

THEORY AND METHODS

Thinking inside the bubble: evidence for a new contextual unit in urban mental health

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Objective: Previous quantitative research has suggested that there is a link between housing, the urban environment, and mental health. However, methodological and design issues make it difficult to disentangle the relative influence of dwelling specific and wider urban environmental influences on individual mental health. The aim of this study was to explore the link between the dwelling, the immediate urban environment, and mental health to generate a new conceptual framework by which understanding of dwelling and urban environmental influences on mental health can be advanced.

Design and participants: Qualitative interviews and focus groups were conducted with 32 inner city residents. Participants, stratified by sex and mental health status, were randomly recruited from a wider quantitative survey. An almost equal number of men and women as well as people with or without mental health problems participated, allowing for comparison of experience. Data were analysed inductively to generate an appropriate theoretical framework regarding dwelling and urban environmental influences on mental health.

Setting: An inner city neighbourhood of about 6200 people in north west London. Most of that population live in public housing.

Main results: The principal study finding is that between the dwelling unit and the neighbourhood unit, evidence was found for another meaningful contextual unit of analysis, the "residential bubble" through which effects on mental health can be mediated. The residential bubble describes a limited area of three dimensional space that surrounds a dwelling, encompassing immediate neighbours (above, below, and adjacent) and shared public space bordering the dwelling. Positive events and processes within the bubble had a beneficial influence on mental health whereas negative ones tended to have a damaging influence. These seemed to disproportionately have an impact on people with pre-existing mental health problems.

Conclusion: The concept of the "residential bubble" may be a meaningful new contextual unit of analysis in urban mental health. This may have important implications with regards to interventions and measurement development.

Most previous research on the relation between housing and health has examined physical health outcomes.¹ However, there is a body of research suggesting that quality of housing and characteristics of the built environment may have an important influence on mental health.^{2–3} A number of studies show that inferior housing quality is associated with worse mental health outcomes.^{4–5} Similarly other studies have suggested that housing that lacks "defensible space" seems to be associated with more psychological distress.^{6–7} In particular these latter studies report that residents living in properties with "deck access", that is dwellings whose doors open directly onto shared public walkways, seem to be at increased risk of worse mental health outcomes.

A common difficulty associated with research exploring the relation between housing and mental health status is that multiple risk factors may cluster together at different levels that may be difficult to unravel. In particular, the literature suggests that factors occurring at the individual, dwelling, and neighbourhood level can all have an impact on urban residents' mental health. These have been investigated with varying degrees of intensity. Residents in urban neighbourhoods may disproportionately experience individual level risk factors associated with mental illness such as unemployment or lack of social support.⁸ In turn, urban residents may be more likely to live in poor dwelling units where factors such as dampness may contribute to poorer mental health,^{9–10} however this level has been comparatively under-studied in mental health research. In contrast, interest in

neighbourhood level influences on mental health has recently increased in conjunction with interest in group level concepts such as social capital, collective efficacy, social cohesion, and income inequality.^{11–12} The clustering and disentangling of these multiple level risk factors poses important methodological and conceptual challenges in community mental health. Given this situation, qualitative research may be a fruitful line of inquiry to help unravel some of the interactions and relations between multilevel risk factors affecting residents of urban environments as it can explore subjective experience and generate grounded theory.^{13–16}

Thus this paper uses qualitative methodology for an in-depth exploration of the link between dwelling and mental health in the Gospel Oak neighbourhood of London, UK. Our interest was stimulated by previous quantitative research in Gospel Oak suggesting a relation between dwelling quality, the built environment, and mental health.^{5–6} We undertook an open-ended exploration of how dwelling associated factors may affect mental health. As pre-existing theory in this area is limited, a principal aim of this study was to generate new concepts and theory regarding the link between dwelling, urban environment, and individual mental health.

METHOD

We conducted an in-depth case study of the Gospel Oak neighbourhood, London, England, described in greater detail elsewhere.¹⁷ Gospel Oak has a population of about 6200

residents with most living in high rise or low rise public housing, although some parts of the neighbourhood retain rows of traditional terraced housing. Many of these have been converted into multiple occupancy, typically three or four apartments to one house. The neighbourhood is typical of inner London in terms of compositional characteristics; 16% have a long term illness, 15% are unemployed, and 13% are from non-white ethnic minorities.¹⁸

Our sampling frame was generated from within a larger quantitative survey that used random probability sampling methods to recruit almost 1000 Gospel Oak residents.⁶ In this study, we aimed to recruit an even number of men and women, as well as an even number of residents with or without a mental health problem, to explore differential experience of these groups. To ensure a representative sample, we thus stratified the original quantitative survey according to sex and mental health status. Mental health status was ascertained by scores on the Centre for Epidemiologic Studies-depression scale (CES-D) using 16 as a threshold to indicate likelihood of mental illness.¹⁹ Names of potential participants were randomly generated from within these stratified quadrants (see table 1). Sixty names were generated but two had missing data. Thus 58 people were contacted to participate. Later investigation indicated that nine of these had moved (16%). In total 32 people participated in the study (65% recruitment rate). Six attended one of two focus groups, 26 participated in individual in-depth interviews. We did not sample according to age or ethnicity, however our final participant list tended to reflect the officially described distribution of these variables in Gospel Oak.^{18 20} Table 1 summarises key variables of participants.

Interviews and focus groups followed a topic guide designed by the authors to explore socioenvironmental factors that previous literature suggested may affect mental health. These included questions related to housing, neighbours, and the neighbourhood as a whole. Most interviews took place in residents' homes and averaged one hour; focus groups occurred in a local community centre and averaged 90 minutes. All were conducted by the first author, tape recorded, and transcribed.

Analysis took place during and after the research. Analysis was guided by principles of induction, where generation of theory, rather than verification, was the desired outcome.¹⁵ This entailed coding together common events and attitudes from which ongoing theoretical abstractions were made relevant to our interest in the relation between dwelling, the built environment, the neighbourhood, and mental health. Thus theory was generated at a level of generality higher in conceptual abstraction than the qualitative material being analysed itself, this providing the basis for the overall conceptual framework presented in the results. To add rigour, the first and second authors independently analysed the raw data before discussing and agreeing on thematic commonality, following canons of qualitative analysis.¹⁴⁻¹⁶ For reasons of space, we present a limited number of quotations to support our arguments, however they are typical of the wider data and have been selected for their representative nature. Approval was received from the local

ethics board. Names have been changed to protect anonymity.

RESULTS

The key finding of this study is that many participants prioritised factors occurring in their immediate habitual environment, rather than in the dwelling or neighbourhood per se, as having a particularly positive or negative impact on psychological wellbeing. By the immediate habitual environment we mean a limited area of three dimensional space surrounding and including the dwelling, enveloping immediate neighbours adjacent, above and below, and public space bordering the dwelling itself. To aid comprehension, we have named this space "the residential bubble" and propose it as a meso-level unit existing independently, but related to, both the dwelling and the neighbourhood.

We found a large amount of variability in participants' experiences regarding events and processes occurring within their "residential bubble". There was a range from very positive to very negative experiences. We have therefore divided the main part of the results into two sections, describing firstly negative and secondly positive events and processes within the bubble that may have an impact on mental health.

Role of residential bubble in contributing to poorer mental health

Evidence suggested that negative events and relations within the residential bubble might be important factors in compromising mental health. Specifically, we found that disruptive immediate neighbours and uncontrollable external events in shared public spaces bordering the dwelling, were associated with psychological distress among participants. This seemed to especially have an impact on those with a pre-existing mental health problem. Mary is a pensioner with depression who lives in a second floor apartment of a three storey converted Victorian house. She likes the neighbourhood but complains at length about negative events within her residential bubble. She reported that unpredictable meetings on the way to the bathroom (shared with residents of the flat above) damaged her self esteem as she enjoyed her privacy and liked to control her social interactions. Mary also stated that the neighbours above often played loud pop music. This increased feelings of helplessness as well as making it difficult to sleep:

"I would like this flat self-contained. Because the people that are living upstairs, you know you have to, you have to go up and meet them on the stairs all the time...if I am going to the bathroom or toilet, everything you know, I have to meet them. And you can't, sometimes when I go to the bathroom the phone rings, and if I am in the bathroom I have to get out of the bathroom, you have to have your dressing gown handy, to put on you know, it is awkward. And then the trouble is with the youngsters, they are coming here, they play music loud. There was three people up there and it was getting quite ridiculous, but you see if you complain to the Landlord they don't do a thing about it. I told him anyway 'I am going to go to the authorities, because I have complained to you and you don't do anything about it, so I have to go further', and they said, 'well what can we do we don't hear a thing? We don't hear it'. Now I can't believe you can't hear, I get the noise from three children downstairs and those upstairs, and they were mad. They were dancing upstairs and everything was shaking and all the glasses were going"

Table 1 Summary of participants

	Mentally healthy	Probable mental illness	Total
Women	7	7	14
Men	9	9	18
Total	16	16	32

Negative events in Mary's residential bubble outweighed her positive affection for the neighbourhood and the dwelling per se. She explicitly linked these events to the worsening of her depression. This was repeated in other participants with a mental health problem. Focus group participant Joy clearly states that strained relationships with her disruptive next door neighbour is the biggest problem in her life. Joy talks at length about this, to understanding comments and nods of sympathy from other group members:

"We share the front gate, different gardens and the balcony...you have people running past your balcony, even though there is a partition, there is still people running past it. When I moved in it was quite good, it depends on the neighbours you see...you see I have got children, my children will go out and stuff, that is the only thing, apart from that, the rest is OK...the place is nice, it just depends on your neighbours. The place is good, but bad neighbours that is what it is. The rest are OK. They are quite nice people where I live, but the neighbours! They are doing drugs! Doing everything! You see them they do drugs, maybe from midnight to 4am. You can't sleep...I have complained...they are moving on from me and threatening other people...they are taking them to court..."

Joy's experiences and reactions are similar to Mary's. Events in the residential bubble are a constant source of psychological distress. Both have difficulty sleeping and Joy limits the outdoor play of her children. Other residents stated that negative events in the bubble were causative factors in the onset of mental illness. One participant, who was mentally healthy at interview, recalled a period when she was diagnosed with depression. She explicitly links onset to events in her bubble, and ascribed restitution to relocation:

"I had depression when I was up the other place it was terrible we always seemed to be arguing with somebody over the music or something. I think a lot of it is to do with no consideration, you know, they just don't seem to care...but it is great here. Never had any problems...Since I moved here, the people downstairs you know they were very quiet, it was just what I wanted to hear."

It is important to emphasise that the concept of the residential bubble includes assessment of traditional dwelling specific factors as the bubble envelopes, and thus includes, the entire dwelling. The bubble simply extends the space to be assessed for potential impact to a wider sphere. As might be expected, evidence suggested that dwelling specific aspects of the bubble could have a negative effect on mental health. However, residents were overwhelmingly positive about the internal state of their accommodation in Gospel Oak, and this lack of variability diminishes our ability to explore factors associated with the dwelling unit itself. Nevertheless many residents made comparisons between satisfaction with their present abode and dissatisfaction with previous ones. Fernando is a resident with depression who has recently moved. He remarks that the quality of this apartment is much better than the previous, and this has improved his mood:

"When I was there it was small, there was a small kitchen and I needed a workshop but it was no good. It is much

better this side than over there. Because here you have got everything in your home. Over there you have got no shower, you haven't got no facility, but over here it is much more all together, over there you have to go through other rooms to use the shower, I am happy here".

Role of residential bubble in promoting mental health

Good relations with immediate neighbours seemed to have an especially positive impact on the mood and behaviour of people with mental health problems, through mechanisms such as the provision of reciprocal assistance and social support. This confirms the results in the previous section, in that relationships with immediate neighbours seem to be especially important processes in the bubble. The data similarly supports our assertion that the residential bubble has a limited radius, enveloping immediate neighbours, and shared public space. Pete suffers from depression and has recently moved into the area. He states that this has improved his mood, partly because, unlike his previous abode, he gets on well with his immediate neighbours who have been supportive:

"The first Christmas we had Christmas cards from the four or five people either side of us and they didn't know us, they seem quite friendly, on the whole I feel quite happy here".

Two participants of one of the focus groups both had long term mental illnesses. Both thought that positive experiences within their bubble improved their mental health and prevented deterioration. Both gave spare keys to neighbours. One also stated that his neighbours willingly keep details of his mental illness, psychiatric history, medication, and next of kin so that they are ready to act appropriately in case of a severe episode:

"I have a neighbour who always has a set of keys to my flat, and they also have an envelope with all my details in it sort of thing. So that if something desperately did happen at least they would know who to contact and what have you...when I am away, they look after my flat and when they are away I look after their flat. But, yeah, I suppose they probably provide my best level of trust really."

While hitherto discussed evidence indicates that immediate neighbours seems to be particularly important, other evidence suggests that relational processes are in some measure mediated by the quality of the built environment. For example a focus group reached consensus that the installation of double glazing and new doors by the housing authority protected them from stressful ambient exposure such as noise, cold, and crime:

"They have changed the windows in our block, we have got double glazing. It has made the area more pleasant and healthier for people to live in. More comfortable in their homes, yes I am aware of that...I think it has helped a lot of my older neighbours, they are absolutely thrilled with the windows, because they do feel safer, they lock and they haven't got all the drafts, they are easier to clean."

Others echoed these thoughts. Vesna is a resident with a long term problem with depression. She praises her flat because it is warm, spacious, and safeguards her privacy. In contrast she compares it with her previous abode, where built

environment factors such as shared walkways contributed to greater amounts of stress in her residential bubble:

“I used to live in a worse place than this. It was a bed-sit but it was awful, they used to have people come and walk on everybody’s balconies. They want to see this and that. Once a man tried to steal that bag down there, he thought it had money but I chased him with a hammer...its nice and warm here in the winter, in the last flat I had it was awful. Ha! You had to put money in the meter”

To conclude this section, we re-emphasise that positive events and processes within the residential bubble seemed to have a greater impact on people with a pre-existing mental health problem. Nevertheless mentally healthy participants made unprompted favourable remarks about the role of positive factors occurring within the residential bubble. Ann is a mother of two who frequently comments positively on this:

“Some tyres were slashed, the residents would all come out and talk about it. I know all the immediate neighbours pretty well and I would definitely call on them for help. I mean next door feeds our cat when we’re away and that kind of thing”.

DISCUSSION

The key finding of this study is that a small area surrounding a dwelling, which we label the “residential bubble”, seems to be a meaningful meso-level unit with regards to socio-environmental influence on mental health. A clear theme to emerge from the data was that positive events within this “bubble” have a beneficial effect whereas negative events seem to be pathological. While many of the significant events and processes described by participants involved relationships with neighbours, these seemed to be mediated by characteristics of the built environment such as quality of doors and windows. Events and processes within the bubble seemed to affect particularly hard people with pre-existing mental illness. This cleft in experience was the principal clear difference to emerge from the data. Clear differences by age and sex did not emerge from the study though our small sub-groups preclude definitive statements on this matter.

As this is an exploratory study, defining the exact radius and specificity of the “bubble” may be premature. However, the data suggested that the radius of the “bubble” extends in three dimensional space to encompass immediate neighbours’ dwellings (above, below, and adjacent) and shared public space bordering the dwelling. The weakness of presenting the “bubble” in these terms is that it may not

What this paper adds

Through grounded qualitative research with residents of a London inner city neighbourhood, we contend that between the dwelling and the neighbourhood lies another unit of analysis we call the “residential bubble”. The data suggest this hitherto unmeasured and undefined unit encompasses the dwelling itself, as well as a spherical area immediately above, below, and adjacent to the dwelling. The data suggested positive and negative events within the bubble, especially with immediate neighbours, can have an impact on residents’ mental health, especially those with a pre-existing mental illness.

capture events within the wider perceptual environment such as noisy neighbours across the street. However, our advocacy of a narrow radius of the bubble is grounded in our data as events in close proximity to the dwelling seemed to have most psychological impact.

Our findings are indirectly supported by related literature. Previous quantitative research in Gospel Oak showed that prevalence of depression was significantly associated with properties without gardens and with deck access even after adjusting for socioeconomic status, floor of residence, and structural housing problems.⁶ This replicates another study where people living in accommodation on raised walkways had a greater prevalence of depression than those living in brick houses.⁷

Our data also suggest that control is a key variable with regards to events and processes in the bubble. Again this is in line with other literature that frequently reports that lack of control (and associated learned helplessness) linked with aspects of urban dwellings can increase risk of stress, psychological distress, and mental illness.^{2 3 21 22–25} Related to this, it must be remembered that positive actions within the residential bubble had a beneficial effect. Thus it is not necessarily the permeability of the bubble in itself that is a key factor in this regard, but the control of permeability. This fits with the widely supported view that population density in itself does not increase risk of mental illness.²⁶ Thus it is not merely the co-presence of people in near proximity that is influencing mental health, but the nature of events and processes, mediated by the built environment. In fact, our interpretation of the role of the built environment is supported by recent quantitative work that found that people living in dwellings with a need for household renovation and high ambient air/noise pollution had significantly lower self rated health than others.²⁷ Physical characteristics that weaken the protection offered by the bubble may indirectly diminish health and wellbeing.

As this is a single site case we cannot make major generalisations regarding the external validity of our findings; our inferences at present being limited to similar urban neighbourhoods characterised by public housing and low income residents. Further research is necessary to test the existence and radius of the bubble in other settings. Another limitation of qualitative case studies is that they are usually unable to make definitive links between cause and effect. Other studies have suggested that the kind of long term

Policy implications

Many residents in our study remarked on the positive effects of physical interventions such as new double glazing, a measure that in effect defends against negative events in the “bubble” (for example, reducing noise and increasing feelings of safety) as well as producing positive effects (for example, a warmer house). Policy should thus consider how architectural and design issues can affect mental health and that physical interventions such as increasing the amount of “defensible space” between dwellings may be mental health promoting. Similarly positive and negative social relations with immediate neighbours seemed to affect residents overall mental health and wellbeing. Public housing authorities should thus consider how allocation and site management policies can increase positive events in the bubble while diminishing negative ones.

A term coined by Oscar Newman describing private space surrounding a dwelling; linked by him to overall wellbeing and sense of security. Newman O. *Defensible space*. New York: Millan, 1973.

difficulties outlined in this paper can be a risk factor for mental illness.⁸ Similarly it has been remarked that close social ties with neighbours can protect mental health.²⁸ However, our data only suggest an association between the bubble and mental health; further work needs to explore the causative power of events in the bubble.

To close, we remark that our findings also have implications for measurement and assessment. It has been noted that few, if any, individual or community level health assessments consider the role of housing as a potential determinant of mental health outcomes.²⁹ The results of this study support calls for the collection of data on housing circumstances and conditions to aid understanding and assessment of mental health status.³⁰ The concept of the “residential bubble” suggests that measuring both objective and subjective aspects of the residential experience is important. Objective assessments could pertain to rating the structural integrity and design features of a dwelling, particularly those features that may allow negative events and processes to permeate into the dwelling. These may include the age of the dwelling, rating the insulation features of windows/doors, and recording the presence of any shared facilities.

To date, most subjective assessments of housing quality have relied upon ratings of housing attributes and dwelling satisfaction.^{25–27} While important, our results suggest that the addition of a “housing events inventory”, measuring frequency and intensity of significant events within the bubble may assist understanding of mental health. Similarly, contact and overall relationships with neighbours seem to be key mechanisms affecting mental health within the bubble, again a finding echoing existing quantitative work.²⁵ As such, measurement of these variables should continue to be incorporated into health orientated housing assessments as well as future study design.

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