The impact of the design of urban dwellings on health and wellbeing

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humanising healthcare
humanising healthcare
healthy cities
health, happiness and housing
Do more people live in urban or rural areas?, 2020

Share of the population which live in urban versus rural areas. Here, 'majority urban' indicates more than 50 percent of the population live in urban centres; 'majority rural' indicates less than 50 percent. Urban populations are defined based on the definition of urban areas by national statistical offices. This is based on estimates to 2016, combined with UN projections to 2050.

Source: OWID based on UN World Urbanization Prospects (2018) & Historical Sources (see Sources tab)
“In the last three decades, not one country has achieved success in reducing obesity rates and we expect obesity rates to rise steadily unless urgent steps are taken”

Dr Christopher Murray, Director of the Institute for Health Metrics and Evaluation at the University of Washington

- Depression is a common mental disorder. Globally, more than 300 million people of all ages suffer from depression.
- Depression is the leading cause of disability worldwide, and is a major contributor to the overall global burden of disease.

In 2014, 19.7% of people in the UK aged 16 and over showed symptoms of anxiety or depression - a 15% increase from 2013. This percentage was higher among females (22.5%) than males (16.8%).

World Health Organisation

Mental Health Foundation
Do more people live in urban or rural areas?, 2050

Share of the population which live in urban versus rural areas. Here, 'majority urban' indicates more than 50 percent of the population live in urban centres; 'majority rural' indicates less than 50 percent. Urban populations are defined based on the definition of urban areas by national statistical offices. This is based on estimates to 2016, combined with UN projections to 2050.

Source: OWID based on UN World Urbanization Prospects (2018) & Historical Sources (see Sources tab)
Research Aims:

1) How does the built environment impact on our health and wellbeing?
2) Which design principles can we implement to remedy/reduce these impacts?
3) How do city centre apartments affect current residents health and wellbeing?
4) Where does designing for health and wellbeing meet the most resistance?
Research Methods:

- Literature review
- Survey (100 city centre apartment residents)
- Interview industry professionals and clients
The evolutionary happiness function
(Gary Becker and Luis Rayo, University of Chicago):

\[ H(y) = y - \mathbb{E} [y \mid \phi_t, \Omega_t] \mid _{\phi_{t=1}} = w_t - w_{t-1} \]
The evolutionary happiness function
(Gary Becker and Luis Rayo, University of Chicago):

- Our evolution has been driven by an ‘orientation towards dissatisfaction’.
- We compare what we have now, with what we had before, and what we might have in the future…as well as what others have.
- Our goals, in terms of what might make us ‘happy’ are constantly changing.
“Nothing matters more than our relationships with other people”

Charles Montgomery, Happy City

“social connections are really good for us and loneliness kills”

“those, who at 50, said they felt they had at least one person they could count on in times of need, were physically healthier, mentally sharper and in a lot of case, still living when their more isolated counterparts had passed.”
• Few opportunities for positive social interaction
• Feelings of isolation and distrust
“communication between people requires a reasonable amount of space”
Jan Gehl, Cities for People

“when a person is in a situation where he or she is unable to regulate who, when or where they’ll meet others, he is or she is likely to experience both isolation and over-stimulation”
David Halpern, Mental Health and the Built Environment

- Private shared spaces, gardens, courtyards
- Encourage mixed use on ground floor with transparent facades
- Encourage people to stay through seating and shelter
- Multigenerational recreational areas
“just living is not enough,” said the butterfly, “one must have sunshine, freedom and a little flower.”

Hans Christian Anderson, The Complete Fairytales
Biophilia – a genetic urge to connect with nature

- Human Environment of Evolutionary Adaptation (EEA)
- Significant impact on evolution of brain
“this vulnerability presumably explains why mental disorders are one of the main health problems of Western societies”

Do you have a view of nature from your window(s)? E.g. trees, planting, lake, park

- Yes and I am satisfied with how much nature I can see from my window(s) (32%)
- Yes but I would prefer if I could see more nature from my window(s) (31%)
- No (37%)

Does your apartment building provide you with access to nature? E.g. planting, roof gardens

- Yes and I am satisfied with the amount of nature in my apartment block (23%)
- Yes but I would prefer if there were more nature within my apartment block (24%)
- No (53%)

Survey comments:

“We have an amazing view of tree tops and gardens. It’s the reason we wanted to rent this place.”

“We are not allowed to hang things outside the flat; it would be nice to be allowed window boxes.”

“There is some landscaping but it doesn’t encourage biodiversity or socialisation. Chosen for its low maintenance but doesn’t do anything for anyone”

“It is a significant negative to our living environment, a communal garden would be a vast improvement.”
“the degree of psychological benefit [from access to nature] was positively related to species richness of plants and to a lesser extent of birds.”

N Dunnet, C Swanwick, H Wooley, Improving Urban Parks, Play Areas and Green Spaces, Department of Landscape, University of Sheffield
Insomnia: Light pollution and sleeping pill use may be linked

New research, published in the *Journal of Clinical Sleep Medicine*, suggests that nighttime exposure to artificial outdoor light, known as light pollution, may raise the risk of insomnia.


**Review**

Protecting the Melatonin Rhythm through Circadian Healthy Light Exposure

Maria Angeles Bonmati-Carrion¹, Raquel Arguelles-Prieto¹, Maria Jose Martinez-Madrid¹, Russel Reiter², Ruediger Hardeland², Maria Angeles Rol¹* and Juan Antonio Madrid¹
Circadian rhythm

- Controls many biological processes
- Impacted by light
Daylighting, Light and Noise Pollution

$\text{Daylighting} + \text{Light} = \text{cortisol}$

$\text{Moon} + \text{Stars} = \text{melatonin}$
Chronodisruption – disrupting the circadian rhythm

- Diabetes, obesity, heart disease, premature ageing, cancers
- Impacted by light
- Reduce residents exposure to light pollution; reduce amount of light pollution residents produce
Noise of modern life blamed for thousands of heart deaths

- Stress of exposure adds to risks, says WHO report
- Light traffic is enough for chronic levels at night

Noise pollution is one of the biggest health risks in city life

24 May 2018

High Blood Pressure and Long-Term Exposure to Indoor Noise and Air Pollution from Road Traffic

Maria Foraster,1,4,5 Nino Künzli,4,5 Immaculada Aguilera,1,2 Marcela Rivera,1,2 David Agis,1,2 Joan Vila,2,7 Laura Bouso,1,2 Alexandre Delteil,5,6 Jaume Marrugat,7 Rafael Ramos,1,8,9 Jordi Sunyer,1,2 Roberto Elosua,7 and Xavier Basagaña1,2

Sonic doom: how noise pollution kills thousands each year
Noise pollution

- Diabetes, obesity, heart disease, premature ageing, cancers
- Impacts health and wellbeing even during sleep
- Damage starts at 50dB (sound of light traffic)
90% of world's children are breathing toxic air, WHO study finds

Report says air pollution is having a devastating impact on children worldwide, stoking up a public health time bomb

Too dirty to breathe: can London clean up its toxic air?

Air pollution may harm cognitive intelligence, study says

Air pollution linked to higher risk of dementia, study suggests
How important is it to you that your place of residence has car parking?

- Not important (55%)
- Important but I am okay with off-site parking i.e. parking provided a 6-10 minute walk from your building (12%)
- Important but if an apartment block didn’t offer parking, I would still consider it (24%)
- I only consider apartment blocks that have parking in/directly adjacent to the building (9%)
“Changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing, and education.”

World Health Organisation

“Improving dietary habits is a societal, not just an individual problem. Therefore, it demands a population-based, multi-sectoral, multi-disciplinary, and culturally relevant approach.”
“living in a non-walkable neighbourhood has a significant impact on one’s health, amounting to on average ‘about 7 pounds of body weight.”


52% of adults in the UK walk 2000 steps or less a day, which is less than a mile

Cancer Research UK
Comparing how much people exercise to how far they live from their nearest exercise facility

- 5+ hours
- 3-5 hours
- 30 minutes
- 1 hour
- >30 minutes

How far is your nearest exercise facility?

- I don’t know
- There are facilities in my apartment
- 5 min walk
- 10 - 20 min walk
- Too far to walk

Obesity and Diet
“Sometimes the plots that are drawn within a masterplan maybe don’t suit, people haven’t thought about the depth of plan of the building and how the building might be configured”

“You have to try and be robust with your masterplans but it’s not always possible to foresee every eventuality.”

“It’s quite difficult if you have to take on that apartment scheme, to design out that adjacency.”

“You’re looking at the wider area and the relationships between different zones and uses. I think that sets down a framework and constraints to deal with later.”

1. Masterplan level vs Apartment level
Orientation, aspect, adjacency, surrounding use
“We need to be more proactive in pushing ideas and we need more research and development so that we can back up ideas with evidence. Clients are much more likely to listen to an idea if you can back it up with evidence.”

“I do think though that this is becoming a bigger thing, although it’s slow, things are starting to change.”

“We can advocate for it as much as possible regardless of what the outcome is. I think the more people talk about it, the more important it is.”

“There’s a difference between what agents might say based on their experience of the existing conditions of the market and the reality of the younger generations who are the next set of occupiers, buyers and tenants, who have a different view on the world.”
2. Regulatory Change

We must make it harder to build unhealthy homes

“but if it’s not a stipulated, statutory requirement, there are some clients who wouldn’t put that private space in if they didn’t have to, because they’d see it as a cost rather than a value item.”

“Quite often, you find that you go through a process of having to justify to the planners that you’re meeting those requirements, but being pushed by your client to minimise them.”

“Some [clients] will look at whether there’s an edge to the scheme if you go beyond the standard, but generally speaking it’s driven by the kind of statutory minimum requirements quite often.”

“I think some of it comes down to government regulation and pushing for it from above because if there are clear benefits to it for the government, in terms of the healthier your population is, the less of an impact you have on the NHS.”
Child's asthma death linked to illegal levels of air pollution

‘Striking association’ found between nine-year-old’s hospital admissions and local spikes in air pollution

Housing approved despite pollution warning to keep windows shut

Air assessment finds pollution levels in London development far exceed legal limit

Ella Kissi-Debrah, who died from breathing difficulties relating to her asthma in 2013. She lived in Hither Green, south London, near the busy South Circular Road. Photograph: The Ella Roberta Family Foundation

Pollution haze over south-east London. Photograph: Matt Dunham/AP

Lewisham, 2019
“Some people, like me, arrive in the happy city by accident. Some seek it in desperation. Some build it. Some fight for it.

They realise that their place in the city, and the ways in which they move, have tremendous power to shape their own lives, the life of their city and the future of their world.

They realise that the happy city, the low carbon city and the city that will save us are the same place, and that they have the wherewithal to create it.”

Charles Montgomery, Happy City
“We Do Not Inherit the Earth from Our Ancestors; We Borrow It from Our Children”

Native American Proverb