

**Places Change Minds: Using Psychological Methods to Understand the
Urbanicity Effect**

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By

Rosie Mansfield

200781768

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Abstract

This thesis used diverse scientific methods to better understand the psychology that underpins the urbanicity effect, the increased prevalence of mental distress in cities. Methods explored the extent to which psychological processes known to underpin mental distress can be influenced by the interaction between physical, social and economic characteristics of urban environments and their perceived quality. Furthermore, methods aimed to capture urbanicity effects across the mental health continuum and across different life stages. Study 1 compared psychological responses of undergraduate students ($N = 317$) after being exposed to either urban ($N = 162$) or rural ($N = 155$) residential neighbourhood images. Alternatively, study 2 compared psychological responses of undergraduate students ($N = 298$) after being exposed to residential neighbourhood images selected to be the most ($N = 141$) and least ($N = 157$) desirable in a pilot study. Studies in chapter 2 found that brief contemplation of residential neighbourhood images led to participants feeling significantly less in control of their lives, anticipating more threat and considering the future less. There was no significant difference between contemplation of urban and rural residential images on changes to psychological processes, however, the least desirable neighbourhood images showed augmented effects with participants anticipating significantly more threat after controlling for gender and baseline mental distress. The study presented in chapter 3 used experience sampling

walking methodology to explore student participants' ($N = 47$) responses to two distinct neighbourhoods and a park in Liverpool. Participants reported significantly higher levels of negative affect and anticipated threat, significantly lower levels of trust, and perceived residents as significantly less in control and less community spirited in the deprived neighbourhood. Participants were significantly more generous when making cooperative decisions, and self-reported significantly higher socio-economic status after exposure to the contrasting areas. Despite general trust and negative affect biases for participants high on measures of depression, anxiety and paranoia, there was no significant interaction between mental distress at baseline and the variability of responses across the walk. Research in chapter 4 was informed by participatory urban design processes and used qualitative methodology to provide new accounts of urban living across different life stages. The study aimed to reveal adverse physical and social characteristics of urban living, and identify assets to inform positive future thinking about urban place making. Focussed discussions with a group of mental health service users ($N = 4$) revealed themes around attachment to place, stigma, passivity and a loss of togetherness and trust in the respondent's urban neighbourhoods, and a desire for natural surveillance and nurture in future neighbourhood designs. The methodology was evaluated using responses and was used to develop improved future participatory methods.

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CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Mental Health and Wellbeing as a Public Health Concern

1.1.1 What is Wellbeing?

Wellbeing is something people intuitively feel they can define and simple definitions suggest that it is to be in a state of 'feeling good and functioning well' (Aked, Marks, Cordon & Thompson, 2008). However, more nuanced approaches to defining wellbeing have emerged and the term has been transformed from a philosophical to a scientific term with two principle approaches to defining wellbeing (Michaelson et al., 2009). The subjective, hedonic approach focuses on the presence and absence of positive and negative affect respectively and life satisfaction. Alternatively, the psychological or eudaimonic approach prioritises self-actualisation, relationships and meaning in life. However, despite being seen as independent approaches, being satisfied with life and functioning in life are related (Keyes & Annas, 2009), and this has led to researchers agreeing that wellbeing is multidimensional, dynamic and extremely difficult to measure (Dodge, Daly, Huyton & Sanders, 2012) and so also somewhat contested as a concept. Early attempts to define wellbeing were aimed at encouraging governments to move away from psychiatric diagnoses and towards an understanding of the psychological responses to daily adversities (Stratham & Chase, 2010).

Many researchers began to describe dimensions of wellbeing as opposed to attempting to define it, for example, Ryff (1989) developed 6 core dimensions of wellbeing: autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life and self-acceptance. Interestingly, these eudaimonic dimensions date back to the early ethical theories of Aristotle, in which happiness was described as the ability to recognise your true self and realise your potential (Crisp, 2000). The notion that wellbeing is an ability suggests that an individual must possess resources and skills to achieve that state of mind. In recent years, the focus has been on encouraging people to make changes at an individual level to develop their mental resilience by connecting with and actively contributing to their community, and maintaining positive and supportive relationships with others (Aked et al., 2008). However, it is undoubtedly true that individuals can more easily develop mental resilience when the communities and places that they live in are resilient too. Resilient places are those that have conditions that are adaptive and able to deal with adversities, providing places in which residents thrive relative to economic resources. Thus, resilient places produce resilient communities characterised by high levels of social capital, trust norms, reciprocity and participation (Freidli, 2009).

1.1.2 Mental Wellbeing and Mental Illness

It is important to differentiate between mental wellbeing and mental illness. These two constructs are correlated but independent dimensions of a whole mental health state (Keyes, 2005). Despite the assumption that mental health is merely the absence of mental illness, individuals who experience

low wellbeing are commonly described as 'languishing', even in the absence of a psychiatric diagnosis or overt 'psychiatric' symptoms. Brown and Barlow (2005) proposed the addition of dimensional severity ratings to diagnostic categories in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V); however, diagnosing sub-threshold mental health difficulties does not encourage a positive focus on mental health. If, at a service level, the aim is to promote wellbeing as opposed to treat illness, mental health professionals should be receiving training that has a positive focus on recovery (Slade, 2010). At a policy level, the UK government, via national public health programmes and initiatives is increasingly aiming to encourage 'a flourishing society, where citizens are happy, healthy, capable and engaged' (Shah & Marks, 2004, p.2), aims that are consistent with the capabilities approach developed by economist and philosopher Amartya Sen in the 1980's. Sen understood disadvantage not simply as a lack of material possessions but rather a restriction of an individual's capability to flourish.

1.1.3 Psychiatric Symptoms in Non-clinical Populations

A state of low wellbeing should not necessarily be assumed of someone with a psychiatric diagnosis. Indeed, there is some overlap between subjective 'recovery', however defined, and a state of improved psychological wellbeing, however, the experience of psychiatric symptoms in non-clinical populations illustrates the complex but dissociable nature of wellbeing and mental health. For example, it has been found that 5-8% of the general population experience psychotic-like symptoms such as paranoid ideation and auditory hallucinations, considerably more than the approximately 1%

who receive any formal diagnosis (Verdoux & Van Os, 2002; Van Os, Linscott, Myin-Germeys, Delespaul & Krabbendam, 2009). Indeed, hearing voices, a traditionally accepted symptom of psychosis, has been found to be experienced by some people, both 'clinical' and 'non -clinical', as a supportive and positive experience with many voice hearers who do not use services reporting that their experiences are free from distress and that they maintain an adequate level of wellbeing (Lawrence, Jones & Cooper, 2010). Others report that the only concerns they have are related to stigma (Beavan, 2011). Thus, in relation to recovery and maintenance of wellbeing, a salutogenic as opposed to a pathogenic focus and a focus on capacity not incapacity is fundamental. It is from this positively oriented standpoint that we can best begin to comprehend and address the social and environmental adversities that contribute to languishing and distress.

1.1.4 Life stages and Policy Levels

In recent years, public health policy has increasingly focussed on the promotion of personal wellbeing with a more sophisticated understanding of the differences between flourishing and languishing, and between mental health and mental ill-health. It is generally believed that prioritising policies aimed at the prevention of mental health difficulties through relevant wider social determinants provides a means to positively impact on the mental wellbeing of the whole population. Risk and protection factors are recognised from pre-natal to later life stages and from individual, family, community and population levels. Given that the determinants of mental ill-health are complex and broad, stretching from individual characteristics to economic,

societal and cultural factors, to achieve better population mental health and wellbeing, policies need to work across sectors, be far-sighted and as universal as possible in their reach. Such policies need to address social and economic problems, 'toxic' physical environments and social inequalities in an attempt to level off the social health and wellbeing gradient.

1.1.5 Mental Health and Wellbeing: Parity of Esteem

Approximately 23% of the overall UK disease burden is accounted for by mental ill-health. Despite this, there remains a disparity between mental and physical healthcare funding. The Department of Health's (2011) strategy paper 'No Health without Mental Health' aims to address this inequity and, along with the valuable work of third sector mental health organisations, this important issue is beginning to be addressed. The particular areas of focus include:

- Fair funding mechanisms
- A good start in life
- Improving physical health care for those with mental health difficulties
- Raising awareness through funding campaigns like 'Time to Change'
- Improving employment support for those with mental health difficulties
- Developing more inclusive services and improving access to high quality services including more psychological therapies.

Some of these priorities coincide with the issues raised in mental health and wellbeing surveys in recent years across the country. However, some concerns, highlighted following population-level surveys, extend beyond such

broad priorities, to underline the important role of community and neighbourhood factors. For example, in the North West Mental Wellbeing surveys of 2009 and 2012 the factors that emerged as important in relation to low mental wellbeing were:

- Feelings of isolation
- A sense of being unable to ask others for help in times of need
- An increased worry about money
- A decreased sense of belonging to community
- Reduced participation in organisations
- Feeling unsafe outside your home.

Findings such as these strongly suggest that making a change 'at scale' to mental health and wellbeing requires direct action to address national, structural and community level inequality, poverty and lack of social capital and to improve the physical environment of the urban neighbourhoods where 82% of people in the UK live (The World Bank). Inadequate 'social support' and poorly managed fabric that characterise many of the UK's urban areas are known to be toxic for community living. Recent Scottish and Welsh policy documents (Scottish Government, 2003; Welsh Government, 2015) both emphasise cross-sector working by stressing the importance of sensitive planning and promoting regeneration initiatives that have a psycho-social focus, aiming to improve community living experiences.

1.1.6 Dimensional Models, Psychological Mechanisms and Comorbidity

Researchers and practitioners who prefer continuum models of mental health and distress, and symptom-based approaches, would argue that explanatory inconsistencies that exist across disciplines and across diagnoses would disappear if symptoms were understood in real context and viewed as existing on dynamic continua. For example, paranoia and depression are closely related and are both objectively shown and subjectively experienced as part of a continuum with normal functioning (Freeman et al., 2005).

Several related context-dependent, psychological processes are thought to underpin these continua; these include the anticipation and avoidance of social threat (Moutoussis, Williams, Dayan & Bentall, 2007). A biased anticipation of threat has been linked to depression, anxiety and paranoia, characterised by an overestimation of the likelihood of future threatening events (MacLeod, Mathews & Tata, 1986; Kaney, Bowen-Jones, Dewey & Bentall, 1997; Corcoran et al., 2006). Depressed individuals have been shown to display biased implicit attention and to attend longer to negative emotional stimuli in their environment (Kellough, Beevers, Ellis & Wells, 2008; Auerbach, Webb, Gardiner & Pechtel, 2013).

Another transdiagnostic psychological mechanism is locus of control, the extent to which individuals feel in control of their lives and outcomes (Rotter, 1966). This appears to be another key process where an external locus of control (i.e. when control is experienced as coming from an external source) is associated with clinical and non-clinical depression, anxiety and paranoia, with more pronounced effects in more individualistic societies and ethnic

minorities (Johnson & Sarason, 1978; Harrow, Hansford & Astrachan-Fletcher, 2009; Cheng, Cheung, Chio & Chan, 2013; Van Dijk, Dijkshoorn, Van Dijk, Cremer & Agyemang, 2013). Furthermore, mental distress and low wellbeing are both, to an extent, characterised by a lack of positive future orientation, which, in turn, is related to lower ratings of happiness (Drake, Duncan, Sutherland, Abernethy & Henry, 2008).

Clinical levels of paranoia and/or depression emerge from pre-existing feelings of vulnerability (Freeman, Garety, Kuipers, Fowler & Bebbington, 2002) and from low self-esteem (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001), and in the case of paranoia, poor theory of mind skills (i.e. some difficulty interpreting the thoughts, beliefs and intentions of other people) are also a vulnerability factor (e.g. Corcoran, Mercer & Frith, 1995). Experiences of victimisation and discrimination are also important transdiagnostic contributors to clinical levels of distress (Janssen et al., 2003; Schreier et al., 2009), and these may be more likely in urban areas. The relationship between and across these 'state of mind' variables is therefore complex and somewhat cyclical. Similarly, the relationship between urban areas and symptoms of mental health is best understood as a cycle in that individuals initially construct meaning from their environment, providing the internal and external context in which experiences and symptoms can develop. Once these nascent thoughts and feelings are set up, the nature of the external environment continues to 'feed' them by providing, for example, confirmation of threatening experiences. Koskela and Pain (2000), who investigated women's fears in the city put it simply thus:

'Fear influences our experiences of places as much as places influence our experiences of fear' (Koskela & Pain, 2000, p.269)

1.2 The Symptoms of Mental Health Exist in Context

1.2.1 The Adversities of Urban Living

'The city is not merely a repository of pleasures. It is the stage on which we fight our battles, where we act out the drama of our own lives. It can enhance or corrode our ability to cope with everyday challenges. It can steal our autonomy or give us freedom to thrive. It can offer a navigable environment, or it can create a series of impossible gauntlets that wear us down daily. The messages encoded in architecture and systems can foster a sense of mastery or helplessness. The good city should be measured not by its distractions and amenities, but also by how it affects this everyday drama of survival, work and meaning.' (Montgomery, 2013, p.36)

The 'urban penalty effect', refers to the robust set of statistics that demonstrate poorer health in urban areas. This effect is thought to be a product of a high concentration of poor people in adverse physical and social environments (Freudenberg, Galea & Vlahov, 2005). Furthermore, urban sprawl, the fast, cheap development of periphery areas of the city, has also been found to reduce social interaction potential (Farber & Li, 2013), and have negative impacts on health and the environment (Frumkin, Frank & Jackson, 2004). In 1939 researchers in the USA first noted the link between urbanicity and specific psychiatric diagnoses, with a per capita linear decrease in rates of schizophrenia and substance abuse from densely populated, disorganised, inner city regions of Chicago to the affluent,

residential areas on the outskirts (Faris & Dunham, 1939). This pattern was later replicated in the UK, revealing higher rates of schizophrenia diagnoses in more central wards of Bristol with segregation and social isolation thought to be important factors (Hare, 1956). Urban environments, defined in terms of their population size and density, have also been found to increase risk of depression and anxiety (Peen, Schoevers, Beekman & Dekker, 2010). A recent meta-analysis found a 2.37 times greater risk of schizophrenia in urban environments compared to rural (Vassos, Pedersen, Murray, Collier & Lewis, 2012). This phenomenon, where urban environments increase risk of mental health difficulties, has been dubbed 'the urbanicity effect'. While the urbanicity effect appears clear and robust, it is worth noting that because these studies have tended to draw conclusions on the basis of hospital admission data and diagnostic interviews, some caution is needed because of likely variations in accuracy of diagnoses and levels of local psychiatric services (Giggs, 1986).

Some researchers have explained the urbanicity effect on mental health as a downward social drift of schizophrenia patients prior to the onset of psychosis (Murali & Oyebode, 2004). However, the dose-response relationship found between time spent in an urban area in childhood and risk of developing schizophrenia that accounts for 15% of relevant cases (Pederson & Mortensen, 2001) suggests that social drift cannot be the sole mechanism at work. Interestingly, there are different findings for different diagnoses beyond schizophrenia and depression. For example, urbanicity findings in relation to bipolar disorder are far from clear-cut, with some studies suggesting that the incidence and prevalence of bipolar disorder is

not related to urban living (Sherazi, McKeon, McDonough, Daly & Kennedy, 2006).

In the 1980's, whilst evidence for the 'urbanicity effect' in relation to schizophrenia was strengthening, a body of biological evidence emerged that attempted to explain the phenomenon as an urban-transmitted virus (Torrey, Rawlings & Waldman, 1988). The findings were later supported by correlations between maternal exposure to influenza and risk of schizophrenia (Takei, Van Os & Murray, 1995), and by associations between season of birth and risk (Mortensen et al., 1999). However, no evidence of this so-called 'schizovirus' has been found. More importantly perhaps, a schizovirus theory cannot account for the association between urban living and depression and anxiety. In stark contrast to this biomedical explanation, from as early as the 1930's sociologists were identifying the wider social determinants of mental health difficulties, stressing their prevalence in cities. This sociological research highlighted inequality and poor quality physical environments as risk factors. Sociologists viewed cities not just as a 'mosaic of social worlds' but as a 'landscape of uneven development with enormous discrepancies in the socioeconomic and health conditions of its population'. Cities were seen as both places of chance and of risk and, they were seen to shape an individual's identity and experiences (p.34; Fitzpatrick & LaGory, 2003). Thus, it is now acknowledged that some of the 'urbanicity effect' resides in the perceived quality of the environment (Wang, 2004; Trivedi, Sareen & Dhyani, 2008; Turan & Besirli, 2008; Ellaway et al., 2009), such that those living in relatively poor quality or less well-resourced urban areas are exposed to increased risk of depression, anxiety and paranoia (Weich et

al., 2002; Galea, Ahern, Rudenstine, Wallace & Vlahov, 2005, McKenzie, Murray & Booth, 2013). In the UK, 98% of the most deprived areas, with the highest indices of multiple deprivation, are found in cities and tend to be the areas where urban regeneration initiatives are focussed (Department of Communities and Local Government, 2011). In support of this notion, physical characteristics such as housing type and quality impact on psychological wellbeing and influence perceived control, social support, risk of victimisation of crime and sense of belonging (Evans, 2003; Stafford, Chandola & Marmot, 2007; Romans, Cohen & Forte, 2011).

Some of this research indicates that people seem to experience their environments as physical embodiments of the society level experience. For example, architects have found that tall isolated buildings act as indicators of disconnected societies (Alexander, Ishikawa & Silverstein, 1977). Computer scientist Daniel Quercia and his team managed to use these metaphors and preferences to develop mapping tools to create happy routes as opposed to fastest routes around a city (Quercia, Schifanella & Aiello, 2014). An example of a small urban physical feature that sends a strong message to members of the public is the use of anti-homeless spikes. Anti-homeless spikes are a form of defensive architecture that attempt to force inequality out of sight. Some have referred to defensive architecture as 'the creeping privatization of public space' (Howell, 2001, p. 3). These features not only design homeless people out, but they also create a hostile environment for everyone that maintains power struggles and provides myriad visual cues to the inequality of society, as well as the sadness of others and potential threat to the self. Research such as that cited above suggests that we should be

looking at specific physical features within urban environments that cause changes in beliefs about the self and others, and perhaps moving away from epidemiological approaches that focus on density as the cause for increased mental health difficulties.

1.2.2 A Critical Evaluation of Methodology Used to Explore the Urbanicity Effect

The majority of studies exploring the 'urbanicity effect' have used population size and density as their predicting variables. However, literature that suggests that the urbanicity effect resides in people's perceptions of place indicates that the urbanicity effect may be better explained by focusing on the perception of over-crowdedness as opposed to a measurement of density. Furthermore, density is not something that can be easily reduced and so finding ways to make the densest places work for the mental health and wellbeing of residents seems like the more worthwhile goal. Urban design ideas are emerging that point out that the density of a place does not necessarily have to translate into lower levels of wellbeing, and that places can be designed to reduce feelings of crowdedness (Halpern, 2014).

Research has found that small manipulations in environments can change perceptions of crowdedness, for example, Rodin, Solomon and Metcalfe (1978) found that manipulating an individual's position in a crowded lift so that they were in front of the floor controls significantly reduced the individual's perception of crowding. This suggests that by designing perceived control into our cities there could be a reduction in perceived homogeneity and anonymity regardless of density and crowdedness.

Milgram (1974) described the social distancing that can happen in urban areas as a result of overload, in which urban dwellers distance themselves from others to conserve energy. It therefore seems that places must be designed to give people control over their social interactions, and the challenge now is to design dense environments in which people have the space to retreat (Day, 2000). The diversity as well as the density of a place is important, in which dense neighbourhoods that are mixed use seem to give rise to more trusting residents (Leyden, 2003). Mixed use developments are emerging in Vancouver, in which permission has been given to divide properties into apartments and to build laneway houses. This slowly increases the density of neighbourhoods without necessarily adding to the sense of over-crowdedness. It also encourages a more diverse population, which may, in turn, help to reduce neighbourhood inequality.

1.2.3 Social Adversity: Relative Poverty

Absolute poverty is an international standard that stays constant, changing only with the rate of inflation. It is usually expressed as an income measure that currently stands at around \$1 a day. By contrast, relative poverty is multi-faceted, taking into account societal context and recognising the strong relationship between low income and social exclusion. In 1979, Peter Townsend defined poverty as:

'Individuals, families and groups in the population can be said to be in poverty when they lack resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary,

or at least widely encouraged and approved, in the societies in which they belong.' (p.31; Townsend, 1979).

In reality, relative poverty is predominantly calculated in terms of household income, which is adjusted by family size. The household income is compared to the median for that country, and households with incomes falling more than 60% below the median are judged to be in poverty.

Although relative poverty must be, by definition changeable, critics dislike the current calculation because of this. For example, a rise in unemployment will see a fall in median income within a country. As median income declines, fewer household incomes fall below 60%. This gives the impression of reduced poverty that can only really result if the costs of essential goods and services fall. The insensitivity of these measures is emphasised in the recent Joseph Rowntree Foundation report about increasing poverty in the UK within households where at least one family member is working (Belfield, Cribb, Hood & Joyce, 2015).

1.2.4 Social Adversity: Focus on Child Poverty

Given the acknowledged importance of 'good quality' early years for mental health and wellbeing along with the dose-response relationship between time spent in urban areas during childhood and severe mental health difficulties in later life, the mission to abolish child poverty is sensible and laudable. However, the complex relationship between socio-economic inequalities, environmental adversities and psychological processes, has been overlooked in our understanding of this phenomenon. With some apparent sense of the importance of these complex matters, the current UK

government has aimed to reframe child poverty in terms of family life style choices (e.g. family breakdowns, unemployment and drug and alcohol dependency) instead of by a lack of resources (Wickham, Anwar, Barr, Law & Taylor-Robinson, 2016). However, more informed psychological and sociological perspectives suggest that low socio-economic status can cause a reduced sense of control and increased stress, leading to reduced wellbeing and lack of behaviour-change. Some have suggested that this attempt to reframe poverty transfers blame onto families, using a more judgmental approach and distorts the current poverty line. This new approach is based on the belief that there is no absolute poverty in the UK.

1.2.5 Social Adversity: Beyond Relative Poverty

Some definitions of relative poverty acknowledge the multiple disadvantages beyond low income, and recognize that individuals are marginalised and denied fundamental rights. Research has found that individuals experiencing the most social disadvantage have 2-2.5 times higher rates of mental health difficulties (Murali & Oyebode, 2004), and it is therefore essential to address toxic structural and environmental factors (Marmot et al., 2010). Despite being calculated differently, relative poverty and inequality are often confused in the UK. Typically measured in terms of the difference between the 20% richest and the 20% poorest in a country, inequality does not capture the proportion of people living with means below the national average, and so poverty should also be recognised and prioritised. Inequality is an increasing problem in the UK, with the gap between the rich and the poor widening rapidly (Howell, 2013).

The English Indices of Multiple Deprivation (IMD) include measures of income, employment, health, education, housing and services, environment and crime. IMD has been found to be associated with psychosis and depression. At a symptom level, IMD has been found to predict paranoia and depression, but importantly, it appears to be mediated by stress, trust and a lack of social support (Wickham, Taylor, Shevlin & Bentall, 2014). On a societal level relative inequality, in rich, individualistic countries like the UK, increases the risk of poor physical and mental health outcomes (Wilkinson & Pickett, 2009). This finding has been replicated at a neighbourhood level with higher neighbourhood relative inequality being associated with increased rates of schizophrenia (Kirkbride, Jones, Ulrich & Coid, 2012). Individuals with low socio-economic status have been found to be at more risk of threat, to have a reduced sense of control and to have reduced access to resources (Piff, Kraus, Cote, Cheng & Keltner, 2010). Economic inequality has also been found to reduce contributions to the public good (Anderson, Mellor & Milyo, 2008). Inequalities effecting particular socio-economic groups are related to reduced social cohesion and trust and, unsurprisingly, predict increased status differentials and class conflicts (Layte, 2011; Justino, 2015). Income inequality has been found to increase status anxiety characterised by feelings of inferiority. In turn, these negative emotions appear to promote distrust and low wellbeing (Wilkinson & Pickett, 2009).

1.2.6 Social Capital

Despite research finding an association between higher social capital and improved mental health and wellbeing, definitions of social capital lack

consistency and the patterns of relationships found between multi-faceted, real-life variables are never straight forward. For example, it has been found that some 'harsh surroundings' can increase co-operative behaviour between people possibly via an increased sense of identification with others (or sense of belonging) of the same recognised 'in-group' (Smith, Jackson & Sparks, 2003; Piff et al., 2010). In order to adequately identify social protective factors, it is important that social capital is explored as both a perceived cognitive and an infrastructural concept that recognises intra- and inter-group relations and identifies trust, collective efficacy, volunteering and social mixing in context (McKenzie, Whitley & Weich, 2002). (See 1.3.2 Social Capital and Mental Health).

1.2.7 Evolutionary Theory: Adaptation, Place and Mental Health

"Psychosis is the price we pay for being what we are. And how unfair, how bitterly unfair it is that the price is not shared around but paid by one man in a hundred for the other ninety-nine" (Faulks, 2006, p.658 as cited in Hutcheson, Fleming & Martin, 2014).

According to evolutionary psychology, psychological traits are evolved adaptations with fitness enhancing functions. The large variation in the heritability of psychological traits makes their adaptive significance questionable (Tooby & Cosmides, 1990), and so alternative adaptive strategies for maximising fitness have been suggested. Taking the Darwinian stance, evolutionary theorists argue that an increase in any trait will inevitably come at an evolutionary cost, known as a 'trade off'. For some psychological traits, such as those associated with mental distress, it is

difficult to see how any benefits can outweigh costs. However, neuroticism, a trait associated with emotional instability and anxiety, can be seen to have survival benefits in contexts of perceived low safety because of the associated increased threat vigilance (Mathews, Mackintosh & Fulcher, 1997; Nesse, 2005). Similarly, there is also a positive correlation between schizotypal traits and increased creativity enabling new ideas to emerge to cope with novel or changing environments (Nettle, 2006). The causation of certain fitness traits and behaviours can be understood in either proximate or ultimate terms. Ultimate explanations of behaviour are given in terms of the fitness benefit and reasons for a trait being selected or not selected. Alternatively, a proximate explanation focuses on the mechanisms through which the behaviour can take place. In other words, the proximate explanation provides the context.

The acceptance of the evolutionary psychological perspective has led to a growing interest in explaining specific symptoms as trade-offs, or as frequency dependent and selective responses to experiences and environments. The idea is that the psychological mechanisms that underpin mental health and wellbeing have developed to help us cope with the social and environmental challenges of being human. Almost half of the population will, at some stage in life, experience at least one episode of depression (Andrews, Poulton & Skoog, 2005; Moffitt et al., 2010). This debilitating experience can be understood as a regulatory reaction to suffering and discouragement, one that can be seen as both a plea for help and also a disengagement from, and reflection on goals and incentives (Nesse, 2000). As previously mentioned, depression, anxiety and paranoia are thought to

share common reasoning biases and are all characterised by attention to risk, loss and avoidance of threat (Stein & Nesse, 2011).

Theory of mind, the ability to infer another individual's emotional and mental state, has been found to be negatively associated with several psychological conditions (Brüne & Brüne-Cohrs, 2006). Evolutionary psychologists understand theory of mind and the related construct of empathy as evolved mechanisms to support the social living demands of primates. Thus, these are adaptive skills that develop in context. For example, the relative difficulties in flexibly understanding other people's mental and emotional states that appear to feature in individuals who experience paranoia (Corcoran et al., 2006), directly links to the phenomenology of paranoid feelings that centre on lack of trust and feelings of threat. These experiences, as reviewed above, are themselves more prevalent in those under relative disadvantage and who live in deprived urban areas. Thus, the dynamic relationships that exist between thinking, feeling, behaviour and place are central to a proper understanding of human adaptation, flourishing, languishing and mental distress.

Recent research has explored the effects of harsh, low socio-economic urban neighbourhoods on feelings of trust and threat that relate to paranoia and persecutory delusions. In one research study patients with persecutory delusions were exposed to harsh urban environments whilst a control group of patients was exposed to a brief mindfulness task (Ellett, Freeman & Garety, 2008). It was shown that exposure to the harsh urban environment increased anxiety, worsened persecutory delusions and increased paranoia.

Being in the harsh urban environment also increased negative feelings about others and jumping to negative conclusions. More recently, two contrasting neighbourhoods in Newcastle were compared. One could be described as a harsh, resource-depleted neighbourhood where the crime rate was relatively high, while the other was more affluent with a low crime rate (Nettle, Pepper, Jobling & Schroeder, 2014). Resident's levels of social trust and paranoia were compared with results that showed much lower levels of trust and higher levels of paranoia amongst the residents of the harsher urban neighbourhood. In the second phase of this study researchers took student volunteers to the two neighbourhoods and asked them to deliver questionnaires to houses. The students were asked to rate their levels of social trust and paranoia. Those visiting the more affluent area were more trusting and less paranoid. Interestingly, the magnitude of difference between the deprived and affluent neighbourhoods was only marginally less for the student visitors who spent only 45 minutes in the two locations, than it was for the residents. This study confirms that even a relatively brief exposure to a 'harsh' environment can bring about measurable change on dimensional measures of mental health. In the context of findings such as these, researchers have become increasingly interested in environmental protective factors for mental health and wellbeing, trying to identify how the design of urban spaces can facilitate positive social interactions to promote mental health and wellbeing.

1.3 Protective Factors for Mental Health and Wellbeing

1.3.1 Critical Debate about Green Space and Wellbeing

'Green space' is used to define a space situated within an urban area that is predominantly made up of grass, vegetation and trees, and is considered to have both aesthetic and recreational value. With rapid urbanisation has come an increased concern about the loss of 'green spaces', and with the UK moving closer towards the American model of a city, with a dense inner-city, greener suburb and an increase in the privatisation of public spaces (Carmona, 2010), there are growing inequalities in terms of the quality and availability of urban green space. The idea that humans have an instinctual need to affiliate with nature is known as 'biophilia', and evidence has even suggested that simply adding plants to workplaces can reduce stress and have psychological benefits (Bringslimark, Hartig & Patil, 2009). Similar findings have been found for healthcare settings however there are serious methodological inconsistencies and some have suggested that the effects are mediated by increased physical attractiveness of the room (Dijkstra, Pieterse & Pruyn, 2008). Nevertheless, taken at face value, increasing the amount of parks in cities has been linked to improved wellbeing and mental health outcomes (White, Alcock, Wheeler & Depledge, 2013) and it has been argued that green spaces act to somehow buffer against stressful life events (Van den Berg, Maas, Verheij & Groenewegan, 2010). Within this field there is growing evidence that it is not the quantity but rather the quality, accessibility and perceived safety of green space that predicts both its utilisation and so its benefits for physical and mental health (Lee &

Maheswaran, 2011). Recent research has suggested that perceptions about green space relate to the level of biodiversity such that more diverse urban green spaces are valued more for their positive benefits than those less diverse (Gunnarsson, Knez, Hedblom & Ode Sang, 2016). This extends beyond the biophilia hypothesis, instead suggesting that the quality and management of green spaces is most important because it can change the social dynamic, physical activity and perceptions of residents and visitors to the place (Maas, Van Dillen, Verheij & Groenewegan, 2009). It has been found that wellbeing benefits are strongly linked to the social engagement that happens within public spaces, and that perceptions of the social context of a space are important for health outcomes (Cattell, Dines, Gesler & Curtis, 2008).

Consistent with this interpretation, research has shown that simply increasing green space in more deprived-inner city areas does not provide the straightforward answer that the biophilia hypothesis would predict (Wolch, Byrne & Newell, 2014). In fact it can lead to negative, long-term outcomes for the residents it aimed to help because 'desirable' green space improves the aesthetic appearance of an area which, in turn, leads to increased demand for housing and 'gentrification', increasing property value and, in time, pushing out the existing residents. Furthermore, 'behaviour change' focussed public health interventions centred on the use of green-space such as 'green gyms' have been found to be beneficial to those who use them. However, it could be that they fail to successfully change the behaviour of those for whom they were intended, therefore more promotion and information about how to use the equipment needs to be made available to communities

(Bates, McCoy, Murphy, Kornyk & Suckley, 2013). Research like this demonstrates that the health and wellbeing benefits of green space are strongly mediated by social positioning (Dinnie, Brown & Morris, 2013). It has been found that white communities have 11 times more green space than ethnic minorities and this is undeniably accounted for by socio-economic and structural factors. One possible way forward that may address the inherent inequality issues of the use of quality green space is to re-consider how these spaces are managed. Increased scope for communities to utilise space in their neighbourhoods and to work alongside local authorities to improve the public realm could improve resident's resilience, agency and mastery and their sense of belonging and control over their neighbourhoods (Colding & Barthel, 2013).

1.3.2 Social Capital and Mental Health

Despite the increased use of 'social capital' as a potentially protective variable in research, definitions of social capital continue to alternate between individualistic, social network and collective, social cohesion approaches. Hanifan (1916) defined social capital as a collection of assets belonging to a social unit that promote cooperation and social intercourse (OECD). Alternatively, classical intellects such as Durkheim identified community connections as protective of self-ruination but like Marx, saw different forms of capital as maintainers of power struggles (Daniel, 2009). Similarly, early work by Bourdieu (1986) as cited in Bourdieu (2011) took an individual approach, describing social capital not as an antidote but as the reality of social inequality. However, Coleman (1988) conceptualised social

capital using a more active approach, viewing it as a function in which social structures and networks facilitate individuals' actions (Coleman, 1990, as cited in Portes, 1998). Coleman's model of social capital introduced three dimensions: obligations and expectations as a result of a trustworthy social environment; the flow of information through the social structure; and social norms and effective sanctions. This model reignited the view that social capital was a potential solution for those marginalised. Portes (2000) differentiated between the sources or motivations to create social capital and the effects of the resources made available. While he identified solidarity norms and reciprocity norms as motivations, he acknowledged that shared norms and strong social ties can sometimes be restrictive and exclusive. In so doing he drew out the point that social capital can also work to the dis-benefit of some groups.

These distinctions between the types of motivations and social ties are often ignored in health research, which focuses on the benefits of social capital without a clear definition of what it is and at what levels it functions. The ongoing lack of consensus also exists due to the focus on social capital across disciplines such as sociology and economics, in which economists view close social ties as detrimental to cartelisation (Putnam, 1995).

However, the wide dissemination of Robert Putnam's (2000) bestseller 'Bowling Alone: the Collapse and Revival of American Community' saw a transformation of social capital into a more universally understood concept and a major cause for concern in what he described as an increasingly individualistic America. He defined social capital as 'features of social organization such as networks, norms, and social trust that facilitate

coordination and cooperation for mutual benefit' (Putnam, 1995, p. 2), a definition used by The Office for National Statistics in their 2001 review on social capital (ONS, 2001). However, the focus shifted towards the dimensions and different types of social capital in an attempt to more clearly understand what it is as opposed to what it does, and criticisms were made of overly simplistic models that ignored the intersectionality of culture, ethnicity and gender (Davies, 2001; Woolcock, 2001).

Dimensions of social capital that are now widely accepted are citizenship, 'neighbourliness', social networks and civic participation, leading to a consensus that social capital is the combined role of these dimensions (Healy, 2001), the 'glue' or 'bonds' that hold individuals and groups together and promote cooperation (OECD). Social capital has been defined as both a private and a public good (Putnam, 2001), however, some argue that in order for social capital to be non-exclusive and protective of those marginalised, networks must be dense (Paldam, 2000), and exist across a number of different levels (Woolcock, 2001). Networks can be informal between individuals, or formal between individuals, institutions and public assets. For example, bonding networks are based on a 'common identity' creating strong ties and relationships between individuals with shared norms. Alternatively, bridging networks exist between people and organisations; they provide opportunities and integration across groups. Finally, linking networks break down the social hierarchy, allowing people to access support and creating a dialogue between those at the bottom and those at the top of the socio-economic ladder.

The stronger the dialogue between individuals and groups and across the social hierarchy, the more value is placed on others opinions helping to establish shared norms. Strong bonds and weak bridges have therefore been associated with negative outcomes such as ethnic segregation. The combination of strong bonds and weak bridges and links is also associated with a lack of economic progress; a UK government survey (OECD) found that more people find jobs through social connections than they do through advertisement. In the United States it was found that 4 in 10 job seekers found their best job through social connections (Jobvite, 2014), and these findings support the wider notion that informal ties are important for information flow between circles and across levels (Granovetter, 2005).

Social capital can exist at different levels or types of community. Groups can be geographical, for example a neighbourhood or they can be professional, social and virtual. Outsiders have the power to influence the ease at which a group can achieve social capital, and it is important to distinguish social capital from human capital, for example income and education. In the UK the 'underclass' is growing and greater inequality in human capital leaves those at the bottom more vulnerable to further exclusion caused by low levels of social capital. Social capital is thought to be threatened by the emergence of virtual capital, a concern brought to light by Putnam who suggested in his early work that advances in technology make our culture more individualistic, and that it is unlikely the same benefits can be reaped from online interactions (Putnam, 1995). The OECD more recently claimed that the places that we live are becoming more anonymous and that social capital may be moving towards shared values as opposed to shared spaces due to

the increased use of social networking sites. In this there is, of course, a question of cause and effect in that it is equally likely that the decline of social capital could be the reason that people are seeking interactions online. Some technology is specifically aimed at improving altruism such as the app 'hey neighbour' that helps you connect with people in your area and CLOO, an app that lets people rent their bathroom to strangers. Paldam (2000) differentiates between voluntary social capital and enforced social capital, and so raises the issue of the extent to which governments should be enforcing or providing an environment that encourages a natural rise in horizontal as well as vertical social networks and all dimensions of social capital.

All dimensions of social capital are highly correlated for example civic engagement and trust (Putnam, 1995). Fukuyama (1995) suggests that trust is what enables a country to be democratic and to prosper socially and economically. Trust is therefore both a cause and an effect of social capital (Cote & Healy, 2001) and is multi-dimensional and dynamic across bonds, bridges and links (Sixsmith, Boneham & Goldring, 2001). It is for these reasons that trust is a popular measure of social capital but also a difficult measure to interpret. Trust at an individual level can become problematic, where evolutionary psychologists describe those with high levels of trust as 'suckers' that may be the target of those who don't reciprocate implying that there is an optimal level of this tendency. Putnam suggests we should not be looking for individuals to change their levels of trust according to the environment; we should be changing the environment to provide spaces in which trust will be engendered. Such sophisticated thinking about the

dynamic relationship between an individual propensity and the habitat in which they live is fundamental if we are to properly understand and address effects such as urbanicity.

'The most important psychological effect of the city is the way in which it moderates our relationship with other people' (Montgomery, 2013, p.36)

It is therefore important to identify the ways in which urban design can enhance the likelihood of social capital. For example, Leyden (2003) found that the walkability of a neighbourhood predicted neighbourliness, trust and civic and social engagement, thus leading to higher levels of reported social capital. The walkable, mixed use neighbourhoods were reported to have much higher levels of social capital than the car dominated suburbs.

Therefore, designing places to encourage regular contact with others will, in turn, help to build trust. Helliwell and Wang (2011) found that when asked the likelihood that a member of public would return your dropped wallet, participants believed the public to be far less altruistic than the actual rates of wallet return. Helliwell stated that this was due to a lack of contact with altruistic others causing a depletion in trust due to a lack of bonding, bridging and linking opportunities. It has been found that cities that have high levels of trust when asked about the return of their wallet have overall higher levels of life satisfaction, particularly if the high levels of trust are related to neighbours as opposed to police (Helliwell, 2008). For example, a survey in Denmark indicated that their high level of trust in neighbours, strangers and the government is reflected in their overall happiness, emphasising the importance of trust across levels (Montgomery, 2013).

The ONS guide to social capital states that social capital is important because those that report higher levels of social capital are more likely to be 'housed, healthy, hired and happy' (Woolcock, 2001; ONS, p. 1). In 2000, social capital and social integration were found to account for approximately 10% of emotional health in Russia (Rose, 2000). Research in the United States found similar trends in which social cohesion was positively associated with psychological wellbeing in African-American women (Cutrona, Russell, Hessling, Brown & Murry, 2000). A large body of research supports the idea that increased social capital, including trust, sense of community, participation and cohesion, are associated with a reduction in psychiatric morbidity and mental health difficulties (Kawachi, Kennedy & Glass, 1999; McChulloch, 2001; Kim & Kawachi, 2007), and more specifically studies have found high social cohesion and trust to be associated with lower rates of psychoses (Kirkbride et al., 2008) and suicide (Desai, Dausey & Rosenheck, 2005).

However, as referred to earlier, it has also been recognised that unbalanced social capital can be detrimental for the mental health and wellbeing of some. For example, it has been found that bonding social capital was positively associated with mental distress in an urban, high-poverty community (Mitchell & LaGory, 2002). Furthermore, one study found that in poor neighbourhoods, the number of neighbours known by parents predicted, in a positive direction, the likelihood of children experiencing depression and anxiety (Caughy, O'Campo & Muntaner, 2003). The combined effects of social capital and relative deprivation are complex but typically thought to be additive for the most vulnerable. Lofors and Sundquist (2007) identified an

interaction between deprivation and social capital that saw psychosis increase as social capital decreased and deprivation increased. They also explored voting rates and linking social capital and found that low rates of linking social capital were associated with a greater risk of depression. However, when deprivation was controlled for, this relationship was no longer significant. Stafford, De Silva, Stansfeld and Marmot (2008) found that a higher attachment to a deprived neighbourhood saw higher rates of common mental health difficulties; furthermore, as shown by Jobvite (2014), lack of bridging social capital was linked to unemployment, a well-known predictor of common mental health difficulties.

These studies that pick apart the differences between bonding, bridging and linking social capital, and those that identify the interaction between social capital and socio-economic context highlight the inconsistencies and lack of precision in the literature that explores the relationship between social capital and mental health. Despite a seemingly unified body of literature that indicates social capital is a protective factor, numerous literature reviews have identified great difficulty in comparing cross-sectional studies due to the many different definitions and measures of both mental health and social capital (McKenzie, Whitley & Weich, 2002; De Silva, McKenzie, Harpham & Huttly, 2005; Whitley & McKenzie, 2005; McKenzie & Harpham, 2006; Almedom & Glandon, 2008; Ehsan & De Silva, 2015). They propose that future studies should differentiate between place-based and group-based social capital, explore the combined and separate effects of both structural and cognitive dimensions of social capital on mental health, and compare effects across different life stages (McKenzie & Harpham, 2006; Almedom &

Glandon, 2008). The way in which neighbourhoods were defined was also found to be inconsistent, where some were geographical and others ecological. Studies that were found to measure ecological social capital did so by aggregating responses from an independent sample, however, when using this method it is important to ensure that participants agree that the geographical unit being used is their own perception of their community (De Silva et al., 2005; Whitley et al., 2005).

When measuring social capital in terms of trust it is also important to differentiate between 'thick' and 'thin' trust, the trust in those who have shared norms and, more generally, the trust you have in others (Almedom & Glandon, 2008). McKenzie and Harpham (2006) noted the lack of focus on vertical social capital and Harris (2002) as cited in Karimi (2011) stated that by focusing on community level social capital, the macro level is ignored and responsibility is diffused away from the central governance. Finally, according to Sartorius (2002), a larger focus on bridging across communities and linking networks can promote health related behaviours. Furthermore, understanding social capital in terms of both individual and ecology can help early intervention teams look at the individual's and community's capacity to support mental health recovery (Whitley et al., 2005).

1.3.3 Mental Health, Altruism and Cooperation: Towards Prosocial Places.

Belonging to small cooperative groups has always been the primary survival strategy used by humans (Brewer & Caporeal, 1990). However, the tendency to behave in an altruistic fashion shows large degrees of variability in our

species, suggesting a role for environment in this proclivity (Nettle, Colleony & Cockerill, 2011). Indeed, evidence confirms that physical and social environments influence altruistic and cooperative tendencies, with the city appearing to be an ecological context that makes cooperative, altruistic behaviours more difficult to establish and maintain. In more fine-grained analysis it has been found that within a city, prosociality correlated with social support, and cooperative acts were related to the quality of the environment (Wilson, O'Brien & Sesma, 2009). Furthermore, economic 'games' such as the dictator game have found that particular socioeconomic factors further determine altruistic behaviour during cooperative economic exchanges (Nettle, et al., 2011). However, socioeconomic status did not appear to predict other measures of prosociality such as helping a stranger and in fact more affluent neighbourhoods showed more lone people on the streets.

Since it is both good for us to give (cf. the five ways to wellbeing) and to receive acts of care from others, altruism is a trait that is fundamentally linked to the mental health and wellbeing of our species. Given its apparently conditional relationship with the characteristics of place and community (Wilson et al., 2009 ; Nettle et al, 2011), it is easy to see how important it is for our future mental health and wellbeing to develop more psychologically benign cities designed to encourage an altruistic survival strategy (<http://whatworkswellbeing.org/2015/07/16/community-wellbeing-creating-pro-social-places/>).

1.3.4 Effective Change for Mental Health and Wellbeing and Resilient Urban Communities: Using Evidence across Sectors.

'The city is a shared project' (Montgomery, 2013, p. 40)

Multi-disciplinary teams are now attempting to gain a better understanding of the influence of physical, social and economic characteristics of urban environments, on the psychological processes that underpin wellbeing and mental ill-health. The aims are to agree a positive way of thinking about and planning places.

For health and wellbeing professionals, socially sustainable environments are those that can promote mental health and wellbeing in their residents. The agreed understanding on sustainability in the built environment professions is that urban sprawl must be reduced while trying to make dense living meet resident's needs. A balance must be struck between optimising social connections and facilitating the need to sometimes retreat into privacy. Working with the New Economics Foundation, a think tank for social, economic and environmental justice (NEF; <http://www.neweconomics.org/>) as part of research undertaken for the What Works for Wellbeing Centre in the UK, 315 professionals and practitioners working in the field of wellbeing were surveyed (What Works for Wellbeing, 2016). As part of this survey respondents were asked to indicate what they believed was meant by the term community wellbeing. Of the 276 people who responded to this particular question, 171 (62%) believed that community wellbeing was about *"strong networks of relationships and support between people in a community, both in close relationships and friendships, and between*

neighbours and acquaintances". 97 other respondents (35.1%) believed that community wellbeing meant *"people feeling able to take action to improve things in, and influence decisions about, their community"*. The 3rd preferred definition, supported by a further 84 respondents (30.4%), considered that community wellbeing referred to *"people's feelings of trust in, belonging to and safety in their community"*.

Recent projects have started to consider what collaborative cross-sector working might look like taking the evidence-based 'Five Ways to Wellbeing' as a starting point that could be used to inform urban design and planning guidance. 'The Five Ways to Wellbeing' were published by NEF in 2008 and emerged from a UK government foresight project that looked at mental capacity and wellbeing. The Five Ways to Wellbeing are

- Connect
- Be active
- Take Notice
- Keep Learning
- Give

Marshall and Corcoran (2016) have argued that these maxims can be applied to the planning of place with a view to creating communities and neighbourhoods that are more psychologically benign. In doing so, it should increase residents' sense of identity, belonging and control to and of their home environments.

1.4 Conclusion

In order to further investigate the dynamic and complex interaction between urban living and the psychological mechanisms that underpin specific symptoms of mental health difficulties, it is important to develop methodologies that unpick the structural cognitive and emotional dimensions of place. The aim should be to move towards a more positive focus on places using continuum models of mental health and wellbeing and exploring the interaction between the psychological mechanisms that underpin symptoms and both the physical and the social characteristics of place. The journey through the literature indicates a need for an approach that focuses on the capabilities of both the individual and the place. There needs to be a fuller consideration of how place works to the detriment of mental health and wellbeing but also how place can play a part in the recovery process. The literature appears to reject the idea that density is the primary cause for increased mental health difficulties and instead indicates that a focus on perceptions of quality, crowdedness and overall sense of control in place is more important. Finally, evidence suggests that environments can influence altruistic and cooperative behaviours known to be protective of mental health and wellbeing, suggesting that wellbeing frameworks should be applied to urban design to make these 'ways to wellbeing' easier to weave into our everyday lives.

1.4.1 The Aims and Rationale of the Current Research

- To develop better understanding of what it is about urban environments that accounts for the increased prevalence of common

and severe mental health difficulties in cities; to develop a better understanding of the so called ‘urbanicity effect’

- To identify diverse scientific methods to explore and illustrate the importance of the physical and social characteristics of urban environments on mental health and wellbeing
- To understand what features of neighbourhoods are identified as assets by people with lived experience of mental health difficulties
- To understand what features of neighbourhoods are identified as problematic by people with lived experience of mental health difficulties

1.4.2 Hypotheses

The three studies that comprise this thesis explore the following hypotheses

- Brief exposure to static images of residential neighbourhoods differing in levels of urbanity and desirability, will cause significant changes in psychological processes known to underpin mental health and wellbeing.
- Changes to psychological processes after exposure to photographs of urban or residential places that score low for desirability will be exaggerated in participants scoring high on measures of mental distress at baseline.
- Exposure to distinct urban neighbourhoods and green space in Liverpool will cause significant differences in affective responses, psychological processes and decision making, and these differences

will be associated with physical characteristics of place, 'gut reactions' to residents and relative socio-economic status.

- Baseline measures of mental distress will predict the variability of affective and psychological responses to the distinct areas along the walk.
- Physical and social characteristics of urban neighbourhoods through the life span will predict increased vulnerability and risk of mental health difficulties in adulthood.
- Experience of both urban living and lived experience of mental health difficulties gathered using a workshop methodology has potential to inform future thinking about place design.
- Participation in collective, creative projects relating to place design will have positive effects for mental health and wellbeing.

CHAPTER 2

UNDERSTANDING THE URBANICITY EFFECT: TWO BRIEF CONTEMPLATION STUDIES

2.1 Abstract

Psychological and public health research suggests that urban environments affect mental health and wellbeing. It is thought that this 'urbanicity effect' may reside in the perceived quality of the environment. Study one involved a brief exposure to and contemplation of either urban or rural residential images, to explore changes in psychological processes thought to underpin mental health and wellbeing measured before and after contemplating the images. The final complete sample for analyses was 317 (urban $N = 162$, rural $N = 155$). Results indicated that after contemplation of both urban and rural residential neighbourhoods, participants felt significantly less in control of their lives, anticipated significantly more threat and considered the future significantly less. However, there were no significant differences between the extent of change to these psychological processes between image types.

Study two used the same design as study one but involved a brief exposure to and contemplation of neighbourhoods judged to be more or less desirable. The final complete sample for analyses was 298 (most desirable $N = 141$, least desirable $N = 157$). Results showed that after contemplating both the most and least desirable residential neighbourhoods, participants felt significantly less in control of their lives, anticipated significantly more threat and considered the future significantly less. There was no significant difference between image types and the extent of change in locus of control

and consideration of future consequences. However, the pre to post-contemplation difference in anticipation of threat was significantly higher for the less desirable residential neighbourhoods, such that participants were anticipating significantly more threat in their near futures. Image type was found to be a significant predictor of post-contemplation anticipation of threat after controlling for gender, pre-contemplation anticipation of threat and measures of depression, anxiety and paranoid ideation. Findings suggest that brief exposure and contemplation of residential neighbourhoods causes significant changes in threat anticipation. Importantly, these changes are related to the subjective desirability of the neighbourhood as opposed to perceived urbanity. These findings help to improve our understanding of the effects that places have on mental health. In doing so, they should be considered alongside the increasing body of evidence that emphasises the importance of urban planning, management and the design of places as matters of public health concern.

2.2 Introduction

2.2.1 The Urbanicity Effect

Urban areas have detrimental effects on mental health and wellbeing; a phenomenon known as the 'urbanicity effect'. Faris and Dunham (1939) reported a per capita linear decrease in rates of severe mental illness from densely populated, disorganised, inner city regions, to affluent, residential areas on the outskirts. More recent research has supported Faris and Dunham's finding (e.g. Sundquist, Frank & Sundquist, 2004), suggesting in a meta-analysis that urban environments confer a 2.37 times greater risk of schizophrenia than rural environments (Vassos, Pederson, Murray, Collier & Lewis, 2012). While some attempt to explain this in terms of the downward social drift of patients prior to the onset of psychosis (Murali & Oyeboode, 2004), dose-response evidence suggests that there is a more fundamental, causal relationship between urban environments and psychosis (Pederson & Mortensen, 2001; Van Os, 2004; Krabbendam & Van Os, 2005). Furthermore, although effect sizes are relatively small, urban environments have also been shown to increase risk of major depression, anxiety and social stress processing (Sundquist et al., 2004; Wang, 2004; Peen, Schoevers, Beekman & Dekker, 2010; Lederbogen et al., 2011). Some have suggested that by using only population density to define urban environments, little is understood about the effects of physical and social context on mental health difficulties (Weich, Twigg & Lewis, 2006).

2.2.2 Physical and Social Urban Context

In the UK, 98% of the most deprived areas, with the highest indices of multiple deprivation, are found in cities and tend to be the areas where urban regeneration initiatives are focussed (DCLG, 2011). However, research has continued to find urbanicity effects even when controlling for indices of deprivation (McKenzie, Murray & Booth, 2013). Although findings suggest that urban areas characterised by cheap and/or poorly maintained physical features, social deprivation and income inequality show increased risks of depression and psychosis (Weich et al. 2002; Kirkbride, Jones, Ullrich & Coid, 2012), this effect is thought to be explained, in part, by the psychosocial stress caused by the physical environment (Galea, Ahern, Rudenstine, Wallace & Vlahov, 2005). The 'urbanicity effect' is therefore thought to reside in the perceived quality of the environment (Ellaway, Macintyre & Kearns, 2001; Ellaway et al., 2009), such that physical characteristics of place appear to impact on mental health and wellbeing by influencing perceived control and social support (Evans, 2003). Furthermore, perceived social characteristics of place such as lack of neighbourhood social cohesion, perceived risk of crime and sense of belonging have all been linked to worse mental health outcomes (Ellaway et al. 2001; Stafford, Chandola & Marmot, 2007; Romans, Cohen & Forte, 2011). Alternatively, it could be argued that common psychological biases associated with specific symptoms of depression, anxiety and paranoia may lead to more negative perceptions of place.

2.2.3 Psychological Processes

Common mental health difficulties such as depression and anxiety seem to share a bias in psychological processes with paranoia including the anticipation and avoidance of social threat, and the underestimation of the likelihood of future positive events (Corcoran et al., 2006; Moutoussis, Williams, Dayan & Bentall, 2007). Furthermore, they also share several common reasoning biases about the social self (e.g. Bentall et al., 2009; Bird, Mansell, Dickens & Tai, 2013). These same psychological profiles are found at attenuated levels in non-clinical populations (Johns & Van Os, 2001; Verdoux & Van Os, 2002; Van Os, 2003; Freeman et al. 2008; Van Os, Linscott, Myin-Germeys, Delespaul & Krabbendam, 2009). Experiences of victimisation, discrimination and powerlessness also contribute across phenomenology (Mirowsky & Ross, 1983; Janssen et al., 2003; Schreier et al., 2009), and can be linked to urban living (Evans-Polce, Hulbert & Latkin, 2013). Changes in psychological processing associated with urban living, and disordered and low SES neighbourhoods, are thought to cause a more external sense of control, increased perception of threat and hostility, and increased distress (Witt, 1989; Chen & Paterson, 2006; Ross & Mirowsky, 2009).

Locus of control (LoC) refers to the extent to which an individual believes that his/her life course is determined by themselves or by external forces such as luck or 'powerful others' (Rotter, 1966). An external locus of control has been linked to depression, anxiety and paranoia in both clinical and non-clinical samples, with exaggerated effects in more individualistic

cultures and ethnic minorities (Johnson & Sarason, 1978; Twenge, Zhang & Im, 2004; Harrow, Hansford & Astrachan-Fletcher, 2009; Cheng, Cheung, Chio & Chan, 2013; Van Dijk, Dijkshoorn, Van Dijk, Cremer & Agyemang, 2013; Moritz, Woodward, Burlon, Braus & Andresen, 2007).

As previously mentioned, physical and social neighbourhood characteristics can cause changes to perceived threat. A heightened attention to threat (AoT) has been shown using a number of paradigms, including attentional bias to negative and threatening stimuli and a tendency to over-estimate the likelihood of future threatening events. Such findings are seen across depression, anxiety and paranoia (Macleod, Mathews & Tata, 1986; Mathews, Ridgeway & Williamson, 1996; Kaney, Bowen-Jones, Dewey & Bentall, 1997; Corcoran et al., 2006; Kellough, Beevers, Ellis & Wells, 2008; Bennett & Corcoran, 2010).

The extent to which people consider their futures (CFC) appears to broadly predict behaviour and health (Strathman, Gleicher, Boninger & Edwards, 1994; Pepper & Nettle, 2014). Individuals with an attenuated future focus are more concerned with maximising immediate benefits than possible future consequences, and therefore consideration of one's future negatively correlates with impulsivity, a robust transdiagnostic feature of mental health and wellbeing (Whiteside & Lynam, 2001). Cognitive models of depression, anxiety and paranoia all emphasise negative views about the future (Abler, Erk, Herwig & Walter, 2007; Strunk & Adler, 2009; Paulus & Yu, 2012; Bentall et al., 2009). Low mental wellbeing is characterised by low positive future orientation, which, in turn, is related to lower ratings of happiness

(Drake, Duncan, Sutherland, Abernethy & Henry, 2008). Feelings of poverty and neighbourhood characteristics are thought to alter a balanced time perception, for example research has found that exposure to static images of poverty increased participants impulsivity (Liu, Feng, Suo, Lee, & Li, 2012), and neighbourhood socioeconomic status was found to predict behavioural inhibition (Paál, Carpenter & Nettle, 2015).

2.2.4 Brief Exposure to Deprived Urban Neighbourhoods

Recent research has suggested that the ‘urbanicity effect’ can be seen in non-residents after a very brief real exposure to a deprived urban neighbourhood. For example, Ellett, Freeman and Garety (2008) exposed individuals with persecutory delusions to a deprived urban neighbourhood and saw increased anxiety, paranoia, negative beliefs about others and jumping to conclusions. Interestingly, Nettle, Pepper, Jobling and Schroeder (2014) found similar results when exposing students to an unfamiliar deprived urban neighbourhood. Results suggested that students reported similar levels of paranoia and low level trust to that of the neighbourhood residents after only a very brief exposure to place.

2.2.5 Aims and Rationale

While evidence for the ‘urbanicity effect’ is well established, in particular the finding that urban environments increase risk of psychosis and depression, more research is needed to understand the physical and social context of this effect beyond population density. For example, one important question to explore is the extent to which biophilic tendencies, might account for the urbanicity effect. Second, in light of inconsistent findings relating to levels of

deprivation, it is possible that perceptions of neighbourhood quality or desirability are more powerful predictors of psychosocial stress associated with changes in psychological processes. Research has suggested that briefly exposing non-residents to deprived urban neighbourhoods can result in increased anxiety, paranoia, negative beliefs about others and low levels of trust. More empirical studies are needed that explore the extent to which the desirability of a neighbourhood, in terms of how nice the place is and how attractive it is judged to be as a place to live, can affect the psychological processes that underpin symptoms of depression, anxiety and paranoia. It is of interest too to examine the power of these reactions to place by exploring whether the effects on individuals' psychology exist even when exposure is not real but instead involves only thinking about a place image. If changes to these psychological processes can be demonstrated following very brief, remote exposure, to certain urban residential neighbourhoods, then a strong case can be made about the effects of sustained exposure of those same kinds of urban environments on mental health and wellbeing.

The aim of study 1 was to explore whether very brief exposure and contemplation of images of urban and rural residential neighbourhoods produced changes in the self-reported psychological processes known to underlie mental health and wellbeing. The aim of study 2 was to explore whether very brief exposure and contemplation of images of residential neighbourhoods of different perceived desirability produced changes in the self-reported psychological processes known to underlie mental health and wellbeing.

2.2.6 Hypotheses

Study 1: Urban vs. Rural Contemplation

It was anticipated that scores on measures of locus of control (LoC), anticipation of threat (AoT) and consideration of future consequences (CFC) would change as a result of the active contemplation of selected sets of residential images, and that these changes would be determined, at least in part, by the perceived urbanity of the depicted environments.

To test the relationship between the psychological processes (LoC, AoT and CFC) and levels of depression, anxiety, and feelings of paranoia, it was hypothesised that those scoring higher on these symptom measures would show augmented 'contemplation' effects, specifically after contemplation of the urban residential images compared to those scoring low on the indices.

Study 2: High vs. Low Desirability Contemplation

It was anticipated that scores on measures of locus of control (LoC), anticipation of threat (AoT) and consideration of future consequences (CFC) would change as a result of the active contemplation of selected sets of residential images, and that these changes would be determined, at least in part, by the perceived desirability of the depicted environments.

To test the relationship between the psychological processes (LoC, AoT and CFC) and levels of depression, anxiety, and feelings of paranoia, it was hypothesised that those scoring higher on these symptom measures would show augmented 'contemplation' effects, specifically after contemplation of

the less desirable residential images compared to those scoring low on the indices.

2.3. Method

2.3.1 Pilot Studies: Image Selection

Study 1: Urban vs. Rural Contemplation

A pilot study was conducted to select the stimuli for the study. Twenty photographs representing typical urban and rural neighbourhoods in the UK were selected by the research team to be similar in terms of residential nature and number of vehicles shown. None of the photographs included people. Photographs used were a mix of both aerial and street view images to capture a level of neighbourhood character. It was unlikely that participants were familiar with the neighbourhoods as the photographs were taken in numerous locations around the UK, and pilot participants were recruited predominantly from Liverpool. A sample of twenty-five participants (12 male, 13 female), aged 18 to 54 were shown all twenty photographs (10 urban; 5 aerial, 5 street view and 10 rural; 5 aerial, 5 street view) and asked to rate (0-100) the extent to which they perceived the neighbourhoods as urban (0 = not urban, 100 = very urban), and rural (0 = not rural, 100 = very rural).

- 1. How urban would you describe the image shown?*
- 2. How rural would you describe the image shown?*

Participants were also asked to rate (0-100) the perceived quality of the neighbourhood images by answering the following question (0 = not nice. 100 = very nice):

3. *How nice is this place?*

In an attempt to control for perceived 'niceness', only the photographs with mean scores falling into the central quartiles (25-49 and 50-74) were considered as stimuli. In order to select the images perceived to be the most urban and rural, participant's scores on questions (1) and (2) were averaged and ranked in order from lowest to highest. Eight images ranked as the most urban (4 images) and rural (4 images) were selected to be used in the study (see Figures 1 and 2). Scores on question (2) were reversed so that a high score indicated urbanity. An independent samples t- test comparing the average urbanity ratings of the 4 most urban and 4 most rural residential images confirmed that the urban residential images were rated significantly higher than the rural residential images in terms of urbanity (urban, $M = 70.03$, $SD = 10.50$; rural, $M = 30.70$, $SD = 9.67$), $t(6) = 5.51$, $p = .002$, $d = 3.90$ (two-tailed). Despite attempting to control for perceived quality of the urban and rural neighbourhood images, an independent samples t-test showed that the rural neighbourhoods were rated as significantly nicer ($M = 58.95$, $SD = 10.21$) than the urban neighbourhoods ($M = 37.63$, $SD = 7.09$), $t(6) = -3.43$, $p = .014$, $d = 2.43$ (two-tailed).

Study 2: High vs. Low Desirability Contemplation

A set of twenty-four photographs representing typical residential neighbourhoods in the UK were provided by a built environment investigator for piloting. These images were selected to be similar in terms of amount of green space and vehicles shown and none included people. All images were street as opposed to aerial view to better capture the 'quality' of the residential area, and therefore the images used in this study were different to those used in study 1. It was unlikely that participants would be familiar with the depicted residential neighbourhoods as the photographs were taken in numerous locations around the UK, and pilot participants were recruited from the Liverpool area. A sample of twenty one participants (10 male, 11 female), aged 18 to 58 were shown all twenty-four photographs and asked to respond to two questions using scales (0-100) to rate the desirability of the environment, where a high score indicated desirability:

1) *How 'nice' is this place?*

2) *How much would you like to live in this place?*

In order to select the most and least desirable residential photographs, a mean response score for each participant was calculated for questions (1) and (2). These questions were selected for reasons of ecological validity as they were deemed to be more surface level, impressionistic responses to how attractive the places were to live. Ellaway et al. (2001) used a similar question as part of their measure of perceived neighbourhood quality by asking participants how attractive the neighbourhoods were as places to live. The top five highest and lowest ranked images were selected as the

most desirable and the least desirable neighbourhood images respectively (See Figures 3 and 4). An independent samples t-test comparing the average desirability ratings of the 5 most desirable and 5 least desirable neighbourhoods confirmed that the more desirable residential images were rated significantly higher than the least desirable residential images (most desirable, $M = 70.60$, $SD = 5.09$; least desirable, $M = 31.50$, $SD = 4.39$), $t(8) = -13.01$, $p < .001$, $d = 8.23$ (two-tailed).

Figure 1. Urban Residential Image Primes



Figure 2. Rural Residential Image Primes



Figure 3. Least Desirable Residential Image Primes



Figure 4. Most Desirable Residential Image Primes



2.3.2 Participants

In both studies 1 and 2, participants were undergraduate students predominantly recruited from the School of Psychology as part of a research participation scheme in exchange for course credits. The samples therefore reflect the age and gender biases common to Psychology courses in the UK e.g. predominantly female and aged between 18-24.

Study 1: Urban vs. Rural Contemplation

173 participants completed an online survey that included the 4 photographs judged to be clearly urban residential neighbourhoods, while 183 completed the survey that included the 4 photographs of residential neighbourhoods judged to be clearly rural in the pilot study. After filtering for incomplete data and to exclude any participants who requested that their data be deleted, the final complete sample for analyses was 317 (urban $N = 162$, rural $N = 155$). Table 1 provides more detail of the sample demographics.

Table 1. Participant Demographic Information, Study One (N=317).

		Urban (N=162)		Rural (N=155)	
		Frequency	Percent (%)	Frequency	Percent (%)
Age range	18-24	160	98.8	153	98.7
	25-34	2	1.2	2	1.3
Gender	Female	149	92.0	139	89.7
	Male	13	8.0	16	10.3

Study 2: High vs. Low Desirability Contemplation

186 participants completed an online survey that included the 5 photographs judged to be the most desirable neighbourhoods, while 175 completed the survey that included the 5 photographs of neighbourhoods judged to be least desirable in the pilot study. After filtering for incomplete data and to exclude any participants who requested that their data be deleted, the final complete sample for analyses was 298 (most desirable $N = 141$, least desirable $N = 157$). Table 2 provides more detail of the sample demographics.

Table 2. Participant Demographic Information, Study Two (N=298).

		Most Desirable (N=141)		Least Desirable (N=157)	
		Frequency	Percent (%)	Frequency	Percent (%)
Age range	18-24	121	85.8	149	94.9
	25-34	16	11.3	6	3.8
	35+	4	2.8	2	1.2
Gender	Female	102	72.3	133	84.7
	Male	39	27.7	24	15.3

2.3.3 Measures

The measures comprising the surveys in both studies 1 and 2 were presented in the order below.

Mental Distress

The Persecution and Deservedness Scale (PaDS persecution only; Melo, Corcoran, Shryane & Bentall, 2009) is a 10-item measure of paranoid thinking designed for use in both non-clinical and clinical samples.

Statements refer to direct or indirect intentional harm from others and respondents are asked to rate the extent to which they agree with each statement on a 5-point scale. The scale has been shown to have high internal consistency in a non-clinical, student sample ($\alpha = 0.84$).

Depression, Anxiety and Stress Scale (DASS 21; Henry & Crawford, 2005) is a 21-item self-report scale used to measure the severity of symptoms relating to depression, anxiety and stress on a 4-point scale. Compared to other validated measures of depression and anxiety, DASS21 has high internal consistency ($\alpha = 0.93$; $CI_{95} = 0.93$ to 0.94), and good convergent and discriminant validity in a non-clinical adult sample.

Psychological Processes

Locus of Control Scale (LoC; Rotter, 1966) is used to measure perceived control over one's life. For each of 13 paired statements respondents are asked to indicate which alternative best describes their attitude. A high score is indicative of a more external LoC. As LoC needed to be assessed before and after the image contemplation, the scale was split in half by randomly

allocating the items to either pre- or post-contemplation order. To equate the number of items pre- and post-contemplation, the paired statements 'the idea that teachers are unfair to students is nonsense' and 'most students don't realize the extent to which their grades are influenced by accidental happenings' were removed. This pair was chosen for exclusion because it was felt that responses may be skewed in the student sample.

Anticipation of Threat (AoT; Corcoran et al., 2006) is a 7-item self-report scale, with acceptable internal reliability ($\alpha = 0.78$) measuring the extent to which respondents anticipate encountering certain potentially threatening acts from others over the next week using a 7-point scale. As AoT needed to be assessed before and after the image contemplation, the scale was split in half by randomly allocating the items to either pre- or post-contemplation order. To equate the number of items pre- and post-image contemplation, the item 'Your mail is read without your permission' was removed.

Consideration of Future Consequences Scale (CFC; Strathman et al., 1994) is a 12-item scale used to measure the extent to which people place importance on immediate versus distant consequences of their behaviour. A high score indicates less consideration of the future, thus indicating more impulsivity. Respondents rate how characteristic each statement is of them using a 5-point scale. The authors report internal reliability ranging from $\alpha = 0.80$ to 0.86 . As CFC needed to be assessed before and after the image contemplation, it was split in half by randomly allocating the items to either pre- or post-contemplation order.

2.3.4 Image Contemplation Task

The image contemplation task used in studies 1 and 2 was identical apart from the image types presented. After completing the baseline measures of mental distress and psychological processes (LoC, AoT and CFC), participants were presented with a residential neighbourhood image and asked to respond, using 6-point Likert scales, to the following questions:

- 1) *How 'nice' is this place?*
- 2) *How much would you like to live in this place?*
- 3) *How much would you say that people who live in this place mix with each other on friendly terms?*
- 4) *How much antisocial behaviour (e.g. smashed bus shelters, fly tipping, burnt out cars) would you expect to see in this area?*
- 5) *How poor or rich do you think the people who live in this place are?*

Participants then completed the second half of the survey with questions relating to psychological processes (LoC, AoT and CFC).

2.3.5 Analysis Strategy

In both studies 1 and 2 the data was analysed in the following structured way:

1. Pearson correlations explored the relationship between the measures of mental distress (PaDS and DASS) and the pre-contemplation measures of psychological processes (LoC, AoT, CFC) to determine their level of association in these samples.

2. Paired samples t-tests were used to compare pre-and post-contemplation levels of self-reported LoC, AoT and CFC regardless of image type. For each of the psychological processes a difference score was computed (post-pre scores). These new variables were subjected to independent samples t-tests to establish whether contemplation of different residential neighbourhood images was associated with augmented or decreased difference scores.
3. Finally, depending on the outcome of stage 2, hierarchical regression explored the extent to which the change in psychological processes following the contemplation of images was related to the level of pre-existing mental distress and image type.

2.4 Results

Study 1: Urban vs. Rural Contemplation

2.4.1 The Relationship between Mental Distress and Pre-prime Psychological Processes

Confirming the established findings of previous literature, Table 2 shows the statistically significant correlations between the measures of mental distress and pre-prime psychological processes (LoC and AoT). However, there was no significant correlation between measures of mental distress and CFC.

Table 2. Descriptive Statistics Table Showing the Means (\pm SD) and Correlations between Measures of Mental Distress and Pre-contemplation Psychological Processes, Study 1 (N=317).

	Sample (N=317)	Male	Female	2	3	4	5
	Mean (\pm SD)	(N=29)	(N=288)				
		Mean (\pm SD)	Mean (\pm SD)				
1 PaDs	23.28(\pm 7.52)	23.90(\pm 7.54)	23.22(\pm 7.52)	.58**	.12*	.18**	.09
2 DASS	36.75(\pm 11.91)	36.86(\pm 9.11)	36.74(\pm 12.17)	-	.18**	.21**	.11
3 LoC	7.87(\pm 1.26)	7.83(\pm 1.10)	7.87(\pm 1.28)	-	-	.17**	.25**
4 AoT	5.40(\pm 2.52)	4.90(\pm 1.88)	5.45(\pm 2.57)	-	-	-	.18**
5 CFC	17.60(\pm 3.37)	17.03(\pm 3.79)	17.66(\pm 3.33)	-	-	-	-

Correlation Coefficient significant * $p < .05$ ** $p < .01$ (two-tailed)

2.4.2 Contemplation and Image Type Effects

Table 3 shows the means ($\pm SD$) for the urban and rural residential images for pre- and post-contemplation LoC, AoT and CFC. Paired samples t-tests demonstrated that all psychological processes changed significantly after the contemplation of both types of residential images. In short, after contemplating the photographs, participants reported feeling significantly less in control of their lives, anticipating significantly more threat in the near future and reported considering the future significantly less (LoC: $t(316) = -8.98$, $p < .001$, two-tailed; AoT: $t(316) = -22.36$, $p < .001$, two-tailed, CFC: $t(316) = -8.69$, $p < .001$, two-tailed).

Analyses of the mean difference scores demonstrated that the contemplation of the urban residential images did not significantly augment LoC more than the contemplation of rural residential images, (urban, $M = .88$, $SD = 1.62$; rural, $M = .72$, $SD = 1.56$), $t(315) = .93$, $p = .352$, $d = .10$ (two-tailed).

Furthermore, urban residential images did not significantly augment AoT more than rural residential images, (urban, $M = 4.58$, $SD = 3.92$; rural, $M = 4.74$, $SD = 3.49$), $t(315) = -.37$, $p = .710$, $d = .04$ (two-tailed). Lastly, urban residential images did not cause significantly more change between pre-and post-contemplation scores of CFC compared with the rural residential images, (urban, $M = 1.83$, $SD = 3.55$; rural, $M = 1.81$, $SD = 3.92$), $t(315) = .06$, $p = .949$, $d = .01$ (two-tailed). Due to non-significant results no further analyses were conducted. Figure 3 shows the mean difference scores between pre-and post-contemplation for both urban and rural residential images for LoC, AoT and CFC.

Figure 3. Clustered Bar Graph to show Mean Difference Scores Pre- and Post-contemplation for the Urban and Rural Residential Neighbourhoods for all three Psychological Processes (LoC, AoT and CFC), Study One (N=317).

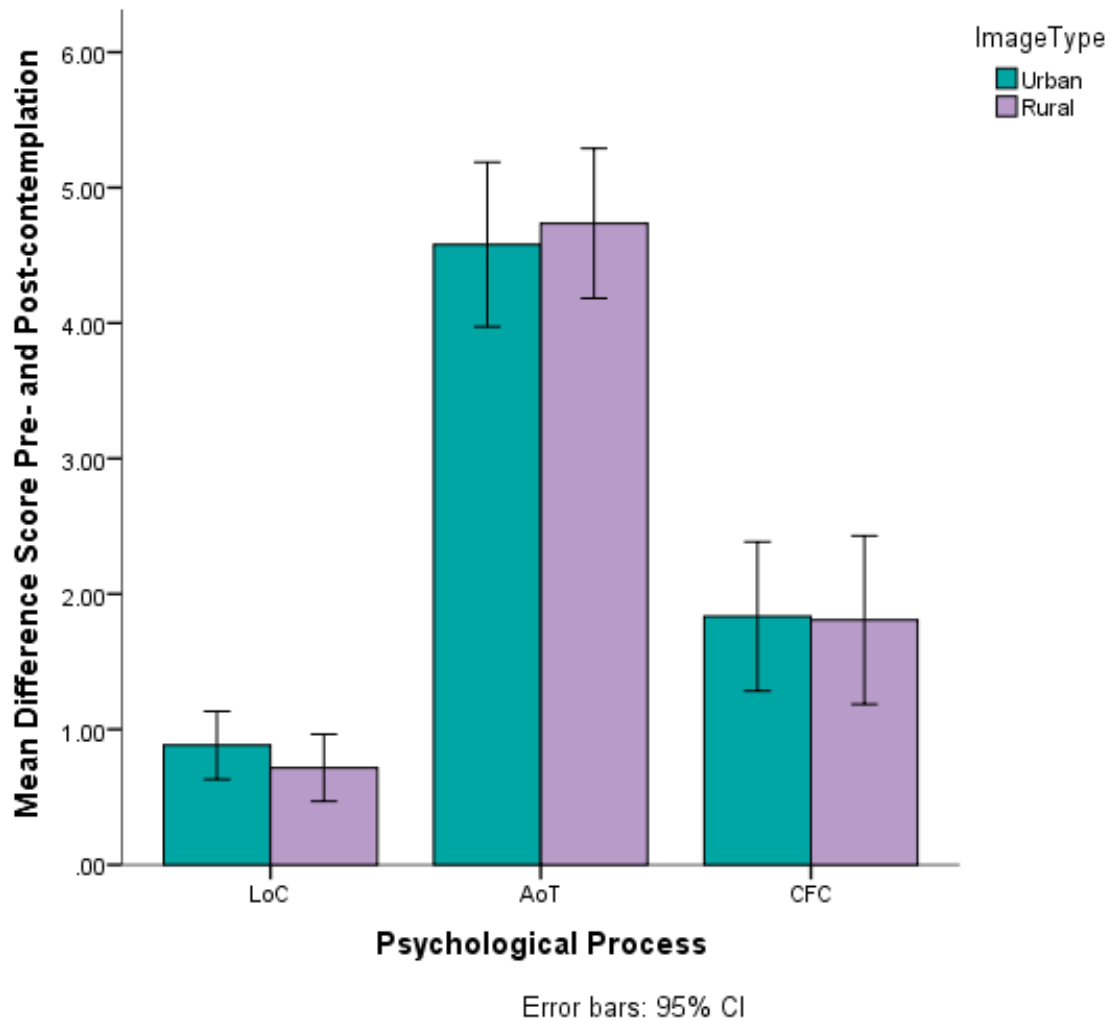


Table 3. Descriptive Statistics showing Means (\pm SD) for the Urban and Rural Residential Neighbourhoods for Pre- and Post-contemplation Psychological Processes (LoC, AoT and CFC), Study One (N=317).

		LoC	AoT	CFC
Sample (N=317)	Pre-contemplation	7.87(\pm 1.26)	5.40(\pm 2.52)	17.60(\pm 3.37)
	Post-contemplation	8.67(\pm 1.27)	10.06(\pm 3.83)	19.42(\pm 2.64)
Urban (N=162)	Pre-contemplation	7.90(\pm 1.28)	5.59(\pm 2.66)	17.64(\pm 3.18)
	Post-contemplation	8.78(\pm 1.15)	10.17(\pm 3.80)	19.47(\pm 2.52)
Rural (N= 155)	Pre-contemplation	7.84(\pm 1.25)	5.20(\pm 2.36)	17.57(\pm 3.57)
	Post-contemplation	8.55(\pm 1.37)	9.94(\pm 3.87)	19.37(\pm 2.77)

2.4.3 Study 1 Summary

This study aimed to explore whether very brief exposure and contemplation of residential neighbourhoods perceived to be urban was enough to produce changes in self-reported psychological processes that underpin mental health and wellbeing (LoC, AoT and CFC). Results found that all psychological processes changed significantly after contemplation of both urban and rural residential images, such that participants felt significantly less in control of their lives (locus of control became more external), anticipated significantly more threat and considered the future significantly less. However, when comparing pre-post-contemplation difference scores between the urban and rural residential images, no significant differences were found. Due to non-significant findings, the hypothesis that brief exposure and contemplation of urban residential neighbourhoods would augment changes in psychological processes to a greater extent than the rural residential neighbourhoods was rejected. Findings indicate that changes to psychological processes are the result of more than just the urbanity of places. As we had attempted to control for the perceived desirability of the places in this study, we proceeded, in study 2, to explore whether differences in perceived desirability of places would be a better predictor of changes to these psychological processes.

Study 2: High vs. Low Desirability Contemplation

2.4.4 The Relationship between Mental Distress and Pre-Prime Psychological Processes

Confirming the established findings of previous literature and those from Study 1, Table 5 shows the statistically significant correlations between the measures of mental distress and pre-prime psychological processes (LoC, AoT and CFC).

Table 5. Descriptive Statistics Table showing the Means (\pm SD) and Correlations between Measures of Mental Distress and Pre-contemplation Psychological Processes, Study Two (N=298).

	Sample (N=298)	Male (N=63)	Female (N=235)	2	3	4	5
	Mean (\pm SD)	Mean (\pm SD)	Mean (\pm SD)				
1 PaDs	22.52(\pm 7.38)	20.83(\pm 7.94)	22.97(\pm 7.17)	.53**	.38**	.36**	.17**
2 DASS	34.76(\pm 10.63)	34.13(\pm 9.98)	34.93(\pm 10.81)	-	.28**	.28**	.20**
3 LoC	8.62(\pm 1.27)	8.63(\pm 1.42)	8.61(\pm 1.23)	-	-	.18**	.24**
4 AoT	5.16(\pm 2.61)	5.37(\pm 2.96)	5.10(\pm 2.50)	-	-	-	.14*
5 CFC	14.96(\pm 4.23)	15.90(\pm 4.59)	14.71(\pm 4.10)	-	-	-	-
Correlation Coefficient significant * $p < .05$ ** $p < .01$ (two-tailed)							

2.4.5 Contemplation and Image Type Effects

Table 6 shows the means ($\pm SD$) for the most and least desirable residential images for pre- and post-contemplation LoC, AoT and CFC. Paired samples t-tests demonstrated that all psychological processes (LoC, AoT and CFC) significantly altered following the contemplation of both types of residential images. In short, after contemplating the photographs, participants reported feeling significantly less in control of their lives, anticipating significantly more threat in the near future and reported considering the future significantly less (LoC: $t(297) = -7.26, p < .001$, two-tailed; AoT: $t(297) = -22.21, p < .001$, two-tailed. CFC: $t(297) = -6.66, p < .001$, two-tailed).

Analyses of the mean difference scores demonstrated that the contemplation of the least desirable residential neighbourhoods did not significantly augment LoC more than the contemplation of the more desirable residential neighbourhoods, (most desirable, $M = .45, SD = 1.26$; least desirable, $M = .66, SD = 1.39$), $t(296) = -1.40, p = .164, d = .16$ (two-tailed). Furthermore, the least desirable residential neighbourhoods did not significantly augment CFC more than the most desirable residential neighbourhoods, (most desirable, $M = 1.35, SD = 3.61$; least desirable, $M = 1.41, SD = 3.56$), $t(296) = -.15, p = .885, d = .02$ (two-tailed). However, the least desirable residential neighbourhoods did cause significantly greater change between pre-and post-contemplation AoT scores compared with the most desirable residential neighbourhoods, (most desirable, $M = 4.36, SD = 3.73$; least desirable, $M = 5.35, SD = 3.80$), $t(296) = -2.26, p = .024, d = .26$ (two-tailed). Due to non-significant changes in LoC and CFC, regression analysis exploring the

effects of mental distress and image type on mean difference scores was limited to AoT.

Figure 6 shows the mean difference scores between pre-and post-contemplation for both the most and least desirable residential neighbourhoods for LoC, AoT and CFC.

Figure 6. Clustered Bar Graph to show Mean Difference Scores Pre- and Post-Image Contemplation for the Most and Least Desirable Residential Neighbourhoods for all three Psychological Processes (LoC, AoT and CFC), Study Two (N=298).

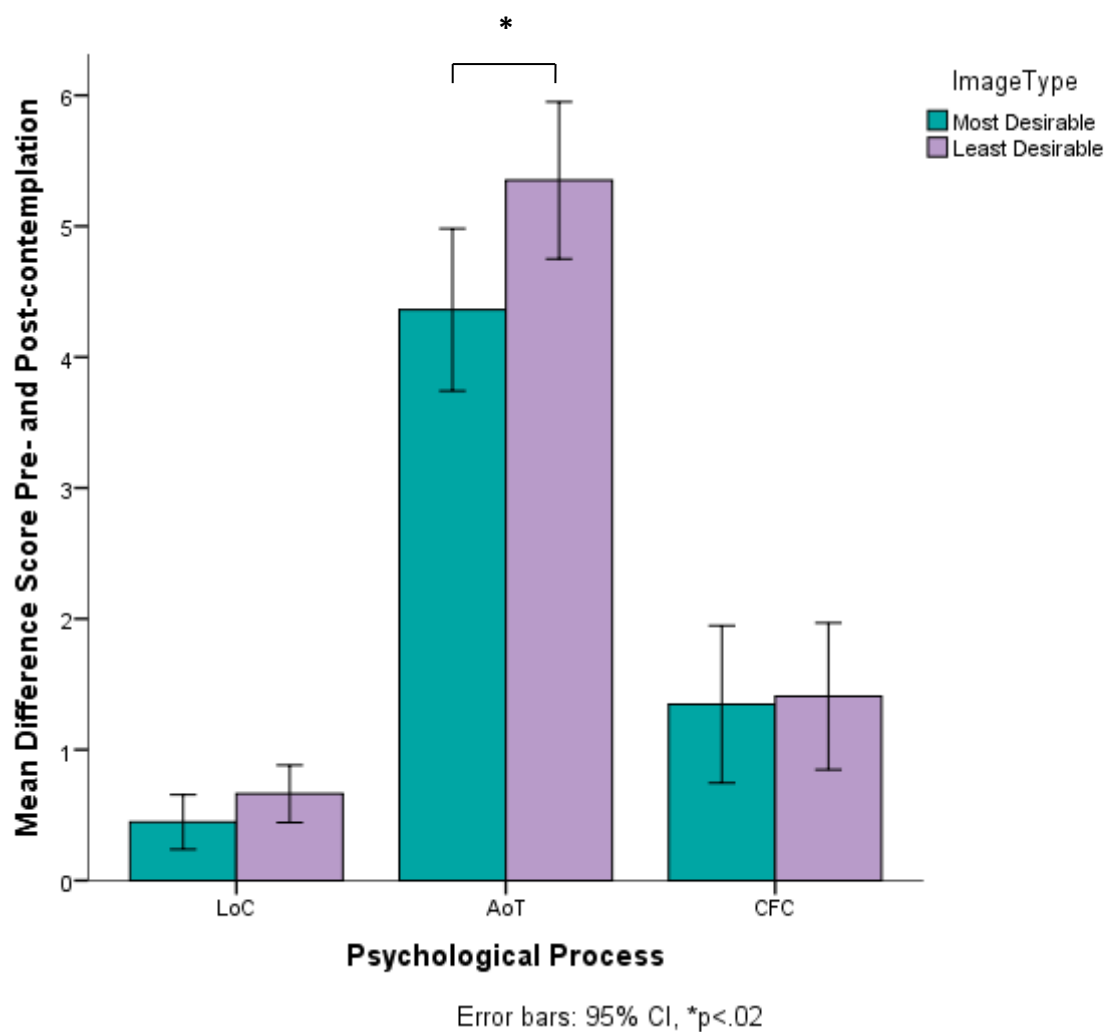


Table 6. Descriptive Statistics showing Means (\pm SD) for the Most and Least Desirable Residential Neighbourhoods for Pre- and Post-contemplation Psychological Processes (LoC, AoT and CFC), Study Two (N=298).

		LoC	AoT	CFC
Sample (N=298)	Pre-contemplation	8.62(\pm 1.27)	5.16(\pm 2.61)	14.96(\pm 4.23)
	Post-contemplation	9.18(\pm 1.35)	10.04(\pm 3.95)	16.34(\pm 3.33)
Most Desirable (N=162)	Pre-contemplation	8.56(\pm 1.30)	4.99(\pm 2.62)	14.31(\pm 4.34)
	Post-contemplation	9.01(\pm 1.34)	9.35(\pm 4.24)	15.66(\pm 3.44)
Least Desirable (N= 155)	Pre-contemplation	8.67(\pm 1.25)	5.31(\pm 2.59)	15.54(\pm 4.05)
	Post-contemplation	9.33(\pm 1.35)	10.66(\pm 3.56)	16.95(\pm 3.11)

2.4.6 Mental Distress and Image Type Effects

A hierarchical regression explored the extent to which the relative change in AoT post-contemplation was predicted by participant's underlying levels of depression/anxiety, paranoid ideation and image type (most/least desirable neighbourhoods). A hierarchical regression was conducted with step 1 of the model controlling for participant's gender and pre-contemplation AoT scores. Step 2 added measures of mental distress (PaDs and DASS), and finally, step 3 of the model added image type (most/least desirable residential neighbourhoods), the dependent variable was post-contemplation AoT score. The overall regression model predicted approximately 30% of variance in post-contemplation AoT scores, $R^2 = .30$, $F(5, 292) = 25.56$, $p < .001$. Gender and pre-contemplation AoT scores predicted approximately 16% of variance in post-contemplation AoT scores. After controlling for gender and pre-contemplation AoT score, PaDs and DASS scores predicted approximately 14% of variance in post-contemplation AoT. Finally, after controlling for gender, pre-contemplation AoT and measures of mental distress, image type (most/least desirable residential neighbourhoods) predicted approximately 1% of variance of post-contemplation AoT. See Table 7 for full hierarchical regression.

Table 7: Hierarchical Regression Analysis showing Gender, Pre-contemplation AoT, PaDs, DASS and Image Type (Most/Least Desirable) as Predictors of Post-contemplation AoT, Study Two (N=298).

Variable	Cumulative		Simultaneous	
	R^2 -change	F-change	B	p
Step 1				
Gender (M/F)	.16	$F(2,295) = 27.84^{**}$	-.03	.523
Pre-contemplation AoT			.24	<.001
Step 2				
PaDs	.14	$F(2,293) = 28.29^{**}$.32	<.001
DASS			.12	.042
Step 3				
Image Type (Most/Least Desirable)	.01	$F(1,292) = 3.96^*$.10	.047

* $p < .05$, ** $p < .001$

2.4.7 Study 2 Summary

This study aimed to explore whether very brief exposure and contemplation of residential neighbourhoods perceived to be less desirable was enough to produce changes in self-reported psychological processes that underpin mental health and wellbeing (LoC, AoT and CFC). Results found that all psychological processes changed significantly after contemplation of both the most and least desirable residential images, such that participants felt significantly less in control of their lives (locus of control became more external), anticipated significantly more threat and considered the future significantly less. When comparing pre-post-contemplation difference scores between the urban and rural residential images, no significant differences were found for LoC and CFC. However, there was a significant difference between the most and least desirable residential neighbourhoods in terms of changes to AoT, such that the least desirable residential images showed significantly more change in AoT between pre-and post-image contemplation. Furthermore, in a hierarchical regression, image type was found to be a significant predictor of post-contemplation AoT after controlling for gender, pre-contemplation AoT and measures of mental distress. The hypothesis that brief exposure and contemplation of less desirable residential neighbourhoods would augment changes in psychological processes to a greater extent than the more desirable residential neighbourhoods was partially supported. Taking the findings of both studies together, we see that depression, anxiety and paranoid ideation are strong predictors of the place contemplation effects. Importantly, perceived

desirability of residential neighbourhoods appears to be a better predictor of changes to AoT than perceived urbanity of a place.

2.5 Overall Discussion

This set of studies explored the extent to which the perceived urbanity and desirability of the physical and social aspects of residential neighbourhoods influenced psychological processes associated with mental health and wellbeing in a non-clinical sample. In study one no significant differences were found between the pre-post-contemplation differences in psychological processes between the urban and rural residential images with an attempt to match for desirability. Despite no significant differences in changes of LoC and CFC between the most and least desirable residential images, study two did reveal that the contemplation of the least desirable residential neighbourhood images predicted significantly more change in AoT than the most desirable neighbourhoods, suggesting that even a brief exposure to a less desirable neighbourhood can lead to significantly higher levels of anticipated threat to the self in the near future.

It was also predicted that those with higher self-reported levels of depression/anxiety and paranoid ideation would show elevated contemplation effects, particularly after contemplating the least desirable residential images. Full support for this hypothesis was found in relation to AoT, with depression, anxiety and paranoid ideation significantly predicting post-contemplation AoT after controlling for gender and pre-contemplation AoT. Furthermore, image type was found to significantly predict post-contemplation AoT after controlling for the effects of mental distress.

In both study one and study two contemplation of both image types caused participants to feel significantly less in control of their lives, anticipate significantly more threat and to report considering their futures significantly less. It is possible that these findings relate to individual differences in socio-economic status (SES) of participants or perhaps reflect general effects related to contemplation of unfamiliar places. It has been found that people with lower SES perceive more threat and less control generally (Chen & Paterson, 2006). It is possible that they anticipate more threat and perceive less control within contexts that are relatively unfamiliar to them with more desirable, affluent areas potentially feeling most unfamiliar. Alternatively, findings could be a result of order presentation effect in which time spent and fatigue could relate to decreasing levels of control and other negative changes to psychological processing. Future research should attempt to take into account self-reported SES and area of residence, to account for responses to different contexts.

The non-significant differences between urban and rural residential neighbourhoods in study one do not support interpretations of the urbanicity effect that are premised upon purported biophilic tendencies. Similarly, non-significant changes in LoC and CFC between the most and least desirable residential neighbourhoods do not support literature suggesting that changes in psychological processes are better predicted by perceived quality, in terms of the physical and social context of a place (Ellaway et al., 2001; Evans, 2003; Weich et al., 2006; Ellaway et al., 2009). However, the current findings that suggest that AoT changes, such that participants anticipate significantly more threat, are more pronounced after the contemplation of the less

desirable residential neighbourhoods, support previous finding around the effects of perceived physical and social characteristics of place. Furthermore, the change in AoT after contemplation of less desirable residential neighbourhoods is supported in a non-clinical sample for the 'harshness' and 'deprivation', measured by desirability, of a neighbourhood predicting psychological processes relating to paranoia and anxiety (Ellett et al. 2008, Nettle et al., 2014).

As expected high levels of depression, anxiety and paranoid ideation predicted more change in AoT after image contemplation, thus supporting previous literature that suggests that common biases relating to specific symptoms of mental health difficulties can cause individuals to be attentive to and anticipate more negative and threatening events in the future (Macleod et al., 1986; Mathews et al., 1996; Kaney et al., 1997; Corcoran et al., 2006; Abler, et al., 2007; Moutoussis et al., 2007; Kellough et al., 2008; Bentall et al., 2009; Strunk & Adler, 2009; Bennett & Corcoran, 2010; Paulus & Yu, 2012). Despite the large effects of measures of mental distress on post-contemplation AoT, image type was found to be a significant predictor after controlling for both gender and pre-contemplation AoT and measures of mental distress, thus, after controlling for individual differences, desirability of residential places significantly affected AoT after only a very brief, and remote exposure to a non-salient and unfamiliar place image.

It is likely that the nature of the active contemplation which involved a set of considered, qualitative judgements about the depicted residential area (e.g... 'How much antisocial behaviour would you expect to see in this area?'), may

by itself have influenced participants' responses. Such an interpretation is consistent with literature that suggests that both the physical and social quality of the urban environment determines the urbanicity effect, thus, using questions associated with the residential images could be viewed as both a methodological limitation and strength of the current study. On the whole, the authors regard the use of questions to focus attention and force an active contemplation of place as a positive aspect of this study, because it is likely to simulate the kind of thoughts that arise when visiting unfamiliar neighbourhoods. Furthermore, the augmented contemplation effect of AoT found in association with the less desirable residential images exists over and above the general effects of active contemplation. Future research might explore the role of the prompted contemplation by simply presenting the residential images without the questions in order to unpick the extent to which the perceived physical attributes of place can independently change responses.

2.5.1 Limitations

The educational status, age, sex and ethnicity bias of the sample limits the generalizability of these findings. Most importantly, the predominantly undergraduate samples are likely to be socio-economically skewed. The fact that females have been found to be more vulnerable to urbanicity effects (Sundquist et al., 2004) is also important to note. However, analyses did not find gender to be a significant predictor of post-contemplation AoT. Future research should attempt to use more epidemiologically representative samples that have a more equal gender ratio and that account for ethnicity.

While this study is important in demonstrating that even a very low level, simulated immersion in place can result in significant changes in self-reflection, the ecological validity of a lab-based study using static photographs of place is, of course, low. Future research could aim to build ecological validity by tracking participant's responses as they move through contrasting urban environments. It should focus on specific salient features of environments in order to better understand the influence of particular characteristics on psychological processes and decision making.

2.5.2 Conclusion

These studies have demonstrated the value of using a continuum model approach in psychological research exploring the effect of the environment on psychological responses related to mental distress. They have shown that contemplation of static images of different places can change the way we think about ourselves in the social world. Furthermore, levels of mental health and wellbeing determine specific psychological responses to different environments. This kind of research not only helps us to understand the urbanicity effect better but it can also begin to provide a scientific evidence base to shape the way we think about the design and management of places, and to link the policy areas of planning and public mental health in the promotion of more resilient communities.

CHAPTER 3

URBAN NEIGHBOURHOOD WALKING STUDY: EXPLORING THE INTERACTION BETWEEN VULNERABILITY TO PSYCHOPATHOLOGY AND THE EFFECTS OF DISTINCT URBAN NEIGHBOURHOODS

3.1 Abstract

Findings in chapter 2 showed that contemplation of residential neighbourhood images caused significant changes to psychological processes known to underpin mental distress. Furthermore, the least desirable neighbourhood images showed augmented effects relating to anticipation of threat. This study used walking methodology to improve ecological validity of previous research and better understand the extent to which brief exposure to contrasting urban areas can cause changes in cooperative decision making, gut reactions and psychological and affective responses. Furthermore, this study accounted for relative socio-economic status and used additional qualitative techniques to better understand the effects of perceived quality. Forty-seven student participants completed baseline measures of depression, anxiety and paranoid ideation and were invited to participate in a two mile group walk through distinct urban neighbourhoods and a park in Liverpool. Using an experience sampling booklet, participants reported gut reactions and affective and psychological responses at 16 'place nodes' along the walk. Participants revealed significant differences in gut reactions, affective and psychological responses to place between the distinct areas. Furthermore, participants were significantly more generous when making cooperative decisions and rated

themselves as relatively higher in terms of socio-economic status after completing the walk. Despite the known relationship between symptoms of mental distress and biased psychological processing, no interaction was found between mental distress and response variability along the walk. Similar to findings in chapter 2, the perceived quality of the distinct areas predicted psychological and affective responses. It also highlighted in/out group assumptions and inequalities in the management and uses of spaces. Finally, this study provided a flexible methodology to further explore psychological phenomena in context, with the scope of working with residents and professionals to identify ways in which urban design can make more mentally healthy places.

3.2 Introduction

3.2.1 The Urbanicity Effect

Since the early 20th century it has been suggested that the adversities of city living are a product of the relationship between antisocial processes, such as competitiveness and class conflict, and urbanisation (Park, Burgess & McKenzie, 1925). Trivedi, Sareen and Dhyani (2008) proposed that it is the marriage between individualistic culture and cities that increases a sense of powerlessness and anonymity, fuelling anger and forcing passivity amongst residents. Despite a well-established relationship between urban living and poor mental health, the 'urbanicity effect' is in need of further investigation into the effect of physical, social and economic characteristics of urban environments on the social and psychological processes that underpin symptoms of severe and common mental health difficulties.

Evidence has found detrimental effects of urban living on mental health. Faris and Dunham (1939) reported a per capita linear decrease in rates of schizophrenia and substance abuse from densely populated, disorganised, inner city regions of Chicago, to affluent, residential areas on the outskirts. Although some early work acknowledged the impact of social organisation, occupational income and status (Clark, 1949), much research has been based on population density and its effects on the rate of specific psychiatric diagnoses (e.g. Sundquist, Frank & Sundquist, 2004; Peen, Schoevers, Beekman & Dekker, 2010; Vassos et al., 2012). Despite the high concentration of deprived areas in cities (DCLG, 2011), the urbanicity effect has been found to exist even after controlling for these indices (McKenzie,

Murray & Booth, 2013). It is therefore thought to be more about the perceived quality of environments (Ellaway, Macintyre & Kearns, 2001; Ellaway et al., 2009), such that poor physical features can cause psychosocial stress linked to depression and psychosis (Weich et al. 2002; Galea, Ahern, Rudenstine, Wallace & Vlahov, 2005; Kirkbride, Jones, Ullrich & Coid, 2012), and that physical features such as poor housing quality can impact on perceived social support and control (Evans, 2003). Despite evidence to suggest a causal relationship between perceived social characteristics of place and risk of mental health difficulties (Ellaway et al. 2001; Stafford, Chandola & Marmot, 2007; Romans, Cohen & Forte, 2011), there is a possible cyclic relationship due to psychological biases associated with depression, anxiety and paranoia that may result in more negative reactions to place.

3.2.2 Psychological Biases

Symptoms of depression and anxiety share similar psychological biases as paranoia, and are found at attenuated levels in both clinical and non-clinical samples (Johns & Van Os, 2001; Verdoux & Van Os, 2002; Van Os, 2003; Freeman et al. 2008; Van Os, Linscott, Myin-Germeys, Delespaul & Krabbendam, 2009). For example, anticipation and avoidance of social threat are common across these symptoms (Corcoran et al., 2006; Moutoussis, Williams, Dayan & Bentall, 2007). In turn, disordered and deprived urban neighbourhoods have been found to be associated with more external sense of control, increased perception of threat and hostility, and increased distress

in those who live in them (Witt, 1989; Chen & Paterson, 2006; Ross & Mirowsky, 2009).

The extent to which an individual feels in control of their life as opposed to being ruled by external forces or powerful others is known as locus of control (LoC) (Rotter, 1966). The association between external LoC and symptoms of depression, anxiety and paranoia has been found in both clinical and non-clinical populations, and is more pronounced in individualistic societies and ethnic minority groups (Johnson & Sarason, 1978; Twenge, Zhang & Im, 2004; Moritz, Woodward, Burlon, Braus & Andresen, 2007; Harrow, Hansford & Astrachan-Fletcher, 2009; Cheng, Cheung, Chio & Chan, 2013; Van Dijk, Dijkshoorn, Van Dijk, Cremer & Agyemang, 2013). A more external LoC may also lead to increased perception of threat. A biased attention to threat (AoT), heightened attention to negative stimuli and an over-estimation of future threatening events has been found at attenuated level across depression, anxiety and paranoia (Macleod, Mathews & Tata, 1986; Mathews, Ridgeway & Williamson, 1996; Kaney, Bowen-Jones, Dewey & Bentall, 1997; Corcoran et al., 2006; Kellough, Beevers, Ellis & Wells, 2008; Bennett & Corcoran, 2010). This psychological process is dynamic and has been found to directly relate to neighbourhood characteristics.

3.2.3 Trust and Social Capital

Social capital is repeatedly found to correlate with civic engagement and trust, where trust is both the cause and the effect of social capital (Cote & Healy, 2001). Indeed, trust is a popular measure of social capital and is

thought to be an enabler of democracy and prosperity in a country (Fukuyama, 1995). The flexibility of these social attitudes means that there are great differences between social behaviours at different geographical levels. The walkability of a neighbourhood can predict the level of trust and civic engagement, with mixed-use neighbourhoods showing higher levels of social capital (Leyden, 2003). Physical and social environmental cues cause differences in cooperative and prosocial behaviours associated with high levels of social capital (Wilson, O'Brien & Sesma, 2009; Nettle, Colleony & Cockerill, 2011) and are driven by in-group/out-group assumptions. For example, the perceived trustworthiness of a neighbourhood was found to be positively associated with socioeconomic status and negatively associated with ethnic heterogeneity. Furthermore, if individuals knew that a stranger was from their own neighbourhood they would trust them significantly more than a stranger who was not (Falk & Zehnder, 2007). According to the 'broken window theory' inferences are made based on the physical and social environment, for example the more people that drop litter the more likely someone is to steal something in that area (Keizer, Lindenberg & Steg, 2008). It has been found that even a brief exposure to physical and social environmental cues can cause changes in perceptions about the self and others.

3.2.4 Brief Exposure to Urban Neighbourhoods and Green Space

The Camberwell walking study by Ellett, Freeman and Garety (2008) explored the acute psychological and clinical effects of exposure to a relatively resource-depleted and harsh urban environment in those with

persecutory delusions. Findings indicated that even a brief exposure to the harsh urban environment was associated with attenuated feelings of anxiety and persecution as well as an increase in negative beliefs about others and less consideration of future consequences in a probabilistic reasoning task. This study, despite some obvious methodological flaws (using a mindfulness condition as a control against the urban walk), provided good evidence to suggest harsh urban environments can alter the expression of persecutory delusions and can modify beliefs and decision making. Furthermore, Nettle, Pepper, Jobling and Schroeder (2014) compared the level of social trust and paranoia of residents of two contrasting neighbourhoods. The residents in the deprived neighbourhood displayed significantly lower levels of social trust and significantly higher levels of paranoia compared to the residents of the affluent neighbourhood. Interestingly, when the researchers exposed student volunteers to one of the two unfamiliar neighbourhoods, those exposed to the deprived neighbourhood reported significantly lower trust and significantly higher levels of paranoia after spending approximately 45 minutes delivering questionnaires to houses. The results found indicated that a brief exposure to a harsh urban environment can cause almost the same magnitude of difference in levels of trust and paranoia in visitors as it can in the residents.

Alternatively, green spaces, areas of predominantly grass, vegetation and trees in urban areas, are said to have 'restorative qualities' able to buffer against stressful life events (Van den Berg, Maas, Verheij & Groenewegan, 2010). These wellbeing benefits have been explained using evolutionary perspectives such as 'biophilia', humans' instinctual need to affiliate with

nature. Despite more complex debates about the quality and management of green spaces, early ideas remain about nature's restorative function and ability to regulate attention and attenuate negative emotions (Parsons, 1991 as cited in Van den Berg et al. 2010). Green space was therefore thought to make a good comparator/wash out when exploring the psychological effects of brief exposure to different urban neighbourhoods in this study.

3.2.5 Aims and Rationale

This study extends from contemplation research that used static images of urban environments differing in perceived desirability, to explore the extent to which the perceived physical and social characteristics of urban environments can alter the psychological processes that underpin mental health and wellbeing in a non-clinical sample. This study aimed to improve upon the ecological validity of data previously collected in order to contribute further to the evidence base that suggests that the physical and social quality of a neighbourhood can determine decision-making and affect psychological processes that underpin mental health and wellbeing. It also aimed to examine factors that emerged in the 2009 North West Mental Wellbeing Survey as important determinants for mental health and wellbeing in diverse communities. In particular it focussed on aspects that were most relevant to the respondents in Liverpool, for example feeling 'unsafe' in their neighbourhood. Furthermore, this study aimed to capture some of the psychological biases associated with symptoms of depression, anxiety and paranoia by exploring the extent to which measures of these symptoms at

baseline predicted the variability in gut reactions and psychological processes whilst walking through contrasting urban neighbourhoods.

It was hypothesised that gut reactions about residents, positive and negative affect, and psychological processes would be significantly different across distinct areas of the walk (Neighbourhood A, park and Neighbourhood B). Furthermore, that exposure to contrasting areas along the urban walk would cause significant changes in cooperative decision making. It was also hypothesised that relative SES and gut reactions about residents would predict psychological responses across the walk. Finally, baseline measures of mental distress were expected to predict the variability of affective and psychological responses to the distinct urban neighbourhoods.

3.3 Method

3.3.1 Walking as a Research Methodology: Selecting the Route

Walking as a research methodology was first adopted by cultural geographers, anthropologists and ethnographers (Anderson, 2004; Pink, 2008; Ingold & Vergunst, 2008), and has more recently been recognised by qualitative social scientists as a means to facilitate new ways of thinking about social phenomena (Hall, 2009). Walking as a 'mobile method' of research can enable both the experimenter and the participant to be exposed to multi-sensory stimuli in the surrounding environment (Adams & Guy, 2007). It allows the participant to gain insight into the relationship between place and self (Moles, 2008), identifying how their attitudes, insights and experiences are shaped through place. In this study, an experience sampling

booklet was used to gain both quantitative and qualitative data while participants were in place.

An urban design professional selected 16 'place nodes' or stops for data collection where participants would naturally scan and/or make navigation decisions. The walk was approximately two miles long between two train stations, and was designed to transit areas contrasting in physical characteristics, social composition and deprivation. For analysis purposes the route was split into three parts. Two contrasting urban neighbourhoods made up each end of the walk (stops 1-5, Neighbourhood A and stops 10-14 neighbourhood B), and were separated by a park used in this study to explore possible restorative effects of green space and as a wash out between neighbourhoods (stops 6-9). Both neighbourhoods were between 2-3 miles from Liverpool city centre and were similarly comprised of a busy shopping street with shops and restaurants and similar amount of roads, green space and near-by residential areas. However, analysis of neighbourhood ward statistics showed large contrasts in socioeconomic status; anti-social behaviour and ethnic composition between the two neighbourhoods (see Table 1. for summary statistics including measures of deprivation, income, ethnicity, anti-social behaviour and subjective wellbeing for the two distinct neighbourhoods).

Table 1. Summary Statistics for Neighbourhood A and B

Category	Indicator	Neighbourhood A	Neighbourhood B	Liverpool Average
1. Deprivation	IMD 2015 - % of Area in Most Deprived 10% Nationally	10.0	61.5	45.0
2. Income	Average Household Income 2015	£35,722	£22,365	£29,099
3. Crime	Anti-Social Behaviour per 1,000 Persons 2015/16	21.9	58.1	45.4
4. Ethnicity	% Ethnic minority residents (2011)	15.5	45.5	13.7
5. Wellbeing	Average Subjective Wellbeing, 2011 - 2012	7.4	7.2	-

1. Department of Communities and Local Government (2015) (<http://liverpool.gov.uk/council/key-statistics-and-data/ward-profiles/ward-map/>)
2. CACI Paycheck (2015) (<http://liverpool.gov.uk/council/key-statistics-and-data/ward-profiles/ward-map/>)
3. Liverpool City Council CitysafeTeam (2015/16) (<http://liverpool.gov.uk/council/key-statistics-and-data/ward-profiles/ward-map/>)
4. Census (2011) % of ethnic minority residents by ward (<http://liverpool.gov.uk/council/key-statistics-and-data/ward-profiles/ward-map/>)
5. Average Subjective Wellbeing Score from ONS Annual Experimental Subjective Wellbeing survey April 2011 - March 2012, 3-items relating to happiness yesterday, life satisfaction and feeling worthwhile, averaged across items and averaged across 5 stops in Neighbourhood A (Ward A) and 5 stops across 2 wards Neighbourhood B (opendatacommunities.org)

3.3.2 Participants

Participants ($N = 47$) were university students; participant 27 was removed due to incorrect completion of questionnaire items ($N = 46$). An equal number of males and females were included in the analysis (males $N = 23$, females $N = 23$). The majority of participants were aged 18-24 and classified themselves as White/White British/White English. Participant's self-reported family socio-economic status (Family SES) was predominantly above average when compared to the UK population, however, when asked to report their own socio-economic status (Self SES) the sample was more evenly distributed. Participants walked in groups of 7 or 8. There were 2 x mixed groups (4 male, 4 female), 2 x all male groups (8 males) and 2 x all female groups (7 and 8 females) (See Table 2).

At the end of the walk participants were asked to report any areas along the walk that they were familiar with. The majority of participants, approximately 67%, were unfamiliar with the urban areas along the walk; however some participants had previously been to the park. Approximately 17% of participants reported being familiar with some of the 'place nodes', more commonly within Neighbourhood A compared to Neighbourhood B. Finally, approximately 9% did not respond to the familiarity question. Despite some missing data, familiarity statements revealed that participants were, on the whole, unfamiliar with the residential areas along the walk, in particular areas in Neighbourhood B.

Table 2. Participant Demographic Information (N=46)

		Frequency	Percent (%)
Age range	18-24	44	95.7
	25-44	2	4.4
Gender	Female	23	50
	Male	23	50
Ethnicity	White/White British/White English	32	69.6
	White Non-British	6	13.2
	Non-White British	3	6.6
	Ethnicity not Specified	5	10.9
Self-reported Family SES	Less than or equal to UK average	7	15.2
	Greater than UK average	39	84.8
Self-reported Self SES	Less than or equal to UK average	21	45.7
	Greater than UK average	25	54.3

3.3.3 Measures

Baseline Measures

Demographics were gained from participants relating to age, gender and ethnicity as well as baseline measures of symptoms of mental distress.

Self-report Measures of Symptoms of Mental Distress

Persecution Scale from the Persecution and Deservedness Scale (PaDS; Melo et al. 2009)

PaDS is a 10-item measure of paranoid ideation designed for use in both non-clinical and clinical samples. Statements refer to direct or indirect intentional harm from others and respondents are asked to rate the extent to which they agree with each statement (0= certainly false; 4= certainly true). The authors of the scale report that it has a high internal consistency in a non-clinical, student sample ($\alpha = 0.84$).

Depression, Anxiety and Stress Scale (DASS 21; Henry & Crawford, 2005)

DASS 21 is a 21-item self-report scale used to measure the severity of symptoms relating to depression, anxiety and stress. Participants were asked to rate the extent to which each item applied to themselves on a 4-point Likert scale (0= did not apply to me at all; 3= applied to me very much, or most of the time). When compared with other validated measures of depression and anxiety DASS21 has been found to have high internal consistency ($\alpha = 0.93$; $CI_{95} = 0.93$ to 0.94), and good convergent and discriminant validity in a non-clinical adult sample.

A number of measures were taken pre- and post-walk on the day to observe possible changes in self-reported socio-economic status and cooperative decision-making.

Pre-post Walk Measures: Socio-economic Status and Cooperative Decision-making

The MacArthur Scale of Subjective Social Status (SES; Adler & Stewart, 2007)

The scale is a subjective measure of socio-economic status presented using a ladder format with 10 rungs. The rung at the top of the ladder (10) indicates that an individual believes they are better off, in terms of money, education and employment than the general population of the United Kingdom (UK) and the bottom of the ladder (1) indicates they believe they are relatively worse off. The original MacArthur scale was adapted to gain participant's perceived family SES (UK) and individual SES (UK).

Participants were invited to answer the following question relating to a co-operative offer

'If someone gave you £100 how much would you consider giving to a local community group to enable it to make improvements to the area?'

Repeated Measures

Participants were asked to complete the following measures at each of the 16 stops included in the experimental booklet.

Positive and Negative Affect Scale (PANAS; Watson et al. 1988)

The PANAS consists of two 10-item scales PA and NA that measure the extent to which individuals are experiencing different kinds of positive and negative affect. The two scales have high internal consistency (PA $\alpha=0.86$ to 0.90 , NA $\alpha=0.84$ to 0.87), and are reliable over time even at a moment level (Watson & Clark, 1984) when using an undergraduate student sample, thus making the scales highly suitable for this study.

The MacArthur Scale of Subjective Social Status (SES; Adler & Stewart, 2007)

The original MacArthur scale was adapted to gain participant's perceived relative SES at each of the 16 place nodes. The rung at the top of the ladder (10) indicated that an individual believed they were better off, in terms of money, education and employment than the residents living in the area surrounding the stop, and the bottom of the ladder (1) indicated that they believed they were relatively worse off than the residents in that community. (see experience sampling booklet appendix).

Participants were asked how likely it was that a potentially threatening event would occur in the next five minutes (0=I am completely sure nothing potentially threatening is going to happen in the next 5 minutes - 100= I am completely sure something potentially threatening is going to happen in the

next 5 minutes) and the extent to which they felt they were in control of what was likely to happen to them in the next five minutes (0=I feel completely in control of what is likely to happen to me in the next 5 minutes-100= I feel completely out of control of what is likely to happen to me in the next 5 minutes).

‘How likely do you think it is that something potentially threatening could happen in the next 5 minutes?’

‘How in control do you feel of what is likely to happen to you in the next 5 minutes?’

Participants were also asked to respond to ‘gut reaction’ questions relating to the residents of the neighbourhoods at each stop (e.g. rich vs. poor, trustworthy vs. untrustworthy, in control vs. helpless, community spirited vs. self-focussed) where 0 indicated residents were extremely poor, untrustworthy, helpless and self-focussed and 100 indicated residents were extremely rich, trustworthy, in control and community spirited.

Post-walk Measures: Weather and Familiarity

Weather ratings were collected in order to attempt to control for any effects the weather may have had on the findings. A 10-point Likert scale was used to collect participant’s weather ratings at the end of the walk. They were asked to consider what the weather had been like over the duration of the walk and give an overall weather rating where 1= extremely bad weather i.e. heavy rain and wind and 10= extremely good weather i.e. a perfectly clear sunny day.

Participants were also asked to provide open box statements about their familiarity with the different areas along the walk by following the instruction below

‘In the box below please state how familiar you were with the places along this walk and if there were any areas you knew particularly well’.

3.3.4 Procedure

Prior to going on the walk, participants were asked to complete an online survey including measures of mental distress. Participants were contacted via email with an information sheet and further maps and information to aid them in arriving at the given starting point (Station A $N = 23$, Station B $N = 23$); counterbalanced for direction of the walk. Before setting off, the researcher explained each component of the experimental booklet and the correct way to fill it in. At the first stop participants filled in the SES ladders for family and self and answered the hypothetical cooperative offer question. All of the walks set off as close to 1.30 pm as possible after first completing the neighbourhood SES ladder, PANAS, gut reaction questions and recording a salient feature at the starting point. At each of the next 15 stops participants were asked to complete all of the above and were encouraged to consider the immediate vicinity of the spot in which the group had stopped. Participants were prompted to record a description of a feature in the environment that was most salient to them, they were asked to consider not only physical features but also multisensory features if relevant. If participants felt it was appropriate they were also told that they could record a more abstract gut feeling that was salient to the stop. Participants were

also encouraged to take photographs at each place node. At the final stop participants repeated the family and self SES ladders and the cooperative offer question. They were asked to write a short statement about how familiar they were with the areas along the walk and if there was anywhere in particular that they knew well. Finally, participants were asked to rate the weather using a 10-point Likert scale.

3.4 Results

3.4.1 Effect of Control Measures

Independent samples t-tests revealed that there was no significant difference in gut reactions and affective and psychological responses between the counterbalanced walk direction conditions (Neighbourhood A to Neighbourhood B vs. Neighbourhood B to Neighbourhood A; $p > .05$). There was no significant difference in gut reactions or psychological responses between gender groups (male, female or mixed), however, there was a significant difference in negative affect scores $F(2,43) = 8.38$, $p = .001$, with the female only groups reporting significantly more negative affect than both the male only ($p < .001$) and the mixed groups ($p = .008$). Finally, despite an attempt to walk on days with similar weather, participant weather ratings significantly correlated with negative affect ($r = -.30$, $p = .043$), trust ($r = .32$, $p = .030$) and resident control ($r = .39$, $p = .007$).

3.4.2 Comparison of Gut Reactions about Residents, Affective Responses and Psychological Processes between Neighbourhood A and B and the Park.

In order to compare gut reactions about residents, affective responses and psychological processes across distinct areas of the walk, the walk was split into 3 areas, Neighbourhood A (stops 1-5), Park (stops 6-8) and Neighbourhood B (stops 10-14). Responses were averaged across the stops to give mean response scores for the three distinct areas.

Repeated measures ANOVAs were used to compare mean gut reactions about residents along the walk. There was a significant main effect of area on perceived resident control $F(2, 90) = 66.44, p < .001, \eta^2 = .60$. Pairwise comparisons revealed significantly lower perceived resident control in Neighbourhood B compared with Neighbourhood A ($p < .001$) and the park ($p < .001$). However, there was no significant difference in perceived resident control between the park and Neighbourhood A ($p = .074$). Furthermore, there was a significant main effect of area on perceived resident wealth $F(2, 80) = 95.71, p < .001, \eta^2 = .68$. Due to data violating the assumption of sphericity, F value was derived from Huynh-Feldt. Pairwise comparisons revealed significantly lower perceived wealth in Neighbourhood B compared to Neighbourhood A ($p < .001$) and the park ($p < .001$). There was also significantly lower perceived wealth in Neighbourhood A compared to the park ($p < .001$). Finally, there was a significant main effect of area on perceived community spiritedness $F(2, 90) = 11.68, p < .001, \eta^2 = .21$. Pairwise comparisons revealed significantly lower perceived community

spiritedness in Neighbourhood B compared to both Neighbourhood A ($p < .001$) and the park ($p < .001$). However, there was no significant difference in perceived community spiritedness between the park and Neighbourhood A ($p = .889$). (see Table 3 for Means ($\pm SDs$)).

Differences in gut reactions to areas and residents, was reflected in participants affective and psychological responses to the distinct neighbourhoods and the park. Repeated measures ANOVAs were used to compare mean positive and negative affect along the walk. There was a significant main effect of area on positive affect $F(2, 90) = 21.28, p < .001, \eta^2 = .32$. Pairwise comparisons revealed significantly more positive affect in Neighbourhood A compared with Neighbourhood B ($p = .001$), and significantly more positive affect in the park compared with both Neighbourhood B ($p < .001$) and A ($p = .001$). Furthermore, there was a main effect of area on negative affect $F(2, 90) = 6.74, p = .002, \eta^2 = .13$, caused by significantly more negative affect in Neighbourhood B compared to Neighbourhood A ($p = .019$) and the park ($p = .001$). However, there was no significant difference between reported negative affect between Neighbourhood A and the park ($p = .478$). (see Table 3 for Means ($\pm SDs$)).

Repeated measures ANOVAs were used to compare the mean psychological processes between Neighbourhood A, the park and Neighbourhood B. There was a significant main effect of area on perceived threat $F(2, 69) = 25.76, p < .001, \eta^2 = .36$. Due to data violating the assumption of sphericity, F value was derived from Huynh-Feldt. Pairwise comparisons revealed that the effect was the result of significantly more

perceived threat in Neighbourhood B compared to Neighbourhood A ($p < .001$) and the park ($p < .001$). However, there was no significant difference between Neighbourhood A and the park in terms of perceived threat ($p = .920$). There was also a significant main effect of area on trust $F(2, 90) = 49.39$, $p < .001$, $\eta^2 = .52$ with significantly lower levels of trust in Neighbourhood B compared to Neighbourhood A ($p < .001$) and the park ($p < .001$), however no significant difference was found between Neighbourhood A and the park ($p = .945$). There was no significant main effect of area on participant's perceived level of control across the walk $F(2, 90) = .11$, $p = .897$, $\eta^2 = .00$. (see Table 3 for Means ($\pm SDs$)).

Table 3. Descriptive Statistics Comparing Gut Reactions, Affective and Psychological Responses across Distinct Areas along the Walk

	Neighbourhood A	Park	Neighbourhood B
Positive Affect	21.77(± 7.91)	24.16(± 8.91)	19.54(± 7.09)
Negative Affect	11.90(± 2.82)	11.63(± 2.64)	13.10(± 3.56)
Threat	14.13(± 12.46)	14.01(± 13.64)	25.44(± 18.46)
Trust	57.01(± 20.83)	57.12(± 21.18)	40.21(± 23.11)
Control	34.01(± 31.95)	33.21(± 32.31)	33.95(± 27.34)
Resident Control	62.98(± 19.85)	66.04(± 19.31)	45.46(± 20.74)
Resident Wealth	57.60(± 13.41)	62.47(± 14.04)	40.99(± 12.06)
Resident Community Spirit	54.12(± 16.02)	53.80(± 19.93)	43.55(± 19.37)

3.4.3 Exposure to Contrasting Urban Neighbourhoods and Changes in Self-reported Socioeconomic Status and Cooperative Decision Making

Participants answered questions relating to self-reported socio-economic status and cooperative decision making at the start and end of the walk.

Mean scores were compared to explore the extent to which exposure to contrasting neighbourhoods along the walk caused participants to reconsider their socioeconomic positioning and cooperative offers. A paired samples t-test revealed that participants rated their socioeconomic status significantly higher after the walk (5.83 ± 1.65) compared to before the walk (5.52 ± 1.71), $t(42) = -2.49$, $p = .017$ (two-tailed). After walking through the contrasting neighbourhoods, participants rated themselves as having higher relative socioeconomic status compared to the UK average. Furthermore, a paired samples t-test found significantly higher cooperative offers after the walk (40.86 ± 30.49), compared to before the walk (29.45 ± 28.17), $t(41) = -3.80$, $p < .001$ (two-tailed) such that exposure to the contrasting neighbourhoods led participants to offer significantly more when asked *'If someone gave you £100 how much would you consider giving to a local community group to enable it to make improvements to the area?'*

3.4.4 Correlations between Gut Reactions about Residents, Relative SES and Affective and Psychological Responses across the Walk

Table 4 shows the correlations between measures of gut reactions about residents, walker's positive and negative affect, their psychological processes and relative SES. The perceived level of resident control across the walk correlated with threat and trust such that the more participants

perceived residents to be in control of their lives the less threatened they felt and the more trust they reported. Furthermore, perceived resident wealth across the walk correlated with threat and trust such that the wealthier the walkers perceived residents to be, the less threatened they felt and the more trust increased. Perceived levels of resident community spiritedness significantly correlated with threat such that as perceived community spiritedness increased reported threat decreased. Lastly, walkers' relative SES across the walk significantly correlated with threat and trust such that as participants reported relatively higher SES compared to residents from the area they felt more threatened and less trusting (see Figure 1).

Figure 1. Line Graph Showing Standardized Mean Scores along the Walk for Gut Reaction Measures about Self and Residents

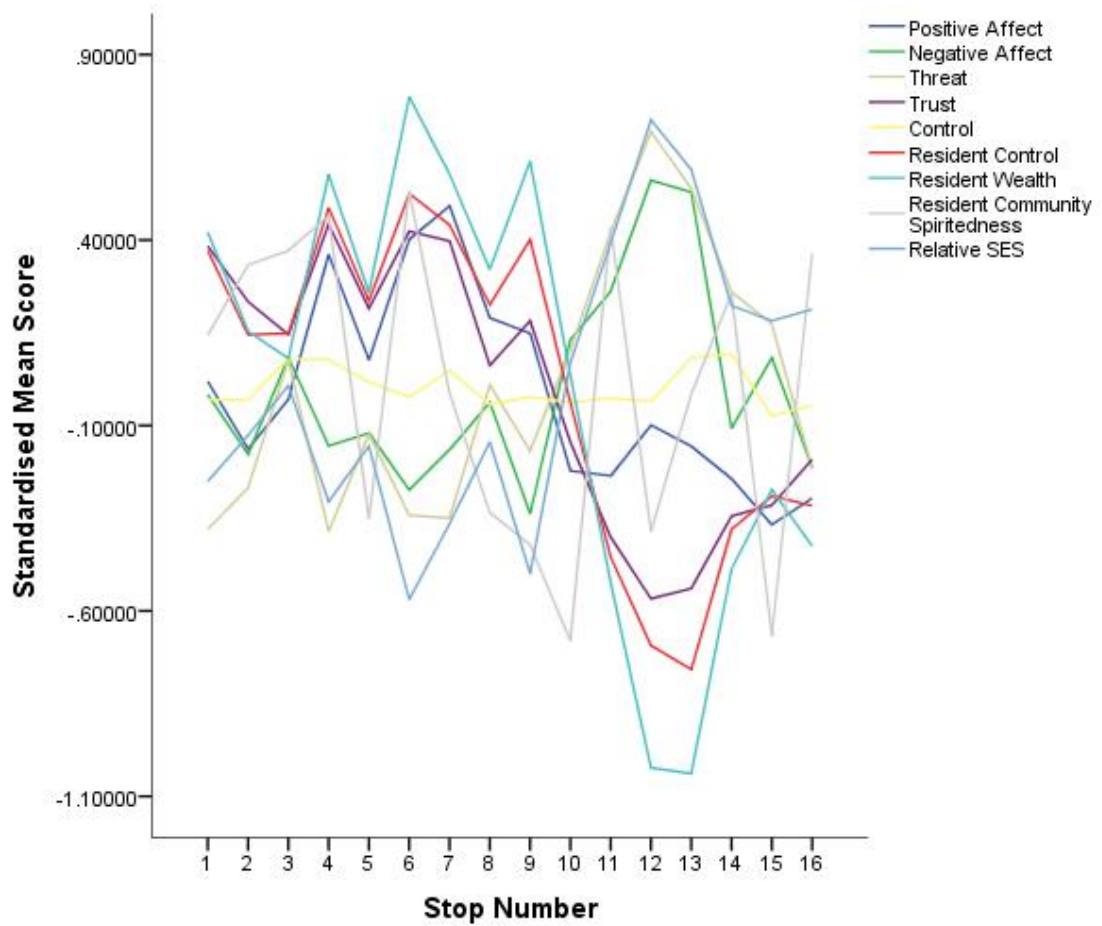


Table 4. Correlation Matrix Showing the Relationship between Affect, Gut Reactions to Place and Residents and Relative Socio-economic Status along the Walk

	2	3	4	5	6	7	8	9
1 Positive Affect	-.03	-.11**	.30**	-.16**	.26**	.23**	.03	-.07
2 Negative Affect	-	.41**	-.21**	.11**	-.22**	-.18**	-.08*	.08*
3 Threat	-	-	-.22**	.19**	-.30**	-.29**	-.13**	.18**
4 Trust	-	-	-	-.09*	.47**	.53**	.07	-.31**
5 Control	-	-	-	-	.11**	.08*	.02	-.15**
6 Resident Control	-	-	-	-	-	.75**	.11**	-.19**
7 Resident Wealth	-	-	-	-	-	-	.07	-.29**
8 Resident Community Spiritedness	-	-	-	-	-	-	-	-.02
9 Relative SES	-	-	-	-	-	-	-	-

Correlation Coefficient *p<.05, **p<.01 (two-tailed)

3.4.5 Regression Models with Gut Reactions about Residents, Gender and Relative SES Predicting Threat and Trust across the Walk

Enter method regression analysis was used to explore the extent to which gut reactions about residents, gender and relative SES predicted threat across the walk. Gender, relative SES and perceived resident control, wealth and community spiritedness were entered as predictors in the model. The overall regression model predicted approximately 18% of variance in threat scores (Adjusted $R^2 = .18$, $F(5, 724) = 32.91$, $p < .001$). Gender was a significant predictor of threat responses across the walk ($\beta = -.26$, $p < .001$) with females reporting significantly more threat than males. Furthermore, participants relative SES across the walk was a significant predictor of threat ($\beta = .14$, $p < .001$); as participants rated themselves relatively higher on SES across the walk perceived threat increased. Perceived resident control was a significant predictor of threat ($\beta = -.11$, $p = .031$); such that as perceived resident control increased threat decreased. Similarly, perceived wealth of residents was a significant predictor of threat ($\beta = -.14$, $p = .007$) with increased levels of wealth associated with significantly lower levels of perceived threat. Finally, the perceived level of community spiritedness across the walk was a significant predictor of threat ($\beta = -.10$, $p = .003$) where higher levels of community spiritedness were associated with significantly less threat.

Using the same predictor variables an enter method regression was conducted to explore the extent to which gut reactions about residents gender and relative SES predicted trust across the walk. The overall regression model predicted approximately 34% of variance in trust scores (Adjusted $R^2 = .34$, $F(5, 724) = 75.97$, $p < .001$). Gender was a significant predictor of trust responses across the walk ($\beta = .16$, $p < .001$) with females reporting significantly less trust than males. Furthermore, participants relative SES across the walk was a significant predictor of trust ($\beta = -.19$, $p < .001$); as participants rated themselves relatively higher on SES across the walk levels of trust significantly decreased. Perceived resident control was a significant predictor of trust ($\beta = .13$, $p = .007$); such that as perceived resident control increased trust increased. Perceived wealth of residents was also a significant predictor of trust ($\beta = .37$, $p < .001$) with increased levels of wealth associated with higher levels of trust. However, the perceived level of community spiritedness across the walk was not a significant predictor of trust ($\beta = .02$, $p = .473$).

3.4.6 Correlations between Measures of Baseline Mental Distress and Affective and Psychological Responses across the Walk

Baseline measures of mental distress were hypothesised to predict the variability of affective and psychological responses throughout the walk. Firstly, to explore this relationship, correlations were examined between the baseline measures of mental distress and the mean affective and psychological response scores calculated for the whole walk (see Table 5). Interestingly, paranoia only correlated with trust such that as paranoid

ideation increased average trust scores across the walk decreased.

Depression and anxiety was only found to correlate with negative affect

which unsurprisingly showed that as depression and anxiety scores

increased average negative affect scores across the walk also increased.

Table 5. Correlation Matrix Showing the Relationship between Baseline Mental Distress Measures and Mean Affective and Psychological Response Scores across the Whole Walk

	Sample (N=317) Mean (\pm SD)	Male (N=29) Mean (\pm SD)	Female (N=288) Mean (\pm SD)	2	3	4	5	6	7
1 Paranoid Ideation	12.74(\pm 8.83)	10.57(\pm 8.62)	14.91(\pm 8.67)	.57**	-.08	.24	.27	-.39**	.04
2 Depression and Anxiety	13.93(\pm 10.63)	11.48(\pm 11.34)	16.39(\pm 9.47)	-	.01	.32*	.22	-.20	.09
3 Positive Affect	21.12(\pm 7.16)	22.56(\pm 8.38)	19.68(\pm 5.52)	-	-	-.00	-.07	.28	-.21
4 Negative Affect	12.17(\pm 2.40)	11.12(\pm 1.38)	13.22(\pm 2.76)	-	-	-	.52**	-.13	.12
5 Threat	18.14(\pm 13.01)	13.14(\pm 12.26)	23.13(\pm 11.99)	-	-	-	-	-.05	.21
6 Trust	49.94(\pm 20.30)	54.57(\pm 25.78)	45.31(\pm 11.57)	-	-	-	-	-	-.12
7 Control	33.42(\pm 29.31)	26.37(\pm 31.65)	40.48(\pm 25.52)	-	-	-	-	-	-

Correlation Coefficient *p<.05, **p<.01 (two-tailed)

3.4.7 Paranoid Ideation and Depression/Anxiety as Predictors of Trust and Negative Affect and the Interaction with Distinct Areas along the Walk (Neighbourhood A compared to Neighbourhood B)

Due to a significant positive correlation between paranoid ideation and the average trust scores across the whole walk, and significantly less trust in Neighbourhood B compared to Neighbourhood A a 2x3 mixed ANOVA was conducted to explore whether there was a significant interaction between paranoid ideation and area. In order to conduct this analysis a median split was used to group participants into either high or low paranoid ideation groups. The ANOVA revealed a significant effect of area on levels of trust $F(2, 88) = 48.42, p < .001, \eta^2 = .52$. Pairwise comparisons revealed this effect was due to significantly lower levels of trust in Neighbourhood B compared with both Neighbourhood A ($p < .001$) and the park ($p < .001$); however there was no significant difference between Neighbourhood A and the park ($p = .946$). The ANOVA also revealed a main effect of paranoid ideation on levels of trust $F(1, 44) = 9.13, p = .004, \eta^2 = .17$, with significantly lower levels of trust in the high paranoid ideation group (41.73 ± 13.59) compared to the low paranoid ideation group (58.16 ± 22.74). However, there was no significant paranoia by area interaction $F(2, 88) = .12, p = .892, \eta^2 = .00$. (see Figure 3. for interaction plot).

To further explore the significant positive correlation between depression/anxiety scores and the average negative affect across the whole walk, and the significantly higher levels of negative affect in Neighbourhood B compared to Neighbourhood A, a 2x2 mixed ANOVA was conducted to

explore the interaction between depression/anxiety and area. In order to conduct this analysis a median split was used to group participants into either high or low depression/anxiety scores. Due to data violating assumptions of sphericity the Huynh-Feldt statistics has been presented for ANOVAs. The violation of sphericity is likely due to the slightly unequal high (22) and low (24) depression/anxiety groups produced by the median split. The ANOVA revealed a significant main effect of area on levels of negative affect $F(2, 84) = 6.55, p = .003, \eta^2 = .13$. Pairwise comparisons revealed this effect was due to significantly higher levels of negative affect in Neighbourhood B compared to both Neighbourhood A ($p = .021$) and the park ($p = .001$); however, there was no significant difference between Neighbourhood A and the park ($p = .462$). Furthermore, the ANOVA revealed a main effect of depression/anxiety on levels of negative affect $F(1, 44) = 5.96, p = .019, \eta^2 = .12$, with significantly higher levels of negative affect in the high depression/anxiety group (13.00 ± 2.50) compared to the low depression/anxiety group (11.42 ± 2.09). However, there was no significant depression/anxiety by area interaction $F(2, 84) = .44, p = .634, \eta^2 = .01$. (see Figure 4. for interaction plot).

Figure 3. A Line Graph to Show the Effect of PaDs and Area on Levels of Trust

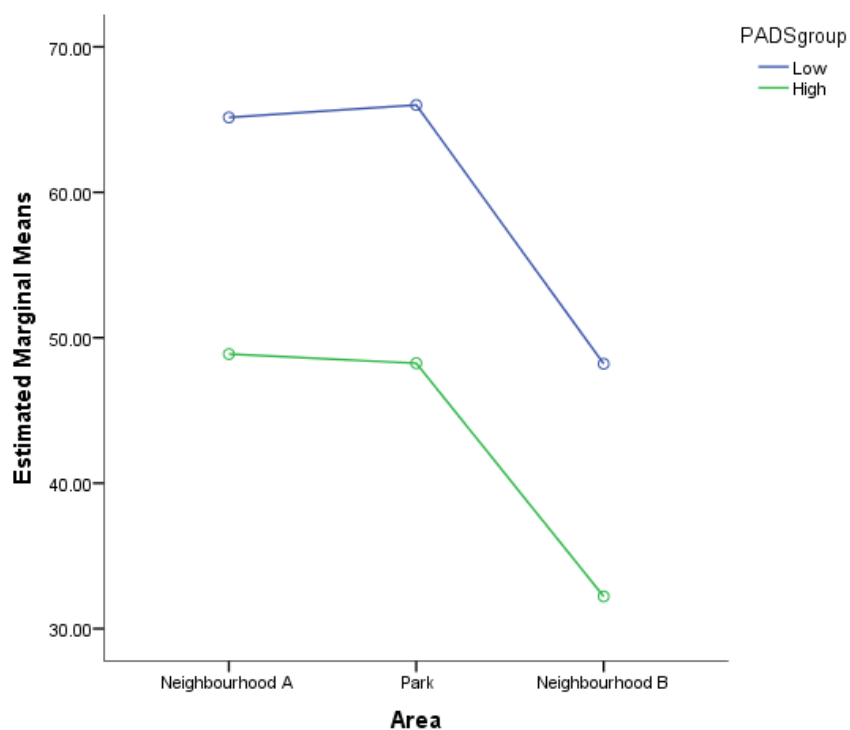
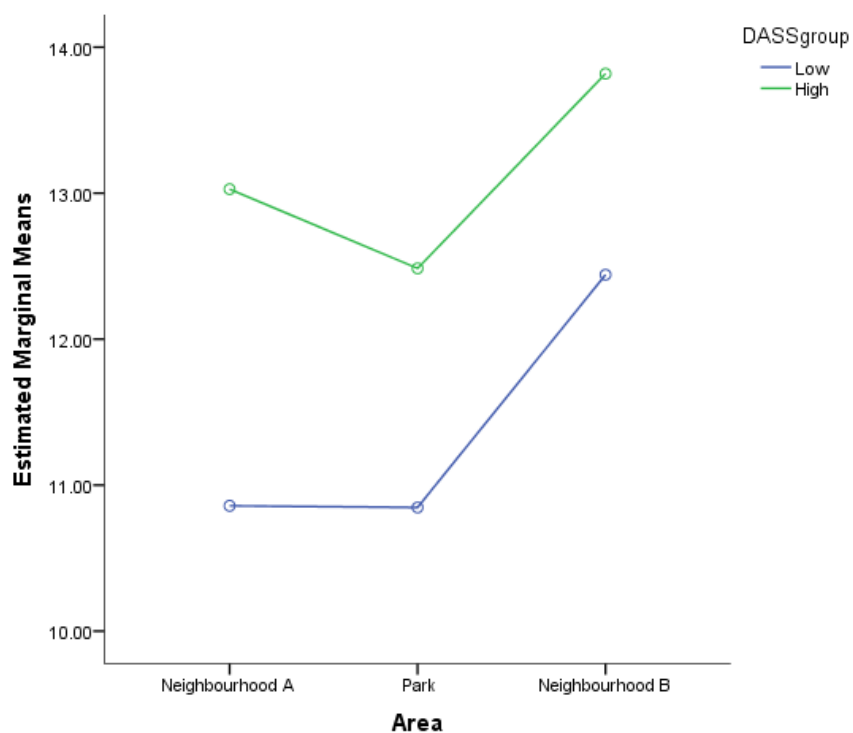


Figure 4. A Line Graph to Show the Effect of DASS and Area on Levels of Negative Affect



3.4.8 Salient Features

Participants were asked at each stop to record a feature in the environment that was most salient to them (see Figure 5. for participant photographs of salient features). Salient features were compared between the two distinct urban neighbourhoods with the aim of identifying any key neighbourhood characteristics that may have caused significant differences in quantitative measures. Despite analysing individual words and not phrases e.g. adjective and noun, the word clouds (see Figures 6. and 7.) revealed some differences between salient features reported in Neighbourhood A and B. Participants reported similar physical features, such as houses, shops green space and busy-ness; however the adjectives used to describe the areas were quite different. For example, participants used words such as 'nice', 'colourful', 'pleasant' and 'pretty' when describing Neighbourhood A and described the area as 'middle class', 'affluent' and 'wealthy'. In contrast, Neighbourhood B was described as 'abandoned', 'run down' and 'derelict' with more comments relating to disorder e.g. 'graffiti', 'drunk man' and 'smell weed'. There were also more comments relating to ethnic heterogeneity. e.g. 'foreign shops', 'many cultures', 'mixed cultures' and 'foreign people'. The use of adjectives suggests that differences in quality and management of the places was more important than the physical features themselves, and may therefore be the cause of different gut reactions, affective responses and psychological processes between the two areas. This analysis also indicates potentially strong 'out group' effects whereby these predominantly white middle class participants felt most uncomfortable in the areas where people were perceived to be most different to them.

Figure5. Participant's Salient Feature Data across the Walk (Neighbourhood A to Neighbourhood B)

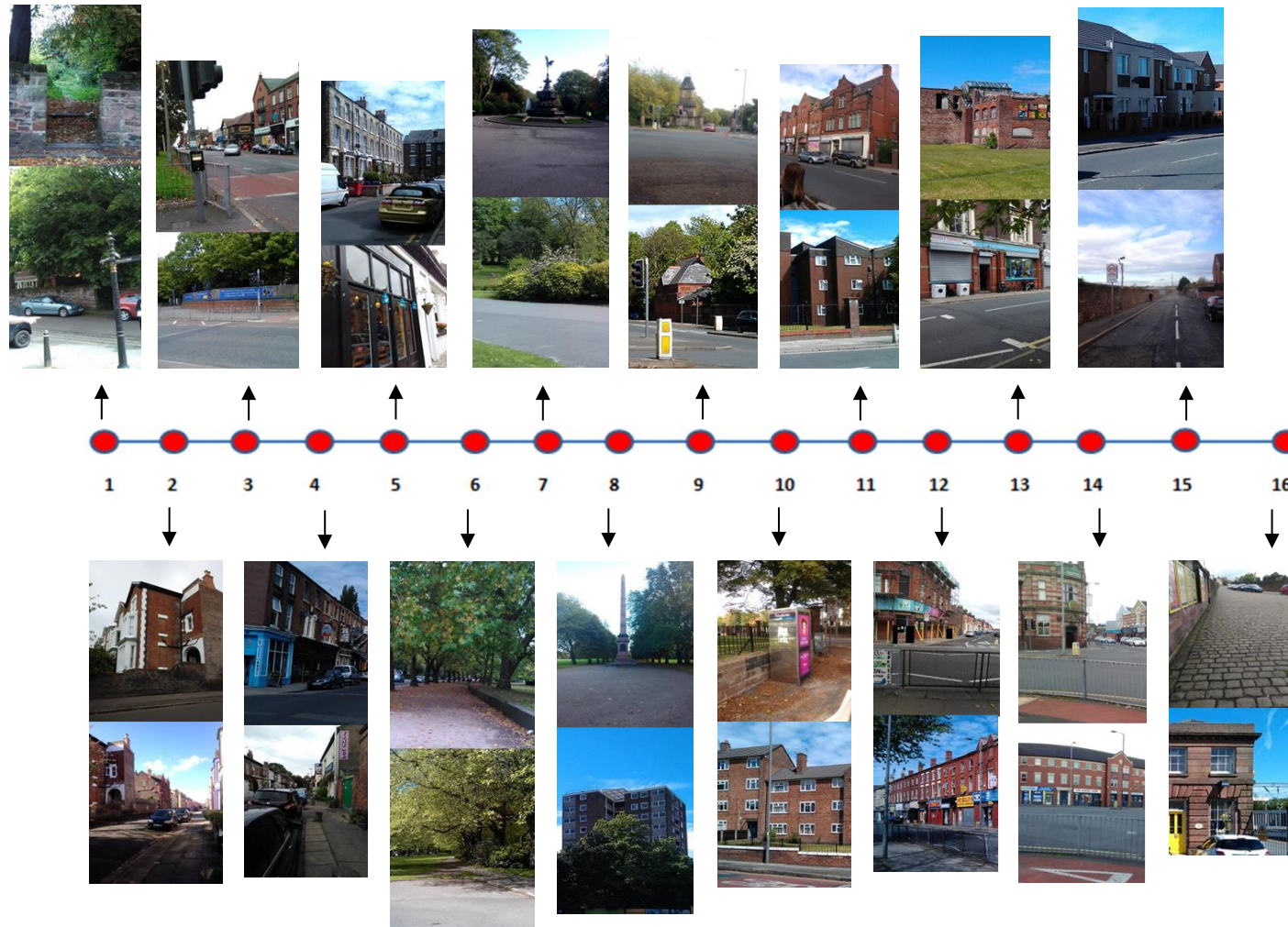


Figure 6. Word Cloud of Salient Features in Neighbourhood A (stops 1-5)



Figure 7. Word Cloud of Salient Features in Neighbourhood B (stops 10-14)



3.5 Discussion

This study aimed to explore the different gut reactions, affective and psychological responses to distinct areas across an urban walk.

Furthermore, it aimed to measure changes in cooperative decision making and the extent to which baseline measures of mental distress could predict the variability of responses to the distinct urban neighbourhoods. Participants' gut reactions, affective and psychological responses were confirmed to be significantly different across the distinct areas of the walk. Specifically, participants perceived residents in Neighbourhood B to be significantly less in control of their lives, significantly less wealthy and significantly less community spirited when compared with residents from Neighbourhood A and the park. Participants perceived residents from the park area to be significantly wealthier than those from Neighbourhood A, however, there was no significant difference found for resident control or community spiritedness. These differences in gut reactions to residents were reflected in significantly different affective and psychological responses between the distinct areas along the walk.

Participants reported significantly less positive affect and significantly more negative affect in Neighbourhood B compared to Neighbourhood A and the park. Participants reported significantly more positive affect in the park compared to Neighbourhood A, however, this difference was not found for negative affect. Furthermore, participants reported significantly more threat and less trust in Neighbourhood B compared to Neighbourhood A and the park. However, there was no significant difference in threat and trust scores

between the park and Neighbourhood A. Finally, there was no significant difference in perceived levels on control across the distinct areas along the walk. Results support hypotheses relating to differences between the distinct urban neighbourhoods, however, the lack of differences between the park and the more affluent neighbourhood is worth further investigation. For example, it may reflect historic or heritage built fabric connections into this community to and from this listed park that are, in turn influencing people's affective psychological responses.

It was notable that after being exposed to the contrasting areas along the walk participants reconsidered their relative national SES positioning, rating themselves significantly higher after the walk compared to baseline.

Investigation into exactly what this means and the value of this finding will be discussed. Exposure to the distinct areas along the walk also saw significant changes in hypothetical cooperative decision making with participants offering significantly more money to a local community group after the walk compared to baseline. This finding supports the hypothesis that changes to cooperative decision making are place-related as demonstrated by Wilson, O'Brien and Sesma (2009). The direction of the relationship found in this study will be discussed.

Participants' gender, relative SES across the walk and the perceived level of resident control, wealth and community spiritedness were all significant predictors of threat responses along the walk. Females reported significantly higher average threat responses than males, furthermore, the higher the relative SES and the less in control, wealthy and community spirited the

residents were perceived to be, the more threat was perceived. Similarly, participants' gender, relative SES across the walk and the perceived level of resident control and wealth were all significant predictors of trust responses along the walk. Females reported significantly lower levels of trust than males, furthermore, the higher the relative SES and the less in control and wealthy the residents were perceived to be the lower the levels of trust. Notably, community spiritedness was not found to significantly predict average levels of trust along the walk. Paranoid ideation correlated with average levels of trust along the walk; however, there appeared to be no interaction between paranoid ideation and the distinct areas along the walk. Finally, depression/anxiety scores correlated with negative affect; however, there was no interaction between depression/anxiety and the distinct areas along the walk. As predicted, relative SES and gut reactions to residents significantly predicted both affective and psychological responses along the walk. However, despite paranoid ideation predicting trust and depression and anxiety predicting negative affect, hypotheses relating to baseline mental distress as a predictor of variability of responses across the walk were generally not supported.

In contrast to findings by Evans (2003), brief exposure to the distinct urban neighbourhoods did not produce significant changes in participants reported levels of control. Research by Witt (1989) suggested that people who live in urban areas generally report a more external locus of control and less belief in a just world. However, in this study we were interested in visitors' reactions about people and places at a neighbourhood level. For this reason we asked participants to make quick judgements on the level of resident control, and

these showed that our walkers/visitors judged the residents of Neighbourhood B to be significantly less in control of their lives. It is notable that Evans (2003) reported that areas of poor physical quality tend to be populated by relatively poor, ethnic minority communities. It is possible therefore that the participants may have drawn conclusions based on ethnicity and not so much on the quality of the physical environment itself. In either case, any awareness that they are perceived as having less control over their lives is likely to augment existing feelings of powerlessness in less well off, more marginalised communities (Johnson & Sarason, 1978; Twenge et al., 2004; Chen & Paterson, 2006; Moritz et al., 2007; Harrow et al., 2009; Cheng et al., 2013; Van Dijk, et al., 2013).

Similarly, gut reactions relating to the wealth of residents may have been caused by the quality of physical features in the environment or by the perceived demographic of residents. Indeed, unpicking the physical from the social characteristics of place is difficult but also artificial. For example, the level of community spiritedness perceived in the two areas was significantly different and was related to perceived wealth of residents which in itself will be a judgement made, in part, on the basis of the physical surroundings and from the people the participants came across as they walked through the neighbourhoods. Perceptions of place are layered and inter-related.

Community spirit is a dimension of social capital which is highly correlated with trust; differences between the two areas on both measures may have been driven by perceived low socioeconomic status and ethnic heterogeneity (Falk & Zehnder, 2007). While also driven by how the perceived quality of the environment influences walkers' perceptions about social support and level

of resources (Evans, 2003). Nevertheless, significant differences in trust between the two neighbourhoods is support for previous field research that found both the residents and visitors of deprived urban neighbourhoods reported lower levels of trust (Nettle et al., 2014).

The difference in maintenance of the two neighbourhoods could have driven inferences about disorder and risk of crime (Keizer et al., 2008) such that differences in anticipation of threat may have been caused by perceived disorder, a characteristic associated with both the physical maintenance of a place and the social demographic. The added richness of qualitative salient features revealed that the perceived quality of the two urban neighbourhoods was more important than the physical features, green space and its liveliness. This supports previous research in suggesting that perceived quality is more important than density in terms of changing psychological processes relating to mental health and wellbeing (Ellaway et al. 2001; Ellaway et al., 2009). Participants also reported significantly different levels of negative affect in the two distinct neighbourhoods. Negative affect, a core feature of depression, can be seen here to be both a possible cause and effect of responses to place (Ellaway et al. 2001; Stafford, et al. 2008; Romans et al. 2011). Despite the obvious cyclic relationship between variables, findings support Ross and Mirowsky (2009) showing that perceptions of threat and disorder correlated with mistrust and perceived external control of residents, resulting in negative affect after a brief exposure. This is support for the worsening of symptoms mediated by negative affect after brief exposure to a harsh urban environment, like that found in Ellett et al.'s (2008) Camberwell walking study.

Although the park itself was obviously not residential but was surrounded by Victorian villas, comparing mean gut reactions in the park to the two urban neighbourhoods revealed interesting assumptions about which neighbourhood was felt to be associated with the green space i.e. whose asset the park was considered to be. Regardless of the direction that was walked, the walkers' gut reactions about resident control, wealth and community spiritedness were more similar between Neighbourhood A and the park compared to Neighbourhood B. Despite both urban neighbourhoods having access to the park, it seemed that participants associated the green space with the more affluent urban neighbourhood (A). The size of the road separating the park from each neighbourhood is probably an important urban difference that is relevant to this sense of connectedness between neighbourhood and park. A walking tour with urban design professionals and local residents could reveal why in this study, the park was associated with the more affluent neighbourhood, and identify possible design features that could change this perception for both residents and outsiders. The green space appeared to be a successful wash out for groups walking in both directions, providing peaks in positive affect and trust while reducing the anticipation of threat. On the face of it, these findings support previous research suggesting that green spaces have 'restorative qualities' (Van den Berg et al., 2010).

In experiments such as this one, the participants relative socio-economic positioning is of paramount importance in determining subjective responses to place. In this study we found that relative SES along the walk significantly correlated with perceived resident control and wealth as well as participants

own perceived sense of threat, trust and control reported at the stops along the walk. The higher the relative SES the more threat was perceived and the less trust and control was reported. This is likely due to the widened perceived wealth gap and lower perceived resident control. Findings that relative SES and gut reactions about residents are significant predictors of anticipation of threat and levels of trust support previous literature that suggests that trustworthiness is driven by in/out group assumptions (Falk & Zehnder, 2007); assumptions that were partially determined by physical cues in the environment.

In line with previous research, participants who reported higher levels of paranoid ideation at baseline showed lower levels of trust on average throughout the walk. Similarly, and unsurprisingly, participants with high levels of depression and anxiety reported significantly higher average levels of negative affect across the walk (Witt, 1989; Chen & Paterson, 2006; Corcoran et al., 2006; Moutoussis et al., 2007; Ross & Mirowsky, 2009). However, there was no mental distress by neighbourhood interaction for either paranoid ideation or depression/anxiety, therefore no real evidence that those high on measures of mental distress were affected more by the harsher urban environments than those low on the indices. Despite psychological biases of those with higher levels of mental distress, the lack of interaction between place and existing symptoms appears to support a more general and direct effect of places on mental health as opposed to a reactive, emotionally biased response to specific negative or threatening aspects of place.

3.5.1 Limitations

Despite its ecological validity in trying to account for the characteristics, fluidity and contrasts of real places, this study had some significant methodological limitations. Firstly, the sample was homogeneous in terms of age, ethnicity and socioeconomic status. A predominantly white, middle class student sample meant that findings were not generalizable to other populations. There is little doubt that very different findings would emerge if the study were replicated with different demographic groups. Nevertheless, the study revealed some uniquely interesting findings relating to relative SES and assumptions drawn by this particular demographic based on physical aspects of the environment. We suggest that this methodology could be a useful tool for gathering layered responses to place, from different sectors of society. It is notable too that the inclusion of measures of participant's relative SES gave the study increased explanatory power compared with previous research that used undergraduate samples and didn't control for their status (Nettle et al., 2014). The group nature of the walking tours could also be seen as a limitation, with the groups acting as a buffer, potentially masking true individual feelings of threat and lack of control for example. However, one might counter that criticism by arguing that walking around in small groups is probably as common as walking around places as an individual. In an attempt to control for gender, we ran walks of single sex and mixed sex. On reflection, in order for gender to be a true control variable in analyses, all groups should have been equally mixed. Despite sample size limitations, the repeated measures design meant that although our overall sample was smaller than previous between subjects research (Ellett et al.,

2008; Nettle et al., 2014), we had far more data per participant increasing the study's power.

Previous place-based research by Nettle et al. (2014) also gained measures of mental distress and psychological processes from residents to make comparisons to visitors' responses. This was not possible within the scope of this study but open access data was reported and suggested social and economic characteristics of residents that matched some of the participant's perceptions. Another possible limitation of the current study was the explicitness of questions, potentially causing demand characteristics and social desirability effects. Alternatively, experience sampling methodology could be used with an app recording measures similar to that in this study; rather than an imposed route, GPS tracking could be used as well as the encouragement of photograph taking.

In order to capture a more implicit measure of affect across the walk, affective content analysis could be used on the qualitative salient features recorded along the walk. Furthermore, to understand what physical and social features of urban neighbourhoods contribute to changes in psychological processes, portable eye tracking equipment could be used to identify gaze and attentional bias. For an added physiological response to threat and anxiety, heart rate tracking devices could also be worn by participants along the walk, and rates could be correlated against explicit responses. However, all of these additional data gathering methods work to reduce ecological validity by increasing the need for additional portable devices needed to measure 'in context' responses. We must never forget

that the simple act of measurement itself changes the implicit and explicit responses that individuals have to stimuli in whichever context you are carrying out experimentation.

Despite the majority of participants being unfamiliar with the areas along the walk, some were familiar with the more affluent neighbourhood and the park. Familiarity, in terms of the neighbourhood most like their own family neighbourhood growing up, could also be part of the in/out group arguments mentioned earlier. Future research should look to make walks more participant-led and participants should include the residents themselves if we are to better understand the way living in urban areas contributes to mental health risks. However, the underlying theme of contrasting socioeconomic status and quality of environments should also be considered, to explore social comparison and stigma within a city.

3.5.2 Conclusion

This study aimed to improve upon the ecological validity of data previously collected in order to contribute further to the evidence base that suggests that the physical and social quality of a neighbourhood can determine socially-minded decision-making, and affect psychological processes that underpin mental health and wellbeing. Further, it aimed to capture some of the psychological biases associated with symptoms of depression, anxiety and paranoia by exploring the extent to which measures of these symptoms at baseline predicted the variability in gut reactions, affect and psychological processes whilst walking through contrasting urban neighbourhoods. What is difficult to unravel in this study is the extent to which clear differences in gut

reactions to residents, affective responses and psychological processes were the result of the perceived quality of the environments or due to other factors including in/out group assumptions based on SES and ethnicity.

This study provided a rich data set able to support previous research relating to the physical quality of urban neighbourhoods, relative SES, gut reactions about residents, affective response and psychological processes that underpin mental health and wellbeing. It provided some support for the restorative qualities of green space and the effects of exposure to contrasting areas on cooperative decision making, and partially supported ideas around psychological biases associated with symptoms of mental health, despite no interaction with place. Future research should continue to study the urbanicity effect in context, and should aim to make methodology more participant-led, allowing individuals to be experts of their own places.

Alternatively, research should aim to collect more implicit measures relating to place to gain a clearer picture of the physical and social characteristics of urban neighbourhoods that affect the psychological processes that underpin mental health and wellbeing.

Unfortunately, one of the strongest messages from this study was the perceived inequality in South Liverpool and the extent to which people make in/out group assumptions. Research suggests that people are living in close proximity to one another but without understanding each other, and this social fragmentation has been found to be a risk factor for psychosis regardless of material deprivation or urbanity (Allardyce et al., 2005). A lack of mixing between those of different socioeconomic status and ethnic

minority will exaggerate perceived differences and will prevent bridging social capital and cooperative ventures in cities. This study highlighted the perceived inequality in terms of the physical quality of the two urban neighbourhoods, suggesting that the maintenance of spaces is unequal causing important assumptions to be made about the residents and possible broken window effects.

This study has raised many questions but has provided a basic methodology that is flexible and can be improved as a tool to study psychological phenomena in context, with the aim of providing evidence to create more psychologically benign urban environments.

CHAPTER 4

WHAT CAN LIVED EXPERIENCE ACCOUNTS OF CITY LIVING THROUGH THE LIFESPAN TELL US ABOUT THE URBANICITY EFFECT AND FUTURE THINKING ABOUT PLACE MAKING?

4.1 Abstract

Previous psychological research exploring the urbanicity effect has failed to capture the experience of urban living through different life stages and the interaction between physical and social characteristics of place. This study used a novel lived-experience approach within a participatory urban design process to build a qualitative evidence-base on experience of city living.

Respondents were four service user members of a local mental health charity who took part in a 4 part 'design your own space' workshop series.

This study analysed the qualitative data collected during 2 focussed group discussions that explored the experience of urban living through childhood, adolescence and adulthood, and place-making solutions.

The focussed discussions revealed a sense of nostalgia and attachment to place in childhood then a realisation of vulnerability in adolescence relating to place and social positioning. In adulthood, respondents spoke of multiply disadvantaged groups, a lack of togetherness and a sense of stigma and passivity amongst people. These issues were seen as barriers to the kind of nurture they regarded as necessary to make successful, cooperative places. Feelings of alienation that come from lack of trust were also evident in the data. The findings are discussed in relation to previous psychological research and improved future participatory methods are explored.

4.2 Introduction

Creswell (2004) defined 'place' as 'space which people have made meaningful' (p.7), in which experiences, memories and emotions can reproduce a place (Thrift, 2009). Places are formed of both concrete and abstract characteristics. Concrete characteristics include physical aspects of place such as visual, auditory and olfactory stimuli as well as the practical uses of places and objects. Alternatively, abstract characteristics are internal processes that places elicit in people, the memories and feelings that are experienced 'in place' are also related to the social characteristics of the environment (Cele, 2006). The city is therefore much more than the physical fabric; it is the tightly woven experiences of both the concrete and the abstract. Like all determinants of mental health and wellbeing, the risk and protection factors associated with urban living exist across different life stages and at individual, family, community and population levels. It is therefore important to acknowledge that when research is focussed on urban neighbourhoods; 'neighbourhood' will be defined by participants as more than just a geographical unit (De Silva, McKenzie, Harpham & Huttly, 2005). Individual definitions will be based on the perceived community, the social bonds, dynamics, group actions and diversity within a geographical location or setting (MacQueen et al., 2001). Research investigating the urbanicity effect, the increased prevalence of mental health difficulties in cities, should acknowledge the subjective experience of city living across different life stages, and should attempt to capture the interaction between physical, social and economic circumstances.

Previous research across disciplines has attempted to explain the 'urbanicity effect' using an ecological approach, often using cross sectional data and explaining the effects in terms of location at the time of psychosis onset (Faris & Dunham, 1939; Giggs, 1973). However, a dose-response relationship has been found showing that prolonged and repeated exposure to urban environments increases risk of psychosis (Pedersen & Mortesen, 2001). The adversities of city living are therefore thought to take effect from birth, with childhood regarded as a particularly vulnerable stage (Marcelis, Takei & Van Os, 1999). For example, deprivation, which is more concentrated in urban areas, interacts with social capital at both an individual and neighbourhood level, and is integral to childhood and adolescent development and wellbeing (Almedom & Glandon, 2008). Stevenson (1998) defined social capital as 'the sum total of positive relationships including families and neighbours that serve as buffers to negative influences within one's immediate environment' (p.48). However, more recent research has found that the interaction between deprivation and social capital can in fact cause negative mental health outcomes for children and adults alike (Mitchell & LaGory, 2002; Caughey, O'Campo & Muntaner, 2003). Furthermore, a strong attachment to a deprived neighbourhood can increase risk of common mental health difficulties (Stafford, De Silva, Stansfeld & Marmot, 2008).

It appears that perceived disorder in disadvantaged neighbourhoods can lead to alienation from others in the form of mistrust (Mirowsky & Ross, 1983). The external locus of control associated with low socioeconomic status brings a sense of powerlessness that augments the cycle of perceived disorder and mistrust (Ross, Mirowsky & Pribesh, 2001). Recent research

has suggested that harsh urban neighbourhoods can produce more negative beliefs about others and low levels of trust associated with paranoid ideation (Ellett, Freeman & Garety, 2008; Nettle, Pepper, Jobling & Schroeder, 2014). External locus of control appears to cause a level of victim blaming and stigma that is further fuelled by the media (Burke, 2007). Disadvantaged individuals are therefore victimised due to a lack of understanding of the wider social and structural impairments in society (Abercrombie, Hill & Turner, 2000).

Social and structural adversities such as low levels of trust and social capital are dynamic and influenced by the physical fabric of a place. For example, physical features such as housing type and quality influence psychological processes relating to trust and perceived social support (Evans, 2003). Furthermore, the use of space can predict neighbourliness with mixed use, walkable neighbourhoods reporting higher levels of social capital (Leyden, 2003). Urban spaces can also promote natural surveillance, an urban design technique originally employed to reduce crime but that has the potential to increase neighbourhood levels of trust (Cozens, 2002). Spaces designed to promote natural surveillance can be described as defensible spaces where defensible space is *'a means for restructuring the residential environments of our cities so they can again become liveable and controlled not by police, but by a community of people sharing a common terrain'* (Newman, 1973 as cited in Cozens, 2002, p.2).

Due to the concentration of poor quality environments in urban areas, and the increasingly top down, entrepreneurial approaches to urban design in the

UK (Carmona, 2010), there is a growing need to develop bottom up place-making practices. By prioritising resident's voice and the pursuit of social practices, places could be created with trust, cooperation and mental health in mind as opposed to facilitating private property development. By engaging those with lived experiences of both urban living and mental health difficulties, participatory place-making processes hold promise to produce information about the way physical, social and economic characteristics can interact to produce urban environments that are 'toxic' for mental health and wellbeing. By isolating and understanding these elements and their interaction we can learn how to make more therapeutic places.

This study has 2 specific aims. First, it aimed to build upon previous epidemiological and dose-response approaches to develop understanding of the urbanicity effect, and use contrasting methodology to establish how much added information could be gleaned from a direct analysis of the lived urban experience. Second, it aimed to provide a better understanding of the physical (concrete) and social (abstract) characteristics of urban environments deemed necessary for improved mental health and wellbeing through community cooperation and collective efficacy (Sampson, Raudenbush & Earls, 1997, Bandura; 2000). Methods used have been developed for use across different sectors, to specifically inform and actively engage people in thinking about their built and living environment. Individuals from a mental health service user group were deliberately approached in the hope that they would draw upon their own experience of urban living and mental health difficulties to produce ideas around future place-making. In line with Parr (1997; 1999; 2011), it was believed that the group would use their

experiences in an attempt to empower and help communities to become more than just the sum of local health services for mental health and wellbeing. Furthermore, given that local community engagement was highlighted as an important correlate of mental wellbeing in the 2009 North West Mental Wellbeing survey, the methodology of engaged place-making aimed to provide positive future thinking about places and to encourage participation in the development and management of their own neighbourhoods if possible.

4.2.1 Study Objectives

- To explore how qualitative methods examining lived experience can inform our understanding of the urbanicity effect by analysing how the experience of living in an urban area changes throughout different life stages (childhood, adolescence and adulthood)
- To explore how lived experience is drawn on in the process of thinking about better future places.
- To identify physical (concrete) and social (abstract) characteristics of urban neighbourhoods which are thought to reduce distress and encourage community activity and cooperation.
- To encourage positive future thinking about places and engagement in place-making decisions.

4.3 Method

4.3.1 Mental Health in Context: the City of Liverpool

Liverpool has an exceptional past; a city once named the 'city of change and challenge' has managed to maintain its unique character up to now (Belchem, 2006). Post World War II the once wealthy maritime city had to rebuild itself after extensive damage to the city centre and the docklands, with over 6000 homes destroyed. In response, 3000 temporary pre-fab bungalows were erected whilst an attempt was made to relocate the population to new estates on the city's periphery. Respondent 1 described this exact displacement experienced by her family:

'As a child we lived in a pre-fab, and me mother loved the pre-fab, loved it, then we went on to a housing estate, a brand new spank, we were the first ones in it' (R1, Workshop 1).

The city's economy moved from maritime to manufacturing and Liverpool saw an industrial and cultural revolution and began to be celebrated for its creative, good humoured and resilient people. However, between 1966 and 1977, 350 factories were closed and the city experienced mass unemployment and people were moving out. By the end of the 1970's, 15% of property in Liverpool was derelict or vacant. The city experienced political and economic meltdown in the 1980's and following the Hillsborough disaster in 1989 Liverpool was unfairly branded a self-pity city. However, the 90's was a decade of urban regeneration with a focus on social inclusion, and Liverpool saw an increase in population and employment.

Despite a huge amount of investment, Liverpool is still home to some of the most deprived wards in the UK and was described in more recent years as ‘a rapidly regenerating and gentrifying urban core surrounded by a ring of intensely disadvantaged residential areas’ (Belchem, 2006, p. xix). Some have suggested that the city is at risk of becoming a ‘franchise’ city (Garcia, 2004), one that is no longer designed for its residents. In 2008 Liverpool was once again recognised as a cultural hot spot and was awarded the European city Capital of Culture for its rich creative heritage. As the urban core flourished there was a sense that those on the edge had been ‘left behind’, like an ‘other to the great cultural centre’ (Hayden, 2000, p.219). Respondent 1 described this divide:

‘Now you’ve got that big eye in the sky, I’ve never been on that because it’s far too expensive, and it’s like little local children can’t, they see it but they can’t go on it because mum wouldn’t have the money. Everything they’re doing in Liverpool is geared up for the tourists’ (R1, Workshop 1).

In recent years the prevalence of common and severe mental health difficulties has been significantly higher in Liverpool compared to the average across England (Public Health England, 2014). Data from 2012-2013 showed 19.3% of respondents to a GP survey in Liverpool had moderate to severe anxiety and depression compared to a 12% national average. Furthermore, 1.2% of adults in Liverpool were reported to have severe mental health difficulties such as schizophrenia, bipolar and other psychoses compared to a 0.8% national average. In 2014, the estimated % of children aged 5-16 with a mental health disorder in Liverpool was 10.4% compared to a 9.3%

average for England (<http://fingertips.phe.org.uk/profile-group/mental-health/profile/cypmh/data#page/0/gid/1938132753/pat/6/par/E12000002/ati/102/are/E06000008>). Exploring the links between experiences of urban living across the life span and place-making for mental health and wellbeing is therefore highly relevant to the city of Liverpool.

4.3.2 Research Design

Due to the interdisciplinary nature of the research project and the distinct study objectives, a collaborative and creative approach was used. The unique methodology was in itself being piloted as a new approach for future place making, and there was some tension from respondents around it also being a psychology research project (see 4.4.11 Workshop Evaluation). The workshop series was based on participatory urban design approaches and therefore the research, though not fully respondent-led, was collaborative, open and flexible. However, there is often a power imbalance that characterises research (Letherby, 2011). In this study the researchers had control over the research tools, the workshop structure and the data and therefore could be seen to have an authoritarian status. Despite an attempt to use an emancipatory approach, the tension around the workshops being for research purposes was likely due to the power imbalance, something that some respondents may have previously experienced in a mental health setting. The combination of research and aspects of 'pedagogy of hope' may have made it difficult for respondents to believe our intentions due to a past of dehumanisation (Friere, 2000).

Workshops incorporated discussions including some primary research questions that were broad and open to guide conversations but within an established structure. The flexibility of workshop sessions, and the differences in approaches between sessions (discussions vs. activities), did result in participants dropping in and out of the overall workshop series. Due to the pilot nature of the study, data saturation was not possible, however, the unique, collaborative and creative approach aimed to inform future interdisciplinary research projects and place making processes. For the purpose of answering specific research questions (4.2.1 Study Objectives), data from workshop 1, 2 and evaluative comments from workshop 4 were analysed. These workshops were discussion, as opposed to activity based providing richer data.

Workshop Structure

The workshops were facilitated by a built environment expert and an experienced mental health researcher. A student researcher helped to facilitate but was predominantly responsible for recording the workshops and taking notes. The workshop series comprised 4 x 2 hour long sessions which fell between a week and a fortnight apart. The general discussion topics were loosely informed by the previous literature on the 'urbanicity effect'- the relationship between increased risk of mental health difficulties and urban living. Two voice recorders were used to record the workshop sessions. For a full workshop schedule see appendix 3.5.

Workshop 1: Urban Living at Different Life Stages, a Focus Group

Discussion

Open-ended questions were used to elicit memories of growing up as a child in an urban area, moving to how their experiences changed during adolescence and adulthood. The group was asked to focus on both the physical and social characteristics of the city and their perceptions and feelings about their neighbourhood as it currently is. The focus then moved to the group's 'desires and aspirations' for a future neighbourhood in terms of the physical and social features that a place needs to work for all generations and groups within the community. The aim was to capture the experience of urban living across the three main life stages to reveal positive and negative changes and associated feelings around place, mental health and wellbeing.

Workshop 2: Experience to Practice

The first half of the session was a continuation of session 1 prompted again by questions relating to what a place needs in order for it to function for the wellbeing of people? Next, the group were introduced to an area within the City region that has persisted as an area in need of 'regeneration' over a number of years. The group were encouraged to work together to discuss the following general topics:

- What functions should the place enable?
- In what ways is the place suitable for these functions and what hurdles/ barriers may there be?

- What measures (design) and safeguards (management) are required to enable the place to fulfil these functions?
- What will the place need to have to enable its purpose?

At this stage the respondents were prompted to think about how the place could achieve its purpose for different sectors of the community - children, adolescents, adults, carers, visitors etc. implicitly building on the prior discussions of lived experience at different life stages that emerged in workshop 1.

Workshop 3: Design

Using respondent's 'purpose' statement ideas and themes from the previous workshops, the group developed a framework design for the public space. At this point the group had the opportunity to draw and/or model their design.

Workshop 4: management and feedback

This session began with a short discussion around the management of the space and considered its sustainability. The built environment expert shared his interpretations and provided a report summary incorporating all of design ideas. Respondents were asked to share their experiences of the workshop series and comment on the process. This allowed the researchers to reflect upon the methodology with the group.

4.3.3 Respondents

A total of 4 respondents participated in the pilot workshop series; three males and one female with an age range of 45-64. All respondents were service

user members of a local mental health charity. Three respondents had lived in Liverpool their entire lives and one had lived in Liverpool for approximately 8 years. Since it was important to capture the experience of living in an urban area across the life span, respondents were recruited who reported growing up in an urban area. For respondent 2, who spent his childhood in Zimbabwe, the level of urbanity varied considerably. Three respondents took part in the first focus group (1) and four in the second (2). Three respondents attended the design (3) and feedback sessions (4). All 4 respondents spoke English as their first language. Respondent 1 was the key informer; she attended all 4 workshop sessions and was more vocal than the other respondents.

Researchers attended a service user group to introduce the research project and following this sent a study summary and full information sheet to the involvement worker. After initially contacting the group and sending information sheets, respondents were free to contact the researchers by either phone or email if they were interested in participating. If respondents gave verbal consent they were sent further information about the time and location of the workshops, and a summary of the workshop discussions and activities. This was to inform and prepare individuals for the types of discussions and group work involved. Full informed consent was gained on the day of the first workshop session.

4.3.4 Analysis

The study was analysed using thematic analysis techniques and frameworks to organise the data into themes (Braun & Clarke, 2006; Silverman, 2010).

Data from workshop1 and half of workshop 2 was analysed and the evaluative comments from workshop 4 were used in order to assess the efficacy of the participatory design process as a whole.

After familiarisation with data, transcripts were coded line-by-line identifying one or two related words that appeared most salient, retaining the original words of the respondent as much as possible. A framework was used to group codes into preliminary themes across the three different life stages (childhood, adolescence and adulthood). Extensive notes written throughout analysis stages helped to identify the most frequent codes and to advance theoretical ideas. Preliminary themes present across life stages and respondents were collapsed and organised to create themes, with the most salient identified as those appearing most frequently across respondents or repeatedly for one individual. Researchers had some a priori assumptions based on the literature and the final themes that emerged from the data were interpreted using knowledge of previous theories.

4.3.5 Ethics

The study was approved by the Institute of Psychology, Health and Society Research Ethics Committee (IPHS-1415-078). Respondents were given appropriate time to consider their participation. The information sheet, sent prior to the workshop sessions, clearly stated that discussions would be audio recorded on the day. Participants were made aware that at any point throughout the workshop sessions they were free to take a break or withdraw completely. The information sheet detailed confidentiality procedures and assured participants that all data would be password protected and

encrypted. Furthermore, it stated that statements taken from the workshop discussions would be anonymised so as to be non-identifiable. Participants were also given the right to withdraw data retrospectively. On the day of the first workshop, participants completed an informed consent form agreeing to the conditions of the study.

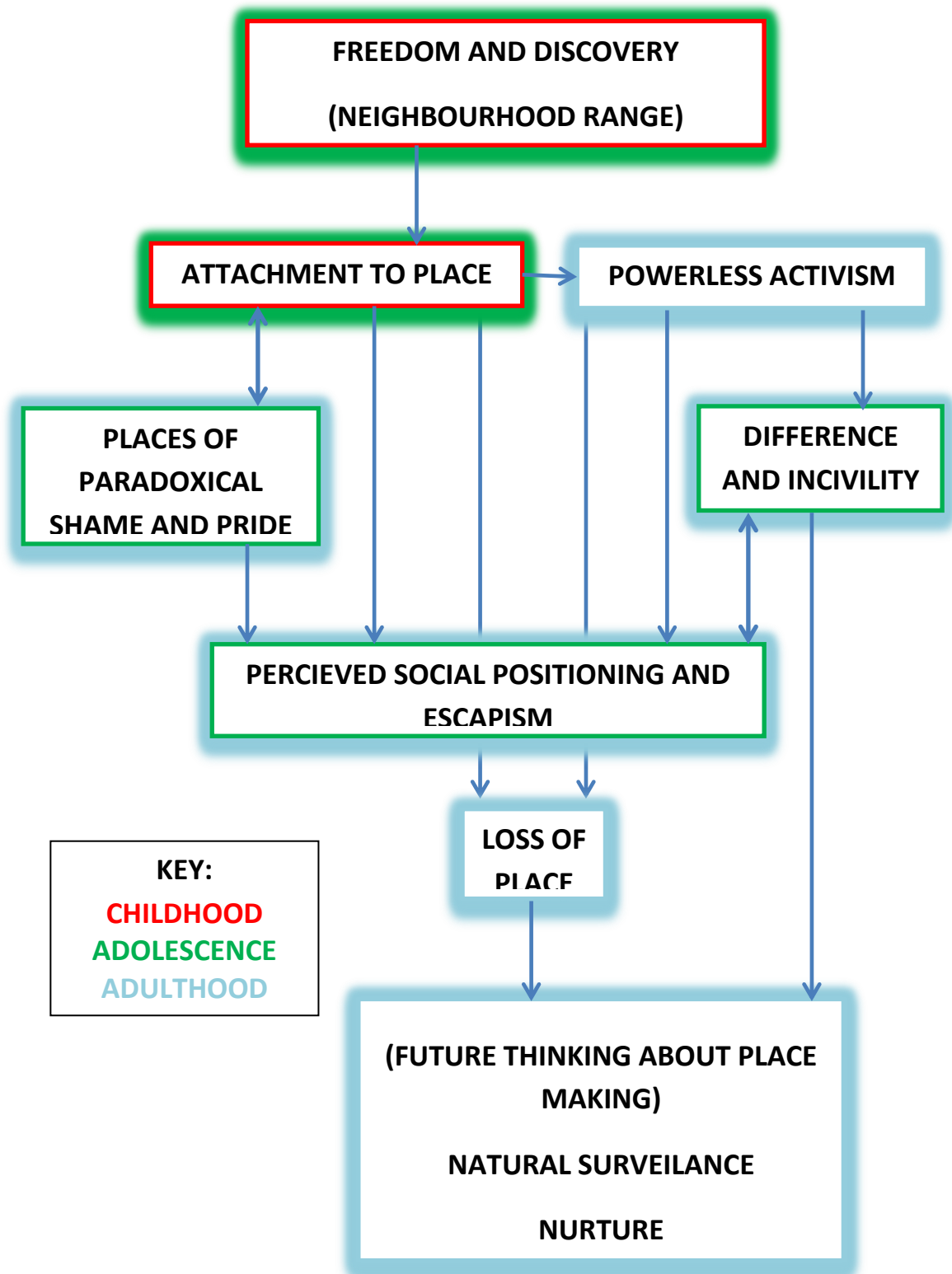
4.4 Results

Results presented are from workshops 1, 2 and 4. Figure 1. shows the way in which themes relate and informs the structure of the results section. The diagram identifies at which life stage the theme was present, and although the results begin in childhood, they are not strictly presented in chronological order due to the large overlap between themes in adolescence and adulthood. The themes that emerged from the data have been interpreted and related to previous literature and therefore some of the labels and sub-headings are based on theoretical ideas e.g. Natural Surveillance.

Firstly, results explore the experiences of living in an urban area through different life stages (workshop 1). Although the accounts of these different urban neighbourhoods were inevitably not going to provide a clear picture of what those places were actually like through the decades, the focus on life stages did reveal stories about dominant social practices, experiences and opportunities through the life course. Results from workshop 2 summarise themes relating to future thinking about place making. Finally, evaluative comments from workshop 4 are presented in an attempt to consider the success of the pilot as both a set of workshops about place making and as a research project. Respondent 1 provided the most data to support themes,

however, the other respondents complimented and contrasted in ways that added to the strength of the relationship between themes.

Figure 1. Theory Diagram Showing Links between Themes



4.4.1 Freedom and Discovery (Neighbourhood Range)

When discussing the experiences of urban living in childhood it became clear that respondent 2 experienced a rather different level of urbanity in Zimbabwe:

'was a lot bigger than what it is here I don't think it's more or less say sub-urban sort of thing because it wasn't clamped up like here' (R2, Workshop 1).

Respondent 2 described a much wider neighbourhood range and an environment in which he was free to explore:

'you had the actual freedom sort of thing of basically riding around' (R2, Workshop 1) *'get out and find out what was going on in the rest of the place'* (R2, Workshop 1).

This contrasted to the experience of respondent 3:

'the neighbourhood was big but we only kind of played in in a quite a confined part of it' (R3, Workshop 1).

However, despite the difference in neighbourhood range, all respondents spoke of a sense of freedom in childhood, either physical freedom to roam:

'had the freedom to play hide and seek but on a bigger scale such a great big vast area, but cos it was an estate and there was loads of hidey holes, it was great' (R1, Workshop 1).

or the psychological freedom associated with childhood naivety:

'that's the joy of of childhood isn't it, you don't look at danger you don't feel danger until something bad's happened and then that's when you consider it next time' (R3, Workshop 1).

Respondent 3 nostalgically described the way that moving into his new childhood home felt:

'Ummm and I remember everything was exciting and peaceful if you can have that contrast and contradiction really, exciting and peaceful but that's kinda like how it was. Ummm and then I spent you know the next fourteen years of my life in that area' (R3, Workshop 1)

and despite describing a small neighbourhood range confined to only a few streets, did not feel restricted

'that didn't feel restrictive in any way it felt as though it it was all we needed' (R3, Workshop 1).

Respondent 1 also spoke nostalgically about her estate and appeared to value the environment for her childhood games:

'flats was my playground as a child' (R1, Workshop 2)

'there was loads of hidey holes, it was great' (R1, Workshop 1).

However, the neighbourhood hidey holes are later described by respondent 1 in a rather different light relating to problematic local residents (see 4.4.7 Difference and Incivility):

'I've got two parks near me but the one that's closest to me, quite often you do see there's lots of hidey holes for people to hide their drugs and you'll find the um the silver foil hidden behind whatever' (R1, Workshop 2).

Despite describing freedom to play within the estate, respondent 1 experienced a restricted neighbourhood range in childhood:

'I always had to be traipsed around with me mum' (R1, Workshop 1)

'I was always [having] to be trailed behind someone. The other kids were out playing' (R1, Workshop 1).

She believed that this was a result of dysfunctional relationships at home:

'yeah mum and dad got um they were always splitting up' (R1, Workshop 1)

'because mum I think she was really sad from what had gone on and being on her own andcos I was the youngest I was always [having] to be trailed behind someone. The other kids were out playing but no I'd have to be with me mum me dad or me auntie' (R1, Workshop 1).

The restricted freedom and neighbourhood range imposed upon respondent 1 appeared to have negative effects in terms of feeling isolated from other children:

'felt I had no friends' (R1, Workshop 1, post-it note data).

4.4.2 Attachment to Place

The dysfunction at home experienced by respondent 1 directly led to cramped living arrangements and an increased reliance on local amenities:

'mum and dad got um they were always splitting up and we'd go to grandma's and Grandma's was overcrowded and there wasn't enough room for us all, there wasn't enough space for us all to get a bath on a Sunday night for school so me mum would make us go the slipper baths' (R1, Workshop 1),

Furthermore, respondent 1 described the importance of a local ice-rink in her teenage years. This appeared to be a place of escapism and protection for respondent 1, and the loss of this amenity (see 4.4. 5 Loss of Place) saw respondent 1 move into more adult environments:

'at 13 I started ice-skating and that carried on until I was 17, and then when they knocked down the ice-rink, or the you know they stopped it which I thought was horrendous. Ummm the pubs found me' (R1, Workshop 1).

It could be argued that this strong reliance on place in childhood due to adversity led to a strong sense of belonging in adulthood and a need to defend her place:

'because I'm not ashamed of coming from where I've come from because I've come from there all me life, and it's it's better for me because I'm not a posh nob or a don't try and be one I'm not' (R1, Workshop 1).

Respondent 3 described strong social ties in his childhood neighbourhood:

'it was a lovely place to grow up, it was on a main road, but it was brilliant.

You know I made friends very very quickly, those friends stayed with me right throughout, well certainly up until I was about 20, 21' (R3, Workshop 1).

However, in his adolescent years, respondent 3 was forced to move away from his childhood home. He described the move as gradual:

'what I remember is me dad was staying with me mum in the living accommodation at the pub but they hadn't given the house up at this point the house kind of started to feel very empty and it was kind of things were being taken out of the house, taken to the new place bit by bit it wasn't kind done in one kind of er fell swoop of you know removals van coming up taken everything and then the house was empty it was it was always being done bit by bit over a number of months' (R3, Workshop 1)

and felt powerless, as though he had no choice over the matter:

'a feeling of being dragged away [from childhood home], there was a feeling of being dragged away against my wishes' (R3, Workshop 1).

Throughout this difficult transition period, respondent 3 reported regularly going back to his childhood home and showed a strong attachment to it:

'I kept going back to the house I kept spending hours there and the house was becoming as empty as what I'd remembered it from that first day but there was a kind of opposite twist to it because whereas when we first moved

there it was exciting and all that kind of stuff, now it felt very isolated and I It was like I was trying to hang onto something' (R3, Workshop 1).

Respondent 3 described the day that the keys were handed over as annihilating:

'handed over and even boarded up which I remember. Um and that was that was kinda like annihilating' (R3, Workshop 1).

The loss of his childhood home was shortly followed by the transition from school to a threatening and intolerable working environment:

'I was thinking at the time [16 years old] I don't want a job, if this is what working is about I don't want a job. It frightened me, there were there were things I saw in [name of company] that frightened me' (R3, Workshop 1).

Attachment to place appeared to hold particular significance for respondents 1 and 3 in their adolescent years, with the loss and changes to familiar environments leading to internal conflict.

4.4.3 Perceived Social Positioning and Escapism

For all respondents, their physical and perceived urban environments started to change as they moved into adolescent years. Respondent 1 described passing her driving test as critical for the increased range she had always wanted:

'I passed me driving test at 17 and I was very very lucky' (R1, Workshop 1)

'YEAH, I was going to you know all different places whereas I wouldn't of dreamt of driven, up in Ormskirk and Horton and on the way to Southport but the back roads this is all things I used to do' (R1, Workshop 1).

The increased range outside of her childhood neighbourhood and owning a car heralded a perceived change in respondent 1's perceived social rank and a boost in self-esteem:

'they see you driving round in to what somebody else could be a little bit of prestige' (R1, Workshop 1),

'I'd come up really in the world compared to them gave me a little bit of self-esteem' (R1, Workshop 1).

The adolescent years appeared to be a critical time characterised by a realisation of social positioning and of escapism. Respondent 3 described his experience of working behind a bar before he was old enough to drink:

'I was finding out a lot about the way people were coming to the pub trying to escape from what they were living coming in there to drink because they're running away from things, trying to escape from things' (R3, Workshop 1).

Some of the realisations around social positioning in adolescence produced a level of perceived stigma in adulthood experienced in particular by respondent 1.

4.4.4 Places of Paradoxical Shame and Pride

Respondent 1 appeared to have a strong sense of belonging to place and experienced some conflict about feeling ashamed of the local people. This was shown by her having difficulty in describing her complex and ambivalent attachment to place and defending both herself and the people in her community:

'because I feel ashamed being associated with part of that area when deep down people would come to the area and say 'oh my god look looks rough round here but the people are lovely' (R1, Workshop 1)

'the police did say um they're all no hoppers round here, they're all no hoppers I thought do you know what, you're the biggest no hoper!' (R1, Workshop 1)

'I'm not ashamed to be associated I'm ashamed of people that have got no shame in themselves and they just throw litter maybe I've used the wrong word of saying I feel ashamed because I'm not ashamed of coming from where I've come from because I've come from there all me life, and it's it's better for me because I'm not a posh nob or a don't try and be one I'm not' (R1, Workshop 1).

4.4.5 Loss of Place

Respondents 1 and 3 had seen Liverpool and the people in their areas change over their life time, furthermore, despite respondent 2's comparison of Liverpool to Zimbabwe, he also described changes in Liverpool over the 8 years he had been a resident. There was a sense of deterioration and loss throughout adolescence and into adulthood, both in the physical fabric of the

respondent's urban neighbourhoods and in the sense of community.

Respondents also use emotional language when describing the loss of places that were important to them throughout their adolescence, this related to the reliance on place during times of adversity (see 4.4.2 Attachment to Place).

Respondent 3 described feeling annihilated after losing his childhood home:

'handed over and even boarded up which I remember. Um and that was that was kinda like annihilating' (R3, Workshop 1).

Similarly, respondent 1 described the experience of losing the ice-rink as horrendous:

'they knocked down the ice-rink, or the you know they stopped it which I thought was horrendous' (R1, Workshop 1).

There was also a more general acknowledgement of the amenities or 'hubs' lost for different groups within the community:

'all the church halls have been knocked down there's no community for all the older ones now' (R1, Workshop 1)

'we had good stuff [amenities e.g. ice-rink] years ago for the children' (R1, Workshop 1)

and an understanding of the impact of these losses on the community:

'if you take communities' amenities away the community suffers as a result' (R4, Workshop 2).

Respondents described the loss of community in their areas;

'seemed more community-based years ago (R1, Workshop 1)

a reduced sense of pride and responsibility over the physical space:

'more people used to brush their paths and wash their steps' (R1, Workshop 1)

increasingly individualistic residents with the attitude that it is:

'nothing to do with me as long as it's clean between my front or back door and the wall that's all I'm worried about ' (R2, Workshop 1)

and a lack of people on the streets:

'it doesn't matter what time of the day or night I pass here it is just totally dead and I said if I didn't know it better if somebody asked me for accommodation I'd say all this is empty there's nobody living in it' (R2, Workshop 1)

'nothing seems to happen here' (R2, Workshop 1).

Respondent 1 in particular felt that spaces were being wasted in the city:

'the old post office. Now how disgusting for that to be left abandoned' (R1, Workshop 2)

and that there was huge potential both in her local area and in the wider city:

'I look at buildings and I say do you know what, honestly the use you could make there's so much that could be done' (R1, Workshop 2).

Interestingly, respondent 1 clearly states the need to 'bring in' people with the skills necessary for making larger changes within her area:

'I could do wonders in these places and bring in the wonderful people who I thought were good enough, you know, to help out within the great big project'. (R1, Workshop 2).

and states that you *'can't do nothing by yourself'* (R1, Workshop 2) and that the local residents *'need help'* (R1, Workshop 2).

She describes the people who live near her as:

'having too much turmoil in their own head and within their own house to even give a continental [even to care a little bit] about the outside' (R1, Workshop 1).

The increased individualism described by participants can be seen as related to this internal turmoil, and in turn, residents become powerless to change their own environments.

4.4.6 Powerless Activism

Respondents seemed unclear as to who they could talk to and how they could get involved in making changes for the better in their local areas:

'I just don't know who to talk to about it [changes to the local area]' (R1, Workshop 2).

Both respondents 1 and 2 described a sense of powerlessness and experienced a sense of being unvalued and as though their efforts were

often wasted or ignored. Respondent 1 made a rather general comment about giving her input and feeling as though she was not rewarded:

'you give your all and give input and then at the end of it you're still left behind' (R1, Workshop 2)

and respondent 2 voiced his frustration, describing his efforts as being wasted due to a 'lack of finance':

'the work that you've done, and the preparation, and what you could have and all the rest of it there, it goes out the window because as soon as they've basically more or less got the idea to go sort of 'we haven't got the finance' (R2, Workshop 2).

Respondent 1 described the council as a barrier to community-led initiatives stating that:

'it's about the council not listening' (R1, Workshop 2)

and respondent 2 described a lack of willingness from the council due to financial barriers:

'council or whatever aren't prepared to give you the money' (R2, Workshop 2)

The powerlessness experienced may be the cause of the increased passivity of local residents described by respondents:

'people just accept that this is the environment that they live in, they don't really like it but the conditioning of what they've known keeps them with the flow' (R3, Workshop 1)

'people here I find sort of thing, haven't got a mind of their own' (R2, Workshop 1)

'everyone is a follower' (R2, Workshop 1, post-it note data).

For respondent 3, the perceived passivity of other people led to feelings of alienation in his attempt to question the status quo:

'I've fought against that but it's been like a lone battle really I've been sort of like very much alone in how I've been thinking over the years in my adult life' (R3, Workshop 1).

The perceived difference in the way that he thought resulted in him feeling lost:

'you can get completely lost' (R3, Workshop 1).

4.4.7 Difference and Incivility

Respondent 1 felt that the perceived difference between residents was a recent change. She described a level of incivility in her neighbourhood:

'bikes [are] getting stolen by the minute' (R1, Workshop 1).

and passive behaviour:

'they [other residents] don't bother cleaning up' (R1, Workshop 1).

Respondent 1 suggested that these behaviours and attitudes were characteristic of transient communities being placed into her immediate area that have a multitude of problems:

'yeah because it might be because there's a lot more people that have come into the street that I wouldn't say were permanent or they have quite a, quite a few problems with their children or, they seem to put people in my immediate area that does have quite a lot of drink and drug problems' (R1, Workshop 1).

She later described people as insincere:

'insincerity of people' (R1, Workshop 2)

and the mistrust felt in her local area was reflected in her future thinking about place-making.

4.4.8 Future Thinking about Place Making

During workshop 2 the group discussed the function of public parks.

Respondent 4 reflected on the parks in Liverpool and questioned the function of railings [fencing]. He suggested that this physical characteristic of urban parks can prevent residents from using the public space:

'but there are some parks in the city that are fully railinged off I think it prevents people from just you know, if they've gotta use it you've got to walk to like the gate' (R4, Workshop 2).

Furthermore, he believed that this defensive architecture was likely to increase incivility:

'people will do vandalism on that because it's railed off' (R4, Workshop 2).

Respondent 1 appeared to reflect on her neighbourhood incivility and suggested that physical barriers to the park could in fact prevent people from using the space as an escape route:

'sometimes there is a need for that barrier, because if there is anything going on as a sort of through way um if they'd done anything and it was a through way ...and then the police couldn't get through' (R1, Workshop 2).

Despite the felt sense of powerlessness and passivity, the respondents were clearly able to use their experiences of a loss of community and togetherness to consider place-making that would rebuild this sense of neighbourliness.

4.4.9 Natural Surveillance

Respondent 2 introduced the idea of a set of circular flats in which the middle was an overlooked, shared green space for residents:

'one entrance through the full um circular flats' (R2, Workshop 2)

'the children then could more or less go along and play on their own your parents are overlooking it' (R2, Workshop 2).

Respondent 1 commented on the social benefits of natural surveillance and possible increased levels of resident trust:

'houses are backing round it anyway, so nobody can steal your washing and in this, they wouldn't' (R1, Workshop 2)

and others added surveillance ideas to their post it notes:

'reverse homes to face onto green spaces' (R4, Workshop 2, post-it note data).

Respondents worked together considering the balance between shared space and privacy and decided that on the outside of the circular flats the residents should have their own private front gardens:

'your front garden's if you wanted that bit of space' (R1, Workshop 2).

However, respondent 1 continued to voice concern over different types of residents, specifically different 'types of parents' co-inhabiting the housing:

'I think it would depend on what type of parents you were mixing together because there could be a few that are really a bad influence and could influence the other young ones. But if you're going to put the ratio of a lot more decent parenting, and you know where the decent parenting's are coming from, and you put a couple in whereas those other mothers could build up the other mothers up and drop a few hints' (R1, Workshop 2).

This quote indicates a clear perceived differentiation between parents that are decent and those that are not, and an indication that these 'decent parents' are from particular areas. More importantly, however, it also suggests that a level of support for disadvantaged/vulnerable parents could be facilitated by the physical and social characteristics of a neighbourhood, and that place could nurture these relationships.

4.4.10 Nurture

Although 'nurture' only emerged from respondent 1's transcripts, it seemed important to the wider argument relating to the physical and social potential of a place to support individuals and increase levels of trust. Respondent 1 proposed that the future residential area introduced by respondent 2 must be managed by nurturing people:

'but this place would have to be managed and you know if it was managed by the right people, with the right nurture behind them, it could go far' (R1, Workshop 2)

'nurture homes, let's go to the park together – one parent helps each other' (R1, Workshop 2, post-it note data).

During discussions about future place making respondent 1 introduced a 'good debate' about the common sense of women being different to that of men:

'ladies in bathrooms common sense of women different sense took than men? Good debate' (R1, Workshop 2, post-it note data)

and throughout the workshops emphasised the need for amenities for children to produce 'decent generations':

'I think children are left unoccupied far too long' (R1, Workshop 1)

'we had good stuff years ago for the children something for them children' (R1, Workshop 1),

'to have a decent generation you've gotta treat your kids well' (R1, Workshop 2).

4.4.11 Workshop Evaluation

At the end of the last session following the design process of workshops (3) & (4), respondents were asked about their experiences of the process.

Respondents reported enjoying the process and gaining a new positive way of thinking about places:

'I feel as though I've enjoyed, it was different to what I first thought it would be it's made me think differently on how I look at bigger areas....in a much more positive way' (R1, Workshop 4)

'it's really peaked my interest in this kind of thing' (R4, Workshop 4)

Respondent 4 described the creativity of the process as having wellbeing benefits and boosting confidence:

'the creative process around all this it's really you know it's good for your wellbeing as well give[s] you confidence to explore it' (R4, Workshop 4)

There was a tension around the workshop series being only for research purposes and not grounded in the actual regeneration of an area. Despite clearly stating that the project was a pilot to inform future thinking about place making, and inviting respondents to take part in possible future research projects, respondent 1 voiced concern around being left behind following the project:

'it's horrible for service users and I hate that word, client is better it's horrible for your clients to be started up on somethink you're given all your input as to think you might be OK, and then it goes on and you think ey hold on whatever happened to that. I've been used and now I've gone I'm not needed no more so I think the input would be good if we could have future input' (R1, Workshop 4).

This was unfortunate and slightly uncomfortable because at the time of the project, we could not promise future involvement or real life place-making. Respondent 2 in an earlier session voiced interest in future participation in research however respondents 1 and 4 were understandably more enthused by contributing to a real life place-making project:

'I would like, if there's any continuations or your groups get bigger, I would like to be in the process of it' (R1, Workshop 4)

'like [name of respondent 1], I'd like to go further' (R4, Workshop 4).

4.5 Discussion

The different levels of urbanity in childhood neighbourhoods determined the respondents range. Respondent 1's mother imposed further restriction on her childhood range and this was thought to be caused by her parent's dysfunctional relationship. The restricted childhood neighbourhoods were described by respondents 1 and 3 with such nostalgia and a sense of belonging, however, their adolescent years saw increased range and exposure to adversities and a realisation of vulnerability and social comparison. Attachment to place was revealed through the reliance on

important places during times of adversity, and the loss of those protective spaces during crucial adolescent years. Respondent 1 showed an ambivalent attachment to place that appeared to cause a paradox of shame and pride associated with perceived differences of residents and incivility. A strong sense of loss was reported by all respondents, not only in the physical buildings and amenities but in the sense of community. Loss and powerlessness appeared to cause a level of passivity in people that was noticed by respondents in recent years, and also a lack of trust in both the authorities and between residents. The loss of togetherness felt by respondents and the perceived potential of the city, led to future thinking about place-making that promoted trust and cooperation using natural surveillance techniques with a focus on creating safe and nurturing spaces that functioned well for children.

It is clear that the structured discussion that took place in these workshops revealed the importance of subjective perceptions of urban places through the life course. For respondent 1, the importance of space in the face of adversity and early experiences impacted on later psychological responses to place. Furthermore, the reflection on the experience of urban living through the life span helped inform the design of a new urban space with a careful consideration of how it could function to support wellbeing across generations. In terms of advancing knowledge around the physical and social characteristics of urban environments that contribute to increased risk of mental health difficulties, the evidence gathered via this method is less clear cut. As anticipated, and consistent with Creswell's (2004) definition of 'place' as 'space which people have made meaningful' (p.7), it was very difficult to

tease apart the physical characteristics of place from the social, and furthermore, the social from the economic. For example, respondents' childhood neighbourhood was more than just a geographical unit (MacQueen et al., 2001; De Silva et al., 2005); the neighbourhood range was determined by concrete and abstract characteristics (Cele, 2006) and by family dysfunction.

In terms of the psychological aims of this research, the findings can be linked to some already established associations between place, mental health and wellbeing. For example, respondents identified the need for places to be designed with children's wellbeing in mind. They clearly described the importance of place for child development and identified the adolescent years as crucial. The findings were support for the importance of both individual and neighbourhood social capital for childhood and adolescent development (Almedom & Glandon, 2008). More than just identifying these life stages as vulnerable (Marcelis et al., 1999), this research revealed the lasting psychological effects of early experiences of place, and therefore supports previous dose-response findings (Pederson & Mortesen, 2001).

For respondents 1 and 3 attachment to place was revealed in emotional descriptions of the loss of important places showing the significance of these places during vulnerable stages of adolescence. Respondent 1's ambivalent attachment to place was associated with self-stigma in relation to the perceived disorder of the neighbourhood, this provided support for Stafford et al. (2008) who found that a strong attachment to a deprived neighbourhood can lead to negative mental health outcomes. Furthermore, it supports

previous research findings on the interaction between social capital, deprivation and mental health (Mitchell & LaGory, 2002; Caughey et al., 2003; Almedom & Glandon, 2008). Themes relating to a loss of togetherness, disorder and a sense of powerlessness emerged as features of more recent years and could be seen to be related to self-stigma and mistrust (Mirowsky & Ross, 1986). Similar to ideas around victim blaming (Abercrombie et al., 2000; Burke, 2007), respondents tended to blame other residents as opposed to describing structural impairments for the loss of togetherness in their communities. However, the perceived external locus of control of residents in respondent 1's neighbourhood was suggested to be a determinant of incivility, which in turn led to perceived difference and mistrust and a felt lack of community (Ross et al., 2001).

The described powerlessness and passivity of people and the stigma associated with certain demographics was noted and related to opportunities for shared decision-making and co-production. Whilst respondents were sure that there should be consultation with community groups and more opportunity to have a sense of responsibility and input over place design, they felt alone in their activism. Experiences of difference and incivility led to design ideas to promote natural surveillance proven to reduce crime and lower perceived threat (Cozens, 2002). An infrastructure that would support natural surveillance was considered by respondents to be a physical means by which to scaffold increased levels of trust, cooperation and togetherness. An example of a city using urban design to increase the above social characteristics is Copenhagen (Carmona, 2010). Previous research suggests that using circles in city design, such as respondent 2's circular housing

design, is no new thing and is, in part, informed by increasing perceived levels of safety (Bardzinska-Bonenberg, 2016).

The discussion around what physical and social characteristics would make a place successful revealed a need for shared spaces, spaces that were naturally surveyed that housed people of mixed demographics to create a supportive, nurturing space. Perhaps more important than the desirable characteristics was a lack of clarity about who was responsible for managing and stewarding places, and who was capable of changing places. It was clear that the sense of passivity and powerlessness that the respondents recognised in themselves and in others might prevent bottom up place-making initiatives. It is therefore important that initiatives like neighbourhood planning now exist with regulations to support resident-led initiatives.

Although criticised by some as a political stunt, neighbourhood planning may be a good starting place to open up and democratise the urban planning process.

There was an appetite for more workshop series, grounded within real life regeneration projects and a strong sense that, with help, disordered neighbourhoods could make change. The workshop series was therefore successful in encouraging positive future thinking about urban neighbourhoods and respondents voiced an interest in continuing these kinds of conversations with professionals. Whenever possible, future place-making workshops and research should be real as opposed to simulated, so that the scope is to develop a real 'scheme' within a neighbourhood common to all respondents is tangible. The links between mental health and urban

environments could have been made more explicit in the introductory session; in future there should be a clearer explanation as to why mental health service users' urban lived experience is particularly important for projects of this kind.

4.5.1 Limitations

The findings reported here are based on the discussions of a small group only, whose members were from different parts of Liverpool and with 1 respondent brought up in a different country. Although he defined himself as having grown up in an urban area, his description of urbanity was very different from the other respondents. However, perhaps the number of respondents in the group was suitable for the style of the project as respondent 1 described the small group as an easier space to contribute. Despite the respondent's preference for the small group discussions, inevitably the study did not reach data saturation and themes are predominantly informed by one respondent.

There was some tension due to the hypothetical nature of the study and respondents, despite positively evaluating the process, described worries of being used for research purposes. Perhaps a clearer explanation of the nature and purpose of the pilot project during the first session would have addressed some of this tension. Finally, the location of the workshops was not ideal. The workshop space was in the city centre and was therefore not 'local' to any of the group members. Due to the space being windowless the space provided no real context, there was no environmental cues to prompt the conversation and in that sense the space reduced the ecological validity

of the conversations. Future research should be conducted in place allowing for the environment to prompt conversations and enhance story telling around cities and mental health. Ethnographic techniques such as 'go along' interviews would be well suited to gaining data in context, and would make for more participant-led and potentially empowering projects where the individual is the expert of their own urban neighbourhood. For a full proposed 'go along' study informed by this pilot workshop series, see appendix 4.0.

4.5.2 Conclusion

This study revealed a strong sense that experiences of place through the life span impacted on perception of self, others and an understanding of what a place needs to function for the community. Accounts of the critical adolescent years revealed the importance of places in the face of adversity and that attachment to place may be more important for those experiencing family dysfunction in their early years. Rather than identify physical characteristics that were distressing, respondents revealed more subtle social and economic characteristics of their urban neighbourhoods that could not be teased apart from the physical fabric. For example, realisations of socio-economic positioning in adolescence led to paradoxical shame and pride associated with a given geographical area. Ideas around future place design were informed by low levels of trust and a desire for togetherness and mixing of different demographics. The process of exploring experiences of urban living through the life span allowed respondents to consider design features that would benefit different generations and promote mixing across generations. However, the identification of increased perceived passivity and

powerlessness in recent years was seen as a potential barrier for getting involved in place-making and management initiatives indicating a strong need to support more resident-led projects. Despite the study's obvious limitations, these discussions revealed rich accounts of urban living through the life span, identifying the importance of the attachment to deprived places and the recognition that places can and should nurture togetherness and cooperation to support individuals through life. The co establishment and continuation of initiatives such as these co-design workshops will enable the democratisation of urban planning which places mental health and wellbeing as central outcomes of good place-making.

CHAPTER 5

GENERAL DISCUSSION

5.1 Introduction

The overarching aim of this thesis was to use diverse social scientific methods to better understand the relationship between physical and social characteristics of urban environments, and the psychological processes known to underpin symptoms of common and severe mental health difficulties. To this end, studies were conducted using a range of research methods including lab-based contemplation tasks, experience sampling walking methods and focussed group discussions about urban living and future place making. The aim was not only to gain a better understanding of the so called ‘urbanicity effect’, but to develop flexible social scientific methodology able to inform the future development and stewardship of places that are better for us. In order to develop methodologies that were capable of capturing the complexities of the urbanicity effect, methods and theories from across disciplines were purposefully drawn upon, whilst maintaining a psychological thread in terms of the research questions and interpretations.

In this chapter, findings presented in this thesis will be summarised, compared and contrasted to assess the extent to which methods advanced knowledge about the ‘urbanicity effect’. Furthermore, findings will be discussed in terms of their applied relevance, evaluating the usefulness of psychological methods to inform place-making practice. Limitations and improvements will be presented before finally considering possible future

directions for research across disciplines.

5.2 Overview of Findings

Studies 1 and 2 (chapter 2) aimed to explore whether very brief exposure and contemplation of static residential neighbourhood images, differing in terms of urbanity and desirability, produced changes in self-reported psychological processes known to underpin symptoms of common and severe mental health difficulties in a non-clinical sample. It was predicted that scores on measures of locus of control, anticipation of threat and consideration of future consequences would change as a result of active contemplation of residential neighbourhood images and that these changes would be determined, at least in part, by the perceived urbanity and desirability of depicted environments. Participants scoring higher on measures of depression, anxiety and paranoid ideation were predicted to show augmented 'contemplation' effects, specifically after contemplating the urban and less desirable residential neighbourhoods.

The results revealed that contemplation of all image types (urban/rural, most/least desirable) caused participants to feel significantly less in control (more external locus of control), anticipate significantly more threat and consider the future less. However, there were no significant differences between pre- and post-contemplation differences in psychological processes between the urban and rural residential neighbourhoods. Furthermore, there were no significant differences between pre- and post-contemplation differences in locus of control and consideration of future consequences between the most and least desirable residential images. However,

contemplation of the least desirable residential neighbourhoods produced significantly more change in anticipation of threat compared with the most desirable neighbourhoods. This finding was taken as evidence for the ability of even a brief exposure to a static image to produce significant changes in participants' anticipation of threat. Results also revealed that depression, anxiety and paranoid ideation significantly predicted post-contemplation anticipation of threat after controlling for gender and pre-contemplation anticipation of threat. Furthermore, image type (most or least desirable residential neighbourhood) was found to significantly predict post-contemplation anticipation of threat after controlling for the effects of mental distress.

Taken together, the findings in this chapter suggest that it is the perceived quality, measured in this case by the perceived desirability of places, as opposed to urbanity that is related to changes in anticipation of threat. Despite the small effect size, this finding suggests that prolonged exposure to real residential neighbourhoods perceived to be undesirable would cause more significant changes to anticipation of threat. Findings also suggest that the effect of environmental cues can work beyond individual differences, but that the reaction can be augmented in those with pre-existing mental distress. Finally, the significant result indicates that of the three psychological processes measured, anticipation of threat is the process most likely to be influenced by visual environmental cues. It may be that threat responses are related more to particular visual cues and that changes in perceived levels of control and consideration of future result from more immersed exposure to the social and economic characteristics of places.

The lack of difference between urban and rural residential images makes sense in light of Weich et al. (2002; 2006) who found relatively small differences between urban and rural residents' mental health. He suggested that a focus on density alone may result in missed contextual factors. It is therefore unsurprising that a brief exposure to static urban images did not result in significantly greater changes to psychological processes compared to rural images. This is support for research that suggests that the perceived quality of urban environments is a stronger predictor of psychological processes than density (Ellaway et al. 2001; Ellaway et al., 2009). Measures of paranoid ideation and depression/anxiety were significant predictors of the extent of change in anticipation of threat post-image contemplation, with a larger % of variance due to paranoid ideation. This is support for psychological biases like anticipation of threat underpinning feelings of paranoia (Corcoran et al., 2006; Moutoussis et al., 2007). However, undesirable residential images caused significantly more change in anticipation of threat after control for individual differences. This suggests that the contemplation and exposure to undesirable residential places can affect psychological processes above and beyond pre-existing biases and is added support for the value of exploring the urbanicity effect using non-clinical samples (Johns & Van Os, 2001; Verdoux & Van Os, 2002; Van Os, 2003). The finding suggests the importance of an equitable ethos across place design and management as a general public health priority as already highlighted by the broader urban penalty effects.

The significant change to psychological processes caused by all image types indicates a possible familiarity effect, whereby the contemplation of

unfamiliar places changed psychological processes. This could be due to social comparison caused by the active contemplation of places and making assumptions about the social characteristics of place based on its physical features. Participants will have inevitably drawn upon their own relative socio-economic status in order to consider the contemplation questions, and changes across all image types may be a result of in/out group assumptions based on unfamiliarity.

Due to the experimental nature of the studies presented in chapter 2, chapter 3 aimed to improve ecological validity and to consider more possible predictors of psychological responses to contrasting urban neighbourhoods. Specifically, chapter 3 aimed to further explore the extent to which the perceived physical and social characteristic of urban environments can alter the psychological processes known to underpin mental health. Using a non-clinical sample, the research aimed to better understand the relationship between perceived quality of neighbourhoods and participants gut reactions, affective and psychological responses to place. The study examined factors that emerged in the 2009 North West Wellbeing Survey as determinants of mental health and wellbeing, as well as the consideration of participant's relative socio-economic status. Furthermore, it explored the possible psychological biases relating to high levels of depression, anxiety and paranoid ideation by exploring the extent to which measures of these symptoms at baseline predicted the variability in gut reactions, affective responses and psychological processes whilst walking through the contrasting urban neighbourhoods.

Results revealed that there were significant differences in perceived resident control, wealth and community spiritedness between the distinct areas along the walk, with the more deprived neighbourhood scoring significantly lower on all measures. These differences were reflected in the affective and psychological responses to the areas with participants reporting significantly less positive affect and significantly more negative affect in the more deprived neighbourhood. Furthermore, participants reported more threat in the more deprived neighbourhood, and reported significantly lower levels of trust. However, there were no significant differences in perceived control across the walk. The park was found to have 'restorative qualities' with significantly higher levels of positive affect and lower levels of anticipated threat. Finally, the exposure to contrasting urban neighbourhoods led to significantly higher self-reported relative socio-economic status and more generous hypothetical cooperative offers.

Participant's gender, relative socio-economic status and the perceived levels of resident control, wealth and community spiritedness were all significant predictors of both threat and trust scores throughout the walk. Females reported significantly higher levels of threat and significantly lower levels of trust along the walk compared to males. As participants relative socio-economic status increased, such that they perceived themselves to be better off than the residents of the area, threat significantly increased and trust significantly decreased. Similarly, as perceived resident control, wealth and community spiritedness decreased across the walk, participants reported feeling significantly more threatened and less trustful. Finally, paranoid ideation at baseline was found to predict average levels of trust across the

walk such that as paranoid ideation increased average trust decreased. Unsurprisingly, baseline measures of depression/anxiety significantly predicted average levels of negative affect across the walk such that as depression/anxiety scores increased average negative affect also increased. However, there was no interaction between measures of mental distress at baseline and the differentiated response to distinct areas along the walk. This suggests that differences in affective and psychological responses for those high on measures of mental distress were not dependent on the distinct areas that they were exposed to, but instead were more general responses to place. This is consistent with the findings reported in chapter 2 which showed that the effect of image type (low or high desirable) predicted change in anticipation of threat above and beyond the effect of individual differences in pre-existing distress.

Participants made quick judgements about the perceived level of resident control. The external locus of control assumed of residents in the less affluent neighbourhood supports previous research that suggests that areas characterised by poor physical features, are often home to relatively poor ethnic minority groups (Evans, 2003). However, it is therefore difficult to disentangle the influence of the physical quality of the environments and the assumptions made based on the demographic of residents. This was also a difficult differentiation to make in relation to perceived differences in wealth and community spiritedness between the two distinct urban neighbourhoods. For example, community spirit is highly correlated with social trust, and therefore it was no surprise that differences in perceived community spiritedness were mirrored in the extent to which participants trusted

residents in the two neighbourhoods. Previous research has suggested that differences in trust can be caused by both ethnic heterogeneity (Falk & Zehnder, 2007) and by perceived social support indicated by the quality of physical features in the environment (Evans, 2003).

Significant differences in anticipation of threat between the two distinct neighbourhoods could have been caused by the physical maintenance of the neighbourhoods, indicating disorder and risk of crime (Keizer et al., 2008). Furthermore, differences in negative affect between the two neighbourhoods can be seen as support for negative affect mediating the relationship between poor quality urban features and symptoms of paranoia (Ellett et al., 2008). However, negative affect could be seen here as both the cause and effect of changes to psychological processes known to underpin paranoid ideation. The lack of difference in participant's sense of control in the two neighbourhoods could be supported by research that suggests that generally urban environments produce a more external locus of control (Witt, 1989). However, similar to research presented in chapter 2, the lack of difference could be further support for the argument that control may be influenced by more prolonged exposure and socio-economic factors.

Results supported the potential for 'restorative' qualities of green space with significantly higher levels of positive affect and lower levels of anticipation of threat in the park (Van den Berg et al., 2010). The decision to ask participants to report their affect, gut reactions and psychological responses in the park, despite the park itself not being residential, revealed some interesting findings. Similar gut reactions to residents were found between

the park and the more affluent neighbourhood, suggesting that regardless of the direction walked, participants perceived the park to be associated with more affluent, in control, and community spirited residents similar to Neighbourhood A. This perception about the ownership of the asset may be mirrored in the utilisation of the park by residents from the two neighbourhoods. Relative socio-economic status across the walk was also an important additional variable in this study as it was found to predict threat and trust. Familiarity effects could account for some of the differences in responses to the two neighbourhoods and reveal findings that are interesting in their own right relating to access to green space and social fragmentation. Conclusions about the extent to which the judgement of relative SES has to do with the physical features in the environment or some kind of in/out group assumption based on ethnicity are impossible to draw, as both features were reported as salient in the qualitative data. However, it is worth stressing that the student walkers reported being mostly unfamiliar with the deprived neighbourhood.

Findings presented in chapters 2 and 3 were based on cross-sectional data with non-clinical populations and were very much researcher-led.

Alternatively, research presented in chapter 4 used methods from participatory approaches that were collective, creative and community focussed to try and capture not only the experiences of urban living across different life stages, but also to explore the way in which people use their experiences to consider future place making. As such, the study presented in chapter 4 engaged individuals with lived experience of mental health difficulties in thinking about their built environment. The aim of chapter 4 was

to explore how qualitative methods could work to inform the understanding of how the experience of urban living changes through different life stages (childhood, adolescence and adulthood), and to explore how lived experience informs thinking about future place making. In doing so, chapter 4 aimed to identify some physical and social characteristics of place considered to reduce distress and encourage community activity and cooperative ventures, and to encourage positive future thinking about places and place making decisions.

Focussed discussions revealed childhood range and restriction as important factors relating to the realisations in adolescence of vulnerability and social positioning. Attachment to place was interpreted as more important in the face of adversities throughout critical life stages and was ambivalent for one participant in particular, relating to internalised stigma and a paradox of shame and pride associated with difference and incivility. Loss was reported by all respondents both in the physical amenities and the sense of community in the city, the sense of loss was teamed with a sense of powerlessness perceived to cause passivity and low levels of trust. The felt lack of togetherness was reflected in future thinking about place design, with an attempt to design places that promoted trust, cooperation and safety and that provided a nurturing space, with a priority on places that function well for children. Findings revealed a strong sense that experiences and attachment to place through the life span later impacted on perception of self, others and an understanding of what makes places cooperative and prosocial to benefit resident's mental health and wellbeing

The restricted range in childhood links to the social fragmentation indicated in chapter 3, with residential mobility in adolescence causing realisations of social positioning, self-stigma and difference and incivility in a disordered neighbourhood. The possible increased risk of urban living on mental health and wellbeing can only be understood when all life stages are considered, from restriction and alienation, to a realisation of inequality and social rank to ambivalent attachments to place and felt powerlessness and passivity. This pattern of themes across the different life stages is support for findings from Pederson and Mortesen (2001) who found that prolonged exposure may increase risk of mental health difficulties. The current findings shed light on the psychological conflicts that repeated exposure to a low resource, urban environment might cause. Psychological conflicts were found to increase self-stigmatisation and feelings of mistrust and powerlessness in adulthood; known to underpin mental health difficulties (Mirowsky & Ross, 1983; Ross et al. 2001).

All respondents reported judgements about residents in their neighbourhood, referring to them as passive and indicating low levels of trust. These qualitative findings reflect previous studies that have shown that even brief exposure to harsh urban neighbourhoods causes more negative beliefs about others (Ellett et al., 2008) and low levels of trust (Nettle et al., 2014). Furthermore, the lack of togetherness that was described as a feature of recent years indicates low levels of social capital. If social capital is understood in terms of Stevenson's (1998) definition, in which relationships with family and neighbours can buffer against the negative effects of the immediate environment, then this study reveals an interaction between family

adversity, low social capital and perceived powerless activism relating to place. The paradox of simultaneous shame and pride is support for previous research that suggests that group identification can be both a positive and a negative, and can be experienced as a struggle of classification (Rusch et al., 2009; Tyler, 2015). Previous research suggests that attachment to a disadvantaged and disordered neighbourhood can cause increased risk of mental health difficulties (Stafford et al., 2008). Similarly, findings from the focussed discussions revealed underlying psychological processes known to increase risk of mental health difficulties such as self-stigmatisation and powerlessness.

By structuring the focussed discussions around experiences of urban living through different life stages, participants could identify distinct needs of different age groups. Participants considered design features that would increase cooperation and trust and that enabled natural surveillance and nurturing spaces for residents. Ideas around natural surveillance are not new (Cozens, 2002), however, the current study revealed that participants were aware of the influence that physical features can have on psychological processes such as trust, and the importance of these social characteristics to build community through 'psychologically kind' urban neighbourhoods.

5.3 Applied Relevance

The findings presented in this thesis have implications for the improved understanding of the urbanicity effect but also for the use of social scientific theory and psychological research methods in urban design practice. The methodologies used could provide novel ways to better understand the way

that urban environments can be made more psychologically kind. For example, contemplation methodology presented in chapter 2 showed the value of using continuum based measures to explore the relationship between environments and mental distress. The method could provide convenient scientific evidence for urban designers and architects that could shape designs that promote feelings of safety and trust. Online contemplation methods could provide professionals with large amounts of data relating to the gut reactions and psychological responses to images of their place designs. With more advanced design technology, 3D images or even virtual reality scenes of place designs could be contemplated by the public, and with the use of psychological measures, designers could gain feedback on the extent to which their designs are social and have the potential to promote mental health and wellbeing.

For improved ecological validity, built environment professionals and even councillors should consider using walking methodologies to explore psychological responses to urban neighbourhoods with the aim of better management of places for the psychological benefit of residents. Walks could be conducted with both residents and visitors and also professionals to get a more representative response to urban spaces. In light of findings relating to green space in chapter 3, urban designers should consider using walking methodologies to explore responses that speak to the accessibility and ownership of public spaces, for example, the accessibility and ownership of parks for neighbouring residential areas.

Participatory, qualitative methods presented in chapter 4 should be considered in future urban design practice, in which discussions about lived experience through different life stages can produce design ideas that benefit different generations and aim to reduce the more 'toxic' aspects of urban living known to be associated with mental health difficulties. This will also reduce resident's feelings of being 'left behind' reported in previous studies (Hayden, 2000) and in this current research. Participatory methods presented in this thesis also have possible implications for community mental health care in cities. Research by Whitley et al. (2005) suggested that more evidence around social capital as a protective factor for mental health and wellbeing could inform the design of psychiatrist's individual treatment plans. Understanding community resilience and the capacity of a neighbourhood to support an individual with mental health difficulties is vital for the transition from inpatient to community care. Methods presented in this thesis such as walking, map drawing and ethnographic techniques could be used to survey an area in terms of its toxicity for mental health and wellbeing. By using participatory methods such as 'design your own space' workshops or participant led walking tours, the 'inverse care law' can be avoided (Hart, 1971). Neighbourhood barriers and improvements can be identified by service users and will increase the likelihood that interventions will be accessible and relevant to those who need them most.

Liverpool's primary mental health care strategy for adults between 2013 and 2016 included four core offers; practical, social, psychological and physical. In particular, methods presented in this thesis could help to evaluate the physical and social quality of urban neighbourhoods in Liverpool, and their

ability to offer community learning, social prescribing, peer support and volunteering opportunities. If research methodologies that are participatory are used to gather evidence to support more community grants such as those given by Wellbeing Liverpool, isolation can be reduced along with discrimination and felt stigma experienced by many service users returning to their community. Collaborations exist between local authorities, public health teams and the mental health strategic partnership, and a report in 2013 (Mental Health Strategic Partnership, 2013) proposed ways to build more resilient communities. For example, joint working was emphasised and the importance of evaluating services using Mental Wellbeing Impact Assessment Tools. Collaborations between researchers, service users, local authorities and both non-profit and NHS service providers could produce findings able to secure future funding for bottom-up place based projects in cities.

5.4 Strengths and Limitations

Despite the benefits of exploring possible determinants of common and severe mental health difficulties with non-clinical samples, the samples used in chapters 2 and, in particular, chapter 3 were biased in terms of age, ethnicity and socio-economic status. Predominantly student populations make findings hard to generalise, in particular because students have a unique socio-economic status and are commonly non-permanent residents of the area. The qualitative findings presented in chapter 4 were based on a very small sample of service user members from a Liverpool Mental Health Consortium. Participants were from different areas of Liverpool, but were

familiar with each other's areas. The small group was seen as a methodological strength by some of the participants; however, the small group meant that some themes were constructed from the inputs of single respondents.

Despite having low ecological validity compared to exposure studies such as Ellett et al. (2008), both study 1 and study 2 (chapter 2) attempted to match images and provide rural and desirable residential image controls. However, the contemplation study lacked some potentially important baseline measures about participant's exposure to urban/rural and low quality urban environments in childhood. Additionally, simple estimates of relative socio-economic status compared to each depicted residential neighbourhood may have revealed some interesting findings, and could have accounted for the possible familiarity or in-group/out-group effects. In this current study the quality of the residential neighbourhoods was measured using two simple questions relating to desirability e.g. 'how nice is this place?' and 'how much would you like to live in this place?' These simple measures can be justified as more automatic gut reactions to places, adding ecological validity.

Furthermore, the active contemplation prompted by questions of each residential neighbourhood can be seen as both a strength and a weakness of the study. The intention was to use questions that mirror the kinds of natural considerations made when visiting an unfamiliar place. However, in order to reveal the physical features of urban environments that may change psychological processes underpinning mental health and wellbeing, more implicit measures may have more effectively captured attentional focus on

physical aspects of the scene. Finally, to ensure that the random split of questionnaire items across pre- and post- anticipation of threat, locus of control and consideration of future consequences, did not influence the results, the split of items pre-and post-contemplation should have been counterbalanced across participants. However during this online survey methodology it would have been practically very difficult to do this.

The walking methodology presented in chapter 3 accounted rather better for real exposure to contrasting urban environments. It used a within subjects design to capture the comparisons made by individuals between areas and the close physical contrasts experienced in cities. The method was researcher-led and questions elicited explicit thoughts and feelings as opposed to implicit reactions to the physical and social space at each stop. The group nature of the walks may have influenced responses given via demand characteristics and social desirability. Unfortunately, walking as a group did draw some attention from residents, particularly in the more deprived neighbourhood, a matter worth considering for future walking studies. Exposure to each stop was very brief with a maximum of 5 minutes in each area; averages were then created for the distinct neighbourhoods made up of 5 stops at each end. Exposure in other studies such as Nettle et al. (2014) was longer in some cases (up to 45 minutes) but varied more than in the current study (between 10-45 minutes). However, a limitation of the current study, in comparison to Nettle et al. (2014), is that it could not measure the prolonged exposure to the two contrasting neighbourhoods by taking the same measures of psychological processes from residents. However, previous visitor based field studies did not control for socio-

economic status (Ellett et al., 2008) and others controlled only for local origin (Nettle et al., 2014). This study was unique with a stop by stop explicit judgement of participants relative SES positioning which was found to be a strong predictor of both threat and trust.

The between subjects design of Nettle et al.'s (2014) study meant that the interaction between individual differences and distinct areas along the walk could not be explored. The study presented in chapter 3 allowed analysis of the variability of responses across distinct urban environments and a green space, and could therefore look at possible predictors based on self (relative SES and mental distress), and perceptions made about the resident's socio-economic status. Furthermore, Ellett et al.'s (2008) study did not expose the control group to the urban environment. Therefore their results do not indicate the possible mechanisms for causing changes in psychological mechanisms that underpin mental health and wellbeing in the non-clinical population. They also used a mindfulness control group and therefore did not have a comparison for participant's response to a more affluent neighbourhood or green space. Ellett et al. (2008) reported that future research was needed that identified possible features of the environment that caused changes in these psychological processes. This thesis presents qualitative salient features that revealed differences in physical and social characteristics of the two urban neighbourhoods. From these data, on the whole, it seemed that quality and management of places was more important than building types, business or green space for predicting psychological responses to place. The gut reactions also revealed socio-economic qualities that predicted psychological responses to place.

The main limitation of the workshops presented in chapter 4 was the lack of context. Discussions took place in a windowless, basement meeting room in a NHS building in Liverpool city centre, which produced retrospective and ideas that were hypothetical. The workshops were evaluated positively by participants; however, there was a tension about the pilot study being only simulated and for the purpose of research and not to inform the real development of a public area common to all participants. This highlights the importance of more co-produced but also inter-disciplinary and collaborative real projects. If participatory research methods could be grounded within a community grant scheme, funded by local authorities and facilitated by urban design professionals then the chances of creating future places that are better for us will be increased. In order for participants to feel more open in discussing the mental health aspects of place, aims should perhaps be more explicit and clearly discussed with reference to some background literature and even some local statistics around mental health prevalence between urban and rural areas and within the city. This might better reflect the interaction between lived experience of mental health difficulties and lived experience of urban living. However, the drawback of such an approach would be that the aims and background literature would contextualise the purpose of the discussion and in part, determine the nature of what was said.

5.5 Outstanding Issues and Future Directions of Research

In the future it is important that research carefully considers the population from which samples are chosen to explore the urbanicity effect. Studies presented in chapters 2 and 3 recruited non-clinical populations and were

predominantly undergraduate students that were unfamiliar, non-residents of the places that they were being exposed to. Results from student samples are interesting in their own right, with UK students having unique socio-economic status (Christie & Munro, 2003), increasingly high levels of mental distress (Macaskill, 2012) and often temporary residency. However, due to biases in age, ethnicity and socio-economic status, any findings revealed in chapter 3 in particular cannot be generalised. Instead, the flexibility and richness of the methodology should be appreciated and should be replicated and improved to consider similar research questions with different populations. For example, Chen and Paterson (2006) found that individuals with lower socio-economic status generally perceive more threat and have more external locus of control; it is expected that exposing these individuals to places with relatively high socio-economic status would augment feeling of threat and external locus of control, showing the opposite effect of findings in chapter 3. Additional measures of socioeconomic status, childhood neighbourhood indices of multiple deprivation and residential mobility should therefore be included in any study in which participants are asked to consider unfamiliar urban environments. Future research should continue to use non-clinical samples with the aim of identifying physical and social characteristics of urban environments able to significantly change psychological processing in both visitors and residents.

Results in chapters 2 and 3 indicate that briefly exposing visitors to unfamiliar environments with distinct features can cause changes in assumptions about residents and thus changes in psychological processes. However, if understanding of the urbanicity effect is to be advanced, research should

explore the effects of resident's knowledge about these stigmatising judgments based on the physical environment within their own neighbourhood. Understanding the impact of neighbourhood reputation in cities could reveal findings relating to management of places and the stigma experienced by those in deprived urban neighbourhoods.

If research is going to explore experiences of urban living through different life stages, lifelong residents should be recruited, of different ages from the same neighbourhood. The aims of future qualitative research therefore need to be more specific in order to select the appropriate sample. If aims are to understand the combined effects of lived experience of both urban living and mental health difficulties, more participant-led methods with mental health service users should be conducted. However, if the aim is to further understand the physical and social features of urban environments that encourage cooperation and positive mental health and wellbeing, more general non-clinical samples may be more appropriate.

The more ecologically valid the study the more difficult it became to tease apart the effects of the physical and social characteristics of urban environments. For example, future research could use experimental contemplation designs that aim to explore the effects of physical features of urban neighbourhoods whilst avoiding conscious contemplation of the social characteristics of place. Future research could expose a more representative non-clinical sample to contrasting urban residential neighbourhood images with and without the contemplation questions relating to socioeconomic factors. To focus participants on the physical features of the environment

they could be told that they need to memorise the scene for a spot the difference task. For the purpose of measuring implicit attention to salient physical features, eye tracking equipment could be used to examine attentional biases using initial gaze orientations and gaze dwell times. Similar to studies presented in chapter 2, changes in psychological processes could then be measured post-image exposure. Furthermore, physiological responses could be measured to explore whether focusing in specific physical features of harsh urban environments causes physiological arousal similar to that experienced when feeling threatened or anxious.

In an attempt to make field exposure research less researcher-led and more implicit experience sampling methodology (ESM) should be developed using an app to regularly ask participants to photograph and report gut reactions to place along with affective and psychological responses. This would also allow for an idea of range, mapped against measures of baseline mental health and wellbeing to attempt to capture any possible biases. Despite improving ecological validity, ESM methods would still reflect explicit processing only. Physiological measures could be taken alongside psychological processes such as threat and trust, and portable eye tracking glasses could be considered, although lack of discretion would be a difficult limitation to overcome. Qualitative methods could be used in which individuals walk through the distinct urban neighbourhoods one at a time and are asked to simply describe the environment and salient features. Data could be analysed using affective content analysis to see whether affect in participants' language correlated with the affective and psychological responses found in the current walking study.

While sociological and psychological researchers draw similar conclusions about the effects of city living on mental health (i.e. increased mental health difficulties in inner city regions) the approaches are contrasting in terms of the risk factors identified at different life stages and across different levels, e.g. individual, family, community and structural. For example, sociological explanations weight political, economic, social and environmental explanations while emphasising individual level explanations of psychological processes and experiences rather less. Psychological research is predominantly cross sectional and sometimes fails to prioritise structural and political explanations. However, it does provide specific associations between place and psychological processes and experiences. It is clear that each discipline in isolation provides somewhat incomplete explanations of the urbanicity effect, and that a more holistic and multi-disciplinary approach would more successfully provide a deeper understanding of this complex phenomenon. In order for findings to be impactful outside of their own disciplines, psychological and sociological methodology should be combined with existing urban design practices to create unique ways of thinking about future place design for the benefit of mental health and wellbeing.

Future multidisciplinary research could focus on the interaction between dysfunctional attachment styles in childhood, adversity and the reliance on and attachment to place. Studies should aim to explore the extent to which individuals with greater social and economic adversity rely more on and have more ambivalent attachments to place. Concentration of deprived areas, social fragmentation and inequality in cities means that environments are less likely to provide the support that the most vulnerable need. Social

contrasts in urban areas lead to stronger felt ambivalence towards the area of the city in which you grew up or are currently a resident. The physical management of spaces has been found in this thesis to influence both outsiders and residents perceptions of themselves and others. Reduced zoning, social fragmentation and increased mixing, exposure and bridging across urban communities will help to reduce the extremity of felt differences and incivility. Spaces that provide both physical and social features that are supportive, promoting safety, trust and cooperation should reduce vulnerability of mental health difficulties.

Research with a focus on gender and urban design should also be encouraged to explore ideas around nurture and place making that emerged in the focussed discussions presented in chapter 4. Measures such as 'empathy' and 'systemising' are often gender biased and so an exploration of 'emotional' and 'logical/strategic' design approaches between men and women in the profession could reveal interesting differences, approaches and outcomes. Methods used in the 'design your own public space' workshops could be adapted to work with professional urban design groups to understand the way that different needs are represented.

5.6 Concluding Remarks and Significance

It was impossible to write this thesis on a phenomena as complex as the urbanicity effect from a purely psychological perspective. Few methodologies are able to cover the many levels and dose-response relationships from which the increased risk of mental health difficulties in cities emerges.

Despite a clearly cyclic relationship between urban environments, changes in

psychological processes and symptoms of common and severe mental health difficulties, existing research is split between a focus on clinical groups and non-clinical populations, between residents and visitors and between epidemiology and cognition. Research suggests that psychological processes are dynamic and changeable, predominantly formed due to larger structural issues that cause displaced blame and social fragmentation. The geographical inequality of mental health difficulties both between places of differing urbanity and within cities should be public knowledge. If simple mental health statistics relative to national and local averages were made common knowledge then more democratic open discussion about the physical features of these places could take place.

Findings presented in this thesis revealed the quality and management of residential neighbourhoods as more important than urbanity for predicted changes in psychological processes and affective biases that underpin symptoms of common and severe mental health difficulties. Psychological processes around trust and threat were better predicted by the perceived characteristics of urban environments compared to levels of locus of control. The findings from the neighbourhood walking study also revealed some green space 'restorative qualities' and suggested possible associations between green space, affluence and control. Both the gut reactions to residents in the more deprived neighbourhood and qualitative findings relating to disordered urban neighbourhoods identifies a need for more research relating to the reputation of neighbourhoods, the sense of attachment and belonging to these urban neighbourhoods and the impact that this knowledge has on mental health and wellbeing. Experiences of

urban living and walking methodologies with both residents and visitors, and both built environment and mental health professionals could lead to future thinking about place-making to produce more mentally healthy cities. Moving forward, methods presented in this thesis may be considered for use in collaborative and co-produced place design processes and could support plans in the community that work to function to support those most vulnerable.

Focussed discussions revealed further evidence for socio-economic adversities of city living, the importance of attachment to place and the paradox of shame and pride relating to sense of belonging. Furthermore, they revealed a strong sense of loss to not only the physical amenities and management of urban neighbourhoods but also a felt lack of togetherness with increased levels of mistrust, powerlessness, passivity, difference and incivility. Experiences of urban living led to future thinking about place making based on improving safety and trust, cooperation and mixing and sense of nurture in place that has been lost in recent years.

The urbanicity effect exists across different life stages and at different levels including societal, neighbourhood, community, family and individual. Research should therefore be interdisciplinary, collaborative and co-produced in order to truly capture the effects of urban living, and methods should carefully consider objectives in a number of ways:

- Clinical vs. non-clinical continuum based understanding
- Experimental control vs. ecological validity

- Understanding of the experience of visitors vs. residents, capturing longitudinal exposure vs. exposure to unfamiliar places
- Implicit vs. explicit responses to place
- Research vs. action

Research objectives should therefore be carefully considered in order to gain the best understanding of urban adversities, and should aim to co-produce solutions to these problems through collaborative work between academics and professional, local authorities and mental health services, residents and service users.

Future research could therefore take a number of different paths. If the objective is to gain clearer understanding of the physical features of an urban neighbourhood that cause changes in psychological processes, then more implicit methods should be used in a controlled setting. For example, spot the difference tasks and the use of eye tracking apparatus, gaze dwell and attentional bias measures. Studies of this kind should continue to use non-clinical samples to better understand how changes to these psychological processes happen on a continuum. However, if the objective is to further explore psychological biases in individuals known to report high levels of mental distress, then better attempts at getting participants across the mental health spectrum should be made. If the objective is to understand how assumptions about residents are made based on the physical environment, then more diverse samples should be taken on neighbourhood walks. Alternatively, if objectives are to better understand the experience of coming from a deprived, disordered urban neighbourhood, more walking research

should be conducted to capture longitudinal exposure and the experience of area reputation within a city. Furthermore, qualitative research should aim to better explore ideas around attachment to place and family adversity to understand the importance of a place for providing nurture and support for vulnerable children and young adults. Understanding attachment ambivalence to disordered urban neighbourhoods with bad reputations could help mental health professionals judge the capacity of a community to support an individual with mental health difficulties. Understanding reputations of urban neighbourhoods is the first step to working with residents to improve the physical fabric, and thus the identity of an area. The conclusion is that these projects have to be collaborative and multi-disciplinary and as much as possible participant led.

To facilitate this type of 'in context' study psychology should embrace more ethnographic methodologies traditionally used by anthropologist and sociologist, and more recently, geographers. Ethnography facilitates encounters with different generations and all levels of adversities whilst maintaining the psychological thread within the context of cities, and as part of the experience of mental health and wellbeing. Not only are ethnographic methodologies arguably best able to advance knowledge around the urbanicity effect but they are also convenient tools for professionals both in the urban design and mental health fields. In the face of cuts to NHS mental health services, collaboration to address wider determinants of mental distress between academics, third sector organisations, local authorities and built environment professionals has never been more important. (see appendix 4.0 for proposed ethnographic research).

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