

Neighborhoods and Health: What Do We Know? What Should We Do?

Twenty years ago, most research on the drivers of health focused on the impact of the characteristics of individuals, such as their behaviors, their psychological traits, or their biology. Certainly there was also abundant research on the health implications of upstream factors like social class. But despite pioneering publications,¹ there was comparatively little emphasis on the health impact of other factors beyond individuals such as community or neighborhood context.

It is remarkable to see how much has changed. The study of neighborhoods is now mainstream. Publications linking neighborhood factors to health have grown exponentially. Debates on the strength of the evidence are common. There have been calls for new analytic approaches. And policy discussions increasingly allude to the potential of neighborhood interventions not only to improve population health but also to reduce health inequalities.

But what can we conclude so far regarding the effects of neighborhood factors on health? And what are the most promising areas for intervention? The jury is still out on these questions, and some may argue that given discordant findings in the literature, little consensus has been reached. But our task as public health scientists is to abstract meaning from complex and messy data. In this sense, the study

of neighborhoods and health is no different from the study of the links between behaviors or genes and health. In all these areas, causal inference from observational studies is complicated by the interrelatedness of factors, and yet experiments may be unfeasible or uninformative regarding real-world interventions. This does not excuse us from drawing the very best conclusions we can from the information we have and considering what it implies for action.

In its most fundamental sense, work on neighborhoods and health has rediscovered and emphasized the role of “the environment” in health. It has redefined the environment to encompass not only traditional environmental exposures (like air pollution) but also other elements of the physical environment (like walkability or access to green spaces) and the social environment (like social connectedness or violence). It has articulated ways in which the environment can affect disease risk factors traditionally believed to be wholly individually determined.

Despite challenges to causal inference that emerge from the (still) primary reliance on observational data, a few facts have emerged. The first is that neighborhood socioeconomic and racial/ethnic composition is related to potentially health-relevant neighborhood physical and social environments,^{2,3} such

as walkability, access to healthy foods, recreational resources, tobacco availability and advertising, aesthetically pleasing green and public spaces, and levels of social connectedness and safety. The association between neighborhood composition and environments highlights the possible role of neighborhood interventions in reducing health disparities.

A second fact is that these environmental features are related to mechanistic pathways linked to health. Probably the most compelling evidence we have is for the impact of walkability on walking behavior.^{4,5} Evidence linking access to healthy foods to diet or obesity is more mixed, perhaps attributable in part to difficulties in measuring the food environment (as well as diet!) and to the fact that food purchasing behavior is clearly not restricted to local neighborhood environments.⁶ Similar challenges apply to the study of how the recreational environment affects leisure-time physical activity.⁷ The stress and social connectedness pathway, although theoretically compelling, has been the less studied of all the mediating pathways,

perhaps because of difficulty in measuring neighborhood sources of stress as well as the stress biomarker outcomes that might be affected by them. Consistent with the plausible impact of neighborhoods on a range of mediating mechanisms, some studies have documented associations of neighborhood factors with mental health and disease incidence.^{8,9}

It could be argued that the nature of the evidence so far does not justify neighborhood interventions as a way to improve health. Certainly we have investigated this question in a very crude way, with little attention to nuances (e.g., neighborhood factors may not affect everyone equally, behavioral choices are the outcomes of a complex set of processes in which neighborhood context may play a limited role, important ambiguity still exists regarding relevant spatial contexts for various outcomes). More sophisticated data collection and analytical approaches, and indeed different ways of thinking about the ways environments and individuals interact and influence each other are needed, and hopefully forthcoming as a new generation of researchers, data, and methods grapples with these questions.

But all this does not absolve us from considering the policy implications of what we know (or

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have strong reason to believe). This is motivated not only by the public health imperative to translate findings into actions but also because the evaluation of the impacts of real policies may be one of the best ways to enhance our understanding of causation, which in turn will allow us to develop better policies. Research and action can reinforce and support each other. There may be no better example of this than work on neighborhoods and health.

So what are the most promising interventions based on what we know to date? The fact that neighborhood environments are likely to affect multiple different health outcomes through a large set of interrelated mechanisms suggests that the most impactful interventions are likely to be those that can trigger changes across multiple dimensions. One prime example is policies that holistically improve the physical quality of neighborhoods; for example, policies that simultaneously improve the conditions of housing, that create attractive public spaces, that enhance walkability, that reduce reliance on automobile transportation, and that promote mixed land use. These physical changes will not only enhance the physical qualities that we think might be relevant to health but will also trigger changes in health-relevant social environments.

A second example is policies that promote mixed income neighborhoods and reduce residential segregation by social class. This can break the vicious cycle by which residential segregation promotes the differential location of resources and services (with many consequences for neighborhood physical and social environments) that in turn reinforces residential segregation perpetuating a cycle of spatial

cosegregation of class, race, and health-relevant environmental attributes. This is distinct from gentrification, which obviously does not benefit (and may indeed harm) groups that are forced out of their neighborhoods as a result of the process.

These proposals may seem ambitious and utopian. But they are grounded in what is likely to be the systemic nature of neighborhood health effects: the notion that a multiplicity of interrelated neighborhood factors affect multiple health outcomes through a set of interrelated mechanisms, the strength and importance of which may vary across individuals. Under these circumstances the most impactful and sustainable interventions are those that alter the functioning of the systems that create spatial inequities to begin with. The tangible and visible physical qualities of neighborhoods as well as the extent to which they are segregated by class are in my view two critical levers that can trigger multiple changes. Certainly I do not rule out the possible utility of specific interventions in certain contexts (e.g., subsidizing the location of food stores), but if we are looking for the greatest and more sustainable effects across a range of communities, then more fundamental systemic interventions are needed.

The more systemic interventions are also likely to have other social benefits, including effects on educational outcomes or quality of life more generally, that may be as important or more important than health, or that could themselves impact health. It will be critical to evaluate the long-term health impact of these types of policies, and for this a combination of approaches (observation, experiments, simulation modeling) will likely be

needed. And of course there is the broader social and political challenge of how to make these changes actually happen. For this, evidence of health impact can of course be helpful, but it is not sufficient. **AJPH**

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