Select Committee on National Policy for the Built Environment
House of Lords: Private Briefing Seminar

The impact of the built environment on health and wellbeing

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Concepts
What is health?

WHO definition of Health:

*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*

What factors influence our health?
The broader determinants of health

Social/ecological theory to health: maps the relationship between the individual, their environment and disease.

Dahlgren and Whitehead (1991)
What role does the built environment play in influencing health and wellbeing?

Physical and social characteristics of communities and neighbourhoods are factors of health and can deliver health outcomes including:

**Physical and mental health through:**
perception of local area
social connections
physical activity

**Environmental health:**
air quality, water, noise

**Safety, security**

**Health equity**
Role of the built environment in influencing health
Pre WWII

• Gains in life expectancy in 19\textsuperscript{th}/20\textsuperscript{th} centuries owed much to environmental public health measures:
  • provision of clean water, food, and air
  • healthier housing
  • safer workplaces
Role of the built environment in influencing health

Post WWII: urbanisation, prosperity, increase in car affordability, road programmes, suburbanisation, out of town shopping centre, office work...
Role of the built environment in influencing health
Post WWII

In parallel: change in diet and increase in chronic diseases

Although the causes of these changes are complex—where people live, how they get around, how much they eat and are physically active all contribute to the epidemics of obesity and chronic diseases

(Barton, 2009; Jackson, Dannenberg and Frumkin, 2013)
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Evidence Base
Environment and Child Development

- ↓ CO₂ emissions
- ↑ Physical activity
- ↓ Injuries
- ↓ Infrastructure costs
- ↓ Depression
- ↓ Air pollution
- ↓ Osteoporosis
- ↑ Social capital
Public health evidence on the impact of the built environment on health: Pre WWII - focus on infectious diseases

- 19\textsuperscript{th} century epidemiological studies:
  - Eg Dr John Snow established link between cases of cholera and the use of a particular well in Soho =>well’s pump handle removed, preventing its use and the further spread of the disease among the community.
  - Link between overcrowding, lack of safe water and food and inadequate sanitation led to disease and epidemics spreading

=>Response from built environment professions/authorities: advances in housing, hygiene, water and sewerage systems leading to reducing in infectious diseases
Public health evidence on the impact of the built environment on health

Post WWII: focus on behavioural factors, chronic diseases

Public health now concerned by individual behaviour:

- coronary heart disease, diabetes, stroke and cancers are linked to a range of factors, in particular smoking, diet, physical inactivity and alcohol = factors linked to individual but also to wider determinants of health

Individual risk factors to burden of diseases and illness in UK

- Smoking 12%
- high body-mass 9%
- physical inactivity, alcohol and poor diet (5% each)

(The Lancet, 2013)
Health problems with possible links with the built environment

Webfigure: Built environment and health
Map showing health problems investigated for possible links with built environment. Developed from diagram showing how built environment affects health.

Source: Rao, Prasad, Tissera and Adshead. The Lancet online 13 Sept 2007
Obesity and the built environment

- Obesity increases risk of developing coronary heart disease, stroke, type 2 diabetes, and some types of cancers

- 26% of UK adults are now obese, 3x increase since 1980

- Activity environment as a factor

Sources:
http://www.noo.org.uk/NOO_about_obesity/child_obesity
http://www.nhs.uk/Conditions/Obesity/Pages/Introduction.aspx
The obesity system

http://hdvchpediatricobesity.wikispaces.com/About+child+obesity
Built environment and physical activity

• Physical activity = lifestyle factor for long-term health and to tackle obesity.
• people who regularly use active transport gain health benefits
• Regular physical activity helps prevent chronic diseases e.g. walking to work was associated with overall higher levels of physical activity in young and middle-aged adults

Characteristics of neighbourhood design can influence individual behaviour and take up of physical activity, for instance:

• High connectivity
• mixed neighbourhoods
• Land use mixture
• public transport, pedestrian facilities or proximity
• Parks
• Neighbourhood aesthetics used to design in walking and cycling in our daily lives

(Saelens, Sallis and Frank, 2003; Booth, Pinkston and Carlos Poston, 2005; Warburton Nicol and Bredin 2006; Lake and Townshend, 2006; Andersen, Wedderkopp, Pucher, Buehler, Bassett and Dannenberg, 2010; Kristensen, Moller, Froberg, and Cooper, 2011; Rhodes and Nasuti, 2011; de Nazelle et al., 2011; DoH, 2011; Mytton, Townsend, Rutter and Foster, 2012; Audrey, Procter and Cooper, 2014; White et al., 2013)
Built environment and physical activity

- Supportive built environment is **not enough** on its own to ensure physical activity but it does facilitate it.

- But note: an unsupportive built environment is an **effective deterrent** of physical activity and exacerbates social exclusion.

Source: (TRB, 2005)

Inactivity 'kills more than obesity'
http://www.bbc.co.uk/news/health-30812439
Characteristics of the built environment with a proven impact on mental health

- Type of housing / Over-crowding
- Noise / Indoor air quality
- Lack of personal control and of social support
- Perception of crime
- Badly maintained green spaces / access to green spaces, to amenities
- Deterioration of the aesthetics of neighbourhoods
- Lighting, green parks and road crossing / traffic density
- Provision of community centres, good public transport, recreational centre, affordable housing, grocery stores

The poor and ethnic minorities will suffer more than others => health impact of multiple environmental risk exposure must be considered when developing policies and interventions

(Evans, 2003; Phillips, Siu, Yeh and Cheng, 2005; Galea, Ahern, Rudenstine, Wallace and Zlahov, 2005; Guite, Clark and Ackrill, 2006; Guite et al., 2006; Maas, Verheij, Groenewegen, de Vries and Spreeuw enberg, 2006; Nielsen & Hansen, 2007; O’Campo et al., 2009; Kihal-Talantikite, Padilla, Lalloué, Gelormini, Zmirou-Navier and Deguen, 2013; White, Alcock, Wheeler and Depledge, 2013)
People living in areas of deprivation are more likely to be exposed to a variety of adverse conditions which affect health including:
Air pollution, flooding, noise pollution, road traffic, hazardous waste sites, places that feel unsafe, scarcity of green spaces, unsafe transport, fewer activities for healthy activities.
Health inequalities and the built environment

Note: Level of deprivation is determined by the Index of Multiple of Deprivation. Eleven environmental conditions or characteristics have been included: river water quality, air quality, green space, habitat favourable to biodiversity, flood risk, litter, housing conditions, road accidents, and presence of 'regulated sites' (e.g. waste management, industrial, or landfill sites, or sewage treatment works). For each of these conditions the population living in areas with, in relative terms, the 10 per cent least favourable conditions have been determined. Data range mainly from 2005 to 2008.

Source: Defra, Environment Agency, CLG
Impact of housing on health inequalities

Buildings where people live have an impact on their physical and mental wellbeing.

**Housing factors:** residential location, dwelling types and design, quality of construction and ongoing maintenance, internal features, crowding, feeling secure in one’s home, affordability.

**Inequalities from housing design:** fuel poverty from limited income and poor energy efficiency.

**At risk populations:** poorest quintiles of households, older people, children, those with long-term illnesses, those who spend their days at home.

**Health effects:** mortality, hospital admissions, poor mental health, respiratory problems, slow physical growth and cognitive development.

Life expectancy of a homeless woman in England is 47 (average; 77).

35% of the poorest quintile of households experience fuel poverty.

Sources: The Institute of Health Equity, 2013; Crew, 2007; Crisis, 2011; Healy, 2003; Liddell and Morris, 2010; Harker and Shelter, 2006
Impact of greenspace on health

Research shows the direct benefits of greenspace to physical and mental health.

**Greenspace factors:** levels of greenspace, contact with nature, access/proximity.

**Inequalities from low level/reduced access to greenspace:** 20% of most affluent neighbourhoods in England have 5 times the amount of greenspace than the most deprived 10% neighbourhoods.

**Health effects:** there is evidence of preventive, physical, mental and social benefits of engagement with the natural environment for people suffering from mental illness and dementia. Less greenspace in a living environment is associated with greater risk of anxiety, depression, feeling of loneliness and perceived shortage of social support. Contact with nature is linked with improved mood, and reduced stress and anxiety.

Sources: CABE, 2010a; Croucher et al., 2007; Pretty et al., 2007; Clark at al., 2013; Maas et al., 2009; CABE, 2010b.
Other characteristics of the built environment associated with health impact and health inequalities

• Housing: overcrowding

• Transport: active travel, public transport, car traffic

• Accessibility of healthy food options
Finally: a few issues to consider for health and built environment policy-making (planning policy/planning decisions)

**Evidence base (for academics and research councils)**

- Methodological challenges to ensure robustness of the evidence
- Generalisability vs local relevance to inform local plans, planning decisions
- Change the way research priorities are set, to challenge medical paradigms and the instrumental mindset of cost effectiveness
- Ensure that planners inform scope of research questions, projects
- Translate the evidence so it can be material consideration in planning decisions

**Delivery mechanisms for spatial planning**

- NPPF needs to give planning for health a higher priority
- Develop integrated policy-making across professions at local level
- Local plan: address the issue of viability (long term impact of new development on health)
- Joint Strategic Needs Assessments to inform local plan and vice versa
- Consider Health impact assessment in other forms of assessments

**Politics**

- Public health seen as left of centre/health diplomacy needed
- Leadership at local level
- Realise the co-benefit of health agenda (transport, housing, education, sustainable development)
References

References

Further references


Further references

- Department of Health (2011a). Start active, stay active: a report on physical activity for health from the four Home countries’ Chief Medical Officers, London: DoH.
Further references

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