

# The Effects of Social Capital on Health

## What Twin Studies Can Tell Us

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The notion that group- or community-level factors may play an important causal role in the health of individuals has received increasing attention in recent years. This interest reflects growing recognition that health variations across individuals cannot be fully explained exclusively as a function of individual-level characteristics. Social capital, which Fujiwara and Kawachi<sup>1</sup> define as the “resources accessed by individuals and groups within a social structure that facilitate cooperation, collective action, and the maintenance of norms” is one construct that has been hypothesized to affect health. By definition, social capital refers to social relationships and connections between individuals and is therefore a relational rather than a purely individual-level attribute.

A number of studies have reported associations between measures of social capital for geographically defined contexts (such as states or neighborhoods) and a variety of health outcomes after statistical controls for individual-level characteristics.<sup>2</sup> However, as often noted, observational studies have important limitations in their ability to control for confounders. Fujiwara and Kawachi<sup>1</sup> use an elegant twin design to examine whether differences in physical and mental health between twins are linked to differences in their reports of social capital. By focusing on within-twin pair comparisons, this design controls for shared early life environments (to the extent that twins reared together share the same environment) and for shared genetic factors (all genetic factors in monozygotic twins and some genetic factors in dizygotic twins).

The main finding reported by Fujiwara and Kawachi<sup>1</sup> is that within both monozygotic and dizygotic twin pairs, the twin reporting greater social trust in his or her neighborhood (as indicated by agreement with the statement *people in my neighborhood trust each other*) also tended to report better physical health. This is an interesting finding and an improvement over prior observational studies in that it inherently controls for many other factors that twins share and which may be related to physical health and reports of social trust. A

limitation, however, is that it does not necessarily control for all lifecourse and adult factors on which twins may differ. Some of these (such as education and very broad employment categories) were statistically controlled in the analyses reported by Fujiwara and Kawachi, but to skeptics the possibility of residual confounding remains. Another limitation noted by the authors is that because both social trust and health are self-reported, same-source bias (or common-method bias) remains a possibility. For example, certain individuals may be more pessimistic in their reports regarding themselves and their neighborhoods, generating spurious associations between both variables. The availability of objective measures of health (through measured outcomes) and social trust (through raters or responses of neighbors) would eliminate this problem. The possibility of reverse causation is a third limitation: This cross-sectional analysis cannot rule out the possibility that ill health causes people to see their neighborhoods in a more negative light.

An important advantage of the twin design, particularly the within-twin pair comparison of monozygotic twins, is that it controls for genetic factors. At a time when genetic explanations for health outcomes are common in both scientific and popular discourse (despite rather meager and sometimes conflicting evidence), using a design that can categorically rule out genetic explanations for the associations observed is an important strength. Nevertheless, the genetic control may not be the most compelling aspect of the design: Given what we know about the complex ways in which genes function, it is hard to argue that a single gene or even linked genes would predispose a person to report both poorer physical health and low social trust among his or her neighbors. The authors attribute the differences in mental health findings in dizygotic and monozygotic twins (mental health was related to some social-capital indicators in dizygotic but not in monozygotic twins) to residual confounding by unmeasured genetic traits. But surely many other, perhaps more likely, explanations are possible, including more similar lifecourse and socioeconomic environments in monozygotic compared to dizygotic twins, less variability in health in monozygotic twins, and even simply reduced power in the smaller sample of monozygotic twins.

Understanding how community-level and social factors affect health will require a multiplicity of study

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designs, including randomized trials, laboratory experiments, natural experiments, and observational studies including elegant designs like the one used by Fujiwara and Kawachi.<sup>1</sup> However, if we are to convince skeptics that the effects of social capital on health are indeed causal, we will also need to be able to explicate the specific mechanisms through which social capital works for specific health outcomes. This may require unpacking the sometimes vague and rather broad concept of social capital (which can imply many different things as illustrated by the four different measures of social capital used by Fujiwara and Kawachi) and providing evidence regarding the mechanistic aspects through which different dimensions (such as trust or community engagement) relate to specific health-related processes. This is necessary not only for strengthening causal inferences regarding the health effects of social capital, but also for designing the most appropriate interventions. No single study will be perfect or suffi-

cient. Ultimately, only the accumulation of different types of evidence will generate scientific consensus and provide impetus for interventions. Twin studies, such as the one conducted by Fujiwara and Kawachi, are especially well suited to rule out genetic explanations for the associations between social capital and health. But twin studies are only one of the many complementary types of study designs we will need to draw on in order to better understand how social connections and social factors affect health.

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## References

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