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Sources of stress in impoverished neighbourhoods: insights into links between neighbourhood environments and health

Deborah Warr

McCaughey Centre, VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, The University of Melbourne, Victoria

Peter Feldman, Theonie Tacticos and Margaret Kelaher

Centre for Health Policy, Programs and Economics, The University of Melbourne, Victoria

The patterning of socio-economic disadvantage at the neighbourhood level largely reflects the aggregated characteristics of households. However, the clustering of household-level deprivation in neighbourhoods appears to generate local contexts that influence health-related processes. While individual and household circumstances continue to show the strongest associations with health, contextual or neighbourhood-level factors are consistently observed to have some independent or mediating influence on health-related processes and outcomes. Accordingly, there are ongoing efforts to understand the ways in which neighbourhood environments influence health, particularly in contexts of concentrated neighbourhood disadvantage.

A body of empirical research shows associations between incivilities and disorders in the social and physical environments of neighbourhoods and a range of health measures. Social incivilities refer to behaviours that contravene widely-held norms of proper and orderly conduct, such as public drinking and evident drug use, criminality, vandalism and conflict. Physical disorders include derelict buildings, neglected properties, graffiti and dirty streets. As signs of disintegration, neglect and impropriety, the adverse influence on health through incivilities and disorders in neighbourhood environments appears to involve material, psychosocial and physiological processes. They are generated through conditions of socio-economic disadvantage that residents can experience as sources of ongoing and cumulative stress which, over time, activate biological responses that heighten susceptibility to disease.

Incivilities and physical disorders are more likely to be encountered in socio-economically disadvantaged neighbourhoods because of interlinking macro, local and household circumstances. Global economic restructuring has transformed former working-class neighbourhoods as local businesses down-sized or moved offshore. At the same time, there have been cutbacks in welfare and social support, emerging sites of social and economic marginalisation, and a change in the role of public housing. These processes have had highly uneven effects at local levels as households experiencing a diverse range of disadvantages are increasingly clustered in poor neighbourhoods. In Australia, changes in public housing policy have had significant impacts on conditions in disadvantaged neighbourhoods with concentrations of public housing stock. As the stock of public housing dwindles, eligibility has tightened and the role of public housing has shifted.

Abstract

Objective: This paper explores associations between residents’ perceptions of social incivilities and physical disorders in local environments and self-reported health status.

Method: Surveys were conducted with 4,029 residents from 13 Neighbourhood Renewal sites and 1,857 residents of corresponding Local Government Areas in Victoria. An open-ended question asked respondents to nominate the worst things about living in their neighbourhood and this qualitative data was analysed for the range of perceptions of incivilities. Quantitative data analysis considered associations between incivilities in neighbourhood environments and self-reported health status.

Results: Issues conceptualised as social incivilities (drug and alcohol use, dangerous driving, the behaviour of other people, feeling unsafe, noise, racism) accounted for 58% of issues nominated. Quantitative analyses suggested that increased exposure to issues related to aspects of neighbourhood safety were associated with living in a disadvantaged neighbourhood. Perceptions of lower levels of neighbourhood safety were, in turn, associated with poorer health.

Conclusions: Cumulative and compounding aspects of local environments that heighten feelings of insecurity and anxiety may be mechanisms through which places affect health.

Implications: While the characteristics of populations are important determinants of health outcomes, the findings endorse the value of incorporating complementary place-based approaches for addressing mechanisms that contribute to health inequalities in local environments.

Key words: Social environment, social conditions, environment and public health, socio-economic factors, health status.

doi: 10.1111/j.1753-6405.2009.00334.x
from providing affordable housing for working families to housing families and individuals receiving welfare assistance. Restricted eligibility for public housing has significant flow-on effects for working class neighbourhoods areas with concentrations of public housing as families and households experiencing multiple or extreme disadvantages are channelled into these areas. 

While not all residents of poor neighbourhoods are poor, all residents are likely to have some exposure to disorders and incivilities that occur in their neighbourhoods. Residents with increased dependence on their local neighbourhood are likely to have increased exposure to disorders and incivilities. The poor, people with disabilities, the elderly and households with young children are likely to spend more time in their neighbourhoods and to rely more heavily on local services and facilities than people living in other circumstances.

Using qualitative and quantitative data from surveys of residents of 13 impoverished neighbourhoods in Victoria, this paper explores two related issues in order to develop improved understanding of potentially health-impairing aspects of local physical and social environments: residents’ perceptions of their neighbourhood environments and their self-reported health status. The paper builds on an analysis of the same data sets that suggested that contextual factors in neighbourhood environments may be contributing to differences in self-reported health status between residents living in socially-disadvantaged neighbourhoods and those living outside these neighbourhoods. In this paper, we consider neighbourhood contexts of incivilities and disorders from two angles. We present an analysis of qualitative data from open-ended responses to a question asking residents living in disadvantaged neighbourhoods to identify the worst things about living in their neighbourhoods. The results of this analysis informed a second analysis of selected quantitative data that considered associations between aspects of neighbourhood environments and self-reported health.

Method

As set out in a paper reporting related analyses of these data, the data have been taken from baseline community surveys, part of the Neighbourhood Renewal (NR) strategy in Victoria, Australia. The 13 NR project sites rated poorly compared to the state’s average on a range of socio-economic indicators. Each of the NR projects is reviewed every two years with residents in the state’s average on a range of socio-economic indicators. Each of the NR project sites rated poorly compared to the state’s average on a range of socio-economic indicators. Each of the NR projects is reviewed every two years with residents in the state’s average on a range of socio-economic indicators. Each of the NR projects is reviewed every two years with residents in the state’s average on a range of socio-economic indicators. Each of the NR projects is reviewed every two years with residents in the state’s average on a range of socio-economic indicators. Each of the NR projects is reviewed every two years with residents in the state’s average on a range of socio-economic indicators.

Data analysis

Qualitative data were entered into Excel files and coded to identify the issues nominated, usually two or more. Respondents at most sites identified 15 key issues and a few site specific issues (see Table 1). These issues were categorised as social incivilities, aspects of the physical environment, concerns regarding young people and children, neighbourhood stigmatisation, lack of social opportunities/social isolation, no problems with the neighbourhood, and a category of miscellaneous issues. Survey data further explored the associations between aspects of neighbourhood environments and self-report health status for NR and LGA residents. Items that were identified were assessments of ‘neighbourhood conditions in general’; ‘local crime and safety in general’; ‘feeling safe to walk alone at night’; ‘local police service’; ‘safety of children playing outside’; ‘trust in other residents’; and ‘perceptions of residents looking out for each other’. Within NR sites, a series of items asking respondents to rate the severity of these issues as problems in the neighbourhood were used to consider associations between social incivilities and self-reported health status. The issues were: dangerous driving; young

The qualitative data are responses to an open-ended question: “What are some of the things you most dislike about living here?” Only NR residents were asked open-ended questions, so no comparisons with LGA residents are available. A companion question asked respondents ‘What are some of the things you like most about living in your neighbourhood?’ The analyses reported here have focused solely on perceptions of negative aspects of neighbourhoods because the responses to this question raised a wider range of issues, expressed strong feelings and were more likely to have explanatory value in explaining associations between neighbourhood environments on health. For all open-ended questions, NR respondents were prompted to nominate two issues. Peer-interviewers were instructed to record all open-ended responses verbatim (interviews that were conducted in a language other than English required the interviewers to simultaneously translate and record responses).

Quantitative data were obtained from responses to a global assessment of the neighbourhood (Overall, how would you rate your neighbourhood as a place to live? Response options: ‘good’, ‘average’ or ‘poor’); assessment of crime and safety (How would you rate conditions in your neighbourhood in relation to crime and personal safety generally? Response options: ‘good’, ‘average’ or ‘poor’); assessments of self-reported health (In general would you say your health is excellent, very good, good, fair or poor?; perceptions of five dimensions of neighbourhood safety, using a five-point agreement scale; and ratings for eight types of social incivilities, with response options: no problem, minor problem, big problem. Results for corresponding items from surveys administered to the control group are also presented where available.

In this paper, we consider neighbourhood environments and self-reported health.
The 3,737 responses to the question ‘What is the worst thing about living in this neighbourhood?’ were analysed to identify residents’ perceptions of key problems in their local environments. Residents could introduce and emphasise issues of particular concern and 5,333 issues were noted and coded.

Overall, there was strong agreement on key issues, although there was variation in the frequency with which they were nominated across the sites. The most frequently nominated categories of responses were: social incivilities (58%) and aspects of the physical environment and neighbourhood infrastructure (18%). Other categories were issues relating to children and young people (5%), neighbourhood stigmatisation (3%), a miscellaneous category of issues (10% of issues), responses where residents perceived no problems in their neighbourhoods and a small category of problems identified referring to problems of social isolation, lack of social connection or sense of community (1%). Although there were variations in the particular issues that were nominated, social incivilities were the most frequently nominated set of issues for all sites.

The ways in which these problems in the neighbourhood were expressed on the surveys offers useful insights into how they are experienced as sources of stress in neighbourhoods. In presenting these data, the open-ended responses are represented as ‘intact’ as possible in order to preserve the complex texture of the responses, including the ways in which issues are expressed, the way they are linked together and the frames in which they are positioned. Quotations are selected to reflect the range of views expressed.

### Problems related to social incivilities

A range of issues were categorised as social incivilities because they contravene expectations and norms of proper and orderly behaviour in shared spaces of the neighbourhood. These included problems linked to alcohol and drug use (25%), dangerous driving (23%), other people in the neighbourhood (20%), crime and vandalism (14%), generally feeling unsafe (9.5%), problems with noise (6.5%) and racism (2%). The recorded responses showed that these problems were often overlapping and interconnected.

Problems with drug and alcohol use were a significant issue across most sites and particularly among residents of high-rise estates where 37% of issues nominated referred to these problems. Alcohol and drug use appear to have distressing impacts on personal and neighbourhood life in high rise estates that is likely to be aggravated by the limited threshold between private and public space in high-rise living. The necessity of sharing spaces such as laundries, passages, elevators and stairways in these settings offers minimal protection against the actions and behaviours of neighbours and interlopers. Residents are confronted by people in the processing of injecting drugs, hazardous detritus and other distasteful evidence of drug use. It is impossible to avoid using these shared spaces or be oblivious to how they are being (mis)used. Issues related to drugs and alcohol nominated by residents of high-rise (HR) estates included:

- Drug people – they make us upset;
- Syringes and other drug rubbish everywhere in this vicinity;
- Drug problem – people vomiting on the floors, lifts and stairs;
- Drug users in the staircases and at night it is very noisy with people yelling and swearing and screaming;
- The drugs – the visible presence of people using.

In suburban sites and rural/regional sites the consumption of alcohol in public and shared spaces (drinkers often congregating

### Results

#### Perceptions of problems with the neighbourhood

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#### Table 1: Analytical and coding categories for open-end responses nominating the most dislike aspects of the neighbourhood.

<table>
<thead>
<tr>
<th>Social incivilities</th>
<th>Physical disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issues related to alcohol and drug use</td>
<td>Poor street maintenance/lighting</td>
</tr>
<tr>
<td>Problems with traffic/dangerous driving</td>
<td>Quality or appearance of housing, gardens and associated amenities</td>
</tr>
<tr>
<td>Neighbours/other people in the neighbourhood</td>
<td>Rubbish in the streets/dirty and unclean environment</td>
</tr>
<tr>
<td>Feeling unsafe</td>
<td>Lack of services/facilities in the neighbourhood</td>
</tr>
<tr>
<td>Crime/vandalism/graffiti</td>
<td>Problems with or lack of public transport services</td>
</tr>
<tr>
<td>Problems related to noise</td>
<td>Problems for/problems with children and young people</td>
</tr>
<tr>
<td>Experiences of racism/problems with cultural diversity</td>
<td>Satisfied/no problems with the neighbourhood</td>
</tr>
<tr>
<td>Lack of social opportunities/social isolation in the neighbourhood</td>
<td>Poor reputation of the neighbourhood/negative perceptions of the neighbourhood</td>
</tr>
</tbody>
</table>

...
at local shopping centres) provoked irritation and concern among residents: (R: rural/regional; M: metropolitan).

- The number of people walking around drugged up. Traffic is very dangerous; the drug dealing that goes on; the domestic violence; loud noisy children. (R)
- People drinking alcohol around shops where children are. (M)
- I don’t feel safe walking around neighbourhood – there is a lot of crime, i.e. break-ins and lots of drinking and drunken louts. (M)
- Drugs and disposals. (M)
- Drinking at public places. There’s signs up there for ‘not drinking’ but it’s still happening. (M)
- Houses run down and not maintained. All sitting around drinking in open space and shopping centre. (R)
- People knocking on doors late at night asking for drugs. Lack of privacy. (R)
- The high amount of people walking around drugged all the time, the drug dealings that go on. The yelling (adults arguing), loud noisy children, speeding traffic is very dangerous. (R)
- I have bad neighbours – druggies. They abuse me. They bashed me and cut my hand with a beer can. I have trouble nearly every day. I don’t feel secure. I am always in fear of being bashed again. I need help. (M)
- Drinking of alcohol in public places. (M)
- Druggies, so many of them. Once one of them had a shortcut through my front garden to go to other street and he vomited before me, he was very ill. (M)
- Addicts leaving syringes at oval and in woodchips in playground (M)
- Some people [here] don’t have a lot of respect for themselves and the hard drugs are readily available which down-grades our community. (M)
- People walking around at 8.30 am with alcohol. (R)

These responses reveal radiating problems linked to drug and alcohol use that range from the potential for harm through physical assaults, discomfort and disgust at people’s behaviour and concerns towards property. Many residents were particularly worried about the effects of poor social norms on children and perturbed by the visible presence of despair that drug and alcohol-affected people represented.

Dangerous driving was a common incivility nominated by residents in metropolitan and rural/regional sites. Dangerous driving was perceived to be commonplace, jeopardised people’s safety (again, people were especially worried for the safety of children) and damaged neighbourhood facilities, such as when parks and open spaces were used to do ‘burn-outs’:

- Burnouts from cars. (R)
- Cars speeding around the streets when my children and friends are playing games out the front of my house. (R)
- Fights out in the street and cars using the road as a racetrack. (R)
- Speeding through the area is dangerous for the children. (M)
- Some of the idiots around here – with their foul mouths, hotted up cars and fighting in the street at night. I can’t even walk to visit neighbours because dogs attack you. If you ring up, no one cares. (R)
- Cars too fast up and down street, doing burnouts. I’m afraid a kid is going to get hit one day. (R)

Some responses referred to the difficulties of trying to address these problems, including the perceived lack of interest among police or local council.

Another set of issues that was nominated referred to the troublesome or offensive behaviours of other people, such as drug users, people with mental health issues and public housing tenants.

- Very poor area, not very good environment; people do not care for each other. (M)
- Rough people that live in the area. (M)
- Bad neighbours always scream and yell and fight. Every one can hear and it’s scary. (HR)
- Young people not respecting others’ property. (R)
- Community is too complex, the residents all have different backgrounds. (HR)
- Problems with neighbours who have mental health problems. (R)
- The rest of the neighbours, too many dogs wandering around, too many people causing too many problems. (R)
- The insecurity of crime and the people who walk around the neighbourhood. (M)
- Kids stone the house and have stolen grandson’s bike. Teenagers sit and smoke and drink on lawn – and my wife and I get scared and intimidated. (R)
- The way the kids react around this way – no respect. One can say nothing without retribution. (R)
- Housing commission residents disturb us. (M)
- Quarrelsome neighbours. (R)
- People are uneducated, unemployed, unmotivated. (M)
- The government has a pretence of interest in our community. Don’t seem to make any sustainable changes. People are stuck in negative, vicious cycles and don’t have opportunities to better themselves. (R)
- Young drunk teenagers with no respect. Vandalism, loud mouths. (R)

These responses point to a range of issues including the trials of living alongside neighbours who may have complex social support needs. Responses from all sites revealed people experiencing ongoing stress and anxiety through the behaviour of neighbours who were inconciderate, belligerent, or seemingly struggling to cope with daily life. Neighbourhoods with culturally and linguistically diverse populations presented other kinds of stress that was expressed, on one hand, as resentment towards recent settler communities and, on the other, disturbing experiences of discrimination and racism.

- Conflict between races; lack of friendly attitude between people don’t say ‘hello’. (M)
- Mainly the people (some) because I put a scarf on, some
people go past me in the neighbourhood and start abusing me. (M)
• Too many ethnics. (M)
• As I am a migrant and did not speak English, I had a lot of discrimination; in my neighbourhood when I was out, they speak rude with me. They were so rude. (M)
• People in general (not together) broken community. (M)
• Too many foreigners from other countries. (M)
• Racism (R)

Issues compounded with effects of making people feel generally unsafe in their neighbourhoods.
• Don’t feel safe myself in house. (M)
• I don’t like the arguments as I am walking up the streets. (R)
• I don’t feel safe walking around neighbourhood. Lots of crime i.e. break-ins and lots of drinking and drunken louts. (M)
• Riots in the streets and I am not joking. Neighbours argue in the street and everybody can see what is happening. I turn the stereo on because I don’t want to know about it. (M)
• Feels unsafe. (R)
• Unsafe (R)
• I don’t feel my young child is safe here. (M)
• It feels dangerous at night time. (HR)
• Not being able to walk streets safely. (R)
• Crime – I don’t feel safe just walking down the street. (R)
• The negative effects of violence in my neighbourhood that affect on my children, don’t really feel safe in my neighbourhood. (R)

Evidence of criminal activity and vandalism comprised 13% of problems nominated and were mentioned by respondents across all of the sites.
• Vandalism (R)
• Crime – drugs, stabbings, thefts, break-ins at local shops, domestic violence, house fire, chroming, ear theft, murder. All of these crimes happen fairly often. (R)
• Empty houses unattended. Vandalism get inside and demolish houses. (R) Vandalism to your front garden. (R)
• Graffiti, drugs and syringes. (M)
• Too much graffiti, vacant shops, vandalism. (M)
• Teenagers vandalising streets and plants. (M)
• Vandalism, no pride. (M)
• Risk of theft, and damage to the house and cars. (R)
• I dislike the crime and also the police because I have reported crime and felt shrugged off. (HR)
• Vandalism. Litter/rubbish around the place. (R)

Other category of incivilities referred to problems of noise in the neighbourhood (6%) and many incivilities involved overlapping and interlinking issues. For example, alcohol or drug-affected people going about the neighbourhood diminished other residents’ feelings of safety and security. Variations in the emphasis given to issues across the sites suggested ways in which local circumstances contributed to particular issues. The blurring of public and private space in high rise estates is likely to contribute to increased awareness of other people’s alcohol and drug use. Similarly, problems related to dangerous driving was more frequently reported at outer suburban, regional and rural sites. Problems of racism have erupted in sites that are undergoing profound economic, social and cultural transformations.

**Problems with physical environments and disorders**

A fifth of issues nominated referred to problems related to features of neighbourhood environments. Responses were sorted into sets of issues concerning: dissatisfaction with housing standards, including neglected and derelict properties and the poor condition of shops and community buildings (37% of issues nominated in this category); physical disorders in the neighbourhoods including the presence of rubbish and unhygienic environments (23%); the appearance and amenity of neighbourhood environments, including the maintenance of streets and footpaths and adequate street-lighting (21.5%); and problems with aspects of neighbourhood infrastructure, limited access to public transport (11.5%) and lack of local services and facilities (7%). Problems with physical environments and infrastructure were expressed in the following ways:

- State of disrepair that rental properties are in. (R)
- The way people don’t mow their lawns, people who leave wrecked cars on their front lawns. (R)
- Services being taken away – shops. Shop roller doors are unattractive. (R)
- The streets are very dark and I feel very insecure walking in the neighbourhood at night. (R)
- Ministry of Housing [homes] are rented and people don’t take pride, front yards very untidy. (M)
- I’ve got a lot of problems due to the burnt house next door that has been left like that for 12 months. (R)
- Old houses; disused and unsightly shops and houses. (R)
- Dirty and untidy outside local shops. (M)
- The foyer and lifts are always dirty even though the cleaners are continuously cleaning it. (HR)
- The dirt and rubbish in the lifts and stairs. (HR)
- Nowhere for people to get to know each other, without going to a club and casual meeting place where you can drop in for a chat and have a cuppa. (R)
- We badly need a few shops nearby. (R)
- Lack of services such as doctors and other health services (e.g. dental); the stigma that is related to the area, lack of response from Office of Housing in maintaining their properties. (R)
- The way the people treat the place – dirty, rubbish lying around everywhere. They have no respect. (R)
- Rubbish and drugs like needles everywhere so you have to watch where you’re going. (M)
- The area has got rubbish lying around (broken glass around the basketball play area). (M)
Table 2: Per cent reporting poor or unsafe conditions, by NR status and whole of sample.

<table>
<thead>
<tr>
<th>Neighbourhood conditions</th>
<th>NR n</th>
<th>LGA n</th>
<th>ALL n</th>
<th>% yes</th>
<th>% yes</th>
<th>% yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor neighbourhood conditions in general</td>
<td>3,990</td>
<td>1,850</td>
<td>5840</td>
<td>14.2</td>
<td>3.3</td>
<td>10.8</td>
</tr>
<tr>
<td>Poor local crime and safety in general</td>
<td>3,931</td>
<td>1,797</td>
<td>5728</td>
<td>41.7</td>
<td>14.4</td>
<td>33.2</td>
</tr>
<tr>
<td>Unsafe to walk alone at night</td>
<td>3,868</td>
<td>1,785</td>
<td>5653</td>
<td>59.3</td>
<td>33.2</td>
<td>51.1</td>
</tr>
<tr>
<td>Poor local police service</td>
<td>3,734</td>
<td>1,647</td>
<td>5381</td>
<td>47.2</td>
<td>17.1</td>
<td>38.0</td>
</tr>
<tr>
<td>Unsafe for children to play outside</td>
<td>3,793</td>
<td>1,736</td>
<td>5529</td>
<td>55.6</td>
<td>24.5</td>
<td>45.8</td>
</tr>
<tr>
<td>Poor level of trust in other residents</td>
<td>3,817</td>
<td>1,778</td>
<td>5595</td>
<td>38.4</td>
<td>13.7</td>
<td>30.5</td>
</tr>
<tr>
<td>Residents do not look out for each other</td>
<td>3,786</td>
<td>1,775</td>
<td>5561</td>
<td>28.0</td>
<td>12.7</td>
<td>23.1</td>
</tr>
</tbody>
</table>

- General untidiness – dirty streets. Lack of pride in the suburb. (M)

Many concerns referred to people or organisations (such as the Office of Housing or local councils) not looking after properties or facilities. Many of the responses that referred to these kinds of problems linked dirty and unkempt environments to a lack of pride in oneself and in the neighbourhood.

Responses were also concerned with issues of safety in shared spaces in neighbourhoods. Problems of danger and risk in shared spaces of neighbourhoods were a particular concern for residents with children because of the risks of physical harm that were posed (for instance broken glass in playgrounds and drug-related detritus) and the ways in which behaviours breached norms of propriety. Other issues such as poor street maintenance and street lighting were regularly raised at metropolitan and rural sites and contributed to residents feeling unsafe in their neighbourhoods and signs of a perceived lack of regard from local councils and housing offices, towards poor neighbourhoods and their residents. A smaller set of issues raised concerned the limited access to public transport (11.5%). This is not surprising given that, without private transport options, many residents rely solely on public transport but live in neighbourhoods that are located in isolated suburban pockets or on the fringes of regional towns that are not well-served by public transport. A smaller number of responses identified problems in accessing health, aged care and other social support services as the worst things about living in their neighbourhood (7%).

**Other factors**

Problems concerned young people and children comprised 5% of issues nominated. Many of these problems are related to problems with alcohol and drug use and vandalism but other response point to the special difficulties experienced by young people in their neighbourhood the circumstances of household disadvantage and limited opportunities in the neighbourhood: ‘There is very little in the area for youth and teenagers to do’ (R) and that these situations led to problems with ‘teenagers wandering around streets – pranks and vandalism’ (M). Another category of issues raised by residents referred to problems of neighbourhood stigmatisation (3%) where some residents objected to being unfairly stereotyped by others outside the neighbourhood and the media, because of where they lived: ‘The perception as played up by the media and how people outside [the neighbourhood] form an opinion without knowing the people’ (M). Another response referred to the ways in which the neighbourhoods are likened to infamously dangerous neighbourhoods: ‘Discrimination from other people when I mention where I live - it’s known as the ‘Bronx’’ (R). Neighbourhood stigmatisation appeared to be a problem for some metropolitan and rural sites in particular. A small number of respondents did not want to nominate any problems and reported being highly satisfied with their neighbourhood (4% of responses).

Overall, the most frequently nominated issues concerned the category of social incivilities. Both the frequency with which these issues such as alcohol and drugs, dangerous driving, crime and vandalism and a compromised sense of safety and the ways in which multiple issues were nominated suggests they may be sources of anxiety and stress for some residents. Further, the responses suggested ways in which the potential harm of these factors lies in the ways in which they are cumulative, ongoing, and affected through circumstances are often outside of the control of residents. These insights gleaned from the open-ended responses were used to identify items from the quantitative data set that could be tested to ascertain associations with self-reported health status. Such analyses would begin to outline processes through which neighbourhood factors may be influencing health-related processes. Further, comparisons between the ratings of neighbourhood factors by residents living in NR and LGA sites enable us to consider whether NR residents were exposed to higher levels of social incivilities and physical disorders in neighbourhood environments.

**Associations between neighbourhood assessments and self-reported health**

Respondents’ ratings of a range of neighbourhood conditions are shown in Table 2. NR residents were far more likely than LGA residents to rate their neighbourhood conditions as poor on all factors. The size of the apparent difference, although still substantial, was somewhat reduced in the overall rating of neighbourhood conditions compared to ratings of individual factors.

Respondents’ ratings of neighbourhood conditions and their own health, for both NR and LGA residents, are reported in Table 3. Table 4 shows the results of the logistic regression analysis examining the relationship between area (NR vs LGA) and neighbourhood safety on health. People living in NR areas
(38.0%) were more likely than people living in the LGA (18.9%) to report that they were in fair/poor health in all analyses. People who reported that conditions in their neighbourhood were generally poor, the local area performed poorly on crime and safety, it was unsafe to walk alone at night in their area conditions, the local police service was poor; were more likely to report that they were in fair/poor health (Table 4). These effects did not interact with the area with the exception of reporting that the local police were poor. The health difference between people who reported that local police service was poor and people who did not was much greater in the LGA than in the NR areas (Table 4). There was no significant relationship between feeling it was unsafe for children playing outside and health. Nor was there any relationship between trust in other residents and residents looking out for each other.

Table 5 shows the percentage of NR residents who felt that social incivilities and petty criminal activity were issues of concern in their neighbourhoods (these questions were not asked of the LGA sample). While there was considerable concern about all incivilities, alcohol and drugs and dangerous driving were seen as particularly problematic issues. Table 6 shows the relationship between perceiving a big social incivility problem and being in fair/poor health. Perceptions that young people in groups, alcohol and drug use, aggressive behaviour, house robberies and theft and car theft and joyriding were big problems in the neighbourhood, were associated with greater odds of being in fair/poor health. This relationship was not significant for dangerous driving, domestic violence and poor street lighting.

Discussion
Analyses of qualitative data showed that social incivilities were most frequently reported as problematic aspects of neighbourhoods. Issues included problems related to alcohol and drug use, dangerous driving, other people in the neighbourhood, crime and vandalism, feeling unsafe and racism. The open-ended responses presented compelling insights into how these issues are perceived and experienced in neighbourhoods and suggested how the effects are likely to be cumulative with other problems. Quantitative analyses showed that NR residents were more likely than LGA residents to report neighbourhood conditions and neighbourhood safety as poor and there were also associations between reporting neighbourhood conditions and neighbourhood safety as poor and assessing own health as fair/poor. Further, potentially adverse effects of neighbourhood factors pertaining to crime and safety issues were suggested for both NR and LGA residents, although the former are likely to be exposed to incivilities and disorders. In addition to being perceived as significant problems in the neighbourhood, apparent associations

<table>
<thead>
<tr>
<th>Poor or Unsafe Neighbourhood conditions</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>% fair/poor health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor neighbourhood conditions in general</td>
<td>29.9</td>
<td>47.4</td>
</tr>
<tr>
<td>Poor local crime and safety in general</td>
<td>27.0</td>
<td>41.6</td>
</tr>
<tr>
<td>Unsafe to walk alone at night</td>
<td>25.2</td>
<td>37.8</td>
</tr>
<tr>
<td>Poor local police service</td>
<td>27.2</td>
<td>39.1</td>
</tr>
<tr>
<td>Unsafe for children to play outside</td>
<td>25.2</td>
<td>38.4</td>
</tr>
<tr>
<td>Poor level of trust in other residents</td>
<td>28.5</td>
<td>39.8</td>
</tr>
<tr>
<td>Residents do not look out for each other</td>
<td>30.0</td>
<td>37.4</td>
</tr>
</tbody>
</table>

**Table 4: Logistic regression analyses examining the impact of Neighbourhood conditions and area on self-reported health.**

<table>
<thead>
<tr>
<th>Neighbourhood safety and Area</th>
<th>AOR fair/poor health</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor neighbourhood conditions in general</td>
<td>2.34 (1.06-5.15)</td>
<td>0.034</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.60 (1.31-1.95)</td>
<td>0.000</td>
</tr>
<tr>
<td>Poor neighbourhood Area*</td>
<td>0.81 (0.36-1.85)</td>
<td>0.628</td>
</tr>
<tr>
<td>Poor local crime &amp; safety in general</td>
<td>1.73 (1.13-2.65)</td>
<td>0.011</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.61 (1.29-2.00)</td>
<td>0.000</td>
</tr>
<tr>
<td>Poor local crime and safety Area*</td>
<td>0.91 (0.57-1.43)</td>
<td>0.688</td>
</tr>
<tr>
<td>Unsafe to walk alone at night</td>
<td>1.49 (1.07-2.06)</td>
<td>0.017</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.51 (1.15-1.98)</td>
<td>0.002</td>
</tr>
<tr>
<td>Unsafe to walk alone Area*</td>
<td>0.97 (0.67-1.40)</td>
<td>0.875</td>
</tr>
<tr>
<td>Poor local police service</td>
<td>2.17 (1.46-3.23)</td>
<td>0.000</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.78 (1.39-2.26)</td>
<td>0.000</td>
</tr>
<tr>
<td>Poor local police service Area*</td>
<td>0.57 (0.37-0.88)</td>
<td>0.012</td>
</tr>
<tr>
<td>Unsafe for children to play outside</td>
<td>1.16 (0.80-1.68)</td>
<td>0.420</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.27 (0.99-1.62)</td>
<td>0.057</td>
</tr>
<tr>
<td>Unsafe for children to play outside Area*</td>
<td>1.47 (0.97-2.21)</td>
<td>0.063</td>
</tr>
<tr>
<td>Poor level of trust in other residents</td>
<td>1.54 (0.98-2.42)</td>
<td>0.060</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.55 (1.25-1.93)</td>
<td>0.000</td>
</tr>
<tr>
<td>Poor level of trust Area*</td>
<td>1.01 (0.62-1.64)</td>
<td>0.948</td>
</tr>
<tr>
<td>Residents do not look out for each other</td>
<td>1.28 (0.81-2.02)</td>
<td>0.274</td>
</tr>
<tr>
<td>Area (NR)</td>
<td>1.59 (1.28-1.97)</td>
<td>0.000</td>
</tr>
<tr>
<td>Residents do not look out for each other Area*</td>
<td>1.00 (0.61-1.64)</td>
<td>0.990</td>
</tr>
</tbody>
</table>

Notes: LGA ref group
(a) Adjusted for age, gender, marital status, reported disability, income and education
between some social incivilities and poorer self-reported health suggested they may be implicated in processes through which these aspects of neighbourhood environments are influencing health-related processes.

Some of these findings are difficult to interpret in that similar kinds of issues did not have similar associations with self-reported health. For example, car theft and joyriding is associated with poorer levels of fair/poor self-reported health while dangerous driving is not, even though the latter was one of the most frequently nominated issues in both the qualitative and quantitative data. From data that were gathered from NR sites only, specific issues that were associated with greater odds of being in fair/poor health included problems with young people in groups, alcohol or drug use, aggressive behaviour, house robberies or theft and car theft and joyriding. This association was not apparent for other incivilities such as dangerous driving, domestic violence and poor street lighting. Exposure to unsafe conditions had a negative association with self-reported health status and this was consistent across disadvantaged and disadvantaged areas with the exception of perceptions of policing.

The data offers critical insights into aspects of local contexts in disadvantaged neighbourhoods and how these contexts may be exerting adverse influences on health. Other studies have also observed that factors conceptualised as social incivilities and physical disorders appear to have adverse influences on health.4,5-10 Other Australian data has found associations between perceptions of neighbourhood safety and measures of physical and mental health.4,11 Another study of health and housing tenure found that these aspects of neighbourhood environments are influencing health-related processes.

**Table 5: Per cent of NR residents who perceive social incivilities as a big problem.**

<table>
<thead>
<tr>
<th>Social incivilities</th>
<th>n</th>
<th>% say a big problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous driving</td>
<td>3,939</td>
<td>63.0</td>
</tr>
<tr>
<td>Young people in groups</td>
<td>3,923</td>
<td>45.2</td>
</tr>
<tr>
<td>Alcohol or drug use</td>
<td>3,734</td>
<td>71.3</td>
</tr>
<tr>
<td>Domestic violence</td>
<td>3,308</td>
<td>44.9</td>
</tr>
<tr>
<td>Poor street lighting</td>
<td>3,919</td>
<td>44.7</td>
</tr>
<tr>
<td>Aggressive behaviour</td>
<td>3,900</td>
<td>41.2</td>
</tr>
<tr>
<td>House robberies or theft</td>
<td>3,669</td>
<td>47.6</td>
</tr>
<tr>
<td>Car theft or joyriding</td>
<td>3,453</td>
<td>48.7</td>
</tr>
</tbody>
</table>

**Table 6: Relationship between social incivilities and being in fair/poor health.**

<table>
<thead>
<tr>
<th>Social incivilities</th>
<th>% fair or poor health</th>
<th>AOR fair/poor health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor no problem</td>
<td>Big problem</td>
</tr>
<tr>
<td>Dangerous driving</td>
<td>33.7</td>
<td>39.9</td>
</tr>
<tr>
<td>Young people in groups</td>
<td>34.3</td>
<td>42.4</td>
</tr>
<tr>
<td>Alcohol or drug use</td>
<td>34.3</td>
<td>40.1</td>
</tr>
<tr>
<td>Domestic violence</td>
<td>36.8</td>
<td>40.7</td>
</tr>
<tr>
<td>Poor street lighting</td>
<td>37.3</td>
<td>38.7</td>
</tr>
<tr>
<td>Aggressive behaviour</td>
<td>34.8</td>
<td>42.6</td>
</tr>
<tr>
<td>House robberies or theft</td>
<td>34.7</td>
<td>42.6</td>
</tr>
<tr>
<td>Car theft or joyriding</td>
<td>34.6</td>
<td>41.9</td>
</tr>
</tbody>
</table>

Note: *Adjusted for age, gender, marital status, reported disability, income and education
a range of practical, social and other needs and this is likely to increase exposure to disorders and incivilities. Research showing that the poorest households in socio-economically disadvantaged neighbourhoods have the worst health outcomes, while the highest socio-economic status households in affluent neighbourhoods have the best health outcomes also point to complex relationships between household compositional and neighbourhood area-effects. Further, spending time in non-residential neighbourhoods appears to mitigate the health effects of living in a disadvantaged neighbourhood. Increasing varieties of activities undertaken in non-disadvantaged non-residential neighbourhoods, and time spent engaged in these activities, have corresponding protective effects for health.

There are strengths and limitations to the study. There are small variations in the methods of data collection at each of the NR sites and differences in the data collection methods across NR and LGA samples. However, the participatory method of using local peer interviewers to collect data at NR sites assisted in ensuring the participation of hard-to-reach populations in the neighbourhood. Limitations of the quantitative findings are that they are able to show associations in the data, but not directions of causality. Analyses relied on a single measure of (self-reported) health to capture respondents’ impressions of complex and overlapping circumstances. Comprehensive subjective and objective health-related data would allow more certainty in observed associations between neighbourhood environments and health. These findings were generated from an opportunistic data set gathered to appraise Neighbourhood Renewal interventions but this allowed only a level of analysis that elides any salient between-site contextual differences, and intra-site contextual variations. Carefully designed qualitative and quantitative studies should be developed to gain better understanding of the issues that have emerged from these preliminary analyses.

Importantly, the findings endorse a role for place-based approaches in strategies for reducing health inequalities. However, the conditions contributing to inequalities and disorders are generated within local and extra-local scales of influences, including housing and welfare policies. The findings also underline the importance of two-pronged approaches for understanding and responding to health inequalities that target both the circumstances of populations and the aspects of places that are health-impairing.

References

4. Macintyre S, Ellaway A, Steven C. Place effects on health: how can understanding and responding to health inequalities that target both the circumstances of populations and the aspects of places that are health-impairing.

2009 VOL. 33 NO. 1
AUSTRALIAN AND NEW ZEALAND JOURNAL OF PUBLIC HEALTH
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