CHAPTER 1
GENERAL INTRODUCTION

Within most societies a minority of community members live in substandard accommodation and are considered homeless. These individuals do not experience accommodation problems by choice but rather become homeless due to a multiplicity of individual and societal factors. Such factors result in significant cross-cultural differences, thus making research on homelessness from a local perspective considerably important (Polakow & Guillean, 2001).

Emerging from a growing body of research is the recognition of the high rates of psychological morbidity and trauma experience prevalent in this population (Fichter & Quadflieg, 2005; Kushel, Evans, Perry, Robertson, & Moss, 2003; Salkow & Fichter, 2003). A number of international studies reveal high prevalence rates of posttraumatic stress disorder (PTSD) within this cohort with the onset of PTSD commonly preceding homelessness (e.g. North & Smith, 1992). Although the relationship between homelessness and PTSD remains unknown, recent research on PTSD indicates that cognitive responses to trauma are critical in determining who develops the disorder (Bryant, 2003).

Consistent with international findings, Australian studies indicate exceptionally high rates of trauma in homeless samples (e.g. Buhrich, Hodder, & Teesson, 2000), yet the prevalence of PTSD has not been investigated among homeless adults in Australia. Therefore, this population was selected to explore the prevalence and onset of PTSD.
in relation to homelessness, and the role posttraumatic cognitions play in PTSD symptomatology. The primary aim of this project was to improve understanding of PTSD and related cognitions in a sample of homeless adults in Sydney.

### 1.1. Understanding Homelessness

Homelessness is a centuries-old complex problem that exists today in most countries around the world. Substantive differences exist between countries in terms of how homelessness is defined, the nature of homeless populations, and the causes of homelessness. These differences highlight the importance of understanding homelessness from both international and Australian perspectives.

#### 1.1.1. International Perspectives

Adequate housing is assumed to be a fundamental human right. The Universal Declaration of Human Rights adopted by the United Nations in 1948 states that, “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including … housing” (Sidoti, 1996, p. 2). However, as countries differ in their cultures and social values, they also differ over what constitutes adequate housing (Shlay & Rossi, 1992). Hence, what it means to be homeless differs across time and from country to country. Subsequently, the nature of homeless populations and the causes of homelessness also differ historically and internationally.
Contemporary definitions of homelessness tend to be directly linked to the physical housing situations of persons. Narrow definitions include people who have no shelter whatsoever or emergency shelter only. Broader definitions extend to include people in hospitals or in prisons, people staying with friends or relatives, people renting a room in a hotel, or people living in substandard housing. These broader definitions reflect modern ideals of how people should be housed, which developed along with improvements in housing conditions generally in the later half of the twentieth century (Shlay & Rossi, 1992).

Regardless of how homelessness is defined, it is generally accepted in the literature that in recent years there have been worldwide increases in homelessness (Bassuk, Rubin, & Lauriat, 1984; Darnton-Hill, Mandryk, Mock, Lewis, & Kerr, 1990). In particular, the numbers of homeless women and children have increased. This has been documented in the United States (US), Britain, and France (Polakow & Guillean, 2001; Shlay & Rossi, 1992). Despite these trends, the nature of homeless populations generally differs significantly between the Americas, Asia, Europe, and Africa. For example, Kenya has a large homeless population consisting of people living in extreme poverty in both urban and rural areas for various reasons including being unable to generate income and being internally displaced due to ethnic violence. The homeless population also includes children living and working on the street, many of whom have lost both parents to HIV/AIDS (Swadener & Mutua, 2001). In contrast, Greece has a small homeless population which was only recognised in the 1990s, consisting mostly of immigrants from South Eastern Europe and the Middle East. Although there is no statutory obligation to provide social housing in Greece, families have always provided aid to family members in need, so that until recently,
homelessness essentially did not exist (Sapounakis, 2001). Although a comprehensive discussion of homelessness across international jurisdictions is beyond the scope of this thesis, these examples highlight international differences in the nature and causes of homelessness.

From an international perspective, the current causes are possibly best understood by a comparison of developed and developing countries. In developed countries with modern market economies, homelessness tends to be a product of economic and political forces, such as economic restructuring, unemployment, decline in low-income housing, and cutbacks in welfare spending. In developing countries, homelessness commonly results from rapid urbanisation when large numbers of people cannot be absorbed by strained labour and housing markets (Shlay & Rossi, 1992). These vast international differences in the definition, nature, and cause of homelessness highlight the importance of understanding homelessness locally.

1.1.2 Australian Perspective

Homelessness was identified as a problem in Australia soon after the English colonisation in 1788 (Darnton-Hill, Mandryk, Mock, Lewis, & Kerr, 1990). With homelessness broadly defined, there are nearly one hundred thousand homeless in Australia. Studies identifying pathways into homelessness have found various causes (Chamberlain & MacKenzie, 2003).
1.1.2.1. History

To understand homelessness from an Australian perspective, it is necessary to begin with its history in England. In 1349, the first major vagrancy law was passed in England to reduce idleness and increase the workforce following the Black Death. By the 1500s, the focus of the vagrancy statutes changed to become a means of controlling felons. From the mid-1700s to the mid-1800s, during the Industrial Revolution, people moved en masse into urban areas and homeless people were considered sinister. It was during this time, in 1788, that Australia was colonised by the English. In the United Kingdom, there were stringent anti-vagrancy laws and Australia followed suit. In 1833, New South Wales passed laws to combat the problem of vagabonds (Darnton-Hill, Mandryk, Mock, Lewis, & Kerr, 1990).

In complete contrast to laws combating vagabonds, the City of Sydney Council now recognises the rights of everyone in the community to use public spaces and to have access to safe, secure, and affordable housing (Reynolds & Thorpe, 2004). Homeless people are now regarded as amongst the most marginalised in Australia. Government policy aims to assist homeless people to participate as fully as possible in the community with the National Homelessness Strategy, which has four main themes: prevention, for example improving access to housing; early intervention, such as identifying people at risk; working together, that is collaboration of Government and community; and crisis transition and support, including assisting people to move to long term accommodation (Newman, 2000).
1.1.2.2. Current Definition

In comparison to other countries, Australia adopts a broad definition of homelessness, which may reflect the relatively high standard of living in Australia. The official definition comes from the Government’s Australian Bureau of Statistics and was the definition used for this study. According to this definition, a homeless person is someone who has inadequate access to safe and secure housing. It includes people living in various situations below a minimum standard of a small rented flat with separate bathroom and kitchen and an element of security of tenure (Chamberlain & MacKenzie, 2003).

To clarify the variety of situations in which homeless people might live, in a report for the Australian Census Analytic Program, Chamberlain and MacKenzie (2003) identified three levels of homelessness: primary; secondary; and tertiary homelessness.

**Primary homelessness.** This refers to people without conventional accommodation, such as people living on the streets, sleeping in parks, squatting in derelict buildings, or using cars or railway carriages for temporary shelter (Chamberlain & MacKenzie, 2003).

**Secondary homelessness.** This refers to people who move frequently from one form of temporary shelter to another. Included are people staying in emergency or transitional accommodation such as hostels for the homeless, night shelters, and refuges. This level also includes people residing temporarily with other households
because they have no accommodation of their own and people staying in boarding houses on a short-term basis, operationally defined as twelve weeks or less (Chamberlain & MacKenzie, 2003).

**Tertiary homelessness.** This refers to people living in boarding houses on a medium to long-term basis, defined as thirteen weeks or longer. Residents of private boarding houses do not have a separate bedroom and living room, they do not have kitchen and bathroom facilities of their own, their accommodation is not self-contained, and they do not have security of tenure provided by a lease. They are homeless because their accommodation situation is below the minimum community standard (Chamberlain & MacKenzie, 2003).

### 1.1.2.3. Demographic Characteristics

Until recently, there were no reliable statistics on the number of homeless people in Australia. However, it is thought that the Australian homeless population increased during the Great Depression of the 1930s, decreased in the prosperous 1960s (Darnton-Hill, Mandryk, Mock, Lewis, & Kerr, 1990), and has gradually increased since the 1960s (Chamberlain & MacKenzie, 2003), which is in keeping with worldwide increases in homelessness (Bassuk, Rubin, & Lauriat, 1984; Darnton-Hill, Mandryk, Mock, Lewis, & Kerr, 1990).

Knowledge of the extent of today’s Australian homeless population comes from information collected in the 2001 census, reported in the Chamberlain and MacKenzie (2003) Australian Census Analytic Program report. According to this report, on
census night 2001, approximately 99,900 people were homeless in Australia, which is
53 homeless people per 10,000 people in the general population. Approximately,
14% were primary homeless, 63% were secondary homeless, and 23% were tertiary
homeless. There were differences in the number of homeless people between the
States and Territories. New South Wales (NSW) had the highest number, with a
figure of 26,676 or 42 per 10,000, which is not surprising since NSW has the largest
population. However, by considering the number of homeless people relative to the
population size, Northern Territory (NT) had the most homeless people by a
considerable margin. In NT, there were 5,423 homeless people or 288 per 10,000
(Chamberlain & MacKenzie, 2003). Overall, indigenous people were
overrepresented. In the Australian general population 2% of people identify
themselves as indigenous compared to 9% in the homeless population.

In terms of age, marital status, and gender, major empirical studies in the 1960s and
early 1970s found that the homeless population was mostly old, lone males (De Hoog,
1972; Jordan, 1973). The profile has changed in recent years to include more young
people, families, and women (Chamberlain & MacKenzie, 2003), consistent with
findings in the US, Britain, and France (Polakow & Guillean, 2001; Shlay & Rossi,

With respect to age, within the Australian homeless population, 54% are aged twenty-
five years or older, 36% are aged twelve to twenty-four years, and 10% are children
under twelve years. In terms of marital status, 78% of homeless people are lone
persons, 13% are couples without children, and 9% are families with children. In
terms of gender, 58% of the homeless population are male. Considering the different
levels of homelessness, there are more males than females in every segment of the homeless population, except those in supported accommodation, in which females make up 53%. It is thought that the reason for this is that homeless women are perceived as more vulnerable than homeless men. Hence, there are a significant number of supported accommodation services that cater for women, specifically those who are victims of domestic violence. Also, women’s access to these services is often facilitated (Chamberlain & MacKenzie, 2003).

In terms of the duration of homelessness, very little information is available. The only temporal information from the census data was from a group considered secondary homeless. In this group, 60% had been homeless for seven months or longer. Generally, it is thought that young homeless people are more likely to be homeless for short periods of time, whereas older homeless people are more likely to be homeless for longer periods of time (Chamberlain & MacKenzie, 2003).

1.1.2.4. Causes

The changing profile of the Australian homeless population in recent decades to include more young people, families, and women, may be explained by changing causes of homelessness. The National Homelessness Strategy has identified the following six factors which may have contributed to the recent change in the homeless population: (1) changes to the structure of the labour market so that there are fewer jobs for low-skilled people; (2) a decrease in low cost accommodation; (3) changes to family formation including increased family breakdowns; (4) increases in the incidence of women and children fleeing domestic violence; (5) shifts in the pattern of
substance abuse and the availability of illicit drugs; and (6) deinstitutionalisation of people with psychiatric illness, intellectual disability, and physical disability. Two other factors which may be relevant are: (1) that the proportion of people in Australia living in poverty has increased since the mid-1970s; and (2) that during the 1980s and 1990s the unemployment rate never fell below 5% (Chamberlain & MacKenzie, 2003).

Aside from a consideration of factors that contribute to homelessness, another approach to considering the causes of homelessness is to consider pathways into homelessness. Based on the 2001 census data, four major pathways into homelessness have been identified: (1) a youth pathway, characterised by a transition phase in which teenagers remain with their families but have episodes of staying away from home, usually to be with friends; (2) an adult pathway of having been homeless and usually unemployed since youth; (3) an adult housing crisis pathway of persistent poverty and indebtedness followed by a new setback which results in the loss of accommodation and little prospect of regaining it; and (4) an adult pathway of domestic violence or other family breakdown precipitating the end of existing living arrangements (Chamberlain & MacKenzie, 2003).

In addition to these four major pathways into homelessness derived from the 2001 census data, two empirical studies conducted in Australia have further investigated pathways to homelessness. In a study on pathways to youth homelessness, Martijn and Sharpe (2006) identified the following five pathways in a sample of homeless youth in Sydney (age range 14 to 25; N = 35): (1) drug and alcohol, and trauma (with or without additional psychological problems); (2) trauma and psychological
problems (with the absence of drug and alcohol); (3) drug and alcohol and family problems; (4) family problems; and (5) trauma (Martijn, 2003; Martijn & Sharpe, 2006). In a study on causes of homelessness in later life, Crane et al. (2005) identified the following three principal causes in a sample of homeless older adults in Melbourne (aged 50 years or older; N = 124): (1) personal factors, including bereavement, relationship breakdown, health and addiction problems, and criminality; (2) policy gaps, which refers to a state-funded or subsidised benefit or service that was lacking or to a condition or restriction upon an entitlement; and (3) service defects, that is, a failure to deliver a benefit or service to a client with an entitlement who was in contact with the provider agency. Clearly, these two studies together with the conclusions drawn from the census data indicate that the causes of homelessness are complex and multifaceted.

### 1.2. Mental Illness, Trauma and Homelessness

Research on homelessness is conducted in various disciplines, including sociology (e.g. Alekseeva, 2005), economics (e.g. Early, 2005), anthropology (e.g. Panter-Brick, 2002), and medicine (e.g. Dick & Hillson, 2005). In psychology, the focus of the research appears to be on the characteristics of the population and interventions that may improve well-being (based on PsycINFO literature searches conducted in January 2006 using the search term homeless). Research on the characteristics of the homeless population reveals a high prevalence of mental illness (Fichter & Quadflieg, 2005; Salkow & Fichter, 2003). It also reveals a high incidence of trauma (Buhrich, Hodder, & Teesson, 2000; Kessler, McConagle, Zhao, Nelson, & Hughes, 1994). It has been suggested by several Australian researchers that the high prevalence of
mental illness may be associated with the high incidence of trauma among homeless people (Hodder, Teesson, & Buhrich, 1998; Robinson, 2003). This suggestion has significant implications for interventions designed to help those who are homeless and mentally ill.

1.2.1. Homelessness and Mental Illness

Studies on the prevalence of mental illness in homeless individuals show rates which are much higher than in representative community samples (Fichter & Quadflieg, 2005; Salkow & Fichter, 2003), although the prevalence rates vary widely. In a review of literature on psychiatric morbidity of homeless persons, Ducq, Guesdon and Roelandt (1997) found estimates of homeless persons with affective disorders between 4% and 74%, rates of psychosis ranging to 70%, and a high frequency of dual diagnosis with substance abuse (Ducq, Guesdon, & Roelandt, 1997). In a review of thirty-three published reports representing eight different countries, Folsom and Jeste (2002) found estimates of homeless persons with schizophrenia between 2% and 45% (Folsom & Jeste, 2002). In a review of seventeen studies conducted across the US of general homeless populations (from 1983 to 1989), Shinn and Weitzman (1990) found the percentage of homeless adults who had been hospitalised for mental illness was between 4% and 35% (Ns = 51 to 979) (Shinn & Weitzman, 1990).

It has been suggested that the disparity in the prevalence rates can be explained by methodological differences in the research. Three main differences include: (1) how homelessness is defined; (2) how homeless people are accessed; and (3) how mental illness is defined and assessed. Generally, there are broad differences in the way
homeless populations are defined and sampled. Most studies rely on samples from shelter populations, whereas some studies sample homeless people from various settings, including the street, shelters, and health centres. A disadvantage of studies that only sample from shelter populations is that they may not be representative of all homeless people. In studies on homelessness and mental illness, the methods adopted to assess mental illness vary widely. Diverse instruments for psychiatric evaluation are used, including diagnosis by clinician, by scale, or by structured diagnostic interview (Ducq, Guesdon, & Roelandt, 1997; Salkow & Fichter, 2003). Despite these methodological differences and the disparity in estimates, a high prevalence of mental illness among homeless people is a finding regularly accepted in the Western world, including Australia (Polakow & Guillean, 2001; Rubbo, 2001).

In Australia, a relatively high proportion of homeless people have a mental illness (Herrman & Neil, 1996). In a review of fourteen studies conducted across Australia of homeless youth aged twelve to twenty-five (from 1989 to 1998), Kamieniecki (2001) found rates of various psychiatric disorders were at least twice as high among homeless youth than among youth from community surveys (Kamieniecki, 2001).

Two large studies conducted in Melbourne and Sydney of homeless adults had results consistent with Kamieniecki’s (2001) finding. In Melbourne, Herrman et al. (1989), conducted a study assessing the prevalence of mood disorders, psychotic disorders, and substance-related disorders among homeless people (N = 382). In this sample (aged 15 to 60) 47% had a current disorder and 72% received at least one lifetime diagnosis (Herrman, McGorry, Bennett, & Van Riel, 1989). In comparison, the
expected prevalence rate of at least one mental disorder in the Australian general population is 18% (Hodder, Teesson, & Buhrich, 1998).

In Sydney, Hodder, Teesson and Buhrich (1998), conducted a study assessing the prevalence of mental disorders among homeless adults (N = 210). Participants were randomly sampled from seven inner city hostels for homeless people. Structured interviews were conducted to assess for schizophrenia, alcohol use disorders, drug use disorders, mood disorders, and anxiety disorders. The study found that 75% of the sample (73% of men and 81% of women) met criteria for at least one of the mental disorders assessed in the previous twelve months (Hodder, Teesson, & Buhrich, 1998; Teesson, Hodder, & Buhrich, 2004). The prevalence rates for each of the mental disorders assessed are presented in Table 1, alongside the prevalence rates for the Australian general population. It is notable that for each disorder, the prevalence rate is at least three times higher among homeless people.
### Table 1.

**Australian Prevalence Rates of Current Mental Disorders (%)**

<table>
<thead>
<tr>
<th>Psychiatric Disorder</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Homeless Sample</td>
<td>General Population</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>23 (n = 160)</td>
<td>2 (n = 6627)</td>
</tr>
<tr>
<td>Alcohol Use Disorders</td>
<td>49 (n = 160)</td>
<td>9 (n = 6627)</td>
</tr>
<tr>
<td>Drug Use Disorders</td>
<td>34 (n = 160)</td>
<td>3 (n = 6627)</td>
</tr>
<tr>
<td>Mood Disorders</td>
<td>28 (n = 160)</td>
<td>4 (n = 6627)</td>
</tr>
<tr>
<td>Anxiety Disorders</td>
<td>22 (n = 160)</td>
<td>7 (n = 6627)</td>
</tr>
</tbody>
</table>

Why there is such a high prevalence of mental illness among homeless people is not clear. Certainly a causal relationship between mental illness and homelessness has not been confirmed (Salkow & Fichter, 2003). Nevertheless, evidence indicates that for most people mental illness precedes homelessness (Craig & Hodson, 1998, 2000; Kamieniecki, 2001; North, Pollio, Smith, & Spitznagel, 1998; Salkow & Fichter, 2003). Further, it has been suggested that the stress of being homeless exacerbates pre-existing mental disorders (Herman, Susser, & Struening, 1998). For those individuals with no psychiatric impairment when they first become homeless, evidence indicates they are at risk of developing a psychiatric diagnosis the longer they are homeless (Kamieniecki, 2001; Salkow & Fichter, 2003). Hence, in such cases homelessness acts as a precipitating factor in illness onset (Herman, Susser, & Struening, 1998).

But why would people with pre-existing mental disorders become homeless? And why would homeless people who have or develop mental disorders remain homeless? The answers to these questions may be related to mental health policy and service provision. In a small study conducted in New York (N = 36), Hopper et al. (1997) found that among some persons with severe mental illness, homelessness is perpetuated by a series of shelter stays alternating with institutional placements, including placements in psychiatric hospitals, detoxification facilities, and prison (Hopper, Jost, Hay, & Welber, 1997).

In Australia, in recent years there has been considerable criticism of the mental health care system and its ability to effectively care for those in need (Pollard, 2005a; Pollard & Glendinning, 2005). It has been suggested that the policy of deinstitutionalisation
may be an important factor in the increased number of homeless mentally ill people (Chamberlain & MacKenzie, 2003). This policy comprises of two principles: (1) the discharge of long-stay patients from psychiatric institutions; and (2) their management in a community setting. The policy of deinstitutionalisation was initiated in Western countries in the mid-1950s, following the introduction of effective medications for the treatment of mental illness; and the policy continues today (Buhrich, Hodder, & Teesson, 2003). It certainly is a possibility that public policy on mental health (and consequently mental health service accessibility and quality) is one factor that has led to the high prevalence of mental illness among homeless people in Australia.

1.2.2. Homelessness and Trauma

Research on the characteristics of the homeless population indicates a high incidence of trauma. This finding is well-documented, particularly in the US (Bachrach, 1987; Barber, Fonagy, Fultz, Simulinas, & Yates, 2005; Browne, 1993; Browne & Bassuk, 1997; Cohen, Sokolovsky, Roth, Teresi, & Holmes, 1989; D’Ercole & Streuning, 1990; Davis & Kutter, 1998; Denkin, 2004; Dipaolo, 1997; Felix, 2004; Goodman, 1991; Kim & Roberts, 2004; North & Smith, 1992; North, Thompson, Smith, & Kyburz, 1996; Nyamathi, Leake, & Gelberg, 2000; Rayburn et al., 2005; Thompson, 2005; Williams, Lindsey, Kurtz, & Jarvis, 2001; Wynne, 2002). As an example, Kushel, Evans, Perry, Robertson, and Moss (2003) interviewed 2,577 homeless and marginally housed men and women in San Francisco. Of the homeless respondents (n = 1,984), 30.1% reported they had experienced a physical or sexual assault in the previous twelve months (Kushel, Evans, Perry, Robertson, & Moss, 2003). In the US it is commonly accepted that the prevalence of trauma experience among homeless
people is considerably higher than among the general population (Kessler, McConagle, Zhao, Nelson, & Hughes, 1994).

Studies conducted on trauma among homeless people in Australia indicate similarly high incidence rates in comparison to the general population. In the study by Hodder, Teesson and Buhrich (1998) discussed earlier, 93% of homeless adults in inner Sydney reported they had experienced at least one major trauma event in their lives; 91% of men and 100% of women (n = 157). Participants frequently reported more than one trauma. The types of traumas reported included being seriously physically attacked or assaulted (58%) and witnessing someone being badly injured or killed (55%) (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998). These results are consistent with a large study of 213 homeless adults conducted in Sydney and Brisbane. Although the exact rates of trauma experience were not reported for this study, the author stated the experience of multiple traumas was common (Robinson, 2003). These results are also consistent with the Martijn and Sharpe (2006) study discussed earlier. In this study of homeless youth in Sydney (age range 14 to 25; N = 35) 90% reported at least one lifetime trauma and 70% reported at least two traumatic experiences. Moreover, the study found that trauma was a common experience prior to homelessness and figured in the causal pathways to homelessness for over half of the sample (Martijn, 2003; Martijn & Sharpe, 2006). These rates of trauma in Australian homeless samples are very high in comparison to the Australian general population. A finding of the Australian National Survey of Mental Health and Wellbeing was that 57% of the general population report one lifetime experience of trauma and 32% report at least two traumas (n = 10 641) (Rosenman, 2002). The homelessness research therefore conveys a consistent picture
that trauma and repeated trauma are considerably more frequent among Australian people who are homeless than those who are domiciled.

1.2.3. Linking Mental Illness and Trauma

Is it possible that the high prevalence of mental illness and the high incidence of trauma among homeless people are related phenomena? Based on her study of 213 homeless adults in Sydney and Brisbane, Robinson (2003) proposed a model of the factors underpinning iterative homelessness and mental disorders (Figure 1). Iterative homelessness refers to repeated and ongoing loss of, or movement through accommodation in both the short and long term contexts of homelessness. This model suggests that fluctuating mental health and trauma are key factors in perpetuating homelessness in those who are mentally ill (Robinson, 2003).
Figure 1. Robinson’s Model of Iterative Homelessness and Mental Disorders

Presenting issues are in the outer circle while core underlying issues are in the centre (Robinson, 2003, p. 32).
The model draws together a range of issues at play in the experiences of homeless people with mental disorders. It is not an exhaustive list of all the factors, but an attempt to systematise a way of imagining the layers of factors and how they relate to each other. Core underlying issues, which Robinson (2003) identifies as trauma and fluctuating mental health, are in the centre. Presenting issues, such as poverty and marginalisation, are in the outer circle. It is suggested that together, the factors sustain the ongoing struggle to maintain appropriate accommodation (Robinson, 2003).

Robinson’s model consists of twelve key elements. At the centre of the model is fluctuating mental health and trauma. Fluctuating mental health is a broad concept covering a range of varied symptoms which have a different impact on each individual. It is suggested that most people will have manageable symptoms but suffer periodic incidents of intense and incapacitating illness. Cumulative trauma refers to extreme and repeated traumatic experiences. Robinson argues that trauma has a cumulative effect on the individual and can be considered a key factor in the maintenance of trajectories of iterative homelessness (Robinson, 2003).

Following on from the centre of the model, is economic, physical, and emotional vulnerability combined with resilience and problematic strategies of survival, which Robinson proposes place individuals at increased risk of trauma, accommodation loss, and chaos. Within this context, random events, such as the death of a friend or a theft may prompt movement from accommodation or contribute to a period of illness. Beyond these factors which relate to the individual are dimensions of exclusion which bring disadvantage and maintain the cycle of homelessness. The outer circle of the
model is made up of presenting issues, which may be understood as symptoms of exclusion as well as of deeper issues of cumulative trauma and mental disorder, which have an impact on housing (Robinson, 2003).

Robinson was not the first to identify an associative relationship between mental illness, trauma, and homelessness. In their study of homeless adults in Sydney, Hodder, Teesson and Buhrich (1998) found 75% of the sample had at least one mental disorder in the previous twelve months and 93% reported they had experienced at least one major trauma event in their lives. Hodder, Teesson and Buhrich (1998) suggested that the high incidence of trauma partially explains the high prevalence and severity of mental disorders in homeless samples. Whereas Herman, Susser, and Struening (1998) proposed that the stress of being homeless precipitates or exacerbates mental disorders, Hodder, Teesson and Buhrich (1998) suggested that trauma experience precipitates or exacerbates mental disorders in people who are homeless.

Goodman, Saxe, and Harvey (1991) reconcile these ideas by proposing that homelessness itself is traumatic. As evidence in support of this notion, two studies indicate formally homeless children and adults often endorse symptoms of posttraumatic stress disorder resulting from past experience of homelessness (Bresnahan, 2000; Gold, 1995). Goodman, Saxe, and Harvey (1991) suggest three ways trauma is experienced by homeless people: (1) the sudden or gradual loss of one’s home (and possibly family); (2) the conditions of being homeless, including lack of safety, predictability, and control; and (3) in those who have trauma histories, homelessness exacerbating posttraumatic psychological symptoms. Hence, they
propose that trauma can occur prior to homelessness, when one becomes homeless, and during homelessness; and that this relationship between trauma and homelessness precipitates or exacerbates posttraumatic symptoms and consequently, mental disorders (Goodman, Saxe, & Harvey, 1991).

The proposition that there may be an associative relationship between trauma experience and mental illness among people who are homeless has significant implications for interventions designed to help those who are homeless and mentally ill. An investigation into trauma-related psychopathology among homeless people is warranted.

1.3. Posttraumatic Stress Disorder

A person exposed to a threatening situation is likely to experience a reaction to that situation. This reaction entails activation of the body’s physiological and psychological resources that are designed to mobilise the person to respond to the threat. When the threat has subsided, some individuals recover spontaneously. Others experience symptoms that mirror their initial reaction to the threat. Such individuals can develop a psychiatric condition called posttraumatic stress disorder (PTSD) (Litz, Miller, Ruef, & McTeague, 2002). To investigate trauma-related psychopathology among homeless people it is important to investigate PTSD in this group. Studies that have investigated PTSD among homeless people overseas indicate a high prevalence of PTSD and onset of PTSD prior to homelessness (e.g. North & Smith, 1992). PTSD has not been investigated in an adult homeless sample in Australia, despite evidence that a number of factors known to increase the risk of
PTSD are also known to be common factors in the homeless community in Australia (Buhrich, Hodder, & Teesson, 2000).

1.3.1. PTSD Definitions

PTSD is a mental disorder that develops in the context of traumatic or stressful experiences. Both the American Psychiatric Association (APA) and the World Health Organisation (WHO) provide a set of criteria for diagnosing PTSD. The APA’s set of criteria used in this project are described in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 1994). The WHO’s set of criteria used in this project are described in the International Classification of Diseases, Tenth Edition (ICD-10) (World Health Organisation, 1993). Although the sets of criteria differ in the way trauma is defined and the symptoms necessary for diagnosis, the sets of criteria are similar in that they both cluster symptoms into three main groups, being intrusion, avoidance, and hyperarousal. The DSM-IV and ICD-10 sets of criteria are summarised below and explained in full in Appendix A.

1.3.1.1. DSM-IV

According to the APA, PTSD is an anxiety disorder which can develop following exposure to a traumatic event (American Psychiatric Association, 1994). A traumatic event is defined as an event in which both of the following were present: (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical
integrity of self or others; and (2) the person’s response involved intense fear, helplessness, or horror (although in children, this may be expressed instead by disorganised or agitated behaviour) (Criterion A).

To meet DSM-IV criteria for PTSD, following exposure to a traumatic event, the person must persistently re-experience the traumatic event in one or more ways (Criterion B). For example, the person may have recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions; or the person may display intense psychological distress at exposure to internal or external cues that symbolise or resemble an aspect of the traumatic event.

As well as persistently re-experiencing the traumatic event, the person must persistently avoid stimuli associated with the trauma and display a numbing of general responsiveness (not present before the trauma) (Criterion C). This must be indicated in various ways, such as efforts to avoid thoughts, feelings, or conversations associated with the trauma; or markedly diminished interest or participation in significant activities.

Following exposure to a traumatic event, the person must also have persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following: difficulty falling asleep or staying asleep; irritability or outbursts of anger; difficulty concentrating; hypervigilance; and exaggerated startle response (Criterion D).
Two additional requirements to meet DSM-IV criteria for PTSD are that the duration of the disturbance (meaning Criteria B, C, and D) is more than one month (Criterion E); and that the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F). PTSD is considered acute if the duration of symptoms is less than three months and chronic if the duration of symptoms is three months or more. PTSD can be diagnosed with delayed onset, if the onset of symptoms is at least six months after the stressor.

1.3.1.2. ICD-10

According to WHO, PTSD is a reaction to severe stress (World Health Organisation, 1993). It is classed along with other disorders identifiable on the basis of not only symptoms and course but also the existence of a causative influence. Hence, the first criterion is that the person must have been exposed to a stressful event or situation (either short- or long-lasting) of exceptionally threatening or catastrophic nature, which would be likely to cause pervasive distress in almost anyone (Criterion A).

For a person to meet ICD-10 criteria for PTSD, following exposure to a stressful event or situation, there must be persistent remembering or reliving of the stressor in intrusive flashbacks, vivid memories or recurring dreams, or in experiencing distress when exposed to circumstances resembling or associated with the stressor (Criterion B). Also, the person must exhibit an actual or preferred avoidance of circumstances resembling or associated with the stressor which was not present before exposure to the stressor (Criterion C).
In addition, following exposure to a stressful event or situation, either of the following must be present: (1) inability to recall, either partially or completely, some important aspects of the period of exposure to the stressor; or (2) persistent symptoms of increased psychological sensitivity and arousal (not present before exposure to the stressor), shown by any two of the following: difficulty in falling or staying asleep; irritability or outbursts of anger; difficulty in concentrating; hypervigilance; and exaggerated startle response (Criterion D).

The final criterion to meet ICD-10 criteria for PTSD is that criteria B, C, and D must all be met within six months of the stressful event or of the end of a period of stress. However, for some research purposes onset delayed more than six months may be included, but this should be clearly specified (Criterion E).

1.3.2. Homelessness and PTSD

Studies that have investigated PTSD among homeless people overseas indicate a high prevalence of PTSD and onset of PTSD prior to homelessness (e.g. North & Smith, 1992). These findings have been supported in an Australian study on homeless youth (Martijn, 2003). However, PTSD has not been investigated in an adult homeless sample in Australia. Such an investigation is warranted, particularly as a number of factors known to increase the risk of PTSD are also known to be common factors in the homeless community in Australia (Buhrich, Hodder, & Teesson, 2000).
1.3.2.1. The Prevalence of PTSD

Despite substantial evidence of a high prevalence of mental illness and a high incidence of trauma among homeless people (Buhrich, Hodder, & Teesson, 2000; Fichter & Quadflieg, 2005; Kessler, McConagle, Zhao, Nelson, & Hughes, 1994; Salkow & Fichter, 2003) and proposals that these findings may be related (Hodder, Teesson, & Buhrich, 1998; Robinson, 2003), surprisingly few studies have been conducted on PTSD among homeless people. Nevertheless, the studies that have been conducted in both adult and adolescent homeless populations indicate a high prevalence of PTSD.

In a large study conducted in the US among homeless adults, North and Smith (1992) assessed 600 men and 300 women, aged eighteen years and over, who were sampled from shelters in St. Louis. North and Smith found 18% of the men and 34% of the women met criteria for a lifetime diagnosis of PTSD. In comparison, the prevalence rate for PTSD in a low-income group within the St. Louis general population is 0.9% for men and 3.1% for women. In the sample of 900 homeless adults, 58% reported experiencing at least one traumatic event. Looking just at this group (n = 522), 40% met criteria for PTSD (DeMallie, North, & Smith, 1997; LaVesser, Smith, & Bradford, 1997; North, Pollio, Smith, & Spitznagel, 1998; North & Smith, 1992; North, Smith, & Spitznagel, 1994; Smith, North, & Spitznagel, 1993).

Smaller studies conducted in the US among homeless adults indicate even higher prevalence rates of PTSD. Edwards (2005) assessed 110 homeless men, aged eighteen years and over. She found 30% met criteria for a lifetime diagnosis of PTSD.
and 20% met criteria for a current diagnosis of PTSD (Edwards, 2005). Bassuk and colleagues assessed 220 homeless single mothers from emergency shelters in Massachusetts (aged 15 to 58 years). They found the lifetime prevalence of PTSD was 36.1% and the one-month prevalence of PTSD was 17.4% (Bassuk, Buckner, Perloff, & Bassuk, 1998; Salomon, Bassuk, & Huntington, 2002). Davis and Kutter (1998) assessed 24 homeless women in a supportive housing shelter in Missouri (aged 22 to 56 years) and found 58.3% met criteria for a formal diagnosis of PTSD (Davis & Kutter, 1998). Clearly, the results of these studies of homeless adults consistently show high rates of PTSD compared to the general population.

Consistent with findings among homeless adults, the studies investigating PTSD among homeless adolescents indicate a high prevalence of PTSD. A number of studies have been conducted in the US. Morgan and Cauce (1999) assessed 289 homeless youth in Seattle (aged 13 to 21) and found 11% met criteria for a formal diagnosis of PTSD (Morgan & Cauce, 1999). Fronczak (2003) assessed homeless and matched housed adolescents from a major metropolitan area in the US (aged 13 to 17) and found 23.7% of the homeless adolescents met criteria for PTSD, with homeless youth having significantly more PTSD symptoms and reporting greater severity of PTSD symptomatology in comparison to the matched housed adolescents (Fronczak, 2003). Wynne (2002) assessed 80 homeless youth in San Francisco (aged 17 to 20) and found nearly 40% endorsed PTSD symptoms within the clinical range (Wynne, 2002). Thompson (2005) assessed 350 homeless adolescents in New York and Texas (aged 12 to 18) and found 98% had elevated PTSD symptom scores (Thompson, 2005). Stewart et al. (2004) assessed 374 homeless youth in Seattle (aged 13 to 21) and found that among those who reported experiencing physical and/ or sexual
victimisation (n = 301), 17.7% had symptoms consistent with a diagnosis of PTSD (Stewart et al., 2004). As found in studies of homeless adults, the results of these studies of homeless adolescents consistently show high rates of PTSD.

In Australia to date, no PTSD prevalence studies have been conducted among homeless adults. However, one study has investigated PTSD among homeless youth. In her study of 35 homeless youth in Sydney (aged 14 to 25), Martijn (2003) assessed 33 participants for PTSD. She found 36% met diagnostic criteria according to either DSM-IV or ICD-10 (Martijn, 2003). In comparison, the twelve-month prevalence of PTSD in the Australian general adult population is 1.5% (Rosenman, 2002). A limitation of Martijn’s study is that the finding is based on a small convenience sample of adolescents engaged in services for homeless youth. Hence, the study may not be representative of the homeless population in Australia. Nevertheless, the study indicates that the prevalence of PTSD among homeless youth in Australia appears to be high in comparison to the general population, which is consistent with US findings.

Based on US findings and Martijn’s (2003) study, one could predict that the prevalence of PTSD among homeless adults in Australia is high. But of course this cannot be assumed. International comparisons of the prevalence of mental disorders generally among the homeless demonstrate significant cross-cultural differences, which highlight the need for Australian epidemiological data (Teesson, Hodder, & Buhrich, 2004). Certainly, a PTSD prevalence study among homeless adults in Australia is warranted.
1.3.2.2. The Onset of PTSD

While the rates of PTSD among homeless people are, in and of themselves, of interest, it is also important to determine whether PTSD precedes homelessness or is perhaps a consequence of being homeless. Studies on trauma among homeless people indicate traumatic experiences can precede homelessness. As stated earlier, Martijn and Sharpe (2006) found that trauma was a common experience prior to homelessness and figured in the causal pathways to homelessness for over half of their sample of homeless youth in Sydney (Martijn, 2003; Martijn & Sharpe, 2006). Further evidence of trauma occurring prior to homelessness is the prevalence of homeless adults reporting childhood trauma. For example, Rayburn et al. (2005) interviewed 402 homeless women sampled from shelters in Los Angeles and found 46% reported a history of childhood physical abuse and 41% reported a history of childhood sexual abuse (Rayburn et al., 2005). Studies on trauma among homeless people also indicate traumatic experiences can occur during homeless episodes. For example, in the Kushel et al. (2003) study of 1984 homeless men and women in San Francisco discussed earlier, 30.1% reported they had experienced a physical or sexual assault in the previous twelve months (Kushel, Evans, Perry, Robertson, & Moss, 2003). Hence, evidence clearly demonstrates trauma can both precede homelessness and occur during homeless episodes.

Studies that have investigated the temporal relationship between PTSD and homelessness are limited. However, there is some evidence to suggest that the onset of PTSD commonly precedes the onset of homelessness. In their large study of 600 homeless men and 300 homeless women in the US, North and Smith (1992) found
that of those with a history of PTSD, 71% of men \((n = 108)\) and 74% of women \((n = 102)\) developed PTSD before the year they first became homeless (North & Smith, 1992). This finding was supported in Martijn’s (2003) Australian study. In her sample of homeless youth, Martijn found that of those with PTSD \((n = 12)\), the index trauma preceded homelessness in 50% of cases and the index trauma was the precipitant for homelessness in 30% of cases (Martijn, 2003). Together, these findings indicate PTSD typically precedes homelessness. Nevertheless, PTSD onset in relation to homelessness has not been investigated in an Australian adult sample. Hence the provision of further local data is of considerable importance.

**1.3.2.3. Understanding PTSD in Homeless Populations**

It is interesting that PTSD is so prevalent among homeless people. It has been suggested that PTSD may be common among homeless people due to the unusually high rates of trauma amongst the homeless (Stewart et al., 2004). Certain groups which are particularly at risk for exposure to traumatic events are known to have higher rates of PTSD in comparison to the general population. For example, soldiers exposed to a war zone, emergency medical technicians, police, fire fighters, and communities affected by natural or man-made disasters are all known to have higher rates of PTSD in comparison to the general population (Litz, Miller, Ruef, & McTeague, 2002). Hence the high rate of trauma among homeless people may be sufficient to explain the high rate of PTSD.

Another explanation for the prevalence of PTSD among homeless people is the common experience of multiple traumas. Breslau, Chilcoat, Kessler, and Davis
(1999), found in a representative sample of 2,181 individuals in Michigan, that previous exposure to trauma signals a greater risk of PTSD from subsequent trauma. Specifically, they found that people who experienced multiple traumas involving violence in childhood were more likely to experience PTSD from trauma in adulthood; and generally, they found that one or more previous events involving violence in childhood or later on were associated with a higher risk of PTSD in adulthood (Breslau, Chilcoat, Kessler, & Davis, 1999). Based on this finding, a high prevalence of PTSD would be expected in a homeless community who have experienced multiple traumas.

In addition to high rates of trauma and multiple traumas, there may be other factors which explain the prevalence of PTSD among homeless people. A number of factors known to increase the risk of PTSD are also known to be common factors in the homeless community. These include a history of childhood trauma, a high prevalence of rape, other psychiatric disorders, unmarried status, inadequate support systems, low socio-economic level, and recent stressful life changes (Breslau, Chilcoat, Kessler, & Davis, 1999; Buhrich, Hodder, & Teesson, 2000; North & Smith, 1992). All these factors together may explain the high prevalence of PTSD among homeless people.

**1.3.3. Summary**

To investigate trauma-related psychopathology among homeless people, PTSD has been considered, including prevalence, onset, and risk factors among homeless people. The research outlined describes traumatised individuals who develop PTSD and subsequently become homeless, which is an environment conducive to PTSD.
Although there is no evidence of a causal relationship between trauma, PTSD, and homelessness, this research supports the proposition that there may be an associative relationship between trauma experience and mental illness among people who are homeless. The implication for interventions designed to help those who are homeless and mentally ill is that it is important to assess for a history of trauma and PTSD and provide the necessary treatment.

To further investigate trauma-related psychopathology among homeless people, it is important to explore how PTSD develops and is maintained among homeless people. Although there are many risk factors for PTSD among homeless people, some people develop PTSD, while others do not. Being able to identify key factors in PTSD development and maintenance among homeless people would shed light on the relationship between trauma experience and mental illness among people who are homeless. It would also have implications for interventions designed to treat PTSD in homeless populations.

1.4. Development and Maintenance of PTSD

Understanding the development and maintenance of PTSD has been approached in many different ways, including from biological and psychological perspectives (Shalev, 1997). A comprehensive psychological model of PTSD development and maintenance is the integrated cognitive model proposed by Foa and colleagues (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998). This model has important implications for psychological intervention for PTSD, which may be useful in the homeless population.
1.4.1. Approaches to Understanding PTSD

The condition known today as PTSD has been described in the literature for more than one hundred years (Foa, Steketee, & Rothbaum, 1989). The term posttraumatic stress disorder was first defined as a psychiatric disorder by the APA in 1980 (American Psychiatric Association, 1980). Before 1980, the syndrome had been described in various ways, including traumatic neurosis, war neurosis, shell shock, and rape trauma (Pearn, 2000; Shalev, 1997).

Since the first descriptions of post-traumatic stress, many theories have been proposed to explain the syndrome. In particular, researchers have long asked the question: after exposure to a traumatic experience, why do some people develop PTSD while others do not? Many different approaches have been adopted to answer this question, including exploring vulnerability and resilience to PTSD. Although the concepts of vulnerability and resilience overlap, vulnerability theories have focussed on a combination of the severity of stress, genetics, individual risk factors, biological risk factors, and cognitive factors (see Zuckerman, 1999 for a review). In contrast, resilience theories have focussed on interactions between personality, affect regulation, coping, ego defences, and the utilization of protective factors and resources to aid coping (see Agaibi & Wilson, 2005 for a review).

Another approach taken to understand why some people develop PTSD while others do not has been to devise biological and psychological models of PTSD that explain how PTSD can develop and how it can be maintained. This is a particularly useful approach because understanding PTSD development and maintenance has
implications for PTSD prevention and treatment. Although biological and psychological models of PTSD have, for the most part, developed independently from one another, accumulating evidence suggests that there may be greater utility in focusing on the interaction between symptoms, biological responses, and cognitive factors in predicting who will develop PTSD (Bryant, 2003). This evidence is not surprising given the body’s reaction to a threatening situation entails activation of both physiological and psychological resources (Litz, Miller, Ruef, & McTeague, 2002).

Biological models of PTSD have been derived from research on the specific biological attributes of PTSD (Shalev, 1997). These models entail dysregulation of opioid neuro-modulation (Van der Kolk, Greenberg, Boyd, & Krystal, 1985), imprinting and consolidation of traumatic memories via stress hormones (Pitman, 1989), and dysregulation on several levels of the hypothalamic-pituitary-adrenal stress axis (Heim, Ehlert, & Hellhammer, 2000; Mason, Giller, & Kosten, 1990; Yehuda, Giller, & Southwick, 1993). From a biological perspective, pharmacotherapy is important for treatment of PTSD. After many studies on various classes of psychotropic drugs (Shalev, 1997), the treatment of choice is a class of antidepressants, called selective serotonin reuptake inhibitors. Evidence indicates that these are the only drugs that are effective for all three clusters of PTSD symptoms (being intrusion, avoidance, and hyperarousal) (Dowden, 2003).

Psychological models of PTSD have been derived from research and clinical experience. Psychological models broadly fall into three categories: psychodynamic; behavioural; and cognitive. Psychodynamic formulations of posttraumatic stress,
including PTSD and its predecessors, for example, traumatic neurosis and shell shock, are complex and multifaceted. Researchers have advanced two generic metaphors: incomplete processing of traumatic experiences; and damage to a component of the mental apparatus (Benyakar, Kutz, & Dasberg, 1989; Laufer, 1988; Lifton, 1988). Psychodynamic therapy addresses the meanings of symptoms in a bid to help the person master their inner experiences (Lindy, 1993). However, there is little research support for psychodynamic approaches as few controlled studies have been conducted and the literature consists largely of case reports (Shalev, 1997).

Behavioural models of PTSD identify classical conditioning and operant conditioning as mechanisms to explain PTSD development and maintenance. Through classical conditioning, people who originally react to a traumatic event (unconditioned stimulus) with fear and anxiety (unconditioned response) continue to show the same response (conditioned response) to cues that have been paired with the stressful exposure (conditioned stimuli). Through operant conditioning, these cues that have been paired with the stressful exposure are avoided in order to reduce the fear and anxiety that they elicit. Hence, avoidance is negatively reinforced and prevents extinction of the link between the cues and the fear response (Keane, Fairbank, & Caddel, 1985; Resick & Calhoun, 2001). Based on this model, behaviour therapy for PTSD aims to break the associations between the conditioned stimuli and conditioned responses by re-exposure to conditioned stimuli, either gradually (desensitisation) or rapidly (flooding). The exposure can be imaginal or in vivo, involving real objects or situations (Shalev, 1997). A major criticism of behavioural models is that although they provide a good account of hyperarousal symptoms and avoidance, they do not provide an explanation for symptoms of intrusion (Shalev, 1997). Not surprisingly,
many controlled studies conducted on the efficacy of behaviour therapy for PTSD have found significant but only partial improvement in symptoms (e.g. Cooper & Clum, 1989; Keane, Fairbank, Caddell, & Zimering, 1989; Scurfield, Wong, & Zeerocah, 1992).

The third main group of psychological models of PTSD are cognitive models. Substantial evidence indicates that the role of cognitive responses to the traumatic event is critical in the search for early indicators of people who will develop PTSD (Bryant, 2003), hence cognitive models currently dominate psychological approaches to understanding PTSD. There are a number of competing cognitive and cognitive-behavioural models of PTSD. These models along with their respective treatment implications are described in detail in the following section.

Integrative models of PTSD reconcile biological and psychological perspectives, on the basis that one-dimensional formulations of PTSD offer only a partial picture. An example of an integrative model is Shalev’s biopsychosocial model (1997). This model suggests that there are four levels of consideration: neuro-biological processes; conditioned responses; networks of meaning associated with the traumatic event; and interactions between the individual and society. According to this model, all these factors need to be considered in order to understand PTSD (Shalev, 1997). Hence to treat PTSD, it is necessary to supplement pharmacotherapy with psychotherapy, as pharmacotherapy alone rarely provides complete remission of PTSD (Dowden, 2003; Shalev, 1997). As explained, for pharmacotherapy, selective serotonin reuptake inhibitors are the treatment of choice; but for psychotherapy, there are competing cognitive models of PTSD, so the treatment of choice is still under debate.
1.4.2. Cognitive Models of PTSD

Cognitive models of PTSD assume that information is represented in the mind in various ways. The models differ in the forms of mental representation they embrace, for example, mental images versus beliefs (Dalgleish, 2004). Cognitive theories have evolved along two lines: information-processing theories and social-cognitive theories. More recent cognitive models of PTSD have attempted to integrate these two streams of theorising (Dalgleish, 2004; Resick & Calhoun, 2001).

1.4.2.1. Information-Processing Theories

Beginning with information-processing theories, Foa, Steketee, and Rothbaum (1989) proposed an associative network theory or a fear network account of emotional processing. They suggested that PTSD emerges due to the development of a fear network in memory that elicits escape and avoidance behaviour. The mental fear structures include stimuli, responses, and meaning elements. Anything associated with the trauma may elicit the fear structure or schema and subsequent avoidance behaviour. The fear network in people with PTSD is thought to be stable and broadly generalised, so that it is easily accessed (Foa, Steketee, & Rothbaum, 1989). Chemtob, Roitblat, Hamada, Carlson, and Twentyman (1988) proposed that mental fear structures are always at least weakly activated in people with PTSD and guide their interpretation of events as potentially dangerous. When the fear network is activated by reminders of the trauma, the information in the network enters consciousness (intrusive symptoms) and attempts are made to avoid this activation (avoidance symptoms) (Chemtob, Roitblat, Hamada, & Carlson, 1988).
According to information-processing theory, repetitive exposure to the traumatic memory in a safe environment will result in habituation of the fear and subsequent change in the fear structure. As emotion decreases, people with PTSD will begin to modify their meaning elements spontaneously. Self-statements will change and generalisations will reduce (Resick & Calhoun, 2001).

1.4.2.2. Social-Cognitive Theories

Social-cognitive theories of PTSD are also concerned with information processing, but they focus on the impact of the trauma on a person’s belief system and the adjustment that is necessary to reconcile the traumatic event with prior beliefs and expectations. Horowitz (1986) proposed that trauma processing is driven by a completion tendency, that is, the psychological need for new, incompatible information to be integrated with existing beliefs. The completion tendency keeps the trauma information in active memory until the processing is complete and the event is resolved. Horowitz (1986) also theorised that there is a basic conflict between the need to resolve and integrate the event into the person’s history on the one hand, and the desire to avoid emotional pain on the other. When the images of the event (being flashbacks, nightmares, or intrusive recollections), thoughts about the meanings of the trauma, and associated emotions become overwhelming, psychological defence mechanisms take over and the person exhibits numbing or avoidance. The person oscillates between phases of intrusion and avoidance. If the trauma is successfully processed, the oscillations become less frequent and less intense. If trauma is not successfully processed, the event stays in active memory without becoming fully
integrated. The trauma memory is still able to stimulate intrusive and avoidant reactions and chronic PTSD develops (Horowitz, 1986).

Several other social-cognitive theorists and researchers have focused more on the actual content of the cognitions and propose that after a traumatic experience, basic assumptions about the world and oneself are shattered. Constructionist theories are based on the idea that people actively create their own internal representations of the world and themselves. New experiences are assigned meaning based on people’s personal models of the world (Janoff-Bulman, 1985, 1992; Mahoney & Lyddon, 1988; McCann & Pearlman, 1990). Some theorists have proposed that if pre-existing beliefs were particularly positive or negative then greater PTSD symptoms should result (Foa, 1996; McCann & Pearlman, 1990; Resick & Schnicke, 1992). In terms of actual content of the cognitions, Foa has focused particularly on beliefs regarding the predictability and controllability of the trauma, while McCann and Pearlman have proposed that several areas of cognition may be either disrupted or seemingly confirmed, such as beliefs regarding safety, trust, control/power, esteem, and intimacy (Resick & Calhoun, 2001).

According to social-cognitive theorists, the task for recovery from trauma is to reconstruct fundamental beliefs and establish equilibrium. Janoff-Bulman has suggested that this process is accomplished by re-interpreting the event to reduce the distance between the prior beliefs and the new beliefs (Resick & Calhoun, 2001).
1.4.2.3. Recent Cognitive Models of PTSD

In an attempt to reconcile the cognitive models of PTSD, Brewin, Dalgleish, and Joseph (1996) proposed a dual representation theory of PTSD that incorporates both the information-processing and social-cognitive theories. According to Brewin et al. (1996) sensory input is subject to both conscious and non-conscious processing. The memories that are conscious are termed verbally accessible memories (VAMs), whereas the memories that are non-conscious are called situationally accessed memories (SAMs). VAMs can be deliberately retrieved, while SAMs are experienced as intrusive sensory images or flashbacks accompanied by physiological arousal. Brewin et al. (1996) proposed that emotional processing of the trauma has two elements. One element of the processing is the activation of SAMs (as suggested by the information-processing theories), the purpose of which is to aid in cognitive readjustment by supplying the detailed sensory and physiological information concerning the trauma. The second element (as proposed by the social-cognitive theorists) is the conscious attempt to search for meaning, to ascribe cause or blame, and to resolve conflicts between the event and prior expectations and beliefs by either altering one’s VAMs to re-establish the pre-existing belief system or altering one’s pre-existing expectations and beliefs to accommodate the new information (Brewin, Dalgleish, & Joseph, 1996).

According to dual representation theory, treatment for PTSD requires both exposure therapy and cognitive therapy. Exposure therapy is seen as bringing about changes in SAMs, specifically, the creation of new SAMs that overlay the existing ones. Cognitive therapy utilises the referential VAMs and allows the individual to
manipulate and integrate the trauma narrative and its associated cognitions, appraisals, attributions, and so on via progressive, intentional editing (Dalgleish, 2004).

The dual representation theory successfully incorporates both the information-processing and social-cognitive theories of PTSD, making it an important cognitive model. However, one criticism of the model is that it does not explicitly include representations of abstracted knowledge, such as schemas. It is unclear how higher order assumptions about the world and the self might be represented in the theory (Dalgleish, 2004).

Drawing on dual representation theory and its predecessors, Ehlers and Clark (2000) proposed a cognitive model of PTSD, shown in Figure 2. The central component of the model is the notion of current threat. Ehlers and Clark proposed that post-traumatic stress reactions revolve around an event and a threat that are in the chronological past. PTSD persists by the past experience of a traumatic event leading to a persisting sense of threat about the present and the future (Dalgleish, 2004; Ehlers & Clark, 2000).
Figure 2. Ehlers and Clark’s Cognitive Model of PTSD

The arrows indicate the following relationships: black arrows indicate leads to; white arrows indicate influences; and striped arrows indicate prevents change in (Ehlers & Clark, 2000, p. 321).
Ehlers and Clark (2000) propose that two key components contribute to a sense of current and future threat in PTSD. The first component is individual differences in the appraisal of the traumatic event and/or its sequelae. Appraisals are essentially cognitive interpretations of information about the world and the self. Certain types of appraisal lead to the generation of certain types of emotion. Thus, appraisals of perceived threat or danger lead to fear, whereas appraisals of loss lead to sadness. In the model, it is assumed that the existence of appraisals of ongoing threat or danger is critical to PTSD maintenance because usually the dominant emotion in PTSD is fear (Dalgleish, 2004; Ehlers & Clark, 2000).

The second component that contributes to a sense of current and future threat in PTSD is individual differences in the nature of the memory representation of the traumatic event, in particular how that representation is integrated with other episodic information in long-term memory. In the model, the nature of traumatic memories is considered a function of the way information is processed at the time of the trauma. A distinction is made between data-driven (predominantly sensory) and conceptually-driven (meaning-based) processing. Traumatic memories are viewed as being internally cohesive such that representations of the various stimulus elements involved in the traumatic event are strongly connected (stimulus-stimulus connections), and the representational relationship between those stimulus elements and the individual’s responses at the time of the trauma are also strong (stimulus-response connections). Ehlers and Clark argue that memories for traumatic events are poorly integrated into the existing autobiographical memory database (Dalgleish, 2004; Ehlers & Clark, 2000).
Another aspect of the Ehlers and Clark model is the presentation of a typology of cognitive and behavioural responses to the ongoing sense of threat. These responses, in the short term, have the potential to ameliorate the sense of threat (such as avoidance behaviours); but in the long term, they confirm the negative appraisals that the individual makes of the trauma and its sequelae and act as a block to cognitive change. Consequently, these responses serve to maintain PTSD (Dalgleish, 2004; Ehlers & Clark, 2000).

Ehlers and Clark (2000) provide a framework for the cognitive-behavioural treatment of PTSD based on their model. Their proposed treatment involves the following components: a rationale for treatment, a thought suppression experiment, education, reinstituting pre-trauma enjoyable activities, reliving the traumatic event with cognitive restructuring, in vivo exposure, identifying triggers of intrusive memories and emotions, and imagery techniques to change the meaning of trauma memories (Ehlers & Clark, 2000).

To date there is considerable evidence to support the central features of Ehlers and Clark’s cognitive model of PTSD (Amir, Stafford, Freshman, & Foa, 1998; Clohessy & Ehlers, 1999; Dunmore, Clark, & Ehlers, 1997, 1999; Ehlers et al., 1998; Ehlers, Mayou, & Bryant, 1998; Ehlers & Steil, 1995; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Foa, Molnar, & Cashman, 1995; Steil & Ehlers, 2000). Furthermore, two randomised controlled trials of the model’s proposed treatment for PTSD have had promising results (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005; Ehlers et al., 2003).
Despite the evidence supporting Ehlers and Clark’s model and treatment, their model has been criticised on theoretical grounds. Implicit in the model is the notion that the types of appraisals of current threat that the individual generates are determined by the nature of the relationship of the trauma to the individual’s pre-existing beliefs about the self and the world. However, this idea is not elaborated within the theory. Furthermore, there has been no research that has investigated the nature of such relationships (Dalgleish, 2004).

Foa and colleagues overcome this criticism of Ehlers and Clark’s model with what Dalgleish (2004) refers to as an integrated model of PTSD and what Brewin and Holmes (2003) refer to as an emotion processing theory (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998). Like Ehlers and Clark’s model, this integrated cognitive model draws on its predecessors but has a different emphasis (Dalgleish, 2004). The schematic model of emotional processing from Foa and Rothbaum (1998) is shown in Figure 3.
Figure 3. Foa and Rothbaum’s Schematic Model of Emotional Processing

Solid rectangles depict external events; dashed-line rectangles depict representations in memory (Foa & Rothbaum, 1998, p. 78).
There are three core components to this integrated cognitive model of PTSD. Two of these are types of mental representation: memory records (of the trauma and other pre- and post-traumatic events) and schemas. The third consists of the range of posttraumatic reactions of self and others. The nature of the components and the interaction between them are seen as determining the type and extent of post-trauma symptomatology (Dalgleish, 2004).

The concept of memory records of the trauma and other pre- and post-traumatic events is similar to Foa, Steketee, and Rothbaum’s (1989) fear network account of emotional processing, with three main exceptions. First, the memory records of traumatic experiences are thought to be disorganised. It is suggested that the coherence of traumatic memory records is impoverished partly as a function of disrupted and biased information processing at the time of trauma. Second, trauma memories are often characterised by large numbers of stimulus-danger associations. That is, a lot of stimuli in the world, even those tangentially related to the trauma, become associated with danger. Third, trauma memories differ from other fear-related representations by virtue of the diversity of the response elements that they contain. These response elements include physiological responses and a wide range of behavioural responses that may have proved adaptive at the time of the trauma, for example, dissociation, numbing, or screaming. If the various behaviours associated with the trauma proved ineffectual at the time of the event, then the diversity of response elements in the trauma memory record may become associated with personal ineffectiveness in the face of threat and thus may contribute to a sense of the self as totally inept (Dalgleish, 2004).
The second core representational structure is that of schemas. Foa and colleagues suggested that traumatic experiences can violate existing schematic knowledge, thus leading to a constellation of intrusion and avoidance symptoms. Such a conceptualisation of the onset of posttraumatic stress requires that the content of pre-trauma schemas be highly discrepant from the implications of the traumatic event (Dalgleish, 2004).

They highlight that not everybody represents the world and the self schematically in ways that are antithetical to the implications of a traumatic event. For many, the pre-trauma world is conceptualised as dangerous and unpredictable, and/or the pre-trauma self is conceptualised as incompetent and worthless. Posttraumatic stress develops because the trauma is consistent with existing knowledge of oneself as extremely incompetent and the world as extremely dangerous. Hence, these negative views of the world and the self may be a vulnerability factor for the onset of PTSD. They highlighted two repertoires of schemas that are central in posttraumatic stress reactions. The first centres on the world being entirely dangerous and the second on the self being totally inept. They proposed that these two sets of schemas will inevitably interact and reinforce each other. For example, if the world is utterly dangerous, one might believe they can not protect themselves because they believe they are incompetent. Conversely, if one believes they are incompetent, then the world really is dangerous (Dalgleish, 2004).

The third stand of the integrated cognitive model is the range of post-trauma reactions of self and others. People can interpret the onset of posttraumatic symptoms as a sign of failure and weakness. This is even more likely if the individual’s pre-trauma
schemas are centred on personal ineptness. Such an evaluation of one’s response to trauma is likely to exacerbate a sense of personal ineffectiveness and thereby maintain the posttraumatic state. Similarly, unsympathetic responses from others such as blaming or disbelieving will reinforce the view that the world is untrustworthy and dangerous as well as the sense of the self as incompetent. This will maintain the posttraumatic state (Dalgleish, 2004).

The implication of the integrated cognitive model is that both cognitive therapy and exposure therapy are important treatment components. Cognitive therapy, including cognitive restructuring, will be useful in addressing posttraumatic reactions of self and others. Exposure therapy, including in vivo exposure and imaginal exposure, will be useful in treatment as it can bring about changes in both schemas and trauma memory records (Foa & Rothbaum, 1998).

This integrated cognitive model of PTSD provides an impressive explanatory framework for understanding PTSD. It is superior to both dual representation theory and Ehlers and Clark’s (2000) model in that it explicitly elaborates on the schematic level of representation. The model expands on the properties of both networks and schemas and the relationship between them. Overall Foa and colleagues provide a very robust account of onset, maintenance, and recovery with respect to the core PTSD symptoms of intrusion, avoidance/numbing, and hyperarousal. The discussion of the dynamic interaction between pre-trauma schemas, memory records, and post-trauma factors provides a coherent account of why some individuals develop PTSD while others do not (Dalgleish, 2004). However, whether pre-existing schemas are
associated with development of posttraumatic cognitions and subsequent PTSD has
not been empirically tested.

1.4.3. Homelessness and an Integrated Cognitive Model of PTSD

The integrated cognitive model of PTSD suggested by Foa and colleagues appears to
be a comprehensive model of PTSD development and maintenance which has
important implications for treatment. Could this model and its treatment be applied
within the homeless community? This would be a useful question to investigate. It is
plausible that PTSD development and maintenance differs among homeless people in
comparison to the general population or other groups where trauma experience is
common, such as among veterans. The reason for this may be that homeless people
remain in situations where the likelihood of ongoing trauma is high and being
homeless can itself be considered a traumatic experience. One could argue then that
fearing for the future and experiencing the world as dangerous is actually accurate for
homeless people. Hence, if the treatment for PTSD suggested by this model is to be
applied in the homeless population, it is first important to know if the model applies to
the homeless population.

One way to determine if Foa and her colleagues’ model is relevant to the homeless
population in Sydney is to test assumptions of the model in a sample of homeless
adults. Some preliminary evidence comes from Martijn’s (2003) study on homeless
youth. In this study, Martijn compared those with and without PTSD (n = 33) on
eyear maladaptive schemas, using the Young Schema Questionnaire – Short Form
(YSQ-S1) (Young & Brown, 1999). Young, Klosko, and Weishaar (2003) define
early maladaptive schemas as self-defeating core themes that develop when a child’s emotional needs are not met and lead to unhealthy life patterns. The YSQ-S1 assesses fifteen early maladaptive schemas that are grouped into five schema domains (explained in full in Appendix B). Martijn (2003) found that those with PTSD scored significantly higher on the other-directedness schema domain, which relates to an excessive focus on the desires, feelings, and responses of others. She also found that schemas partially mediated the relationship between child sexual abuse and PTSD. As stated earlier, a limitation of Martijn’s study is that the finding is based on a small convenience sample of adolescents engaged in services for homeless youth. Hence, the study may not be representative of the homeless population in Australia. Nevertheless, the results of the study indicate that early maladaptive schemas may be important in understanding PTSD. Certainly the relevance of Foa’s model to the homeless population is deserving of further research.

In a sample of homeless adults selected to find the prevalence of PTSD, it would be interesting to explore the differences between those with and without PTSD. Specifically, it would be interesting to assess if those with PTSD score higher on measures of posttraumatic cognitions and early maladaptive schemas in comparison to those without a current diagnosis of PTSD and to assess if those with PTSD score higher on schemas that centre on the world being entirely dangerous and the self being totally inept. In addition, it would be valuable to test the assumption in Foa’s model that there is a hierarchy of schemas, influencing cognitions, which in turn influence PTSD psychopathology. This could be done by testing to see if the relationship between early maladaptive schemas and PTSD symptomatology is mediated by posttraumatic cognitions. While this would not demonstrate that
schemas and cognitions cause PTSD, it would determine whether they are associated with PTSD and therefore whether a causal role is possible.

1.5. Aims and Hypotheses

The primary aim of this project was to improve understanding of PTSD and related cognitions in a sample of homeless adults in Sydney. Based on one sample, the project is described in two parts: Study One and Study Two. The aims and hypotheses of each study are explained below.

1.5.1. Study One: PTSD Prevalence and Onset

The aim of Study One was to advance understanding of trauma experience and PTSD among homeless adults in Sydney. Based on the research outlined, Study One tested the following three hypotheses:

(1) That in a sample of homeless adults in Sydney, the majority will report a lifetime history of trauma;

(2) That in the same sample, PTSD prevalence will be higher than PTSD prevalence in the Australian general population; and

(3) That in the same sample, PTSD onset will precede homelessness more often than it follows homelessness.
1.5.2. Study Two: The Role of Cognitions in PTSD

Based on the same sample used in Study One, the aim of Study Two was to enhance understanding of PTSD and posttraumatic cognitions among homeless adults in Sydney. Based on the research outlined, Study Two tested the following three hypotheses:

(1) That in a sample of homeless adults in Sydney, those with a current diagnosis of PTSD will score significantly higher on measures of posttraumatic cognitions and early maladaptive schemas compared to those without a current diagnosis of PTSD;

(2) That in the same sample, using a measure of early maladaptive schemas, those with a current diagnosis of PTSD will score significantly higher on schemas that centre on the world being entirely dangerous and the self being totally inept compared to those without a current diagnosis of PTSD; and

(3) That in the same sample, the relationship between early maladaptive schemas and PTSD symptom severity will be mediated by posttraumatic cognitions.
CHAPTER 2

STUDY ONE: PTSD PREVALENCE AND ONSET

Research on homelessness indicates that being homeless is synonymous with trauma. A high incidence of trauma among homeless people is a finding well-documented, particularly in the US (e.g. North & Smith, 1992). Studies conducted on trauma among homeless people in Australia indicate similarly high incidence rates (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998; Martijn, 2003; Martijn & Sharpe, 2006; Robinson, 2003). For example, Hodder, Teesson and Buhrich (1998) found 93% of homeless adults in inner Sydney reported they had experienced at least one major trauma event in their lives and they found participants frequently reported more than one trauma (n = 157) (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998). In comparison, 57% of the general population in Australia report one lifetime experience of trauma and 32% report at least two traumas (n = 10 641) (Rosenman, 2002).

Evidence indicates trauma can occur prior to homelessness and during homeless episodes. Studies on trauma among homeless people indicate traumatic experiences can precede homelessness (Martijn & Sharpe, 2006). Certainly, homeless people commonly report a history of childhood physical and sexual abuse (Rayburn et al., 2005). Studies on trauma among homeless people also indicate traumatic experiences, such as physical or sexual assault, commonly occur during homeless episodes (Kushel, Evans, Perry, Robertson, & Moss, 2003). Furthermore, it has been
suggested that homelessness itself is traumatic (Bresnahan, 2000; Gold, 1995; Goodman, Saxe, & Harvey, 1991).

Given the high incidence of trauma and common experience of multiple traumas in the homeless population, one might expect a high prevalence of PTSD (Breslau, Chilcoat, Kessler, & Davis, 1999). Another reason to expect a high prevalence of PTSD is that common factors in the homeless community are known to increase the risk of PTSD, including a history of childhood trauma, a high prevalence of rape, other psychiatric disorders, unmarried status, inadequate support systems, low socioeconomic level, and recent stressful life changes (Breslau, Chilcoat, Kessler, & Davis, 1999; Buhrich, Hodder, & Teesson, 2000; North & Smith, 1992). Despite these reasons to expect a high prevalence of PTSD in the homeless population, few studies have been conducted on PTSD among homeless people. Nevertheless, these few studies provide compelling evidence that PTSD is indeed very common.

In a large study conducted among homeless adults, North and Smith (1992) assessed 600 men and 300 women, aged eighteen years and over, who were sampled from shelters in St. Louis. North and Smith found 18% of the men and 34% of the women met criteria for a lifetime diagnosis of PTSD (DeMallie, North, & Smith, 1997; LaVesser, Smith, & Bradford, 1997; North, Pollio, Smith, & Spitznagel, 1998; North & Smith, 1992; North, Smith, & Spitznagel, 1994; Smith, North, & Spitznagel, 1993). This finding of a high prevalence of PTSD has been supported in other studies on homeless adults (Bassuk, Buckner, Perloff, & Bassuk, 1998; Davis & Kutter, 1998; Edwards, 2005; Salomon, Bassuk, & Huntingon, 2002) and adolescents (Fronczak, 2003; Morgan & Cauce, 1999; Stewart et al., 2004; Thompson, 2005; Wynne, 2002).
In Australia to date, no PTSD prevalence studies have been conducted among homeless adults. However, one study has investigated PTSD among homeless youth. Martijn (2003) assessed 33 homeless youth in Sydney (aged 14 to 25) and found 36% met criteria for a formal diagnosis of PTSD according to either DSM-IV or ICD-10 (Martijn, 2003). In comparison, the twelve-month prevalence of PTSD in the Australian general adult population is 1.5% (Rosenman, 2002).

A limitation of Martijn’s study is that the finding is based on a small convenience sample of adolescents engaged in services for homeless youth. Hence, the study may not be representative of the homeless population in Australia. Nevertheless, the study indicates that the prevalence of PTSD among homeless youth in Australia appears to be high in comparison to the general population, which is consistent with US findings. Based on this study and US findings, one could predict that the prevalence of PTSD among homeless adults in Australia is high. Certainly, a PTSD prevalence study among homeless adults in Australia is warranted.

While the rates of PTSD among homeless people are, in and of themselves, of interest, it is also important to determine whether PTSD precedes homelessness or is perhaps a consequence of being homeless. Studies that have investigated the temporal relationship between PTSD and homelessness are limited. However, there is some evidence to suggest that the onset of PTSD commonly precedes the onset of homelessness. In their large study of 600 homeless men and 300 homeless women in the US, North and Smith (1992) found that of those with a history of PTSD, 71% of men (n = 108) and 74% of women (n = 102) developed PTSD before the year they first became homeless (North & Smith, 1992). This finding was supported in
Martijn’s (2003) Australian study. In her sample of 33 homeless youth, Martijn found that of those with PTSD \((n = 12)\), the index trauma preceded homelessness in 50% of cases and the index trauma was the precipitant for homelessness in 30% of cases (Martijn, 2003). Together, these findings indicate PTSD typically precedes homelessness. Nevertheless, PTSD onset in relation to homelessness has not been investigated in an Australian adult sample. Hence the provision of further local data is of considerable importance.

Based on the research outlined, the aim of this study was to advance understanding of trauma experience and PTSD among homeless adults in Sydney. The following three hypotheses were tested:

1. That in a sample of homeless adults in Sydney, the majority will report a lifetime history of trauma;

2. That in the same sample, PTSD prevalence will be higher than PTSD prevalence in the Australian general population; and

3. That in the same sample, PTSD onset will precede homelessness more often than it follows homelessness.
2.1. Method

2.1.1. Participants

In this cross-sectional study, participants were homeless men and women (as defined by Chamberlain & MacKenzie, 2003), aged eighteen years and over, from Sydney (Australia’s largest city). The 2001 census data indicated there were 15 456 homeless people in Sydney or 39 per 10 000 (Chamberlain & MacKenzie, 2003). Current homeless status was based on where the participant had slept the night before the interview. Of 103 people randomly selected to take part in the study, 91 (88%) were deemed eligible on approach, on the basis that they were aged eighteen or over, were currently homeless, and were not severely intoxicated (meaning that they were not unable to converse due to substance use); and 12 (12%) were deemed ineligible on approach because they were either housed or severely intoxicated. Of those eligible on approach (n = 91), 70 (77%) agreed to participate and 21 (23%) refused to take part, some providing the reason that they were too busy. Of those eligible on approach and willing to participate (n = 70), 56 (80%) were eligible participants and 14 (20%) were deemed ineligible for various reasons (eight people were not orientated to time or place on formal assessment, three people were actively psychotic on interview and considered unreliable historians, two people falsely claimed to be homeless, and one person had contacted The University of Sydney as a volunteer after seeing a poster about the research).

Participants were recruited from eight homeless services (seven charity-run services and one government-run service). Of the services accessed, four provided
accommodation (three for men and one for women), three provided supportive day services only (two for women and one for men and women), and one sought out homeless men and women on the streets and in parks in order to offer assistance. All transgender male participants were recruited from one supportive day service for women (which was the only government-run service).

Where possible, services displayed a poster informing their clients they may be asked to participate in a study about homelessness (Appendix C). All participants were provided with a Participant Information Statement (Appendix D) and Consent Form, which they were asked to sign (Appendix E). All 70 participants were paid $20 to compensate them for their effort. If appropriate, participants were offered a list of free mental health services, and in some cases, assisted in contacting these services (Appendix F). The University of Sydney Human Research Ethics Committee approved the study and formal approval was granted by each of the homeless services (refer to Appendix G).

2.1.2. Materials

A computer-assisted face-to-face structured clinical interview was conducted for each participant (Appendix H). Where participants needed to respond based on a rating scale, the scale was provided (Appendix I). The interview provided information on orientation, demography, personal history, medical and psychiatric history, psychopathology, and trauma, as described below. Information on PTSD symptom severity, posttraumatic cognitions, and early maladaptive schemas, was also collected and is described in Chapter 3.
2.1.2.1. Orientation

Orientation to time and place was measured via the orientation component of the Mini Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975). The MMSE is a widely-used standardized screening tool for cognitive impairment with satisfactory reliability and construct validity (Lopez, Charter, Mostafavi, Nibut, & Smith, 2005; Tombaugh & McIntyre, 1992). The orientation component contains ten questions (worth one point each) which assess orientation to time and place. If a participant scored 8 (or less), the interview was discontinued on the basis that they were not orientated and ineligible for the study. The cut-off score of 8 (or less) was based on the findings of a community study of the MMSE in the United Kingdom, which reported results for the orientation component for a white British-born elderly sample: Orientation to Time ($M = 4.5$, $SD = 1.0$); Orientation to Place ($M = 4.8$, $SD = 0.7$). Hence, in this sample the mean score for the orientation component of the MMSE was 9.3 (Lindsey et al., 1997).

2.1.2.2. Demography

**General.** General demographics were collected using the Composite International Diagnostic Interview Auto (CIDI-Auto) Version 2.1 Section A (Demographics) (World Health Organisation, 1997). The CIDI-Auto is a comprehensive and fully standardised diagnostic interview administered on computer by the interviewer. The demographics section includes questions related to marital status, children, employment, and education. There is evidence for the cross-cultural reliability and validity of earlier non-automated versions of this instrument (Peters,
Andrews, Cottler, & Chatterji, 1996; Wittchen, 1994; Wittchen et al., 1991). In a comparison with a non-automated version, the CIDI-Auto was found to be an acceptable substitute (Peters, Clark, & Carroll, 1998).

**Ethnicity and income.** Questions were asked regarding the source of any income and also ethnicity, to establish country of origin and indigenous status.

### 2.1.2.3. Personal History

A Genogram was constructed to aid in understanding family members and family relationships. Questions were asked to gain information about the participant’s developmental history and family of origin. Questions were asked to determine the participant’s level of social support from family and friends. To discover any recent life events, questions were asked about major events or life changes in the previous three months.

### 2.1.2.4. Housing History

Questions were asked to determine the participant’s housing history. Due to the iterative nature of homelessness, rather than asking for a complete history of homeless episodes, questions were asked to establish details of the first homeless episode and to establish where the person had spent most of their time living before and since this first episode.
2.1.2.5. **Medical and Psychiatric History**

Questions were asked to determine if the participant had ever had a serious medical problem and if they were currently taking any prescribed medication. Questions were also asked to determine the frequency of contact with mental health workers, if participants had received diagnoses, if they had discussed their traumatic experiences in treatment, and whether trauma had ever been the focus of treatment.

2.1.2.6. **Psychopathology**

**PTSD and Obsessive-Compulsive Disorder.** PTSD was diagnosed formally using the Composite International Diagnostic Interview Auto (CIDI-Auto) Version 2.1 Section K (OCD and PTSD) (World Health Organisation, 1997). The CIDI is a reliable and valid diagnostic interview (Peters, Andrews, Cottler, & Chatterji, 1996; Wittchen, 1994; Wittchen et al., 1991). The section administered included questions related to PTSD and Obsessive-Compulsive Disorder (OCD) symptoms. Although OCD was not a particular target of this study, the structure of the CIDI-Auto requires administration of the OCD module, if the PTSD module is administered. Therefore, OCD diagnoses were made and are reported in this chapter. The CIDI-Auto generates PTSD and OCD diagnoses both on a lifetime and cross-sectional basis, according to both DSM-IV and ICD-10 criteria. When multiple traumas are reported, the PTSD diagnosis is based on the trauma that participants state is the “most stressful or upsetting”. Although the CIDI-Auto has been found to have acceptable validity for diagnosing anxiety disorders (Peters & Andrews, 1995), one study found poor agreement between clinicians and the CIDI-Auto on PTSD diagnoses, with higher
rates reported by the CIDI-Auto (Komiti et al., 2001). Nevertheless, it has been suggested that this discrepancy is due to clinicians significantly under diagnosing PTSD (McFarlane, 2001).

**Depression, anxiety, and stress.** Participants were screened for depression, anxiety, and stress using the Depression, Anxiety, Stress Scales, Second Edition, Short Form (DASS21) (Lovibond & Lovibond, 1996). The DASS21 is a 21-item self-report instrument designed to measure depression, anxiety, and tension/stress over the previous week (Lovibond & Lovibond, 1996). Evidence indicates the DASS21 is a reliable and valid instrument in both clinical and community samples (Antony, Bieling, Cox, Enns, & Swinson, 1998; Henry & Crawford, 2005; Roemer, 2001).

**Psychosis.** Participants were screened for psychosis using the Psychosis Screening Questionnaire (PSQ) (Bebbington & Nayani, 1995). The PSQ is an interview schedule designed to screen for psychotic conditions. The instrument was tested in a mixed sample of 50 psychiatric inpatients, 50 out-patients, and 50 attendees at general practitioners’ surgeries. Sensitivity was 96.9%, specificity 95.3%, positive predictive value 91.2%, and negative predictive value 98.4%. The authors suggest the PSQ could be a very cheap and effective method of identifying potential cases of psychosis in homeless populations (Bebbington & Nayani, 1995).

**Gambling.** Participants were screened for possible pathological gambling using the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987). This is a 16-item questionnaire for the identification of pathological gamblers in clinical and
general populations (Lesieur & Blume, 1987). The SOGS has been found to have satisfactory reliability and validity, it is highly correlated with DSM-IV diagnostic criteria, and it can differentiate between gambling treatment samples and the general population (Cox, Enns, & Michaud, 2004; Stinchfield, 2002; Strong, Lesieur, Breen, Stinchfield, & Lejuez, 2004). The SOGS has been studied in the Australian setting and is considered the best available instrument to screen for pathological gambling (Battersby, Thomas, Tolchard, & Esterman, 2002).

**Alcohol use.** Participants were screened for harmful alcohol consumption via the Alcohol Use Disorders Identification Test (AUDIT) (Saunders, Aasland, Amundsen, & Grant, 1993; Saunders, Aasland, Babor, & de la Fuente, 1993). This is a 10-item questionnaire that screens for hazardous and harmful alcohol consumption, which has been well-established as a reliable and valid measure (Allen, Litten, Fertig, & Babor, 1997; Reinert & Allen, 2002). An advantage of the AUDIT for the current project is that it has been validated in samples of people with severe and persistent mental illness (Dawe, Seinen, & Kavanagh, 2000; Maisto, Carey, Carey, Gordon, & Gleason, 2000).

**Substance use.** Participants were screened for harmful drug use via the Drug Abuse Screening Test (DAST) (Skinner, 1982). The DAST is a 28-item questionnaire for clinical screening that yields a quantitative index of problems related to drug misuse over the previous twelve months, excluding alcohol (Skinner, 1982). The DAST has sound psychometric properties, which have been demonstrated in clinical (Cocco & Carey, 1998; Gavin, Ross, & Skinner, 1989; Staley & El-Guebaly, 1990) and community (El-Bassel, Schilling, Schinke, & Orlandi, 1997) samples.
2.1.2.7. Trauma

**Trauma Experience.** Additional questions were asked regarding each trauma reported in the CIDI-Auto Section K, to clarify when traumatic events occurred. Traumas were classified as having occurred once (single incident) or over a period of time (period of time). For example, a life threatening car accident would be classed as one “single incident” trauma and repeated sexual abuse would be classed as one “period of time” trauma. Also, for each trauma, participants indicated their subjective view of the severity of the trauma by marking on a visual analogue scale anywhere from “Not Severe” to “Extremely Severe” (Appendix J).

In addition, questions were asked about any other experiences participants considered traumatic. Participants were also asked, of all their experiences, which one they considered was the “most traumatic”.

**Homelessness as Trauma.** A question was asked to determine if participants considered being homeless a traumatic experience and why. Participants were also asked to mark on a visual analogue scale the impact of homelessness on their life, anywhere from “No Impact on My Life” to “Massive Impact on My Life” (Appendix K).

2.1.3. Procedure

Participants were randomly sampled via the participating homeless services, which were all visited based on the availability of the services and the interviewer. The
method of random sampling necessarily varied depending on the homeless service. In services that provided accommodation, bed numbers were randomly chosen from an envelope. In services that provided supportive day services only, every third person who accessed the service was asked to participate. In the service that sought out homeless people on the streets and in parks, the first potentially homeless person identified was chosen.

Each person selected for participation was given a brief explanation of the research. If they were homeless, aged eighteen or over, not severely intoxicated, and agreed to participate, they were interviewed in a private and safe room within the service. For the service that sought out homeless people on the street, participants were taken by van to the service headquarters where they could be interviewed and then driven by the service to the place of their choice.

All interviews were conducted over a sixteen-month period from 27 May 2004 to 26 September 2005. The mean duration of interviews was 108 minutes (SD 46 min; range 30 to 295 min). All information, instructions, questions, and rating scales in the interview were read aloud to counter illiteracy. Participants were offered a short break mid-way through the interview and took breaks as needed. Feedback from participants on the interview experience was positive overall with most participants stating they had enjoyed being able to discuss personal issues.
2.1.3.1. **Data Analysis**

The data analysis was performed using a commonly used statistical computer program (SPSS, 2001). Much of the information collected was summarised with percentages. The data analysis also included conducting chi-square tests for categorical independent variables. In place of chi-square tests, Fisher’s Exact Test was used when any of the cells had an expected count less than five and Cramér’s V was used when independent variables had more than two categories (Kinnear & Gray, 2004). Two-tailed tests were used as the analysis was exploratory in nature.

For all statistical analyses reported the alpha value was set at $p < .05$. Since this was the first study of PTSD among homeless Australian adults with a relatively small sample size, there was not a good rationale for being overly stringent by reducing the alpha level in order to correct for multiple comparisons.

The number of participants varies between interview items as only interview sections directly relevant to the research questions were administered to all participants towards the end of the data collection period. Nevertheless, assuming a large effect size, the sample size was sufficient for .80 power to detect effects with the statistical tests used (Cohen, 1992). Unless stated otherwise, $N = 56$. For SPSS output files, refer to Appendix L.
2.2. Results

2.2.1. Sample Characteristics

2.2.1.1. Demography

The mean age of the sample was 38.7 years (SD 10.8 years; range 18 to 73 years) and 71.4% of the sample were male. Four male participants identified themselves as transgender. Table 2 shows selected demographic characteristics of the sample. Aboriginal people were represented in the sample (14.3%). Most of the sample was born in Australia, had never been married, had at least one child, received a government benefit of some kind, were currently unemployed, and had completed ten years or less at school.
<table>
<thead>
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<th>Characteristic</th>
<th>Percentage (N = 56)</th>
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</thead>
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<tr>
<td>Aboriginal</td>
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<tr>
<td>Country of Birth</td>
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<tr>
<td>Australia</td>
<td>73.2</td>
</tr>
<tr>
<td>New Zealand</td>
<td>10.7</td>
</tr>
<tr>
<td>United Kingdom and Ireland</td>
<td>8.9</td>
</tr>
<tr>
<td>Other</td>
<td>7.2</td>
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<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>66.1</td>
</tr>
<tr>
<td>Widowed, separated, or divorced</td>
<td>32.1</td>
</tr>
<tr>
<td>Married</td>
<td>1.8</td>
</tr>
<tr>
<td>Children</td>
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</tr>
<tr>
<td>One or more</td>
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<td>37.5</td>
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</tr>
<tr>
<td>Pension (Disability Support or Old Age)</td>
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</tr>
<tr>
<td>Benefit or Allowance</td>
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<td>None</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
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<td>No Employment in Previous 12 months</td>
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</tr>
<tr>
<td>Education</td>
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</tr>
<tr>
<td>10 years or less</td>
<td>64.3</td>
</tr>
<tr>
<td>Completed or graduated from last school attended</td>
<td>55.4</td>
</tr>
</tbody>
</table>
2.2.1.2. Personal History

Developmental history. In the sample (N = 42), most people stated they were cared for by both parents in childhood (64.3%), their carer in childhood was employed all of the time (66.7%), and their family in childhood was “about average” in terms of wealth (61.9%). When participants were asked if either parent had psychological difficulties, 42.9% of participants thought their father had psychological difficulties (of this group [n = 18], 88.9% stated the difficulty was alcohol and/or violence) and 45.2% of participants thought their mother had psychological difficulties (of this group [n = 19], 52.6% stated the difficulty was alcohol or anxiety).

Social support. In the sample (N = 42), most reported they were still in contact with their primary caregiver from childhood (52.4%) and they had been in contact with that person within the previous week (21.4%). Most reported they often had contact with relatives (33.3%). Exactly half the sample reported they had lived with a relative since leaving home because they did not have anywhere else to spend the night, however, 90.5% stated they did not have any relatives at the time of interview with whom they would feel comfortable asking to live with for a short while. Of those with children (n = 27), 40.7% reported they often had contact with their children and most had been in contact within the previous week (55.6%). In the sample (N = 42), most stated they spent time alone (95.2%) and they did not spend time with friends (57.1%). When asked if their friends were likely to help them in a crisis, most said “no”, or they did not know, or they did not have friends (71.4%).
Recent life events. Most stated they had experienced major events or changes in their life in the previous three months (69.0%; \( N = 42 \)). Commonly cited events were changing accommodation and ceasing use of alcohol or another drug.

2.2.1.3. Medical and Psychiatric History

When asked about medical history (\( N = 42 \)), 90.5% reported they had experienced a serious illness or injury and 42.9% stated they were currently taking prescribed medication. Further questions to determine details did not yield useful information as participants’ knowledge was limited, for example, not knowing the name of their medication or the dose.

When asked about psychiatric history (\( N = 56 \)), most stated they had seen a mental health worker (85.7%). Alcohol and depression were commonly cited reasons for seeking treatment. Most of the sample stated they had been given a psychiatric diagnosis (60.7%). Depression was the most commonly cited diagnosis. Only three participants stated they had been given a diagnosis of PTSD (5.4%), despite the fact that 53.6% stated they had discussed traumatic events with a mental health worker, and 30.4% stated that the traumatic events had been the focus of their treatment.

2.2.1.4. Psychopathology

This section summaries the findings regarding psychopathology within the sample, excluding PTSD. Just under half the sample screened positive for psychosis (48.1%; \( N = 52 \)). Alcohol use was elevated with 18.6% of participants classed as harmful or
hazardous drinkers and 44.2% classed as alcohol dependent (N = 43). Drug use (excluding alcohol) was also elevated with 69.8% classified as having a substance use problem, abuse or dependence (N = 43). Regarding gambling, 38.1% of the sample were probable pathological gamblers (N = 43). Rates of depression, anxiety, and stress were high, as demonstrated in Table 3. The majority of the sample fell into the “severe” to “extremely severe” range for depression (54.8%), anxiety (52.4%), and stress (45.2%). Interestingly, 19.0% of the sample met criteria for a current diagnosis of obsessive-compulsive disorder, defined as experiencing symptoms within the previous six months (N = 42).

Table 3.

DASS21 Results

<table>
<thead>
<tr>
<th>Scale</th>
<th>Percentage (N = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
</tr>
<tr>
<td>Depression</td>
<td>19.0</td>
</tr>
<tr>
<td>Anxiety</td>
<td>28.6</td>
</tr>
<tr>
<td>Stress</td>
<td>26.2</td>
</tr>
</tbody>
</table>

2.2.2. Housing History

Participants’ housing history is summarised in Table 4. Most of the sample was secondary homeless, meaning they had slept in a form of temporary accommodation the night before the interview. When asked about the first time they were homeless, most participants reported staying in unconventional accommodation, meaning they...
were primary homeless. The mean age of the first homeless episode was 25.7 years (SD 11.6 years; range 4 to 62 years). Most participants stated they spent most of their time living with their family of origin before their first homeless episode and had spent most of their time homeless since their first homeless episode (62.5%). When asked for the cause of first becoming homeless, the majority provided reasons why they had been unable to continue living with their family or friends (82.2%).
### Housing History

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percentage (N = 56)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Level of Homelessness</strong></td>
<td></td>
</tr>
<tr>
<td>Primary Homeless</td>
<td>12.5</td>
</tr>
<tr>
<td>Secondary Homeless</td>
<td>75.0</td>
</tr>
<tr>
<td>Tertiary Homeless</td>
<td>5.4</td>
</tr>
<tr>
<td>Missing Data*</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Level of First Homeless Episode</strong></td>
<td></td>
</tr>
<tr>
<td>Primary Homeless</td>
<td>62.5</td>
</tr>
<tr>
<td>Secondary Homeless</td>
<td>37.5</td>
</tr>
<tr>
<td><strong>Before First Homeless Episode</strong></td>
<td></td>
</tr>
<tr>
<td>With family of origin</td>
<td>64.3</td>
</tr>
<tr>
<td>With spouse/ partner/ children</td>
<td>17.9</td>
</tr>
<tr>
<td>Other</td>
<td>17.8</td>
</tr>
<tr>
<td><strong>Since First Homeless Episode</strong></td>
<td></td>
</tr>
<tr>
<td>Primary Homeless</td>
<td>26.8</td>
</tr>
<tr>
<td>Secondary Homeless</td>
<td>33.9</td>
</tr>
<tr>
<td>Tertiary Homeless</td>
<td>1.8</td>
</tr>
<tr>
<td>With family of origin</td>
<td>3.6</td>
</tr>
<tr>
<td>With spouse/ partner/ children</td>
<td>5.4</td>
</tr>
<tr>
<td>Other</td>
<td>28.5</td>
</tr>
<tr>
<td><strong>Cause of First Homeless Episode</strong></td>
<td></td>
</tr>
<tr>
<td>Relationship break-up</td>
<td>26.8</td>
</tr>
<tr>
<td>Physical/ sexual/ verbal abuse</td>
<td>23.2</td>
</tr>
<tr>
<td>Unable to stay with family/ friends for another reason</td>
<td>32.2</td>
</tr>
<tr>
<td>Unable to pay rent/ mortgage</td>
<td>10.7</td>
</tr>
<tr>
<td>Mental illness (including addiction)</td>
<td>7.1</td>
</tr>
</tbody>
</table>

*For Current Level of Homelessness there were missing data from some participants interviewed in supportive day services.*
2.2.3. Trauma

2.2.3.1. Trauma Incidence

Most of the sample stated that they had experienced at least one traumatic event in their lifetime (98.2%). In fact, only one person in the sample said that they had not experienced a trauma. The experience of multiple traumas was surprisingly common. Most of the sample stated they had experienced more than one traumatic event (92.8%). Participants reported on average over six trauma experiences each (see Table 5). Trauma in childhood was also common. The mean age of the first trauma experience was 12.4 years (SD 9.0 years; range 1 to 40 years; N = 55). Most participants experienced trauma at less than 16 years of age (71.4%; N = 56).

Table 5.

Rates of Trauma Experience

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Number of Traumas (N = 56)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single Incident</td>
</tr>
<tr>
<td>Mean</td>
<td>4.9</td>
</tr>
<tr>
<td>Median</td>
<td>5.0</td>
</tr>
<tr>
<td>SD</td>
<td>3.3</td>
</tr>
<tr>
<td>Range</td>
<td>0 - 17</td>
</tr>
</tbody>
</table>
2.2.3.2. Types of Trauma Experience

The types of trauma experienced and the experiences considered most traumatic are reported in Table 6. Being seriously physically attacked or assaulted was the most frequently reported trauma experience, closely followed by witnessing someone being badly injured or killed. For 23.2% of the sample, being sexually molested or raped was considered the most stressful or upsetting experience of all their traumatic experiences. However, when considering the percentage of people who found a particular trauma the most stressful as a proportion of those who experienced the trauma, one of the two people who reported direct combat experience in a war considered this to be their most traumatic event. When participants were asked to indicate their subjective view of the severity of each of their traumatic experiences, most participants indicated that their “most traumatic” experience was “very severe” to “extremely severe” (78.1%; N = 55).
Table 6.
Types of Trauma and Most Traumatic Experience

<table>
<thead>
<tr>
<th>Trauma</th>
<th>Percentage (N = 56)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A⁺</td>
</tr>
<tr>
<td>Direct combat experience in a war</td>
<td>3.6</td>
</tr>
<tr>
<td>Involved in a life-threatening accident</td>
<td>60.7</td>
</tr>
<tr>
<td>Involved in a fire, flood, or other natural disaster</td>
<td>42.9</td>
</tr>
<tr>
<td>Witnessed someone being badly injured or killed</td>
<td>75.0</td>
</tr>
<tr>
<td>Raped</td>
<td>33.9</td>
</tr>
<tr>
<td>Sexually molested</td>
<td>44.6</td>
</tr>
<tr>
<td>Seriously physically attacked or assaulted</td>
<td>76.8</td>
</tr>
<tr>
<td>Threatened with a weapon, held captive, or kidnapped</td>
<td>64.3</td>
</tr>
<tr>
<td>Tortured or the victim of terrorists</td>
<td>12.5</td>
</tr>
<tr>
<td>Any other extremely stressful or upsetting event</td>
<td>10.7</td>
</tr>
<tr>
<td>Suffered a great shock because one of the events above</td>
<td>44.6</td>
</tr>
<tr>
<td>happened to someone close</td>
<td></td>
</tr>
</tbody>
</table>

⁻ The percentage of people who said they had experienced each particular type of trauma.

⁺ The percentage of people who found the trauma the most stressful or upsetting of all their traumatic experiences.

# The percentage of people who found the trauma the most stressful or upsetting of all their traumatic experiences, as a proportion of those who experienced the trauma.
2.2.3.3. Trauma and Homelessness

It was found that in 81.8% of cases the first trauma occurred before the age of the first homeless episode and in 3.6% of cases the first trauma occurred at the age of the first homeless episode (N = 55). The first trauma was, on average, 13.5 years before the age of first being homeless (SD = 12.6 years; range first trauma 43.0 years before first homeless to first trauma 9.0 years after first homeless; N = 55).

When asked if being homeless was a traumatic experience (N = 42), most participants considered that it was (59.5%) and indicated that being homeless had a “big” to “massive” impact on their life (64.4%). A common reason given for why homelessness was traumatic was being fearful due to a lack of security.

2.2.4. Posttraumatic Stress Disorder

2.2.4.1. The Prevalence of PTSD

According to either DSM-IV or ICD-10, 78.6% of the sample met criteria for a lifetime diagnosis of PTSD, with 39.3% meeting criteria for a past diagnosis, and 39.3% meeting criteria for a current diagnosis, meaning they reported experiencing symptoms in the previous six months (shown in Table 7). The twelve-month prevalence of PTSD was slightly higher (41.1%). Prevalence rates between males and females are shown in Figure 4. These differences were not significant (Cramér’s V = .1, p = .74). There was some discrepancy in the diagnoses between DSM-IV and
ICD-10, with 32.1% of the sample being diagnosed by one set of criteria but not by the other (shown in Table 8).

<table>
<thead>
<tr>
<th>Table 7.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PTSD Diagnosis: None, Past, or Current</strong></td>
</tr>
<tr>
<td><strong>Diagnosis (DSM-IV or ICD-10)</strong></td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>Past</td>
</tr>
<tr>
<td>Current*</td>
</tr>
</tbody>
</table>

*Current is defined here as experiencing symptoms within the previous six months.

**Figure 4. PTSD Diagnosis: Males versus Females**

DSM-IV or ICD-10 PTSD diagnosis (none, past, or current) for males (n = 40) and females (n = 16). Current is defined here as experiencing symptoms within the previous six months.
Table 8.

PTSD Diagnosis: DSM-IV versus ICD-10

<table>
<thead>
<tr>
<th>PTSD Diagnosis</th>
<th>Percentage (N = 56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>21.4</td>
</tr>
<tr>
<td>DSM-IV Only</td>
<td>10.7</td>
</tr>
<tr>
<td>ICD-10 Only</td>
<td>21.4</td>
</tr>
<tr>
<td>DSM-IV and ICD-10</td>
<td>46.5</td>
</tr>
</tbody>
</table>

2.2.4.2. Co-morbidity

Of those who met criteria for current PTSD according to either DSM-IV or ICD-10 criteria: 54.5% screened positive for psychosis (n = 22); 68.8% scored in the severe or extremely severe range for depression (n = 16); 50% scored in the severe or extremely severe range for anxiety (n = 16); 31.3% met criteria for a current diagnosis of OCD, meaning they had experienced symptoms within the previous six months (n = 16); 56.3% scored in the severe or extremely severe range for stress (n = 16); 56.3% were probable pathological gamblers (n = 16); 62.5% screened positive for harmful or hazardous drinking or alcohol dependence (n = 16); and 88.2% screened positive for a substance use problem, abuse or dependence (n = 17).

2.2.4.3. PTSD and Homelessness

Of those who were primary homeless, 28.6% met criteria for current PTSD (n = 7). Of those who were secondary homeless, 40.5% met criteria for current PTSD (n =
42). Of those who were tertiary homeless, 66.7% met criteria for current PTSD (n = 3).

Overall, it was found that in 59.1% of cases PTSD onset occurred before the age of the first homeless episode and in 11.4% of cases PTSD onset occurred at the age of the first homeless episode (N = 44). PTSD onset was, on average, 4.9 years before the age of first being homeless (SD = 14.0 years; range PTSD 33.0 years before first homeless to PTSD 41.0 years after first homeless; N = 44). Of those who met criteria for current PTSD, 81.3% stated that being homeless was a traumatic experience (n = 16).

2.3. Discussion

The aim of this study was to advance understanding of trauma experience and PTSD among homeless adults in Sydney. It was predicted that in the sample, the majority would report a lifetime history of trauma, PTSD prevalence would be higher than PTSD prevalence in the Australian general population, and PTSD onset would precede homelessness more often than it follows homelessness. All three hypotheses were confirmed.

Most of the sample stated that they had experienced at least one traumatic event in their lifetime (98.2%). In fact, the majority stated they had experienced more than one traumatic event (92.8%). Participants reported on average over six trauma experiences each. These rates were considerably higher than in the Australian general population, in which 57% report one lifetime experience of trauma and 32% report at
least two traumas \((n = 10,641)\) (Rosenman, 2002). Finding a high rate of trauma is consistent with other homeless studies conducted overseas (e.g. Kushel, Evans, Perry, Robertson, & Moss, 2003) and in Australia, among adult samples (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998; Robinson, 2003) and adolescent samples (Martijn, 2003; Martijn & Sharpe, 2006).

In the current sample, the lifetime prevalence of PTSD was 78.6%. The twelve-month prevalence was 41.1%, which is considerably higher than in the Australian general population (1.5%) (Rosenman, 2002). The finding of elevated rates of PTSD is comparable to the study conducted on homeless youth in Australia (Martijn, 2003) and studies conducted overseas on homeless adults (Bassuk, Buckner, Perloff, & Bassuk, 1998; Davis & Kutter, 1998; Edwards, 2005; Salomon, Bassuk, & Huntington, 2002) and homeless adolescents (Fronczak, 2003; Morgan & Cauce, 1999; Stewart et al., 2004; Thompson, 2005; Wynne, 2002). In fact, the prevalence rate in the current study is surprisingly high in comparison to studies conducted overseas. One possible explanation for this is that diagnoses were made according to both DSM-IV and ICD-10 criteria. There was some discrepancy between DSM-IV and ICD-10 diagnoses, with 32.1% of the sample being diagnosed by one set of criteria but not by the other. Considering DSM-IV diagnoses alone, the lifetime prevalence rate in the current study drops from 78.6% to 57.2%. This will be discussed further in the General Discussion.

In addition to finding high rates of trauma and PTSD, the study also found that in 70.5% of cases PTSD onset preceded or coincided with the age of the first homeless episode, with PTSD onset occurring on average nearly five years before
homelessness. Although studies that have investigated the temporal relationship between PTSD and homelessness are limited, finding PTSD generally precedes homelessness is consistent with a large study on homeless adults conducted in the US (North & Smith, 1992) and a small study on homeless youth conducted in Australia (Martijn, 2003).

The findings in the present study are limited in that they are based on a small sample. Furthermore, participants were selected from a convenience sample of locations. Although these factors reduce reliability, the research had a number of methodological strengths, which served to increase reliability and validity: various types of homeless services were accessed, consequently, the sample was representative of primary, secondary, and tertiary levels of homelessness; participants were randomly sampled within the services; extensive in-depth interviews were conducted, that included measures with sound psychometric properties; and all interviews were conducted by one interviewer.

It can be concluded from this study that homeless adults in Sydney report exceptionally high rates of trauma, the prevalence of PTSD in this group is considerably high in comparison to the Australian general population, and PTSD onset typically precedes homelessness. Although these findings were predicted and are consistent with previous studies, it remains surprising that PTSD is so prevalent among homeless people. In the General Introduction, a number of risk factors for PTSD were discussed, which were found in the sample. These included high rates of trauma, the experience of multiple traumas, a history of childhood trauma, a high prevalence of rape, other psychiatric disorders, unmarried status, inadequate support
systems, low socio-economic level, and recent stressful life changes. These risk factors help to explain why the prevalence of PTSD was so high. In fact, considering these risk factors, it is encouraging that there were people in the sample who remained resilient to PTSD. This suggests that individuals vary in how they respond to trauma. Understanding why, in the face of adversity, some individuals develop PTSD while others do not, would have implications for treating and perhaps preventing PTSD. Substantial evidence indicates that the role of cognitive responses to the traumatic event is critical in the search for early indicators of people who will develop PTSD (Bryant, 2003). Exploring the role cognitions play in the development and maintenance of PTSD among homeless adults in Sydney is the subject of Study Two.
CHAPTER 3

STUDY TWO: THE ROLE OF COGNITIONS IN PTSD

Study One revealed near universal rates of trauma among homeless adults in Sydney along with a high prevalence of PTSD in comparison to the Australian general population and PTSD onset commonly preceding homelessness. While the prevalence of PTSD was high, current PTSD was a diagnosis for fewer than half of the sample, suggesting that many individuals had experienced trauma without developing PTSD. After a traumatic experience, why do some people develop PTSD while others do not? Being able to identify key factors in PTSD development and maintenance among homeless people would shed light on the relationship between trauma experience and mental illness among people who are homeless, which would also have implications for interventions designed to treat PTSD in homeless populations.

Many different approaches have been adopted to answer the question, why do some people develop PTSD while others do not? The two main approaches include exploring vulnerability and resilience to PTSD (Agaibi & Wilson, 2005; Zuckerman, 1999) and devising biological and psychological models of PTSD development and maintenance (Shalev, 1997). The later approach is particularly useful as it readily yields treatment strategies. Furthermore, in predicting who will develop PTSD, current evidence suggests that it is important to focus on the interaction between symptoms, biological responses, and cognitive factors (Bryant, 2003).
Biological models of PTSD entail dysregulation of opioid neuro-modulation (Van der Kolk, Greenberg, Boyd, & Krystal, 1985), imprinting and consolidation of traumatic memories via stress hormones (Pitman, 1989), and dysregulation on several levels of the hypothalamic-pituitary-adrenal stress axis (Heim, Ehlert, & Hellhammer, 2000; Mason, Giller, & Kosten, 1990; Yehuda, Giller, & Southwick, 1993). From a biological perspective, pharmacotherapy is important for treatment of PTSD and evidence indicates selective serotonin reuptake inhibitors are the only drugs that are effective for all three clusters of PTSD symptoms (being intrusion, avoidance, and hyperarousal) (Dowden, 2003). However, pharmacotherapy alone rarely provides complete remission of PTSD, so to treat PTSD effectively it is necessary to supplement pharmacotherapy with psychotherapy (Dowden, 2003; Shalev, 1997). However, the most effective psychotherapy for PTSD is still under debate.

Psychological models of PTSD broadly fall into three categories: psychodynamic; behavioural; and cognitive. As there is limited evidence for psychodynamic approaches and behavioural models cannot explain all three clusters of PTSD symptoms (Shalev, 1997), cognitive models currently dominate psychological approaches. Recent cognitive models have suggested that the development and maintenance of acute and chronic PTSD are strongly mediated by cognitive responses to the traumatic event and there is substantial evidence that the role of cognitive responses is critical in the search for early indicators of people who will develop PTSD (Bryant, 2003). Although there are a number of competing cognitive and cognitive-behavioural models of PTSD, Foa and colleagues (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998) offer an integrated cognitive model, which provides a very robust account of onset,
maintenance, and recovery with respect to the core PTSD symptoms (Dalgleish, 2004).

Foa’s integrated cognitive model of PTSD consists of three core components: (1) memory records of the trauma and other pre- and posttraumatic events; (2) schemas, in particular schemas centred on the world being entirely dangerous and the self being totally inept; and (3) the range of posttraumatic reactions of self and others (refer to Figure 3). The nature of the components and the interaction between them are seen as determining the type and extent of post-trauma symptomatology (Dalgleish, 2004). The implication of the integrated cognitive model is that both cognitive therapy and exposure therapy are important treatment components. Cognitive therapy, including cognitive restructuring, will be useful in addressing posttraumatic reactions of self and others. Exposure therapy, including in vivo exposure and imaginal exposure, will be useful in treatment as it can bring about changes in both schemas and trauma memory records (Foa & Rothbaum, 1998).

The integrated cognitive model of PTSD suggested by Foa and colleagues appears to be a comprehensive model of PTSD development and maintenance which has important implications for treatment. However, an underlying assumption in the model is that pre-existing schemas are associated with the development of posttraumatic cognitions and subsequent PTSD and this has not been empirically tested. Moreover, it is unclear if this model and its treatment is relevant to those in the homeless community. It is plausible that the model is not applicable in the homeless population. A core component of the model is that schemas centred on the world being entirely dangerous are central in posttraumatic stress reactions, yet such
schemas may be realistic for all homeless people who live without safety and security. Hence, testing the model in a homeless sample is of considerable importance.

Some preliminary evidence indicating Foa’s model may be relevant to the homeless population comes from Martijn’s (2003) study on homeless youth in Sydney. Using the Young Schema Questionnaire – Short Form (YSQ-S1) as a measure of early maladaptive schemas (Young & Brown, 1999), Martijn (2003) found that those with PTSD scored significantly higher on the other-directedness schema domain, which relates to an excessive focus on the desires, feelings, and responses of others (n = 33). She also found that schemas partially mediated the relationship between child sexual abuse and PTSD. As stated earlier, a limitation of Martijn’s study is that the finding is based on a small convenience sample of adolescents engaged in services for homeless youth. Hence, the study may not be representative of the homeless population in Australia. Nevertheless, the results of the study indicate that early maladaptive schemas may be important in understanding PTSD. Certainly the relevance of Foa’s model to the homeless population is deserving of further research.

Based on the same sample used in Study One, the aim of this study was to enhance understanding of PTSD and posttraumatic cognitions among homeless adults in Sydney. Based on the research outlined, the following three hypotheses were tested:

1. That in a sample of homeless adults in Sydney, those with a current diagnosis of PTSD will score significantly higher on measures of posttraumatic cognitions and early maladaptive schemas compared to those without a current diagnosis of PTSD;
(2) That in the same sample, using a measure of early maladaptive schemas, those with a current diagnosis of PTSD will score significantly higher on schemas that centre on the world being entirely dangerous and the self being totally inept compared to those without a current diagnosis of PTSD; and

(3) That in the same sample, the relationship between early maladaptive schemas and PTSD symptom severity will be mediated by posttraumatic cognitions.

3.1. Method

3.1.1. Participants

The methodology for this cross-sectional study was described in detail in Chapter 2. Participants were homeless men and women (as defined by Chamberlain & MacKenzie, 2003), aged eighteen years and over, from Sydney. Current homeless status was based on where the participant had slept the night before the interview. Of 103 people randomly selected to take part in the study, 91 (88%) were deemed eligible on approach, on the basis that they were aged eighteen or over, were currently homeless, and were not severely intoxicated (meaning that they were not unable to converse due to substance use); and 12 (12%) were deemed ineligible on approach because they were either housed or severely intoxicated. Of those eligible on approach (n = 91), 70 (77%) agreed to participate and 21 (23%) refused to take part, some providing the reason that they were too busy. Of those eligible on approach and willing to participate (n = 70), 56 (80%) were eligible participants and 14 (20%) were deemed ineligible for various reasons (outlined in Chapter 2).
Participants were recruited from eight homeless services (seven charity-run services and one government-run service). Where possible, services informed their clients they may be asked to participate in a study about homelessness. All 70 participants were paid $20 to compensate them for their effort. If appropriate, participants were offered a list of free mental health services, and in some cases, assisted in contacting these services.

3.1.2. Materials

A computer-assisted face-to-face structured clinical interview was conducted for each participant (Appendix H). Where participants needed to respond based on a rating scale, the scale was provided (Appendix I). The interview provided information on orientation, demography, personal history, medical and psychiatric history, psychopathology, and trauma, as described in Chapter 2. In particular, PTSD was diagnosed and information was collected on trauma experience. As this information is especially relevant to the current chapter it is reiterated below. Information on PTSD symptom severity, posttraumatic cognitions, and early maladaptive schemas, was also collected and is described below.

3.1.2.1. PTSD Diagnosis

PTSD was diagnosed formally using the Composite International Diagnostic Interview Auto (CIDI-Auto) Version 2.1 Section K (OCD and PTSD) (World Health Organisation, 1997). The CIDI is a reliable and valid diagnostic interview (Peters, Andrews, Cottler, & Chatterji, 1996; Wittchen, 1994; Wittchen et al., 1991). The
section administered included questions related to PTSD symptoms. The CIDI-Auto generates PTSD diagnoses both on a lifetime and cross-sectional basis, according to both DSM-IV and ICD-10 criteria. When multiple traumas are reported, the PTSD diagnosis is based on the trauma that participants state is the “most stressful or upsetting”. Although the CIDI-Auto has been found to have acceptable validity for diagnosing anxiety disorders (Peters & Andrews, 1995), one study found poor agreement between clinicians and the CIDI-Auto on PTSD diagnoses, with higher rates reported by the CIDI-Auto (Komiti et al., 2001). Nevertheless, it has been suggested that this discrepancy is due to clinicians significantly under diagnosing PTSD (McFarlane, 2001).

3.1.2.2. Trauma Experience

Additional questions were asked regarding each trauma reported in the CIDI-Auto Section K, to clarify when traumatic events occurred. Traumas were classified as having occurred once (single incident) or over a period of time (period of time). Also, for each trauma, participants indicated their subjective view of the severity of the trauma by marking on a visual analogue scale anywhere from “Not Severe” to “Extremely Severe” (Appendix J). In addition, questions were asked about any other experiences participants considered traumatic. Participants were also asked, of all their experiences, which one they considered was the “most traumatic”.
3.1.2.3. **PTSD Symptom Severity**

The Impact of Event Scale – Revised (IESR) (Weiss & Marmar, 1997) was administered as a measure of PTSD symptom severity. It is a 22-item questionnaire that measures intrusion, avoidance, and hyperarousal resulting from exposure to traumatic events. The IESR and the original Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), which only assesses intrusion and avoidance, are among the most widely used instruments to assess PTSD severity (Orsillo, 2001). The satisfactory psychometric properties of the original Impact of Event Scale are well established (Briere & Elliott, 1998; Joseph, 2000; Sundin & Horowitz, 2002, 2003; Witteveen, Bramsen, Hovens, & van der Ploeg, 2005). Similarly, evidence indicates the IESR is a useful, reliable, and valid measure (Creamer, Bell, & Failla, 2003; Weiss, 2004). The trauma participants identified as “most traumatic” was used as the index trauma for the IESR.

3.1.2.4. **Posttraumatic Cognitions**

The Posttraumatic Cognitions Inventory (PTCI) (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) was administered as a measure of posttraumatic cognitions. The PTCI is a 36-item measure of trauma-related thoughts and beliefs, which taps into three constructs: negative cognitions about self; negative cognitions about the world; and self-blame. Evidence indicates the PTCI is a reliable and valid measure, which compares favourably with other measures of trauma-related cognitions, especially in its superior ability to discriminate between traumatised individuals with and without PTSD (Beck
et al., 2004; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Orsillo, 2001). The trauma participants identified as “most traumatic” was used as the index trauma for the PTCI.

3.1.2.5. Early Maladaptive Schemas

The Young Schema Questionnaire – Short Form (YSQ-S1) (Young & Brown, 1999) was administered as a measure of early maladaptive schemas. The YSQ-S1 is a 75-item self-report instrument that assesses 15 early maladaptive schemas, which are grouped into five schema domains, listed in Table 9 and described in detail in Appendix B. The YSQ-S1 was derived from the 205-item Schema Questionnaire (Young & Brown, 1990), which assesses 16 early maladaptive schemas, grouped into the same five domains, and has demonstrated test-retest reliability, internal consistency, convergent validity, and discriminant validity, in clinical and community samples (Rijkeboer, van den Bergh, & van den Bout, 2005; Schmidt, Joiner, Young, & Telch, 1995; Waller, Shah, Ohanian, & Elliott, 2001). The purpose of developing the YSQ-S1 was to make a shorter version of the 205-item Schema Questionnaire that would be easier to administer in research settings. The choice of items was based on the Schmidt et al. (1995) study of the psychometric properties of the 205-item questionnaire (Cecero, Nelson, & Gillie, 2004). Evidence suggests that the YSQ-S1 is a reliable and valid measure with comparable psychometric properties to the 205-item questionnaire in both clinical and community samples, and is suitable for clinical and research settings (Glaser, Campbell, Calhoun, Bates, & Petrocelli, 2002; Stopa, Thorne, Waters, & Preston, 2001; Waller, Meyer, & Ohanian, 2001).
Table 9.

Schema Domains and Early Maladaptive Schemas

(Young, Klosko, & Weishaar, 2003)

<table>
<thead>
<tr>
<th>Schema Domain</th>
<th>Early Maladaptive Schema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnection and Rejection (DR)</td>
<td>Abandonment/ Instability (AB)</td>
</tr>
<tr>
<td></td>
<td>Mistrust/ Abuse (MA)</td>
</tr>
<tr>
<td></td>
<td>Emotional Deprivation (ED)</td>
</tr>
<tr>
<td></td>
<td>Defectiveness/ Shame (DS)</td>
</tr>
<tr>
<td></td>
<td>Social Isolation/ Alienation (SI)</td>
</tr>
<tr>
<td>Impaired Autonomy and Performance (IP)</td>
<td>Dependence/ Incompetence (DI)</td>
</tr>
<tr>
<td></td>
<td>Vulnerability to Harm or Illness (VH)</td>
</tr>
<tr>
<td></td>
<td>Enmeshment/ Underdeveloped Self (EM)</td>
</tr>
<tr>
<td></td>
<td>Failure (FA)</td>
</tr>
<tr>
<td>Impaired Limits (IL)</td>
<td>Entitlement/ Grandiosity (ET)</td>
</tr>
<tr>
<td></td>
<td>Insufficient Self-Control/ Self-Discipline (IS)</td>
</tr>
<tr>
<td>Other-Directedness (OD)</td>
<td>Subjugation (SB)</td>
</tr>
<tr>
<td></td>
<td>Self-Sacrifice (SS)</td>
</tr>
<tr>
<td>Overvigilance and Inhibition (OI)</td>
<td>Emotional Inhibition (EI)</td>
</tr>
<tr>
<td></td>
<td>Unrelenting Standards/ Hypercriticalness (US)</td>
</tr>
</tbody>
</table>
3.1.3. Procedure

Participants were randomly sampled via the participating homeless services, which were all visited based on the availability of the services and the interviewer. The method of random sampling necessarily varied depending on the homeless service, as described in Chapter 2. Each person selected for participation was given a brief explanation of the research. If they were homeless, aged eighteen or over, not severely intoxicated, and agreed to participate, they were interviewed in a private and safe room within the service.

All interviews were conducted over a sixteen-month period from 27 May 2004 to 26 September 2005. The mean duration of interviews was 108 minutes (SD 46 min; range 30 to 295 min). All information, instructions, questions, and rating scales in the interview were read aloud to counter illiteracy. Participants were offered a short break mid-way through the interview and took breaks as needed. Feedback from participants on the interview experience was positive overall with most participants stating they had enjoyed being able to discuss personal issues.

3.1.3.1. Data Analysis

The data analysis was performed using a commonly used statistical computer program (SPSS, 2001). To compare those with and without current PTSD, data analysis included conducting independent samples t-tests for continuous independent variables and chi-square tests for categorical independent variables. In place of t tests, Mann-Whitney tests were conducted in cases where the t test normality assumption was
violated (determined by skewness and kurtosis). In place of chi-square tests, Fisher’s Exact Test was used when any of the cells had an expected count less than five and Cramér’s V was used when independent variables had more than two categories (Kinnear & Gray, 2004). Two-tailed tests were used when the analysis was exploratory in nature; one-tailed tests were used when the hypothesis being tested was directional.

As a preliminary step to conducting regression analyses, the data were explored in depth. This included conducting Pearson correlations for continuous variables and Spearman rank correlations for categorical variables. Scatterplots for the continuous variables and box plots for the categorical variables were produced to guide the interpretation of the correlations (Kinnear & Gray, 2004)

To identify the overall contribution of selected predictor variables to PTSD diagnosis, an hierarchical binary logistic regression was conducted (Tabachnick & Fidell, 2001). To test the hypothesis that the relationship between early maladaptive schemas and PTSD symptom severity will be mediated by posttraumatic cognitions, two hierarchical multiple regressions were conducted, as suggested by Baron and Kenny (1986).

As in Chapter 2, for all statistical analyses reported the alpha value was set at $p < .05$. Since this was the first study of PTSD among homeless Australian adults with a relatively small sample size, there was not a good rationale for being overly stringent by reducing the alpha level in order to correct for multiple comparisons.
The number of participants varies between interview items as only interview sections directly relevant to the research questions were administered to all participants towards the end of the data collection period. Nevertheless, assuming a large effect size, the sample size was sufficient for .80 power to detect effects with the statistical tests used (Cohen, 1992). Unless stated otherwise, N = 56. For SPSS output files, refer to Appendix L.

### 3.2. Results

#### 3.2.1. Comparing Those With and Without Current PTSD

To investigate differentiating factors between those with and without current PTSD, participants with current PTSD (meaning they reported experiencing symptoms within the previous six months) were compared to those who either had met criteria in the past or had never met criteria for PTSD. These two groups were compared on all continuous and categorical independent variables in the database. Those with and without PTSD differed significantly on a number of variables as explained below.

#### 3.2.1.1. PTSD Symptom Severity

Those with PTSD reported more severe PTSD symptoms compared to those without PTSD, as measured by the IESR. Two-tailed t tests revealed those with PTSD scored significantly higher on each scale of the IESR, being intrusion ($t_{53} = -3.5$, $p = .001$), avoidance ($t_{52} = -2.2$, $p = .03$), hyperarousal ($t_{53} = -3.3$, $p = .002$), and overall ($t_{52} = -3.6$, $p = .001$). The group differences are shown in Figure 5, alongside findings from
a community sample with varying levels of traumatic stress symptomatology (Creamer, Bell, & Failla, 2003).

![Bar chart showing mean scores for PTSD, No PTSD, and Community Sample on IESR Scales: Intrusion, Avoidance, Hyperarousal, and Total.]

Figure 5. Impact of Event Scale – Revised

A comparison of PTSD (those who reported experiencing symptoms within the previous six months; \( n = 22 \)), No PTSD (those who either had met criteria in the past or had never met criteria; \( n = 33 \) for Intrusion and Hyperarousal; \( n = 32 \) for Avoidance and Total), and a Community Sample (Creamer, Bell, & Failla, 2003; \( N = 154 \)). Mean Score refers to the average item score for each scale (0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely). * \( p < .05 \) (two-tailed) for PTSD versus No PTSD.
3.2.1.2. Trauma-Related Variables

A series of two-tailed comparisons revealed those with and without PTSD differed significantly on trauma incidence, sexual abuse, psychiatric history, medication, and drug use, as explained below and shown in Table 10.

**Trauma incidence.** Those with PTSD had experienced more single incident traumas compared to those without PTSD ($U_{(54)} = 247.5, p = .03$). Also, those with PTSD had experienced more traumas overall compared to those without PTSD ($U_{(54)} = 229.5, p = .01$).

**Sexual abuse.** Those with PTSD more frequently reported being sexually molested or raped compared to those without PTSD ($\chi^2 (1) = 7.0, p = .01$). Of those with PTSD ($n = 22$), 22.7% had never been sexually abused, 45.5% had been sexually abused in childhood or childhood and adulthood, and 31.8% had been sexually abused in adulthood only. Of those without PTSD ($n = 34$), 58.8% had never been sexually abused, 35.3% had been sexually abused in childhood or childhood and adulthood, and 5.9% had been sexually abused in adulthood only, (Cramér’s $V = 0.4, p = .01$).

**Psychiatric history.** Those with PTSD more frequently reported they had seen a mental health worker compared to those without PTSD, (Fisher’s Exact Test, $p = .02$). Those with PTSD more frequently reported that trauma had been the focus of treatment with a mental health worker compared to those without PTSD, ($\chi^2 (1) = 3.9, p = .048$).
**Medication.** Those with PTSD more frequently reported they were currently taking medication compared to those without PTSD, \( \chi^2 (1) = 7.1, p = .01 \).

**Drug use.** Those with PTSD were more frequently found to have a substance use problem, abuse or dependence compared to those without PTSD, \( \chi^2 (1) = 4.5, p = .03 \).
Table 10.

### Significant Differences Between Those With and Without PTSD

(p < .05, two-tailed)

<table>
<thead>
<tr>
<th>Variable</th>
<th>PTSD</th>
<th>No PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M (SD) / %</td>
</tr>
<tr>
<td>Trauma Incidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single incident traumas</td>
<td>22</td>
<td>6.1 (3.7)</td>
</tr>
<tr>
<td>Total traumas</td>
<td>22</td>
<td>7.6 (3.5)</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual molestation or rape</td>
<td>22</td>
<td>77.3%</td>
</tr>
<tr>
<td>Psychiatric History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seen a mental health worker</td>
<td>22</td>
<td>100%</td>
</tr>
<tr>
<td>Trauma the focus of treatment</td>
<td>22</td>
<td>45.5%</td>
</tr>
<tr>
<td>with a mental health worker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current medication</td>
<td>16</td>
<td>68.8%</td>
</tr>
<tr>
<td>Drug Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance use problem, abuse or</td>
<td>17</td>
<td>88.2%</td>
</tr>
<tr>
<td>dependence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** PTSD refers to those who reported experiencing symptoms within the previous six months. No PTSD refers to those who either had met criteria in the past or had never met criteria. Group differences are shown using means (and standard deviations) or percentages.
3.2.1.3. Posttraumatic Cognitions

Those with PTSD endorsed posttraumatic cognitions more strongly compared to those without PTSD, as measured by the PTCI. One-tailed t tests revealed those with PTSD scored significantly higher on negative cognitions about self \((t_{(52)} = -3.2, p = .002)\), such as “I am a weak person”, negative cognitions about the world \((t_{(50.1)} = -2.4, p = .01)\), such as “People can’t be trusted”, and overall \((t_{(52)} = -3.0, p = .002)\). There was not a significant difference between groups on the self-blame scale \((t_{(52)} = 0.5, p = .32)\), which contains items such as “The event happened because of the way I acted”.

The group differences are shown in Figure 6, alongside findings from a study of adults who had experienced a serious motor vehicle accident (MVA). Note that the MVA study did not report comparative total score data (Beck et al., 2004).
Figure 6. Posttraumatic Cognitions Inventory

A comparison of PTSD (those who reported experiencing symptoms within the previous six months; \( n = 22 \)), No PTSD (those who either had met criteria in the past or had never met criteria; \( n = 32 \), except for World where \( n = 33 \)), MVA PTSD (motor vehicle accident survivors with PTSD; Beck et al., 2004; \( n = 54 \)), and MVA No PTSD (motor vehicle accident survivors without PTSD; Beck et al., 2004; \( n = 29 \)). Mean Score on the left pane refers to the average item score for each scale (1 = Totally disagree; 2 = Disagree very much; 3 = Disagree slightly; 4 = Neutral; 5 = Agree slightly; 6 = Agree very much; 7 = Totally agree). Mean Score on the right pane refers to the average total score (range 36 to 252). \( * p < .05 \) (one-tailed) for PTSD versus No PTSD.
3.2.1.4. Early Maladaptive Schemas

A series of one-tailed comparisons revealed those with PTSD endorsed certain early maladaptive schemas more strongly compared to those without PTSD, as measured by the YSQ-S1.

Comparing the groups on each of the fifteen early maladaptive schemas, those with PTSD scored significantly higher than those without PTSD on the following eight schemas: abandonment/instability, for example, “I worry that people I feel close to will leave me or abandon me” (t(54) = -3.3, p = .001); mistrust/abuse, for example, “I feel that people will take advantage of me” (t(54) = -2.3, p = .01); defectiveness/shame, for example, “I feel that I’m not lovable” (t(52.1) = -2.3, p = .01); social isolation/alienation, for example, “I feel alienated from other people” (t(54) = -2.2, p = .02); vulnerability to harm or illness, for example, “I worry about being attacked” (t(54) = -2.1, p = .02); insufficient self-control/self-discipline, for example, “If I can’t reach a goal, I become easily frustrated and give up” (t(54) = -1.9, p = .03); subjugation, for example, “In relationships, I let the other person have the upper hand” (t(54) = -1.7, p = .046); and emotional inhibition, for example, “I find it hard to be warm and spontaneous” (t(54) = -1.8, p = .04). The group differences are shown in Figure 7.

Statistical norms for the YSQ-S1 are not yet available (Young, 2005). However, the score range can be used as a guide. For each item, participants rate either 1 (completely untrue of me), 2 (mostly untrue of me), 3 (slightly more true than untrue), 4 (moderately true of me), 5 (mostly true of me), or 6 (describes me perfectly). Each
schema is measured by five questionnaire items. Hence, the range for each schema score is 5 to 30.

Figure 7. Early Maladaptive Schemas

A comparison of PTSD (those who reported experiencing symptoms within the previous six months; \(n = 22\)) and No PTSD (those who either had met criteria in the past or had never met criteria; \(n = 34\)) on each YSQ-S1 schema. Mean Score is the average score (range 5 to 30) for the following schemas: abandonment/instability (AB); mistrust/abuse (MA); emotional deprivation (ED); defectiveness/shame (DS); social isolation/alienation (SI); dependence/incompetence (DI); vulnerability to harm or illness (VH); enmeshment/underdeveloped self (EM); failure (FA); entitlement/grandiosity (ET); insufficient self-control/self-discipline (IS); subjugation (SB); self-sacrifice (SS); emotional inhibition (EI); and unrelenting standards/hypercriticalness (US). * \(p < .05\) (one-tailed) for PTSD versus No PTSD.
Comparing the groups on each of the five schema domains, those with PTSD scored significantly higher than those without PTSD on the following three domains: disconnection and rejection \(t_{(54)} = -2.9, p = .003\); impaired autonomy and performance \(U_{(54)} = 259.0, p = .03\); and overvigilance and inhibition \(t_{(54)} = -1.8, p = .04\). This is shown in Figure 8. As the schema domains vary in the number of schemas they contain, the range for each schema domain score also varies. The ranges are provided in Figure 8.

Comparing the groups on the total score of all fifteen early maladaptive schemas, those with PTSD scored significantly higher \(M = 281.3; SD = 58.7; n = 22\) compared to those without PTSD \(M = 237.3; SD = 73.8; n = 34\) \(t_{(54)} = -2.4, p = .01\). As there are 75 questions in the YSQ-S1, the total score range is 75 to 450.
Figure 8. Schema Domains

A comparison of PTSD (those who reported experiencing symptoms within the previous six months; \( n = 22 \)) and No PTSD (those who either had met criteria in the past or had never met criteria; \( n = 34 \)) on each YSQ-S1 schema domain. Mean Score is the average score for the following schema domains: disconnection and rejection (DR, range 25 to 150); impaired autonomy and performance (IP, range 20 to 120); impaired limits (IL, range 10 to 60); other-directedness (OD, range 10 to 60); and overvigilance and inhibition (OI, range 10 to 60). * \( p < .05 \) (one-tailed) for PTSD versus No PTSD.
3.2.2. Early Maladaptive Schemas, Posttraumatic Cognitions and PTSD

3.2.2.1. Exploring Independent Variables

As a preliminary step to conducting regression analyses, all the variables that were found to differentiate between those with and without PTSD reported in the previous section were explored. Based on this analysis, six variables were chosen for the regression analyses: total number of traumas; sexually molested or raped; ever seen a mental health worker; trauma focus in treatment; PTCI total score; and YSQ-S1 total score. Only six variables could be chosen to maintain an appropriate case/variable relationship of 10:1 (Cohen, 1992) and the analysis necessarily included measures of posttraumatic cognitions and early maladaptive schemas to test the hypotheses. These particular six variables were chosen as representative variables of all the variables that were found to differentiate between those with and without PTSD for two reasons: (1) the N for each variable was sufficient to maintain power; and (2) they were not highly correlated with each other, which avoids the problem of multicollinearity in the regression analyses (Kinnear & Gray, 2004); with one exception. There was a large significant correlation between the total scores for the PTCI and YSQ-S1 ($r = .79$, $p < .01$, two-tailed; $N = 54$). The ramifications of this correlation for the regression analyses will be considered in the General Discussion.

3.2.2.2. Predicting PTSD Diagnosis

The model for the hierarchical binary logistic regression is shown in Table 11. The criterion variable was PTSD Diagnosis. The predictor variables were chosen based on
the data analysis just described. Trauma variables were entered on Step 1; mental health care variables were entered on Step 2; schemas were on Step 3; and posttraumatic cognitions were on Step 4.

The results indicate that this regression model contributes to the prediction of the presence or absence of current PTSD (38.1% after Step 4; N = 54). The results also indicate that the prediction success rate increases from 59.3% (without any regression) to 74.1% (when the full model is applied). However, at each step of the regression, each variable in the equation does not significantly contribute to the prediction of PTSD (ps > .05).
<table>
<thead>
<tr>
<th>Variable</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 (Trauma)</strong></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td></td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2 (Mental Health Care)</strong></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td></td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3 (Schemas)</strong></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td></td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>YSQ-S1 total score</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4 (Posttraumatic Cognitions)</strong></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td></td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td></td>
</tr>
<tr>
<td>YSQ-S1 total score</td>
<td></td>
</tr>
<tr>
<td>PTCI total score</td>
<td></td>
</tr>
</tbody>
</table>
3.2.2.3. A Mediation Relationship

The hypothesis that the relationship between early maladaptive schemas and PTSD symptom severity will be mediated by posttraumatic cognitions can be tested with two hierarchical multiple regressions, as suggested by Baron and Kenny (1986). In the regressions, early maladaptive schemas are measured by the YSQ-S1 total score, posttraumatic cognitions are measured by the PTCI total score, and PTSD symptom severity is measured by the IESR total score.

The first regression, reported in Table 12, indicates that while controlling for trauma and mental health care, schemas significantly predict posttraumatic cognitions ($\beta = .79, p < .01$). The second regression, reported in Table 13, indicates that while controlling for trauma and mental health care, schemas significantly predict PTSD symptom severity ($\beta = .53, p < .01$). However, when posttraumatic cognitions are entered into the model (Step 3), schemas no longer significantly predict PTSD symptom severity ($\beta = .02, p = .92$). Instead, posttraumatic cognitions significantly predict PTSD symptom severity ($\beta = .65, p < .01$).

The results of these regression analyses establish the following: (1) that schemas significantly predict posttraumatic cognitions; (2) that posttraumatic cognitions significantly predict PTSD symptom severity; and (3) that schemas significantly predict PTSD symptom severity in the absence of posttraumatic cognitions. Hence, the regression analyses together indicate that when controlling for trauma and mental health care, posttraumatic cognitions mediate the relationship between early...
maladaptive schemas and PTSD symptom severity. This finding is shown diagrammatically as a mediational model in Figure 9.

Table 12.

Test of Mediation (1): Multiple Regression Analysis

Criterion Variable PTCI Total Score (N = 54)

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 (Trauma and Mental Health Care)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td>.02</td>
<td>.89</td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td>.39</td>
<td>.02*</td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td>-.01</td>
<td>.95</td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td>-.05</td>
<td>.75</td>
</tr>
<tr>
<td><strong>Step 2 (Schemas)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td>&lt; .01</td>
<td>.99</td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td>&lt; -.01</td>
<td>.97</td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td>-.10</td>
<td>.27</td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td>-.07</td>
<td>.47</td>
</tr>
<tr>
<td>YSQ-S1 total score</td>
<td>.79</td>
<td>&lt; .01*</td>
</tr>
</tbody>
</table>

Note. R² = .173 for Step 1 (p = .05); ΔR² = .475 for Step 2 (p < .05). *p < .05.
Table 13.

Test of Mediation (2): Multiple Regression Analysis

Criterion Variable IESR Total Score (N = 54)

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 (Trauma and Mental Health Care)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td>.11</td>
<td>.47</td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td>.37</td>
<td>.02*</td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td>.13</td>
<td>.35</td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td>-.10</td>
<td>.48</td>
</tr>
<tr>
<td><strong>Step 2 (Schemas)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td>.09</td>
<td>.47</td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td>.11</td>
<td>.47</td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td>.07</td>
<td>.58</td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td>-.12</td>
<td>.35</td>
</tr>
<tr>
<td>YSQ-S1 total score</td>
<td>.53</td>
<td>&lt; .01*</td>
</tr>
<tr>
<td><strong>Step 3 (Posttraumatic Cognitions)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of traumas experienced</td>
<td>.09</td>
<td>.41</td>
</tr>
<tr>
<td>Experience of sexual molestation or rape (Yes or No)</td>
<td>.11</td>
<td>.39</td>
</tr>
<tr>
<td>Ever seen a mental health worker (Yes or No)</td>
<td>.13</td>
<td>.21</td>
</tr>
<tr>
<td>Trauma focus in treatment (Yes or No)</td>
<td>-.07</td>
<td>.51</td>
</tr>
<tr>
<td>YSQ-S1 total score</td>
<td>.02</td>
<td>.92</td>
</tr>
<tr>
<td>PTCI total score</td>
<td>.65</td>
<td>&lt; .01*</td>
</tr>
</tbody>
</table>

Note. R² = .209 for Step 1 (p < .05); ΔR² = .211 for Step 2 (p < .05); ΔR² = .146 for Step 3 (p < .05). * p < .05.
Mediational model showing that controlling for trauma and mental health care, posttraumatic cognitions mediate the relationship between early maladaptive schemas and PTSD symptom severity. The Mediator is Posttraumatic Cognitions as measured by the PTCI TS (Posttraumatic Cognitions Inventory Total Score). The Independent Variable is Early Maladaptive Schemas as measured by the YSQ-S1 TS (Young Schema Questionnaire – Short Form Total Score). The Dependent Variable is PTSD Symptom Severity as measured by the IESR TS (Impact of Event Scale – Revised Total Score). The trauma and mental health care variables are total number of traumas experienced, experience of sexual molestation or rape, ever seen a mental health worker, and trauma focus in treatment. The $\beta$ (beta) from the regression analyses is given for each relationship (ns means not significant). $^* p < .05$. 

Figure 9. Mediational Model
3.3. Discussion

The aim of this study was to enhance understanding of PTSD and posttraumatic cognitions among homeless adults in Sydney. It was predicted that in the sample, those with a current diagnosis of PTSD would score significantly higher than those without a current diagnosis on measures of posttraumatic cognitions and early maladaptive schemas, particularly schemas that centre on the world being entirely dangerous and the self being totally inept. It was also predicted that in the sample, the relationship between early maladaptive schemas and PTSD symptom severity would be mediated by posttraumatic cognitions. All three hypotheses were confirmed.

In the sample, those with PTSD scored significantly higher than those without PTSD overall on the PTCI (measuring posttraumatic cognitions), which is consistent with the integrated cognitive model of PTSD suggested by Foa and colleagues (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998). It was interesting that on the PTCI subscales, significant differences between the groups were found on negative cognitions about self and world, but not on self-blame. Although this is in keeping with Foa’s model, which emphasises self and world schemas, an explanation for the result is that the self-blame scale has poor concurrent and discriminant validity (Beck et al., 2004). Hence, finding no difference between groups on the self-blame scale may be a Type II error.

Another finding in the sample was that those with PTSD scored significantly higher than those without PTSD overall on the YSQ-S1 (measuring early maladaptive schemas). Furthermore, significant differences between the groups were found on
three of the five schema domains: disconnection and rejection (the expectation that one’s needs for security and safety will not be met in a predictable manner); impaired autonomy and performance (expectations about oneself and the environment that interfere with one’s perceived ability to survive); and overvigilance and inhibition (excessive emphasis on suppressing one’s spontaneous feelings). These findings are in keeping with the integrated cognitive model of PTSD.

Further analysis of the YSQ-S1 revealed that those with PTSD scored significantly higher than those without PTSD on the following early maladaptive schemas: vulnerability to harm or illness; abandonment/instability; mistrust/abuse; social isolation/alienation; defectiveness/shame; insufficient self-control/self-discipline; subjugation; and emotional inhibition. This finding is consistent with the notion in the integrated cognitive model that schemas that centre on the world being entirely dangerous and the self being totally inept are central in posttraumatic stress reactions.

Based on the results of the analysis comparing those with and without PTSD, a hierarchical binary logistic regression was conducted to determine the extent that variables related to trauma, mental health care, schemas, and posttraumatic cognitions, contributed to the prediction of the presence or absence of current PTSD. Although the results indicated that the regression model did contribute to the prediction of PTSD, the individual variables did not. This finding may be related to the significant correlation found between the total scores for the PTCI and YSQ-S1. This possibility will be considered further in the General Discussion.
The final hypothesis tested in this study was concerning the relationship between early maladaptive schemas, posttraumatic cognitions, and PTSD symptom severity. Two regression analyses together indicated that when trauma and mental health care were controlled, cognitions mediated the relationship between schemas and PTSD. This is a significant finding as to date, there has been no direct evidence showing the effect of beliefs on PTSD symptoms, despite the common postulation that beliefs play a role in PTSD development and maintenance. However, in order to draw conclusions from this mediational analysis, it is important to consider the assumptions of mediational models. This will be done in the General Discussion.

As in Study One, the findings in the present study are limited in that they are based on a small sample of participants who were selected from a convenience sample of locations. Also, as the design was cross-sectional it was not possible to draw conclusions regarding cause, such as regarding the causal nature of the relationship between schemas, cognitions, and PTSD. Despite these limitations, the research had a number of methodological strengths, including that participants were randomly sampled within the services and extensive in-depth interviews were conducted, that included measures with sound psychometric properties.

It can be concluded from this study that among homeless adults, posttraumatic cognitions and early maladaptive schemas appear to play an important role in PTSD. The evidence being that those with a current diagnosis of PTSD score higher than those without on measures of posttraumatic cognitions and early maladaptive schemas, in particular, schemas that centre on the world being entirely dangerous and the self being totally inept; and that when trauma and mental health care are
controlled, the relationship between early maladaptive schemas and PTSD symptom severity is mediated by posttraumatic cognitions. These findings have important implications for theories on PTSD, hence it would be beneficial to conduct further research in other populations, in particular those with high trauma rates. The implications of this project and directions for future research will be considered in the next chapter.
CHAPTER 4
GENERAL DISCUSSION

This research project has resulted in significant findings regarding trauma and PTSD among homeless adults in Sydney. Although the research has a number of limitations, it also has a number of strengths; and the findings have implications for public policy, service provision, PTSD theory, and PTSD treatment approaches for homeless adults. Furthermore, the project highlights areas for future research.

4.1. Summary of Major Findings

The primary aim of this project was to improve understanding of PTSD and related cognitions in a sample of homeless adults in Sydney. Based on one sample, the project was described in two parts: Study One and Study Two. The aim of Study One was to advance understanding of trauma experience and PTSD among homeless adults in Sydney. Study One tested the following three hypotheses: (1) that in a sample of homeless adults in Sydney, the majority will report a lifetime history of trauma; (2) that in the same sample, PTSD prevalence will be higher than PTSD prevalence in the Australian general population; and (3) that in the same sample, PTSD onset will precede homelessness more often than it follows homelessness.

All three hypotheses of Study One were confirmed. The major findings of Study One were: (1) most of the sample stated that they had experienced at least one traumatic event in their lifetime (98.2%) and most of the sample stated they had experienced
more than one traumatic event (92.8%); (2) the twelve-month prevalence of PTSD was higher among homeless adults in Sydney than in the Australian general population (41.1% versus 1.5%) (Rosenman, 2002); and (3) in 59.1% of cases PTSD onset occurred before the age of the first homeless episode and in 11.4% of cases PTSD onset occurred at the age of the first homeless episode.

The aim of Study Two was to enhance understanding of PTSD and posttraumatic cognitions among homeless adults in Sydney. Study Two tested the following three hypotheses: (1) that in a sample of homeless adults in Sydney, those with a current diagnosis of PTSD will score significantly higher on measures of posttraumatic cognitions and early maladaptive schemas compared to those without a current diagnosis of PTSD; (2) that in the same sample, using a measure of early maladaptive schemas, those with a current diagnosis of PTSD will score significantly higher on schemas that centre on the world being entirely dangerous and the self being totally inept compared to those without a current diagnosis of PTSD; and (3) that in the same sample, the relationship between early maladaptive schemas and PTSD symptom severity will be mediated by posttraumatic cognitions.

All three hypotheses of Study Two were confirmed. The major findings of Study Two were: (1) those with a current diagnosis of PTSD scored significantly higher overall on a measure of posttraumatic cognitions and a measure of early maladaptive schemas compared to those without a current diagnosis of PTSD; (2) using a measure of early maladaptive schemas, those with a current diagnosis of PTSD scored significantly higher on the schemas vulnerability to harm or illness and defectiveness/shame compared to those without a current diagnosis of PTSD; and (3) that when
Having outlined the major findings, it is appropriate to consider the strengths and limitations of the research project. The limitations of the project relate to some aspects of the design and procedure. The design was cross-sectional, that is, a group of people were studied at one point in time. The alternative to a cross-sectional design is a longitudinal design, in which a group of people are studied over an extended period of time (Reber, 1995). A limitation of using a cross-sectional design in this project was that it was not possible to draw conclusions regarding the causal nature of relationships. Specifically, it was not possible to demonstrate that PTSD is one cause of homelessness or that schemas and cognitions can cause PTSD.

Nevertheless, a cross-sectional design was chosen in preference to a longitudinal design because it would have been difficult to meet with participants on multiple occasions; the reason being that homeless people typically have transient and chaotic lifestyles. Another limitation of the design was that a control group was not used. Some studies on homeless people employ control groups, made up of either age-matched housed participants (Dadds, Braddock, Cuers, & Elliott, 1993; Fronczak, 2003; Miner, 1991; Schweitzer & Hier, 1993) or low-income housed participants (Bassuk, Buckner, Perloff, & Bassuk, 1998). Generally, not having a control group reduces the internal validity of a study (Clark-Carter, 1997). Nevertheless, in this study the rates of trauma and PTSD were so high in comparison to the Australian
general population, that it is likely a domiciled control group would have only served to underline this finding.

Two limitations of the procedure in this project were that the sample size was small for a prevalence study and that participants were selected from a convenience sample of locations. These factors reduce the reliability of the study but with limited resources were difficult to overcome. People who were willing and eligible to take part in the study were not easily accessible and a number of homeless services that were asked to join the study refused to do so. Another possible limitation of the project was the reliance on self-reports, which could further reduce the reliability of the study. However, evidence indicates self-report data provided by homeless mentally ill individuals is reliable and valid (Calsyn, Allen, Morse, Smith, & Tempelhoff, 1993; Calsyn, Morse, Klinkenberg, & Trusty, 1997; Sohler, Colson, Meyer-Bahlburg, & Susser, 2000).

These limitations notwithstanding, this research project was the first to examine PTSD among homeless adults in Australia and it had a number of methodological strengths. Two aspects of the procedure that improved the external validity of the study were that participants were randomly sampled and that various types of homeless services were accessed. Consequently, the sample was representative of primary, secondary, and tertiary levels of homelessness. This is particularly advantageous because most homelessness studies rely on non-representative samples from shelter populations, making it difficult to generalise the results to all homeless people (Salkow & Fichter, 2003).
An additional strength of the study was that extensive in-depth interviews were conducted, that included measures with sound psychometric properties. This allowed information to be collected on many independent variables and improved the internal validity of the study. Finally, all interviews were conducted by one interviewer, which improved the reliability of the results.

4.3. Results of Study One: PTSD Prevalence and Onset

4.3.1. Findings

The demographic data collected indicated that typically participants were male, born in Australia, had never been married, had at least one child, received a government benefit of some kind, were currently unemployed, had completed ten years or less at school, and had little social support. Most participants stated they had seen a mental health worker and high rates of psychopathology were indicated by high rates of psychosis, alcohol and other drug use, depression, anxiety, and stress. The data on housing history revealed that the average age of the first homeless episode was 25.7 years. Most participants reported they had been unable to continue living with their family or friends and subsequently became homeless; and most participants considered that being homeless was a traumatic experience.

Confirming the first hypothesis, most of the sample had experienced at least one traumatic event in their lifetime. Multiple traumas were common. Trauma rates were higher among homeless adults in Sydney than in the Australian general population (98.2% versus 57% for at least one trauma and 92.8% versus 32% for at least two
traumas) (Rosenman, 2002). In fact, participants reported on average over six trauma experiences each. Experiencing a trauma in childhood was common. Being seriously physically attacked or assaulted or witnessing someone being badly injured or killed were the most frequently reported traumatic experiences. Being sexually molested or raped were commonly reported as the most traumatic experiences. For the majority of participants, the first trauma preceded or coincided with the first homeless episode. These findings are in line with other homeless studies conducted overseas (e.g. Kushel, Evans, Perry, Robertson, & Moss, 2003) and in Australia, among adult samples (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998; Robinson, 2003) and adolescent samples (Martijn, 2003; Martijn & Sharpe, 2006).

Confirming the second hypothesis, the prevalence of PTSD was considerably higher among homeless adults in Sydney than in the Australian general population, with 78.6% of the sample meeting criteria for a lifetime diagnosis of PTSD. Despite this high prevalence, a minority had received psychological intervention that focussed on traumatic events and only three participants stated they had been given a diagnosis of PTSD. In the sample, 39.3% met criteria for a past diagnosis and 39.3% met criteria for a current diagnosis (meaning they reported experiencing symptoms in the previous six months). The finding of elevated rates of PTSD in comparison to the general population is comparable to the study conducted on homeless youth in Australia (Martijn, 2003) and studies conducted overseas on homeless adults (Bassuk, Buckner, Perloff, & Bassuk, 1998; Davis & Kutter, 1998; Edwards, 2005; Salomon, Bassuk, & Huntington, 2002) and homeless adolescents (Fronczak, 2003; Morgan & Cauce, 1999; Stewart et al., 2004; Thompson, 2005; Wynne, 2002). In fact, the prevalence
rate in the current study is surprisingly high in comparison to studies conducted overseas.

One possible explanation for the PTSD prevalence rate in the current study being relatively high is that diagnoses were made according to both DSM-IV and ICD-10 criteria. There was some discrepancy between DSM-IV and ICD-10 diagnoses, with 32.1% of the sample being diagnosed by one set of criteria but not by the other. Discrepancy between DSM-IV and ICD-10 diagnoses has been noted previously and arises from the differing sets of criteria, shown in Appendix A (Peters, Slade, & Andrews, 1999). One study showed that ICD-10 identified PTSD cases at twice the frequency of DSM-IV (Andrews, Slade, & Peters, 1999). In the current study, 10.7% of cases met DSM-IV criteria only and 21.4% of cases met ICD-10 criteria only. Considering DSM-IV diagnoses alone, the lifetime prevalence rate in the current study drops from 78.6% to 57.2%, which is in keeping with international findings (e.g. Davis & Kutter, 1998).

Confirming the third hypothesis, for the majority of participants, PTSD onset preceded or coincided with the first homeless episode. PTSD onset was, on average, 4.9 years before the age of first being homeless. This finding is consistent with a large study on homeless adults conducted in the US (North & Smith, 1992) and a small study on homeless youth conducted in Australia (Martijn, 2003). Being a cross-sectional study it was not possible to demonstrate that PTSD is one cause of homelessness, however, this was a potentially important finding.
Beyond results directly relating to the hypotheses, an interesting finding was that the highest rate of current PTSD was found in those who were tertiary homeless, followed by those who were secondary homeless, and finally those who were primary homeless. This was a surprising finding as evidence indicates that unsheltered women (considered primary homeless) have over twelve times greater odds of poor mental health than sheltered homeless women (Nyangathi, Leake, & Gelberg, 2000). The current finding might be explained by the low numbers of primary and tertiary homeless in the sample (n = 7 and 3 respectively).

Another noteworthy finding was that co-morbidity was common in the sample. Of those who met criteria for current PTSD, over half screened positive for psychosis, probable pathological gambling, and harmful or hazardous drinking or alcohol dependence; and nearly 90% screened positive for a substance use problem, abuse or dependence. Also, rates of depression, anxiety and stress were high. Interestingly, of those who met criteria for current PTSD, 31.3% met criteria for a current diagnosis of OCD. These high rates of co-morbidity can be explained generally by studies on the prevalence of mental illness in homeless individuals, which show rates that are much higher than in representative community samples (Fichter & Quadflieg, 2005; Salkow & Fichter, 2003). More specifically, evidence indicates PTSD is commonly co-morbid with psychosis, gambling, alcohol dependence, substance abuse, depression, anxiety, and OCD (Bonin, Norton, Asmundson, Dicurzio, & Pidlubney, 2000; Brady & Clary, 2003; Keane & Wolfe, 1990; McCormick, Taber, & Kruedelbach, 1989; Sarkar, Mezey, Cohen, Singh, & Olumoroti, 2005; Shalev, 1997). Some researchers have suggested that the co-morbidity of PTSD and OCD suggests a common
neurological mechanism (Shalev, 1997), although clearly these results can not confirm this speculation.

4.3.2. Public Policy Implications

The results of Study One confirm previous findings that homeless adults in Sydney have high mental health care needs (Buhrich, Hodder, & Teesson, 2003; Hodder, Teesson, & Buhrich, 1998). Moreover, the results confirm high rates of trauma experience (Buhrich, Hodder, & Teesson, 2000; Hodder, Teesson, & Buhrich, 1998; Robinson, 2003) and reveal a high prevalence of PTSD, with onset commonly preceding homelessness. These findings have implications for public policy on homelessness and mental health.

Public policy on homelessness aims to assist homeless people to participate as fully as possible in the community. The National Homelessness Strategy has four main themes: prevention; early intervention; working together; and crisis transition and support. Prevention includes improving access to housing, building community capacity to solve local problems, helping people in financial difficulty, addressing relationship and family breakdown, preventing domestic violence, preventing physical and emotional abuse, preventing and treating drug and alcohol abuse, and coping with mental illness. Coping with mental illness involves the following: linking mental health services and other community service sectors, such as housing and supported accommodation; identifying factors leading to and perpetuating homelessness among people with mental illness; introducing programs to reduce the risk of homelessness among people with mental illness; and increasing national funding for depression and
suicide prevention. The theme of early intervention includes identifying people at risk of homelessness through research and ensuring relevant services are able to identify and assist those at risk. Working together refers to the collaboration of Commonwealth departments, state and territory governments, and the community, which acknowledges homelessness as a multidimensional problem requiring multidimensional solutions. Finally, crisis transition and support, includes assisting people to move from crisis accommodation to longer term accommodation and supporting formerly homeless people in the private rental market, in training, and in employment (Newman, 2000).

To achieve these goals, the National Homelessness Strategy acknowledges the important role of several agencies and programs (Chamberlain & MacKenzie, 2003). For example, the Australian Federation of Homelessness Organisations, who advocate for homeless people’s rights (Clay, 2004) and the Supported Accommodation Assistance Program, which is a joint Commonwealth and states/territories program that assists homeless people in partnership with the community sector, by bringing together a diverse group of over one thousand mainly non-government services, advocacy groups, and self-help agencies (Chamberlain & MacKenzie, 2003).

In light of the results of this study, the National Homelessness Strategy appears to underestimate the mental health needs of homeless people in Australia. The final theme in the Strategy of crisis transition and support recognises that homeless people helped into accommodation require assistance in renting property, training, and in employment, however it does not recognise that such people may need mental health care. The high rates of mental illness, in addition to evidence indicating formally
homeless individuals often endorse symptoms of PTSD resulting from past experience of homelessness (Bresnahan, 2000; Gold, 1995), necessitate that mental health care is readily available for homeless people.

Beyond public policy on homelessness, the current findings have implications for public policy on mental health. It has been suggested that the mental health care system in Australia is inadequate in as much as insufficient services can result in people becoming homeless (Bashir, 2005) and put pressure on non-government homeless agencies staffed by people with no psychiatric training to care for people who are mentally ill (Pollard, 2005b). The current findings support these suggestions and indicate that mental health care for people at risk of homelessness or currently homeless needs to be improved.

It is encouraging that the Council of Australian Governments has recently announced a commitment to reforming the mental health system. The Commonwealth Government is contributing $1.8 billion in new funds for a five-year action plan, which includes a significant increase in supported accommodation for mentally ill people and funding for personal helpers and mentors to assist people to manage their day to day living, including helping them to find accommodation, receive entitlements, organise any payments, and attend appointments (Howard, 2006). Such initiatives could subsequently reduce the number of people who are homeless in Australia.
4.3.3. Service Provision Implications

In addition to broad policy implications, the current findings have implications for homeless services. According to Robinson (2003), homeless services in Australia tend to deal with presenting problems rather than core issues, that is, they address accommodation and unemployment rather than trauma experience and fluctuating mental health. Robinson argues that this approach is problematic because resolving presenting problems is not sufficient to resolve the core issues, and it is these core issues that underpin iterative homelessness. Hence, a better strategy is an holistic approach that addresses both presenting problems and core issues (Robinson, 2003). The current findings support this holistic approach. Providing accommodation is vital but wholly inadequate in addressing the needs of a homeless person. It appears that trauma is a central issue and the psychological consequences of trauma need to be addressed.

The Mission Australia Centre, opened in 2005 and based in Sydney, provides a good example of this holistic approach. Mission Australia is a non-denominational Christian organisation providing individual, family, and community services. The Mission Australia Centre provides two types of accommodation: eight bedroom apartments, which provide residential crisis accommodation for men who have been homeless for a period of less than four years; and affordable housing units, which can be tenanted by singles or couples who work in the inner city but can not afford private rental. In addition, the centre provides a number of services for people who are homeless or at risk of homelessness. Assistance is provided in employment, education, and training; art, music, and photography programs are provided for young
people; and workshops are run on Aboriginal culture for indigenous people. As well, the centre provides a legal service and a health service, including a dentist and chiropractor. Relevant to mental health care, the centre provides a general practitioner, gambling counsellor, relaxation sessions, anger management workshops, and effective communication training (Mission Australia, 2005). Based on the findings of this research, it would be beneficial to supplement this mental health care with a psychiatrist or clinical psychologist with expertise in trauma. Nevertheless, the Mission Australia Centre is the first of its kind in Australia and provides a good model for other homeless services to follow.

4.4. Results of Study Two: The Role of Cognitions in PTSD

4.4.1. Findings

The comparison of those with and without a current diagnosis of PTSD revealed a number of significant differences between these groups. Those with PTSD reported more severe PTSD symptoms (including intrusion, avoidance, and hyperarousal), more single incident traumas, and more traumas overall. Also, those with PTSD more frequently reported the following: that they had been sexually molested or raped; that they had seen a mental health worker; that trauma had been the focus of treatment with a mental health worker; and that they were currently taking medication. Finally, those with PTSD were more frequently found to have a substance use problem, abuse or dependence.
Confirming the first hypothesis, those with PTSD scored significantly higher overall on the PTCI (measuring posttraumatic cognitions) and the YSQ-S1 (measuring early maladaptive schemas). This finding is in keeping with the integrated cognitive model of PTSD suggested by Foa and colleagues (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998). On the PTCI subscales, those with PTSD scored significantly higher on negative cognitions about self and world, but not on self-blame. Although this indicates self-blame is not a distinguishing factor between those with and without PTSD, it may be that the scale itself lacks validity. There is evidence to suggest that the self-blame scale has poor concurrent and discriminant validity (Beck et al., 2004). On the YSQ-S1 schema domains, those with PTSD scored higher on three of the five domains: disconnection and rejection (the expectation that one’s needs for security and safety will not be met in a predictable manner); impaired autonomy and performance (expectations about oneself and the environment that interfere with one’s perceived ability to survive); and overvigilance and inhibition (excessive emphasis on suppressing one’s spontaneous feelings). It is noteworthy that these three schema domains are consistent with the PTSD symptoms of hyperarousal and avoidance and in keeping with the integrated cognitive model of PTSD.

Confirming the second hypothesis, those with PTSD scored significantly higher on schemas that centre on the world being entirely dangerous and the self being totally inept, namely the schemas vulnerability to harm or illness and defectiveness/shame. This finding is in keeping with the notion in the integrated cognitive model of PTSD that these particular schemas are central in posttraumatic stress reactions (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998).
Those with PTSD also scored significantly higher on several other schemas: abandonment/instability, mistrust/abuse, and social isolation/alienation (which are consistent with the notion of the world being dangerous); and insufficient self-control/self-discipline, subjugation, and emotional inhibition (which are consistent with the notion of the self being inept).

Based on the results of the analysis comparing those with and without PTSD, a hierarchical binary logistic regression was conducted with variables related to the trauma on Step 1, pre-/post-trauma events on Step 2, schemas on Step 3, and posttraumatic cognitions on Step 4. Although the results indicated that the regression model contributed to the prediction of the presence or absence of current PTSD, at each step of the regression, each variable in the equation did not significantly contribute to the prediction of PTSD. As there was a large significant correlation between the total scores for the PTCI and YSQ-S1, multicollinearity is one possible explanation for this result. Multicollinearity refers to high correlations among independent variables, which can make the predicted values in regression analyses unstable (Clark-Carter, 1997; Kinnear & Gray, 2004).

Confirming the third hypothesis, two hierarchical multiple regressions showed the following: (1) that schemas significantly predict posttraumatic cognitions; (2) that posttraumatic cognitions significantly predict PTSD symptom severity; and (3) that schemas significantly predict PTSD symptom severity in the absence of posttraumatic cognitions. Consequently, the regression analyses together indicated that when trauma and mental health care were controlled, posttraumatic cognitions mediated the relationship between early maladaptive schemas and PTSD symptom severity.
Before drawing conclusions from the mediational analysis, it is important to discuss three assumptions of mediational models. First, in a mediational model the independent variable is assumed to cause the mediator; hence these two variables should be correlated. However, such a correlation can result in multicollinearity, which reduces power. In this case, schemas are assumed to cause cognitions. Analysis revealed schemas and cognitions were strongly correlated, resulting in multicollinearity. Nevertheless, the betas in the regression analyses reveal a larger coefficient when schemas alone predicted PTSD than when schemas and cognitions predicted PTSD. Hence, the mediational model appears to hold here despite multicollinearity (Baron & Kenny, 1986).

The second assumption is that there is no measurement error in the mediator (that is, posttraumatic cognitions). As with any psychological variable, it is likely that cognitions were measured with error. The consequence is an overestimation bias. That is, overestimating the effect of schemas on PTSD to the extent that schemas appear to cause cognitions and cognitions appear to cause PTSD when this may not be the case (Baron & Kenny, 1986).

The third assumption is that the dependent variable does not cause the mediator (Baron & Kenny, 1986). In this case, it is assumed that PTSD symptom severity does not cause posttraumatic cognitions. But of course, symptoms might cause cognitions. Certainly, this is suggested in Ehlers and Clark’s cognitive model of PTSD by the notion that symptoms can prevent change in negative appraisals of the trauma (Ehlers & Clark, 2000). Hence, it is possible cognitions cause symptoms, but it is also
possible symptoms cause cognitions. A third possibility is that both these suggestions are correct: cognitions cause symptoms and vice versa.

Given this consideration of the assumptions of mediational models, it is prudent to conclude from the mediational analysis that early maladaptive schemas and posttraumatic cognitions are associated with PTSD symptom severity and that this association suggests schemas and cognitions may play a causal role in PTSD symptom severity. Thus, the finding supports the integrated cognitive model of PTSD (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998).

4.4.2. Theoretical Implications

The results of Study Two indicate that posttraumatic cognitions and early maladaptive schemas play an important role in PTSD. This finding is in keeping with cognitive models of PTSD and evidence indicating that cognitive responses to trauma are important in determining who will develop PTSD (Bryant, 2003). Moreover, the results reveal particular schemas and schema domains that may distinguish between those with and without PTSD. These findings have implications for theories on the development and maintenance of PTSD.

This study was designed to test assumptions of the integrated cognitive model of PTSD suggested by Foa and colleagues (Foa & McNally, 1996; Foa & Meadows, 1998; Foa & Riggs, 1993; Foa & Rothbaum, 1998). Finding that cognitions and schemas are relevant to those with PTSD is in keeping with this model. In fact, this
One important aspect of the integrated cognitive model of PTSD is that it proposes that schemas that centre on the world being entirely dangerous and the self being totally inept are central in posttraumatic stress reactions (Dalgleish, 2004). The findings in the current study support this proposition. Consistent with schemas that centre on the world being entirely dangerous, in the study, those with PTSD scored significantly higher on the following: the PTCI subscale negative cognitions about the world; the YSQ-S1 schema domain disconnection and rejection; and the YSQ-S1 schemas vulnerability to harm or illness, abandonment/instability, mistrust/abuse, and social isolation/alienation. Consistent with schemas that centre on the self being totally inept, those with PTSD scored significantly higher on the following: the PTCI subscale negative cognitions about self; the YSQ-S1 schema domains impaired autonomy and performance and overvigilance and inhibition; and the YSQ-S1 schemas defectiveness/shame, insufficient self-control/self-discipline, subjugation, and emotional inhibition.

Another important aspect of the integrated cognitive model, which has not been tested previously, is that it assumes a hierarchy of schemas, influencing cognitions, which in turn influence PTSD psychopathology. The findings in the current study support this assumption. The analysis of a mediational model found that when trauma and mental health care were controlled, posttraumatic cognitions mediated the relationship
between early maladaptive schemas and PTSD symptom severity. It was concluded that early maladaptive schemas and posttraumatic cognitions are associated with PTSD symptom severity and that this association suggests schemas and cognitions may play a causal role in PTSD symptom severity. Hence, the study provides support for the integrated cognitive model of PTSD, which suggests that the model is relevant among homeless adults in Sydney.

**4.4.3. Treatment Implications**

Having established that the integrated cognitive model of PTSD is relevant among homeless adults in Sydney, the model can be used to guide treatment interventions. According to this model, both cognitive therapy and exposure therapy are important treatment components. Cognitive therapy, including cognitive restructuring, is useful in addressing posttraumatic reactions of self and others. Exposure therapy, including in vivo exposure and imaginal exposure, is useful as it can bring about changes in both schemas and trauma memory records (Foa & Rothbaum, 1998). Hence, based on the model and the current research findings, treatment for homeless individuals with PTSD should include both cognitive therapy and exposure therapy.

Although this may be the ideal treatment approach, there are both practical and clinical challenges to the delivery of such an approach that need to be overcome. In a practical sense, treatment for PTSD is not readily available to homeless individuals. In the sample, the lifetime prevalence rate of PTSD was exceptionally high (78.6%) and the majority of participants had seen a mental health worker (85.7%), however a minority reported that the focus of their treatment had been discussing traumatic
events (30.4%) and only three participants stated they had been given a diagnosis of PTSD (5.4%). As already discussed, changes in public policy and service provision are required to ensure homeless people have access to the mental health care they need.

In addition to these practical challenges, there are clinical challenges to administering cognitive therapy and exposure therapy to homeless individuals. First, exposure therapy is counter-indicated when the individual remains at risk. By definition homeless people have inadequate access to safe and secure housing and are consequently at high risk of re-traumatisation. Second, although cognitive therapy would not be counter-indicated, it may prove difficult. For example, it would be difficult to challenge the belief that the world is dangerous with an individual who is living in an unsafe environment. In fact, if the individual is vulnerable to harm, believing that the world is dangerous may be adaptive in that it could lead that person to behave cautiously.

To overcome these clinical challenges, an obvious solution is to place homeless individuals in a safe environment before beginning treatment. This could be achieved by providing long-stay places in either psychiatric facilities or shelters for homeless people, such as the Mission Australia Centre, and then providing treatment. However, such a solution would require substantial resources and may therefore be impracticable. An alternative solution is to tailor the treatment approach so that it is suitable for homeless people. The focus of Foa and Rothbaum’s (1998) treatment is to modify cognitions and schemas. Perhaps this could be achieved even if exposure therapy was omitted, through cognitive therapy alone. Recent evidence from a
randomised clinical trial of the treatment of chronic PTSD indicates that cognitive therapy is superior to imaginal exposure. At a five-year follow up, no patients who received cognitive therapy were diagnosed with PTSD compared to 29% of those who received imaginal exposure (Tarrier et al., 1999; Tarrier & Sommerfield, 2004). Certainly, tailoring intervention by omitting exposure therapy is a possibility. Discovering if such an intervention is effective requires empirical investigation. Ultimately, it will be important to conduct treatment trials to determine the ideal treatment approach for homeless individuals with PTSD.

### 4.5. Directions for Future Research

The findings from this research project highlight a number of areas for future research. First, it would be beneficial to replicate the current findings. This was the first study on PTSD among homeless adults in Australia. Participants were selected from a convenience sample of locations and the sample size was small for a prevalence study. Although it would take considerable resources, the project could be conducted with larger samples in other cities and rural areas in Australia. Second, as the study had a cross-sectional design, it was not possible to draw conclusions regarding the causal nature of relationships. Specifically, it was not possible to demonstrate that PTSD is one cause of homelessness or that schemas and cognitions can cause PTSD. Although it would be difficult to meet with homeless participants on multiple occasions, longitudinal studies could be used to further explore the relationships between PTSD and homelessness and between schemas, cognitions, and PTSD. Third, it would be beneficial to conduct clinical trials to test the efficacy of treatments designed for homeless individuals with PTSD. Such trials could compare
cognitive therapy to exposure therapy, provided participants receiving exposure therapy were given a safe living environment and were not at risk of re-traumatisation. Such trials would also afford the opportunity to test alternative therapies that may be effective in modifying cognitions and schemas. For example, schema therapy, which combines cognitive-behavioural techniques with elements of other therapies to alter early maladaptive schemas in individuals with chronic psychological disorders (Young, Klosko, & Weishaar, 2003).

Other than research in the homeless population, the current findings highlight areas for future research in other populations, in particular those with high trauma rates. The suggestion that posttraumatic cognitions and early maladaptive schemas play an important role in PTSD could be investigated in samples of veterans, emergency medical technicians, police, or fire fighters. In these samples, cross-sectional studies could be useful to test if schemas about the world and self are central in posttraumatic stress reactions and longitudinal studies could be useful to test if early maladaptive schemas and posttraumatic cognitions are causal factors in PTSD.

4.6. Conclusions

This research project was the first to study PTSD among homeless adults in Australia and has resulted in a number of significant findings. Based on the results of Study One, it can be concluded that homeless adults in Sydney report exceptionally high rates of trauma, the prevalence of PTSD in this group is considerably high in comparison to the Australian general population, and PTSD onset typically precedes homelessness. Based on the results of Study Two, it can be concluded that among
homeless adults, posttraumatic cognitions and early maladaptive schemas appear to play an important role in PTSD as those with a current diagnosis of PTSD score higher than those without on measures of posttraumatic cognitions and early maladaptive schemas, in particular, schemas that centre on the world being entirely dangerous and the self being totally inept. It can also be concluded that when trauma and mental health care are controlled, the relationship between early maladaptive schemas and PTSD symptom severity is mediated by posttraumatic cognitions, suggesting an association between these schemas and cognitions and PTSD symptom severity.

These findings have implications for public policy on homelessness and mental health, homeless services, theories on the development and maintenance of PTSD, and PTSD treatment approaches for homeless adults. Furthermore, they highlight a number of areas for future research, both in the homeless population and in other populations, particularly those with high trauma rates. Although the research was somewhat limited in having a small sample size based on a convenience sample of locations, it had a number of methodological strengths, including that the participants were randomly sampled from various types of homeless services and extensive in-depth interviews were conducted. Overall, this project has improved understanding of PTSD and related cognitions among homeless adults in Sydney.
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