 years and were unlikely to have had two primary carers both of which being biological parents.

Some additional significant covariate influences of interest were noted. First, similar to the Multiple CTE class, high likelihood of experiencing foster care and emotional neglect while growing up was identified for the Prodromal CTE class. Furthermore, individuals in this class were more likely to report a high probability of ventricle abnormalities being present in the immediate time after administration. An additional finding was the high proportion of individuals in the Distal CTE group who were also likely to have had exposure to feeling safe growing up. Third, individuals who had trauma experiences that were largely indirect in nature were more likely to have left school before completion of year 12 (aged 18 years).

These findings provide crucial insight into vulnerability factors that increase likelihood of experiencing specific types of childhood trauma, with important implications for early intervention prevention of trauma exposure. Notably, it appears that exposure to multiple negative contextual childhood experiences significantly increases risk vulnerability for multiple complex trauma experiences before the age of 14 years. Furthermore, the findings suggest this vulnerability is greater for females, particularly in the case of sexual assault. The protective nature of feeling safe within the primary care environment is also highlighted within the current study context. This finding is consistent with treatment-focused exams, which consistently identify creating a safe space for children who have experienced complex trauma as a first priority of therapeutic interventions (Greenwald, 2014). Furthermore, there is evidence to suggest that trauma-informed care environments facilitating healing and growth are an essential component of therapeutic change (Bath, 2008). It therefore stands to reason that feeling safe within a primary care environment, even in the face of complex childhood trauma experience, may serve to ameliorate in part consequent psychological distress.

A second aim of this study was to investigate possible patterns of links between typology of childhood trauma experience and subsequent adulthood trauma experiences. The results indicated that childhood trauma experiences were associated with adult trauma. Most notably, the nature of adulthood trauma type appeared to correspond with childhood trauma types in most of the classes. Specifically, individuals in the Multiple CTE class reported the highest frequency of adulthood interpersonal trauma experience across all type; individuals in the High Violence CTE class reported high frequency of physical assault and threat of violence but low frequency of sexual assault; and lowest frequency across all adulthood trauma type was reported by those in the Indirect CTE class. Keeping in mind the aforementioned contextual factors also influencing class membership, these findings suggest that greater exposure to multiple childhood trauma experiences significantly increases the risk of adulthood interpersonal trauma exposure. Furthermore, this pattern of associations may indicate that trauma exposure type during childhood predisposes an individual to adulthood trauma exposure of the same type.

Sexual re-victimisation examinations highlighting transition from child victim to adult victim (Arita, 2008), may also provide rationale for higher proportionate report of any experience sexual assault in adulthood in the low CTE class. The finding of proportionate incidence of sexual assault in the previous six months for individuals in the low CTE class is perhaps more indicative of reduced exposure to risky situations, relative to individuals in other classes with higher prevalence of sexual assault in the previous six months. Longitudinal examination of these associations, with consideration of additional time-varying covariate influences (such as homelessness transitioning), are suggested for future research consideration.

Addressing the final aim of this study, important implications of complex trauma typology for homelessness experiences were revealed. Of particular significance was that individuals in the Multiple CTE had the highest proportion of individuals reporting a homeless experience of one to five years prior to baseline. This was in comparison to the other five classes where the highest proportion of individuals reported total homeless time prior to baseline of less than twelve months. Further to this, while a first homeless experience of less than six months duration was reported by more than 50% of individuals in all six classes, a larger relative proportion of ‘greater than 6 months first homeless experience’ was identified in the Multiple CTE class. This pattern of results highlights increased vulnerability for individuals who have experienced multiple childhood trauma experiences across a range of type.

4.1. Limitations and strengths

Findings from this research were limited by several factors. Issues relating to the potential under reporting and over reporting must be considered when interpreting findings based on retrospective reporting of childhood trauma experiences.
(Haridi & Rutler, 2004; McKinney, Harris & Carano, 2009). Disturbances in self-regulatory capacities, with marked difficulties in interpersonal skills, are characteristic features of problematic dysfunction experienced by individuals with complex trauma experiences (Cook et al., 2005). These factors could have influenced reporting accuracy of intimate and private issues must be considered, particularly given the identified challenge of establishing trust between the homeless and health care providers (van den Berk-Clark & McGuire, 2014). Thirdly, the use of structured questions to gather information about participant’s childhood experiences and family history likely constrained reporting.

Despite these limitations this paper provides some important contributions to complex trauma research. Adoption of a person-centred approach to examine complex trauma has extended our understanding of individual differences in trauma experiences for those experiencing extreme social disadvantage. Previous research has suggested a need to move beyond cumulative and additive examinations of direct interpersonal trauma experiences (Hodges et al., 2013). The current study adopted a broadened conceptualisation of complex trauma which included direct and indirect trauma experiences together with environmental and contextual risk vulnerability factors. Ballard et al. (2015) identified a need for closer examination of perpetrator proximity and associated risk factors in cases of childhood trauma. In the current study, significant covariate effects were associated with exposure of class delineation by perpetrator proximity. These findings provide important insight into vulnerability risk factors for exposure to interpersonal trauma both within and outside the primary care environment. Further strength of this study was identification of particularly vulnerable sub-groups within an already vulnerable population. Echoing findings from the past two decades of research (Bassuk, Weinreb, Dawson, Peroff, & Buckner, 1997; Kushel, Evans, Perry, Robertson, & Moss, 2003) females continue to be most at risk for interpersonal trauma where housing stability is low.

4.2. Conclusion

This study provides new insights into the nature of complex trauma in a socially disadvantaged population. These findings are important because they could inform policy development and intervention strategies targeting successful exiting from the perpetuating cycle of social disadvantage and housing instability. Furthermore, the detection of extremely high prevalence of lifetime interpersonal trauma exposure provides insight into possible barriers to initial engagement with available support services. It is recommended that further research is conducted to clarify the nature and impact of these complex trauma profiles in different populations.

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References


Appendix C: Chapter 6 Publication


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