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**Mental Capital and Wellbeing:
Making the most of ourselves in the 21st century**

**State-of-Science Review: SR-E27
Housing as a Determinant of Mental Capital**

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Summary

The purpose of this review is to describe the state of science pertaining to the relationship between housing and mental capital. It draws on an international body of research evidence. For the purposes of the review, 'mental capital' refers to the totality of an individual's cognitive and emotional resources, including their cognitive capability, flexibility and efficiency of learning, emotional intelligence (e.g. empathy and social cognition), and resilience in the face of stress. The extent of an individual's resources reflects his/her basic endowment (genes and early biological programming), and their experiences and education, which take place throughout the life course. The terms housing and dwelling generally refer to permanent physical structures in which people make their place of residence, while the term home generally refers to both the physical structure and a range of emotional and symbolic connotations of housing.

The review addresses the ways in which housing may affect three specific aspects of mental capital: mental fitness and wellbeing in the general population; the wellbeing of people with severe mental illnesses; and mental development, particularly focused on the development of appropriate responses to stress and challenge in children, which they carry through their lives, affecting their subsequent mental capital. The first section of the review consists of a brief description of each of four attributes of the person-home relationship for which evidence of a link between housing and mental fitness and wellbeing exists: physical design; psychological dimensions; social dimensions and financial dimensions. The second section of the review addresses the issue of housing and severe mental illness. There is a growing body of evidence that 'housing first' service models that focus on choice, autonomy and appropriate supports for people with mental illness produce the best outcomes. Finally, the third section of the review focuses on the developmental importance of housing for children especially, and how aspects of the domestic living environment for children may have a long reach into mental capital later in life.

1. Introduction

The home is the place where people spend the greatest amount of their time, often spend the greatest share of their household income and where their most important social relationships occur. These factors make housing an important determinant of mental capital and health and wellbeing more generally. The bulk of research on housing and human wellbeing, however, focuses on the effects of biological, physical and chemical hazards in the home and their effects on human health. Of course, these are important attributes of housing for health and wellbeing, but there are a variety of other aspects of housing that occur frequently in the population and may be equally important for the development of mental capital and mental health and wellbeing.

This review addresses the ways in which housing may affect mental capital. Unlike the effects of biological, physical and chemical aspects of housing on health, however, the processes and pathways by which housing may affect mental capital are not as self-evident. One purpose of this review, therefore, is to describe the attributes of housing that the evidence shows are associated with mental fitness and wellbeing: physical design; psychological dimensions; social dimensions; and financial dimensions. The second section tackles the issue of housing for people with severe mental illness. There is a growing body of evidence that 'housing first' service models that focus on choice, autonomy and appropriate supports for people with mental illness produce the best outcomes. Finally, the third section of the review focuses on the importance of housing for healthy child development and effects over the life-course.

2. Housing, mental fitness and wellbeing: processes and impacts

Housing is considered a multi-attribute phenomenon by most working in the field of housing studies. Because of this, in order to understand its role as a determinant of mental capital, it is necessary to unpack its various attributes and examine the theory and evidence that exists for the relationship between each attribute and mental capital. There are four key attributes of housing that can contribute to mental capital:

- a) *Physical design*: Although some of the evidence in this area is dated, some does suggest that living on the upper floors of high-rise housing and residential crowding may have negative effects on mental health and wellbeing (Gillis, 1977). More recent research shows that lack of spaces for refuge and inadequate spatial differentiation to permit people to regulate social interaction may also undermine mental capital. For example, Evans et al. (2001) showed that children who reported that they had a room in the home where they could go to be alone were less likely than children without such a space to have attentional and behavioural problems. This dimension of housing also includes adaptations to the home and the availability of assistive technology that would enable residents who were frail or suffered from some disability to live independently. There is good research demonstrating that mental capital is enhanced and preserved for longer when individuals are able to avoid permanent institutionalisation and remain living independently (Howden-Chapman et al., 1999; Saegert et al., 2003).
- b) *Psychological dimensions*: Two key psychological attributes of housing are influential on mental capital: meaning and control. The home is one of the most important sites for the investment of meaning, which may include the ways in which people identify with their housing, the status that housing can convey as well as other symbolic aspects of housing. For example, through decoration, placement of personal artifacts, arrangement of furniture etc., the home acts as both a reflection and reinforcement of one's identity (Dunn et al., 2004). Also, the home is probably the most important site for the exercise of control in an individual's life. Indeed, it is the only place in one's everyday life where, socially and in many ways legally, one exercises complete control (Dunn et al., 2004). There is good evidence that control is strongly related to mental health and health more generally (Dunn, 2002). These results are analogous to evidence that control at work is strongly related to physical and mental health outcomes (e.g. Karasek and Theorell, 1990; Marmot and Theorell, 1988), including evidence from the UK's Whitehall Study.
- c) *Social dimensions*: It is well established that social support is strongly related to mental health and health more generally and, as such, is an important determinant of mental capital. Some studies have shown that social isolation is as great a risk factor for premature death as smoking (House et al., 1988). Social support itself has a number of provisions, according to Cutrona and Russell (1990; 1987), including: guidance (advice or information); reliable alliance (assurance that others can be counted on in times of stress); reassurance of worth (recognition of one's competence); attachment (emotional closeness); social integration (a sense of belonging to a group of friends); and opportunity for nurturance (providing assistance to others).

The home is a crucial site for establishing and maintaining social relationships, both within the family unit and beyond it. Where the home is inadequate for making and maintaining social ties, either due to its location, size, upkeep costs etc., this may undermine people's ability to establish and maintain a supportive social network. In making and maintaining friendships, for example, it is a significant escalation of a relationship to invite someone to your home.

- d) *Financial dimensions*: For most households, especially in early- and mid-adulthood, but also for pensioners and many seniors, housing costs are the single largest item in the monthly household budget. It follows that households who face high housing costs relative to total income may be likely to 'discount' their health by diverting expenditures on health-

promoting goods (e.g., nutritious food) towards meeting housing costs (Cheer et al., 2001). For most owner-occupier households, their home represents one of their largest capital assets. Moreover, owner-occupiers benefit from a number of tax benefits of home ownership, including capital gains exemptions on the primary residence and the non-taxability of imputed rents (Badcock, 1984; United Kingdom, 2008). Market conditions, housing policy, tax policy and the availability of subsidised housing all affect housing affordability. There is good evidence the owner-occupiers and households who pay a smaller proportion of their total income to housing costs have better mental health and overall health, making financial dimensions of housing an important contributor to mental capital (Dunn, 2002; Nettleton and Burrows, 1998).

It is important to note that there is a significant degree of interplay between these dimensions of housing as well as inter-relationships between dimensions of the dwelling and its surrounding environment. As an example of the former, the financial capacities of elderly residents, and especially their shelter costs as a proportion of income, will have an impact on their ability to modify their home in a way that allows them to continue to live in it independently. The Supporting People programme seeks to address issues such as this. This is but one example of the interplay between these dimensions of housing. Regarding the relationship between housing and the surrounding gardens and neighbourhoods, living in a home that is inadequate as a place of refuge, for example, in an area prone to violence and anti-social activity, may exacerbate the impacts of the poor housing on mental capital. It is also equally possible to imagine how good housing may buffer the negative effects of a poor neighbourhood environment. The interdependency of the two is important to consider in decision-making.

3. Housing and mental illness

For many years, people suffering from severe and persistent mental illness have identified affordable housing as a critical need. Severe mental illness is typically defined as mental illness that results in a continuous period of medical service utilisation greater than two years and a score below 50 on the General Assessment of Functioning (GAF), a commonly used assessment tool (Ruggeri, et al. 2000). Between the 1960s and 1980s, the countries of the industrialised world de-institutionalised a large number of patients with severe mental illness, but failed to put in place community-based services and housing options that were sufficient to meet their needs. Now, today's population of people with severe mental illness face a similar housing gap, and, partly as a result, people with severe mental illness are over-represented among the non-statutory homeless population, a situation that has existed for more than 15 years. Of the housing options that existed during this time, many were ill-suited or undesirable for people with mental illness and other 'hard-to-house' populations (for example, people with addictions). The inadequacy of housing programmes in this period, in terms of both capacity and programme design in some cases, is borne out in part by increases in homelessness seen in the last two decades (Tsemberis et al., 2004).

Many housing options, particularly in the United States, were of a congregate or communal nature that lacked privacy and autonomy for residents, and many had restrictive eligibility criteria, for example, a requirement of being drug-free for three months or in treatment for mental illness. These older models were based on a housing continuum, whereby the client was required to demonstrate 'housing readiness' (usually this means they must be in treatment and/or drug- and alcohol-free) in order to enter the continuum and to graduate to successive levels of independence and autonomy in housing. Although these housing models are still guiding current practice in some jurisdictions, recent innovations in specialised housing for people with severe mental illness and addictions have reversed some of the 'logic' guiding previous practice. As a result, it now appears as if there are few people who cannot maintain housing, so long as they have appropriate and adequate supports, and this is one of the objectives of the Supporting People programme (see the science review by Grove in this Foresight project).

The new logic guiding housing for people with severe mental illness is based on a 'housing first' philosophy offering a high degree of autonomy and choice for the client. 'Housing first' is meant to signal that housing precedes any other services (i.e. addictions and mental illness treatment) rather than the other way around. In older models, clients would have to demonstrate 'housing readiness' (by being sober or in treatment) before they could gain access to housing and in order to move to greater levels of housing independence (i.e. from group settings to independent living). This older logic has been superseded by an approach that provides housing in independent, scatter-site apartments with flexible supports from trained case-workers, *free of any requirement to maintain sobriety or be in treatment*. The success of such programmes, of course, is predicated on the presence of such supports.

The outcomes of this have been surprising in many instances. In a study of an innovative programme in New York City – Pathways to Housing – Tsemberis and colleagues (2004) randomised a group of homeless adults with severe mental illness to one of two conditions: the Pathways programme, which included immediate independent living in scattered-site apartments and accompanying supports from an Assertive Community Treatment mental health team, but with *no requirement to be sober or to use treatment services*; or the usual standard of care, which was housing that required treatment and sobriety. Results showed that the experimental group obtained housing quicker, remained stably housed for the duration of the follow-up (24 months), and reported higher perceived choice. Utilisation of substance abuse treatment was higher among the control group, but no differences were found in substance use or psychiatric symptoms. This finding is reflective of a number of studies showing that people with severe mental illness and addictions receiving such programmes are able to stay housed, are less likely to be hospitalised, and experience some reductions in symptoms. A recent paper by Nelson and colleagues (2007) reviews studies of the effectiveness of housing and support for people with mental illness who have been homeless in reducing homelessness, reducing hospitalisations and relieving symptoms, and compares this to the effects of support alone. They report the effects of housing on housing stability, utilisation of institutional services such as hospitals and prisons, connection to community-based services and symptomatology. In six studies comparing permanent housing to standard treatment, there is a clear and strong effect on housing stability for clients who participate in housing and support interventions.

Taking this a step further, there is clear evidence that housing and case management are superior to case management alone. Moreover, there is evidence that clients in housing and support programmes have better quality housing than people receiving standard treatment, case management or the residential continuum, including fewer housing problems, better subjective quality of life (regarding housing) and more control over one's housing. These findings are consistent with those in reviews by Kyle and Dunn (2008) and Newman (2001) who suggest a critical role for housing in reducing homelessness and improving mental capital for people with severe mental illness.

4. Housing and mental development

There is now a growing acknowledgement that the standard of living conditions in early childhood can cast a long shadow into later life, with socioeconomic position creating lifelong trajectories of health, wellbeing and competence (Keating and Hertzman, 1999; McLoyd, 1998). Although the research investigating the direct effects of *housing* on mental development is not large, when taken as part of the broader literature on socioeconomic status and human development over the life course, it provides a more substantial evidence base. Moreover, there is a strong theoretical argument, with some empirical support, for the role that housing plays in the socialisation of children (Bartlett, 1997).

One of the most substantial empirical investigations of housing and mental development was conducted by Marsh and colleagues (1999; 2000). They studied successive waves of the National Child Development Study survey in the UK to investigate the relationship between an index of multiple housing deprivation

and health later in life. The index goes beyond the traditional concerns about the bio-physical aspects of the home, by incorporating key subjective factors such as satisfaction with dwelling and residential area. Their results show that, after controls for socioeconomic status and other factors, the experience of both current and past poor housing is significantly associated with greater likelihood of ill-health. Among those living in non-deprived housing conditions in adulthood, ill-health is more likely in people who experienced housing deprivation earlier in life than those who did not.

Focusing specifically on mental capital, Gilman et al. (2003) used interviews with a sample of 1,089 people between age 18 and 39 who had been part of a birth cohort in Providence, Rhode Island in order to investigate the effects of early socioeconomic conditions (especially residential instability) on depression in adulthood. Measures of parental socioeconomic status (SES), childhood family disruption and residential instability were obtained upon enrolment at age seven. The results showed that low parental SES, family disruption and a high level of residential instability (three or more family moves) were related to elevated lifetime risks of depression. The effects of family disruption and residential instability were most pronounced on depression onset by age 14. Using more direct measures of child development and standardised, observer-based methods of assessing housing quality, Evans et al. (2001) studied the effects of housing quality on psychological distress and learned helplessness among a group of 277 children aged 8-11. They found that children living in households with a lower index of housing quality (which included structural quality, privacy, indoor climate, hazards, cleanliness/clutter and children's resources), exhibited more psychological symptoms and less task persistence (a measure of learned helplessness) than children living in better quality housing. This association was robust to controls for the socioeconomic status of the household. These three studies provide excellent illustrations of the evidence base for housing and mental development in children and subsequently through the life course. There is relatively little research literature in this field, however, and much more is needed – both theoretical and empirical.

5. Future challenges for research

The overriding problem in the literature on housing and mental capital is that there are very few prospective studies of the effects of housing interventions on mental capital, mental health or health more generally, and more evidence of this kind is needed (Thomson et al., 2001). Cross-sectional, observational studies will always be undermined by questions about the direction of causality. Of the few prospective (Thomson et al., 2001) studies that exist, most show positive effects on health and mental capital, but the size of the effect is usually modest. Additionally, very few of the studies in the literature on housing interventions, even those with a prospective design, actually measure housing quality at baseline and follow-up, so the modest effects on health may be due to modest changes in housing quality. Moreover, these kinds of measurements are needed to determine what attributes of housing are most strongly related to improvements in mental capital (Thomson et al., 2003). There is a dearth of research on housing and support programmes for people with severe mental illness and concurrent disorders. In all the affluent countries of the world there are a very large number of such programmes in existence, but a recent review by Nelson et al., (2007) found only 16 prospective studies evaluating the effects of such initiatives on housing stability, hospital utilisation or mental health symptoms. The evidence that does exist suggests that these programmes are effective. They certainly lend themselves to prospective studies where individuals are followed before and after receipt of the programme, and a control group of similar individuals is followed (Newman, 2001; see Tsemberis et al., 2004 for an example). Such studies could provide reliable quantification of the effects of reducing homelessness. Of particular interest is evidence of cost savings in other sectors (health, criminal justice, social services) of providing stable, supportive housing. Such evidence is scarce, but research in the United States has shown that providing people with mental illness who are homeless with supportive housing is cost-effective (Culhane, et al. 2002), and research in the UK has shown the financial benefits of the Supporting People programme (Ashton and Turl, 2008).

Finally, there is a need for further research on the effects of housing on child mental development. In this area, more theoretical work is required to guide future empirical research; this is a critical step in the selection of appropriate constructs to measure as outcomes. The measures used in the existing literature, including attentional and behavioural problems in childhood and mental and physical health in adulthood, are all appropriate, but there is room for development of other outcome measures (as well as more refined measures of housing quality). Of particular promise are the impacts of housing on emergent executive function, physiological stress biomarkers and socio-emotional wellbeing. This additional research is needed to better guide and justify policy interventions in this area.

6. Policy implications of existing knowledge base

Because housing is the place where people spend the greatest amount of their time, it is an important determinant of mental capital and health and wellbeing more generally. Affordability, quality, size/design, symbolic value, choice, autonomy, privacy, location relative to services, amenities and transportation are all important issues. Because housing is a multi-attribute phenomenon, addressing a single attribute may only result in a small improvement in mental health and mental capital, whereas addressing many elements could have a cascade effect over multiple outcomes. A recent study in New Zealand showed that the installation of insulation in low-income households had effects on a wide range of health outcomes, from respiratory symptoms to socio-emotional health (Howden-Chapman et al., 2007). The evidence suggests, therefore, that improving affordability, stability, size and design, and access to amenities and transportation have an influence on members of a household's life chances and, subsequently, their long-term health trajectories. Increasing evidence shows that children's mental development is associated with their housing quality. Children living in poorer quality housing have higher levels of stress hormones and behavioural problems. Residential crowding and high-rise housing are associated with higher levels of these problems, although their impact is highly nuanced. The effects of growing up in poor quality housing have a long latency as well. Longitudinal research shows clear associations between childhood housing conditions and mental capital in adulthood. The impact of policy in this area may, therefore, cast a long shadow into the future.

Areas in need of policy attention in housing and mental development are those mitigating the impacts of poor housing and living conditions in high-rise, concentrated-poverty housing estates, especially for lone-parent families. Children in such families are more likely to be housebound in crowded dwellings or left unsupervised outside at young ages, since the normal load of housework and/or work for pay outside the home must be shouldered by one adult. To mitigate the impacts of such living conditions, more recreational facilities and programmes are required to compensate for the shortage of parental supervision. Moreover, this support with childcare and recreation is important to the mental health of parents. Parental depression, especially maternal depression, has been shown in numerous studies to be strongly related to the mental health and wellbeing of the child. Finally, for people with severe mental illness, housing is an important factor in their mental capital and overall wellbeing. Recent evidence from experimental studies of 'housing first' interventions with homeless, mentally-ill people shows that there is almost nobody who cannot be housed *with the proper supports*. There is also evidence that, in many instances, it is more cost-effective to solve the problem of homelessness and mental illness by providing stable housing and adequate supports than it is to manage the problem, which tends to result in people incurring substantial costs in multiple sectors (social services, criminal justice, health, etc.) (Gladwell, 2006).

The key ingredients of successful housing for people with severe mental illness appear to be: direct access to permanent housing at an affordable rent (housing first); flexible, individualised supports; scattered-site housing; and a very high level of client choice, both in housing and in the services and supports they will utilise in their recovery.

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