

GoWell is a collaborative partnership between the Glasgow Centre for Population Health, the University of Glasgow and the MRC/CSO Social and Public Health Sciences Unit, sponsored by Glasgow Housing Association, the Scottish Government, NHS Health Scotland and NHS Greater Glasgow and Clyde.

A large graphic of a stylized human figure. The head is a teal circle containing the title. The torso is a grey shape, and the lower body is a teal shape. The date 'August 2010' is located in the grey torso area.

**Glasgow's  
Deprived  
Neighbourhood  
Environments And  
Health Behaviours -  
What Do We  
Know?**

August 2010

*GoWell is a planned ten-year research and learning programme that aims to investigate the impact of investment in housing, regeneration and neighbourhood renewal on the health and wellbeing of individuals, families and communities. It commenced in February 2006 and has a number of different research components. This paper is part of a series of Briefing Papers which the GoWell team has developed in order to summarise key findings and policy and practice recommendations from the research. Further information on the GoWell Programme and the full series of Briefing Papers is available from the GoWell website at: [www.gowellonline.com](http://www.gowellonline.com)*



## GLASGOW'S DEPRIVED NEIGHBOURHOOD ENVIRONMENTS AND HEALTH BEHAVIOURS - WHAT DO WE KNOW?

### Key Points

- The observation that adult health and health related behaviours tend to be worse in more disadvantaged areas, even after controlling for individual characteristics, has been associated with the broad idea that, in general, environmental characteristics in poorer areas are detrimental to health and healthy living.
- Place and health are inextricably linked but it is increasingly understood that health is determined by a range of social, environmental and economic factors and that decisions made in these domains strongly influence potential health outcomes.
- At present there appears to be no clear evidence of amenities and resources being systematically located to the disadvantage of poorer communities in Glasgow.
- The concentration of health and social problems in areas of low socioeconomic status continues to be of concern; evidence indicates that these issues are not solely due to the local and residential environment in which people live.
- Social regeneration and personal approaches to health improvement should remain a priority in addressing the health of those living in poorer areas and should be undertaken to the same extent as physical regeneration and improvements to services and amenities.



## INTRODUCTION

The relationship between socioeconomic status and health is well established. Throughout history and across the world, poorer people have been shown to have worse health and shorter lives than do those higher up the socioeconomic scale. The difference is found not only when comparing the extremes of socioeconomic position, it is evident right across the socioeconomic gradient: people are generally a bit healthier than those slightly worse off, and slightly less healthy than those who are a bit wealthier or more influential. This social distribution of health risk is partly a reflection of the social patterning of unhealthy behaviours. Unhealthy diet, lack of exercise, high levels of alcohol consumption and tobacco and drug use have now become strongly associated with social disadvantage, raising the question as to the factors that cause and sustain unhealthy behaviours in these communities. It is these issues which are of interest here.

This briefing paper draws together the evidence on the associations between the residential environment - specifically the neighbourhood availability of amenities, resources and retail premises in deprived areas - and the health related behaviours of local adult residents. It focuses on the impact of the neighbourhood environment on drinking, smoking and eating behaviours, levels of physical activity undertaken and mental health and wellbeing, and asks the question 'Do deprived areas have a greater concentration of resources, retail premises and outlets which are potentially health damaging compared to more affluent areas?'

Adult health and health related behaviours tend to be worse in more disadvantaged areas, even after controlling for individual characteristics (such as income and education). This observation has been associated with the broad idea that in general, environmental characteristics in poorer areas are detrimental to health and healthy living (Macintyre et al., 1993; Macintyre, 2007). This has been described as 'deprivation amplification' (Macintyre, 2007), a pattern by which a range of resources and facilities which might promote health are less common in poorer areas, in effect damaging the health of the poorest and increasing health inequalities.

A similar but converse idea is encapsulated in the notion of 'environmental injustice', which suggests that environmental threats to health (e.g. waste disposal sites, air pollution, toxic factory fumes) are more likely to be located in poorer areas occupied by the least powerful in society (Hofrichter, 1993). The general assumption in much of the literature is that patterns of deprivation amplification and environmental injustice are common in modern cities: that is, that poorer neighbourhoods will usually have poorer access to health promoting resources and more exposure to health damaging ones, and that area deprivation thus typically compounds individual disadvantage. For many, but not all, the emphasis on deprivation amplification or environmental injustice is a welcome balance to the view that differences between areas are solely due to the differences in the personal characteristics and behaviours of residents.

A recent study in Glasgow city investigated the question: 'Do poorer people have poorer access to local resources and facilities?' in a bid to establish whether health promoting resources tended to be more available in richer areas, and potentially health damaging resources more common in poorer areas (Macintyre et al., 2008). In an examination of the distribution of 42 types of facilities and resources (e.g. public and private nurseries and schools, police stations, bingo halls, banks, building societies and credit unions, tourist attractions, public and private sports and swimming facilities, waste disposal sites and derelict land and buildings etc) in Glasgow city, analysed by quintile of small area deprivation (2005-6), results did not support the deprivation amplification model. Rather, they suggested a more differentiated model whereby some resources are equally accessible to residents across a range of deprivation. The authors concluded by giving support not to an 'underclass' explanation but to an 'ecological' hypothesis (Lineberry, 1977) where the location of urban resources is related to the age, history, geographical location, density and residential/commercial mix of different areas.

What follows summarises evidence concerning associations between the availability /accessibility of outlets and amenities, and a number of different health outcomes: alcohol consumption, smoking, eating behaviours, physical activity, and mental health and wellbeing.



## DOES THE DENSITY OF ALCOHOL OUTLETS HAVE AN IMPACT ON HEALTH?

Alcohol is a significant and growing problem in Scotland in terms of morbidity, mortality and social harm. UK sales of alcohol are rising: in 1995 an average of 9L of pure alcohol was sold per head of the population aged 15 and over in the UK, and this had risen to 11L per head by 2005 (Catto, 2008).

In Scotland in 2008 30% of men and 20% of women aged over 18 reported levels of drinking higher than the recommended weekly amount of alcohol (Scottish Health Survey, 2008). Among women in Scotland, weekly alcohol consumption is highest among those in managerial or professional households; whereas among Scottish men there is no consistent pattern by socioeconomic classification.

Although alcohol related problems occur in all social groups, there is a marked social gradient in alcohol related morbidity and mortality. People from the most deprived areas of Scotland are six times more likely to be admitted to hospital with an alcohol related diagnosis than people from the most affluent areas (ISD, 2009).

The 2008 GoWell survey of residents in 15 relatively deprived Glasgow communities found that 27% of men and 14% of women respondents reported levels of drinking

over the weekly recommended amount (GoWell, 2010). The study also reported high levels of self-reported abstinence from drinking alcohol (44% of all respondents), perhaps reflecting the nationalities and beliefs of some respondents, as those born outside the UK (especially refugees and asylum seekers) were much more likely to report being teetotal than those born in the UK (GoWell, 2010). The NHS Greater Glasgow & Clyde 2008 Health and Wellbeing Survey reported a higher prevalence of drinking: 43% of respondents from Glasgow City exceeded the weekly recommended amount of alcohol. However, respondents from the most deprived areas (in the bottom 15% of the 2006 Scottish Index of Multiple Deprivation, SIMD) of the city were less likely to drink over the recommended maximum amount of alcohol compared to other areas in the city (39% versus 46%).

Evidence of an association between alcohol consumption, alcohol availability and socioeconomic status remains inconclusive, overall. However, alcohol availability (measured by access to shops and restaurants which sell alcohol) may help to explain the link between neighbourhood deprivation and harmful alcohol consumption. Neighbourhood deprivation has been associated with the number of alcohol outlets, with more outlets in poorer areas; and studies have shown that a higher density of alcohol outlets is associated with increased rates of youth drinking and driving, assault, violence and homicide, rates of injury and rates of traffic collisions and traffic injuries (Scribner et al., 1994, 1995; Treno et al., 2001; Gruenewald et al., 2002).

International research examining the association between alcohol outlet density and alcohol related harm has suggested an association between outlet type (off-sales, bars, restaurants) and physical harm (Lipton & Gruenewald, 2002). Bar density was strongly associated with greater rates of assault whereas an increased density of restaurants was associated with lower assault rates. Other studies have shown associations between drink driving and restaurant density (but not bar density) and between off sales outlets and homicide and violence (Scribner et al., 1999; Gruenewald et al., 2002).

Studies at the city level, mainly in North America, have suggested that the density of alcohol outlets may be higher in poorer neighbourhoods (Pollack et al., 2005). Studies across nations (New Zealand) have shown a similar pattern, with greater access to alcohol outlets in more deprived urban areas (Hay et al., 2009). But what is known about the extent to which alcohol outlets are more prevalent in deprived areas in the West of Scotland?

A recent study by Ellaway et al., (2010) investigated the distribution of alcohol outlets by area level deprivation across the city of Glasgow. A list was created of alcohol outlets with street addresses obtained from the City Council in 2006, including seven categories of outlet ranging from public houses, off-sales, restaurants and bars to private members and entertainment clubs (bingo halls, nightclubs and concert halls). All alcohol outlets were mapped and proximity to nearest outlet calculated across quintile of area deprivation. The analysis included 2221 alcohol outlets across the


city. The study reported that the socio-spatial distribution of alcohol outlets across Glasgow does vary by deprivation but not systematically. Some deprived areas contain the highest concentration while others with a similar deprivation score contain very few. Within Glasgow, the city centre, West and East areas have the greatest number of alcohol outlets per 1000 population. Laurieston and Tradeston along with Parkhead West & Barrowfield, and Calton, Gallowgate & Bridgeton, which are very deprived areas in the east end of the inner city, have the second greatest number of off-sales. Glasgow's four main peripheral schemes; Drumchapel, Castlemilk/ Glenwood, Pollock/Nitshill and Easterhouse/Barlanark did not have a high density of alcohol outlets of any kind.

This study suggests that there is a less consistent association between the density of alcohol outlets and deprivation in Glasgow than that found in the studies carried out in North America and New Zealand.

### **Alcohol outlets and drinking behaviours – in summary**

- There is no clear patterning of average alcohol consumption levels by area level deprivation.
- However there is a pattern of increased alcohol related morbidity and mortality by area level deprivation (higher levels of alcohol related diagnoses in more deprived areas).
- The density of alcohol outlets is an important factor not just in relation to drinking levels but also in relation to other forms of alcohol-related harms, especially rates of assault and increased violence.
- There is no clear pattern of alcohol outlet density and area deprivation in Glasgow, but some of the most deprived areas have amongst the highest number of alcohol outlets, in particular in the East End of the city.
- Rates of alcohol-related morbidity and mortality remain to be analysed alongside data on alcohol outlet density for small areas.





## DOES THE DENSITY OF CONVENIENCE STORES AND TOBACCO RETAILERS HAVE AN IMPACT ON SMOKING BEHAVIOURS?

In Scotland more than a million adults are cigarette smokers, 26% of men and 25% of women (Taulbut & Gordon, 2008). Smoking behaviour is driven by an addiction to nicotine, but personal, social and economic influences are often critical in determining who starts smoking, who gives up and who continues. A strong gradient in smoking prevalence is evident across the socioeconomic spectrum with 41% of Scottish adults smoking in the most deprived areas compared to just 14% in the most affluent (Scottish Household Survey, 2008).

The 2008 GoWell survey reported 40% of respondents to be smokers, with nearly half of these (44%) saying they would never quit. Residents of the Transformational Regeneration Areas (inner-city mass housing estates undergoing a lot of structural and population change: Red Road, Sighthill and Shawbridge), were the least likely to smoke whereas residents from the Housing Improvement Areas (inner-city gardened estates: Riddrie, Govan and Cartyne), were the most likely to smoke (GoWell, 2010). The NHS Greater Glasgow & Clyde 2008 Health and Wellbeing Survey reported that 35% of respondents from Glasgow City were smokers. A marked difference in the number of smokers by area deprivation was noted with 42% of respondents in the most deprived areas of Glasgow reporting being a smoker compared to just 29% in all other areas.

Studies have shown that where people live is associated with the likelihood of smoking, even after controlling for individual socioeconomic factors (Duncan et al., 1999; Shohaimi et al., 2003). A number of explanations for this observation have been postulated including local norms and culture, and the use of smoking as a coping mechanism to mediate stress, including that associated with living in an unpleasant or threatening residential environment (Diez Roux et al., 2003).

The degree to which people perceive their residential environment to be pleasant or otherwise has been shown to be associated with various health outcomes (Stephoe & Feldman, 2001). The association between residents' perception of the local residential environment and their likelihood of smoking was explored using data from the West of Scotland Twenty-07 Study (Ellaway & Macintyre, 2009). Over 2600 respondents aged 30 to 68 years were asked about 16 types of socio-environmental problems in their neighbourhood across three domains of issues: incivilities (e.g. litter, vandalism, disturbances by children and youth), absence of goods (e.g. lack of safe play areas, lack of recreational facilities, difficulties in obtaining services) and physical environmental problems (e.g. derelict/waste ground, speeding traffic, smells and fumes) and also their current smoking status. Perceived neighbourhood problems were associated with the likelihood of smoking but mainly among those with the most negative view of the local neighbourhood (Ellaway & Macintyre, 2009).

In this study, perceptions of the provision of neighbourhood amenities were more strongly associated with women's smoking status, whereas the perceived quality of the local neighbourhood was a better predictor of men's smoking status.

There is evidence from New Zealand demonstrating that supermarkets and convenience stores are more accessible and more concentrated in socially deprived neighbourhoods (Pearce et al., 2007, 2008). It is at least conceivable that consumption levels may be affected through the provision of an environment that supports easy access to tobacco products. However, only one study to date has investigated the effect of neighbourhood access to and location of outlets selling tobacco on individual smoking behaviours. A study of 82 neighbourhoods in four northern California cities encompassing over 8000 adults aged over 25 years found that lower neighbourhood socioeconomic status and higher convenience store concentration, measured by density and distance, were both significantly associated with higher levels of smoking after taking individual characteristics into account (Chuang et al., 2005).

### **Tobacco outlets and smoking behaviours – in summary**

- Smoking rates are strongly patterned by area deprivation, with three times as many people smoking in the more deprived areas as in the more affluent areas.
- About half of smokers in the more deprived areas do not think they will ever attempt to stop smoking.
- The perceived quality of the local neighbourhood and its amenities have been shown to be associated with smoking rates in a study in Glasgow, with negative views of the local residential environment being associated with a higher likelihood of smoking.
- In New Zealand, the density of tobacco outlets has been shown to be associated with area deprivation, with more outlets (supermarkets and convenience stores) in the more deprived areas.
- Evidence from the US also suggests that a higher density of tobacco outlets is associated with higher rates of smoking, after controlling for individual characteristics.
- We found no available evidence which studied the potential link between tobacco outlets and smoking rates or levels of smoking by area in the city of Glasgow.





## DOES THE DENSITY OF FAST FOOD OUTLETS HAVE AN IMPACT ON WEIGHT AND HEALTHY EATING?

In common with other industrialised countries, the prevalence of obesity and overweight in Scotland continues to rise. In 2008, 26.8% of adults in Scotland were obese and 61.5% were overweight; for children the corresponding rates were 15.1% and 31.7% respectively (Scottish Government, 2010). Obesity prevalence does not differ significantly across socioeconomic groups among men (25.3% of men in the least deprived quintile, 28.7% of men in the most deprived quintile) but rises steadily and significantly in women, with prevalence increasing from 20% in the least deprived quintile to 33% of women in the most deprived quintile (Scottish Health Survey, 2008). Looking more locally, at Health Board level, 22.8% of adults over 16 years (21.5% of men and 23.9% of women) living in the NHS Greater Glasgow & Clyde area were obese compared to 24.2% of adults in Scotland as a whole (Scottish Health Survey, 2008).

This increasing prevalence of overweight and obesity has been linked to increasing physical inactivity and changes in eating patterns. There has been an increase in the consumption of foods outside the home and increases in the portion size in out-of-home outlets, including fast-food outlets.

International and UK observational studies have shown that dietary patterns and obesity rates vary between neighbourhoods, with living in a low income or deprived area being independently associated with the prevalence of obesity and the consumption of a poor diet (Cummins & Macintyre, 2006; White, 2007; Macdonald et al., 2007). Explanations for increasing rates of obesity in areas of greater socioeconomic disadvantage are likely to be multifaceted and to include characteristics relating to individuals (composition) and those related to the environment or neighbourhood (context) in which people live. It has been suggested that contextual drivers may be more prevalent in deprived neighbourhoods, resulting in neighbourhoods that support unhealthy eating or 'obesogenic environments' (Pearce et al., 2007). One possible contextual driver is a higher density of fast food outlets in socially deprived neighbourhoods.

The 2008 Greater Glasgow & Clyde Health and Wellbeing Survey reported that 21% of Glasgow City residents ate from fast food takeaways at least once a week. Results from the GoWell survey noted higher levels than this, but did report a small decrease in the proportion of survey respondents who ate one or more fast food main meals in the last seven days, from 47% in 2006 to 43% in 2008. This varied by area type, ranging from a decrease of 10% in the Transformational Regeneration Areas, the areas of Red Road, Sighthill and Shawbridge (from 50% to 40%) to an increase of 7% in the Wider Surrounding Areas, the neighbourhoods surrounding Red Road and Scotstoun (from 42% to 49%) (GoWell, 2010).

The dietary intake of people in poorer socioeconomic groups is less likely to meet nutritional guidelines for fruit and vegetable consumption, and more likely to be high in fat, salt and sugar (typical features of fast food). Area based deprivation has been shown to be related to overweight and obesity (Ellaway et al., 1997). Evidence from a study of over 7500 adults from 82 Californian neighbourhoods reported that living in poorer neighbourhoods, and in environments where healthy food is not readily available, was associated with an increased risk of obesity (Wang et al., 2007). A positive association between living close to supermarkets and increased obesity levels in women was also reported. Although the weight of evidence to date demonstrates a greater opportunity to procure foods high in fat in more deprived areas, the role of the local food environment in influencing people's dietary choices and on obesity is unclear.

A New Zealand study of supermarket and convenience store access and its impact on fruit and vegetable consumption reported no evidence of an association between neighbourhood access to supermarkets or convenience stores and achievement of the recommended daily intake of fruit and vegetables (Pearce et al., 2008). A further study in New Zealand found little evidence that neighbourhood access to fast food retailing was associated with a poorer diet and being overweight at the individual level. The study also reported that residents in neighbourhoods with the furthest access to well known fast food chain outlets were more likely to eat the recommended intake of vegetables but also to be overweight. No association was found with fruit intake. Access to locally operated fast food outlets showed no association with the consumption of fruit and vegetables or being overweight (Pearce et al., 2009).

Studies of fast food restaurant use (e.g. take away restaurants, chain and independent burger restaurants, fish and chip restaurants) have shown positive associations with intake of total energy and percentage fat and negative associations with intake of fibre. Less evidence is available on whether deprived areas have a greater density of fast food outlets. A cross-sectional analysis of the mean number of McDonald's restaurants in England and Scotland reported a greater outlet density in deprived areas (Cummins et al., 2005). In Melbourne, Australia, Reidpath et al., (2002) reported that there was an exposure-response relationship between socioeconomic status and density of fast food outlets, with people living in the poorest areas having more than twice the exposure to fast food outlets compared to those in the wealthiest areas. Similar patterns have been reported in New Orleans (Block et al., 2004) and New Zealand (Pearce et al., 2007). However Pearce et al., (2007) also reported that outlets potentially selling healthy food (e.g. supermarkets) were also patterned by deprivation in a similar way to fast food outlets.

A study in Glasgow city which explored the hypothesis that fast food outlets were more likely to be found in poorer neighbourhoods, investigated the distribution of over 1300 out-of-home eating outlets within the city in 2003 (Macintyre et al., 2005). The density of outlets was highest in the second most affluent quintile (Q2) and lowest in the second most deprived quintile (Q4), with 35% of outlets and nearly 50% of

fast food chain restaurants located in Q2. Unlike the previously reported studies in Melbourne, New Orleans and New Zealand, this study has shown that neither out-of-home outlets in general, nor takeaways or fast food chain restaurants, were more likely to be found in more deprived areas in Glasgow, and on the contrary were more likely to be located in the more affluent areas. These outlets tended to be located in the inner and West End areas of the city (Macintyre et al., 2005).

Other Glasgow based studies have also reported that large multiple supermarkets were actually more likely to be located in deprived neighbourhoods, and that where there were differences in the pricing of food stuffs, prices tended to be slightly cheaper in poorer areas (Cummins & Macintyre, 1999; 2002). Further research in Glasgow by Macdonald et al., (2009) considered the distribution across the city of over 900 food retailers (ranging from butchers and bakers to fishmongers, delicatessens and supermarkets). The least deprived areas were the least well served by food retailers, while the most deprived areas had the greatest density. Overall these findings suggest that deprived neighbourhoods within the city of Glasgow do not necessarily have poorer access to food retail outlets than do more advantaged neighbourhoods.

### **Fast food outlets and diet – in summary**

- Obesity levels for women increase with area deprivation in Scotland.
- Rising overweight and obesity levels are partly due to increased consumption of food outside the home and increased portion sizes in fast-food outlets.
- Assessments of the distribution of fast-food and other out-of-home outlets in Glasgow do not show their density being higher in the more deprived areas.
- Large supermarkets and fresh food retail outlets (including bakers, butchers etc) have been shown to be more common in and around the more deprived areas of Glasgow.
- Availability of and access to food outlets are inadequate explanations for the dietary behaviours and trends in overweight found in Glasgow. A better understanding is needed of the interplay between individual/personal factors and contextual/environmental factors.

## THE NEIGHBOURHOOD ENVIRONMENT AND PHYSICAL ACTIVITY - WHAT ARE THE BARRIERS AND FACILITATORS TO PHYSICAL ACTIVITY?

The 2008 Scottish Health Survey results show that only 39% of all adults aged 16 years and over met the minimum physical activity levels recommended for good health, 45% of men and 33% of women. The Scottish Government's target is for 50% of adults to meet these recommendations by 2022 (Scottish Government, 2003). Men and women in the younger age groups were more likely to meet the recommendations than their older counterparts. Men in all age groups were consistently more likely to meet the recommendations than women.

Concern about the increasing levels of sedentary behaviour has become more prominent in recent times, with the notion of the 'couch potato', representing the typical sedentary individual, becoming firmly established within our culture as a negative image (Physical Activity & Health Alliance, 2007). In this context, being sedentary is linked to a range of health problems, most immediately to high levels of body fat and obesity and thereafter to other conditions such as coronary heart disease, cancer and type 2 diabetes.

Findings from the NHS Greater Glasgow & Clyde 2008 Health and Wellbeing Survey reported that only 39% of respondents from Glasgow City met the minimum physical activity target, with respondents from the most deprived areas being less likely to meet the national physical activity targets of 20 minutes of strenuous physical activity three or more times a week or 30 minutes of moderate activity five or more times a week. In terms of health behaviours, the 2008 GoWell survey identified the biggest challenge to the health and wellbeing of the study populations to be physical (in)activity, with the survey reporting that two-thirds of respondents across the study areas had not done any moderate or vigorous physical activity in the last seven days. Moreover, only one in four respondents said that they had walked for at least ten minutes in the last week (GoWell, 2010).

The evidence consistently shows that residents of more 'walkable' neighbourhoods undertake more physical activity. These neighbourhoods bring together a number of environmental variables which combine to provide an environment in which people feel comfortable, safe and therefore more predisposed to walk. These neighbourhoods are characterised by high population density, a good mixture of land use, high connectivity and accessibility and good pedestrian and cycling facilities (Croucher et al., 2007). A review of 19 quantitative studies that assessed the relationships of physical activity behaviour with perceived and objectively determined physical environment attributes has demonstrated consistent associations between physical activity and perceptions of accessibility of facilities, opportunities for activity and aesthetic attributes of the environment among adults (Humpel et al., 2002). Environmental studies have also reported positive associations between walking and

access to open space and high neighbourhood walkability, whereas increased cycling was associated with the absence of busy streets and the presence of green spaces (Owen et al., 2004). In a study of over 100 residents from two neighbourhoods in San Diego, California, residents of highly walkable neighbourhoods were reported to make approximately two times more walking trips than residents of low walkable neighbourhoods, and to have less obesity (Saelens et al., 2003).

The motivators and barriers to physical activity are not always well understood. A comprehensive national study of public attitudes to physical activity in Scotland has shown that there are significant barriers to participation, the biggest of which are time and health status. Beyond this, the barriers and motivations vary substantially across sub-groups in the population (Scottish Executive, 2006). High crime rates, concerns for personal safety and transport infrastructure (number of roads to cross, traffic density and speed) have also been found to be associated with lower levels of physical activity (Davison & Lawson, 2006).

The proportion of the population in Glasgow living within 300 metres of a green space greater than two hectares in size has been shown to be inversely associated with poverty (Fairburn et al., 2005). This study reported that in areas where less than a quarter of the population are classified as poor, 33% live within 300 meters of such a green space, compared with 52% in areas in which between a quarter and a half of the residents are poor, and 61% in areas where over half the residents are poor. It therefore appears that those in poorer areas have better access to green spaces in which to walk, play or take their children. The mean number of public outdoor play areas per thousand children in Glasgow has also been shown to be lower in more affluent areas than in more deprived areas (Ellaway et al., 2007).

The idea that poorer areas would have objectively worse provision of green public spaces and play areas is therefore not supported by these studies. That said, while poorer neighbourhoods do not appear to be disadvantaged by the location or number of specific health enhancing resources, it may be that these areas are disadvantaged in terms of the quality of the resources as the studies did not assess the condition of the green spaces or play areas.

### **Neighbourhood environments and levels of physical activity – in summary**

- People living in more deprived areas of Scotland are less likely than others to meet physical activity guidelines. A significant number (up to a quarter) of people in the most deprived areas do not walk at all on a regular basis.
- ‘Walkable’ neighbourhoods can double the number of walking trips compared with areas of ‘low walkability’. ‘Walkable’ neighbourhoods are those

characterised by three features: a variety of destinations and activities ('vibrancy'); comfortable, safe and easy to use routes (high accessibility); and higher quality aesthetics (more pleasant to use).

- The degree to which more and less deprived areas of Glasgow are 'walkable' has yet to be determined through research.
- Some of the individual barriers to people taking up physical activity are potentially more applicable to those living in more deprived areas, namely: cost, family commitments, safety concerns, and tiredness.
- Individual barriers to taking up physical activity pursuits have not been studied specifically in populations from deprived areas to our knowledge, and we therefore do not know if some barriers (such as safety or tiredness) are more applicable to these groups.
- Deprived areas in Glasgow have greater access to large, green public spaces and to play areas for children than more affluent areas. The extent to which these green spaces are attractive and suitable for leisure and recreation activities is not known.
- The relative attractiveness, suitability and management (for leisure and recreation) of green spaces and play areas near deprived and other areas should be assessed to see whether smaller, higher-quality green spaces would be better for enhancing physical activity than the larger green spaces currently available in deprived areas.



## NEIGHBOURHOOD ENVIRONMENTS AND HEALTH AND WELLBEING

The GoWell survey found that 75% of respondents reported their current health to be good or excellent in 2008. This represents a small overall decrease: 80% of respondents reported that their current health was good or excellent when the survey was undertaken in 2006 (GoWell, 2010). Changes in levels of self-reported health also varied by study area type, especially for females. For example, there was no change for women living in Housing Improvement Areas but a 6% increase in the proportion of women in Peripheral Estates saying that their health is 'not good'.

The GoWell results are consistent with the Scottish Health Survey 2008 in which 76% of men and 75% of women reported their general health to be good or very good.



The Scottish Health Survey also reported that the odds of having poor self-assessed health increased with age and also rose as income declined and level of area deprivation increased.

A number of studies have found clear evidence of a relationship between the neighbourhood environment and self-reported health (Cummins et al., 2005). While studies consider a number of neighbourhood variables (not just physical environmental variables), and draw on residents' perceptions of neighbourhood, the relationship between negative perceptions and objectively measured aspects of neighbourhoods and poor self-rated health is clear. Perceptions of the neighbourhood are strongly associated with health and wellbeing (Croucher et al., 2007). The negative impact of a poor physical environment has also been shown to be greater for different types of residents, notably women, people who are unemployed and older people (Cummins et al., 2005).

At the level of the neighbourhood, the built environment is also likely to affect traffic, pollution, crime and residents' perceptions about their own safety, all of which may impact indirectly on general health and wellbeing. There may also be effects on perceptions of community cohesion and other forms of 'social capital' such as social networks and trust in the community. It has also been suggested that the built environment modifies the effects of housing on health by affecting residents' perceptions of their own dwellings (Kearns et al., 2000).

The environment can affect mental health in two major ways (Evans, 2003). Firstly, characteristics of the environment can directly influence mental health because issues such as poor housing, crowding, anti-social behaviour, noise, light and air quality can have direct effects on wellbeing. Secondly, the environment can indirectly affect mental health by altering psychosocial processes (that is the influence of social factors and systems on an individual's mind or behaviour) with known mental health consequences. For example, household overcrowding and high residential density may have an impact on the development of supportive relationships within households and social cohesion between neighbours. Poor social support and social stresses may increase psychological distress.

Studies have considered the association between neighbourhood characteristics and depression and other types of mental health problems, using both objective measures of the environment and residential perceptions of the environment. A growing body of evidence indicates that there is a relationship between mental health and the neighbourhood environment (Weich et al., 2002; Chu et al., 2004; Truong & Ma, 2006; Guite et al., 2006). In a systematic review of published research examining the relationships between neighbourhood characteristics and adult mental health, 27 of 29 research studies reported significant associations between mental health and at least one measure of neighbourhood characteristics, after adjusting for individual factors (Truong & Ma, 2006). Furthermore, a study examining the strength of association between physical and social factors in the environment and mental wellbeing in four areas of London reported that the factors which impacted

directly on mental wellbeing were neighbour noise, sense of overcrowding in the home, fear of crime, lack of green spaces and lack of community facilities (Guite et al., 2006). However it is not yet possible to determine the direction of causality, and as noted by Truong & Ma (2006) it is difficult to determine whether people with mental health problems move towards poorer neighbourhoods, or perceive their neighbourhoods more negatively because of a poor mental health status. Finally in a quasi-experimental study examining the links between neighbourhood residence and mental health outcomes in New York City, families were randomly allocated the opportunity to move to a different more affluent neighbourhood. Families who moved to more affluent, low-poverty neighbourhoods demonstrated better mental health and less distress and depressive symptoms at 3 year follow-up compared to families who remained in their high poverty original neighbourhood, suggesting evidence of neighbourhood income effects on mental health (Leventhal & Brooks-Gunn, 2003). These studies indicate the need to intervene on both the design and social features of residential areas to promote positive mental health and wellbeing.

Self-reported mental health problems (such as long-term stress, anxiety and depression) have increased in prevalence over time in all GoWell study areas (GoWell, 2010). In the 2008 survey, 8% of respondents in Housing Improvement Areas and 16% of respondents in Local Regeneration Areas reported having a mental health problem in the previous 12 months. The rates of mental health problems were consistently higher than in the 2006 Survey and the proportional increases were greatest for the two Regeneration Area types: nearly twice as many people reported a mental health problem in Transformational Regeneration Areas in 2008 as in 2006, and nearly four times as many people did so in Local Regeneration Areas (GoWell, 2010).

The positive mental health of an individual (having a positive psychological perspective or outlook can contribute to wellbeing) has also been shown to be important for individuals' satisfaction with a number of characteristics of the local neighbourhood environment. Within the 2008 GoWell survey, scores of mental wellbeing (as assessed by the Warwick Edinburgh Mental Wellbeing Scale, WEMWBS; Tennant et al., 2007) were lower in Transformational and Local Regeneration Areas than in other areas (GoWell, 2010). The survey reported that respondents were three times more likely to have high mental wellbeing if they considered the attractiveness of their neighbourhood to be 'very good' rather than 'poor'. Positive mental wellbeing was also associated with feelings of community empowerment, feelings of safety in the neighbourhood after dark and positive ratings of local amenities and services.

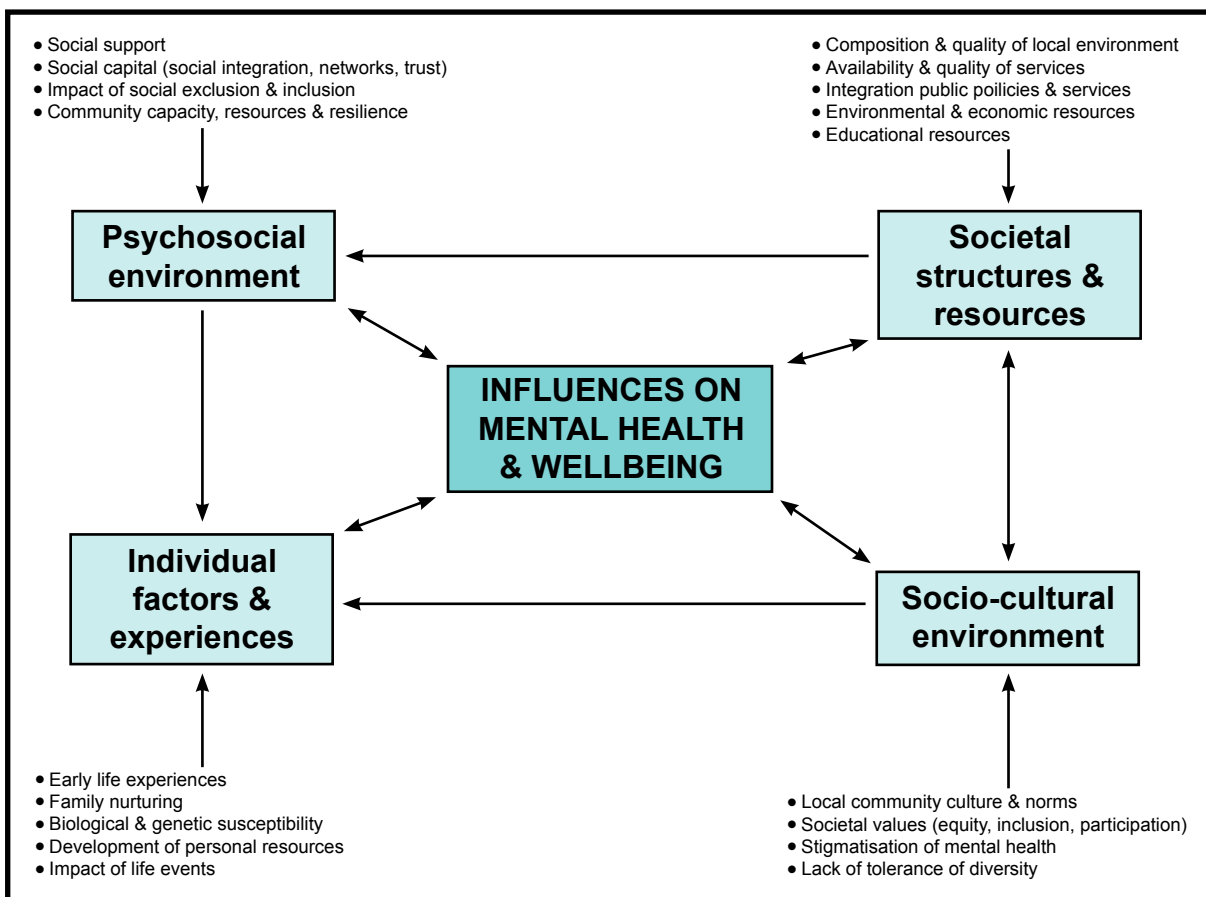
## Neighbourhood environments and health and wellbeing – in summary

- Poorer assessments of local neighbourhoods are associated with lower levels of general, self-reported health among residents.
- Neighbourhood characteristics (both objective and self-reported) have been found to be associated with mental health and wellbeing, with worse environments related to poorer mental health. The direction of causation and the role of selection bias (people with poorer mental health living in the worst neighbourhoods) both remain unclear.
- Neighbourhood characteristics found to be of particular importance to mental health are neighbour noise, sense of overcrowding at home, fear of crime, lack of green spaces and lack of community facilities.
- There is some international evidence that people who move out of deprived areas to more affluent areas experience improvements in mental health in the medium term.
- There is a lack of longitudinal evidence on the effects of changes in the neighbourhood environment on people's mental health and wellbeing.

## WHAT ELSE INFLUENCES AN INDIVIDUAL'S MENTAL HEALTH AND WELLBEING?

Four main influences have been proposed as having an important role in impacting on adult mental health and wellbeing: the effect of individual and family factors, life events and experiences; the role of the psychosocial environment (that is the influence of social factors, support and stresses on an individual's behaviour); the influence of the local socio-cultural environment; and the impact of societal structures and resources. These influences are interrelated and do not impact on mental wellbeing in isolation. They represent a holistic and multi-dimensional model of mental health (see Figure 1).

**Figure 1. Multi-dimensional model of influences on mental health and wellbeing**





## WHAT INFORMATION IS MISSING? WHAT DO WE NEED TO DO NEXT?

The relationship between community resource access and location and measures of socioeconomic status varies between countries and areas within countries, reflecting the role of broader socioeconomic and cultural contexts, and also the history of urban and rural planning and the design of the built environment. At present there does not seem to be any clear pattern of resource location to the disadvantage of poorer communities in Glasgow – nor of positive investment in their favour. This review of research evidence highlights a number of issues to be considered in the future development of policy, practice and research in the city.

The GoWell programme has shown no apparent difference currently in the availability of community resources across the 15 study areas, yet many areas are improving socially and physically at a faster rate than others. For the future development of policy and practice we must continue to be concerned with the location and availability of community resources and amenities, and their potential impact on health and wellbeing and the development of health related behaviours.

The concentration of health and social problems in areas of low socioeconomic status continues to be of concern and the evidence presented here indicates that these issues are not solely due to the local and residential environment in which people live. Social regeneration and personal approaches to health improvement, with a focus on people and communities, should remain a priority.

An unhealthy diet, lack of exercise, high consumption of alcohol, tobacco and drug use, have now become strongly associated with social disadvantage. In many parts of Glasgow these health damaging behaviours have become part of the culture. Action must be taken as a priority to ensure that these do not continue inevitably to be the accepted behavioural norms for our communities. The Glasgow Health Commission Report (2009) recommended that the city make 'better use of the city's cultural and community assets and resources' to reduce inequalities and promote health. Work must continue to turn this recommendation into reality.

While this review has shown that poorer neighbourhoods in the city may not be disadvantaged by the number and location of specific resources, it may be that they are disadvantaged in terms of their quality and condition. Research should be undertaken to link the location of community resources, such as play parks and food outlets, with an assessment of their quality, suitability and use.

Available evidence from Glasgow indicates that those living in poorer areas are not more likely to be exposed to out-of-home eating outlets in their neighbourhoods. Further research is required to establish whether proximity to fast food outlets does tend to lead to greater consumption of such foods and subsequently higher rates of obesity and poor health. In a related vein, people who smoke in deprived areas

are less likely to give up smoking than their more affluent counterparts and efforts which target individuals appear to have had a limited effect among deprived groups. More attention may need to be paid to the role of local environmental conditions in influencing smoking behaviours.

Most of the national and international literature currently available has counted and mapped resources, such as fast food outlets and alcohol and tobacco retailers, and expressed their locations in relation to neighbourhoods defined by postal or electoral boundaries and many are based on lists obtained from local council and government offices. The accuracy, completeness and appropriateness of this information need to be reviewed and possible alternative data sources sought where appropriate. It must also be noted that proximity to resources and facilities does not always relate directly to use. Proximity may be less important in areas where car access and usage is high. People may also use food retail outlets near their place of work, study or child's school and it still remains unclear where people actually purchase food and alcohol and to what extent local demand drives supply or vice versa.

Health behaviours, and mental health and wellbeing, are influenced by: the immediate residential environment of the home; the composition and quality of the local neighbourhood environment (in terms of amenities, services and outlets); local community culture and norms; the psychosocial environment of social supports and social stresses; and individual and family factors. We do not yet know the relative importance of each of these domains for the outcomes examined here, though all are likely to be important to differing degrees. Finding out more about their relative importance for particular outcomes will help guide appropriate public policy from the range of personal, social, cultural, neighbourhood (amenities and services) and environmental interventions.

Concerted and joined up approaches to challenging cultural norms and changing health-related behaviours need to be introduced and evaluated in communities in Glasgow in a bid to tackle the 'obesogenic environment'. We would welcome the opportunity to work with communities and partner agencies to develop ideas as to realistic health improvement interventions, in establishing the evidence of 'what works' with communities and in tracking and evaluating the impact of community interventions on health and wellbeing.





## SUMMARY

Many studies have been carried out investigating the association between the location of possible health damaging and health enhancing resources and the health behaviours of adult residents of those areas. These studies have been carried out over the last two decades and may not reflect and capture cities which are changing through regeneration and investment, especially in the poorest areas. Much less information is available on the quality of resources, levels of use, and compositional factors relating to the motivations and behaviours of the population.

Although health is improving overall in Scotland and Glasgow, there are still large differences by socioeconomic status. The health outcomes continue to be worse for the poorest in our society. At present there does not seem to be any consistent pattern of resources being located to the disadvantage of households in poorer communities. A large body of information is available relating to the food and drink retail environment in Glasgow city. Across a number of complementary studies this information demonstrates no clear pattern of fewer amenities, or more potentially health-damaging resources, being available in poorer communities in Glasgow. The picture is influenced by the concentration of eating and drinking outlets in the more affluent city centre and West End, but this does not fully explain the findings.

It is recognised that people's choices can be constrained or helped by the environment in which they live. Changing health behaviours in poor communities will involve more than just removing environmental barriers to equalise the quality of environments and access to amenities. Community assets and the availability of health enhancing resources may need to be substantially enhanced in both quality and quantity to compensate for the material deprivation experienced by these communities.

In conclusion, continued attention to the provision and quality of resources within communities is recommended. This however must be accompanied by enhanced efforts to change cultural norms and to undertake social regeneration to the same extent as physical regeneration. We must continue to build on the strengths existing within our communities and the assets upon which they can draw.



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## ACKNOWLEDGEMENTS

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August 2010

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