use epidemiologic science cynically to advance their policy preferences. □

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Social Capital and Self-Rated Health: Support for a Contextual Mechanism

In the study by Kawachi et al.,[1] an indicator of social capital—the per capita membership of voluntary associations measured at the state level—was related to self-reported health after individual-level factors that predict health, such as income, education, and smoking behavior, were controlled for. The investigators were unable, however, to take the individual-level membership of voluntary associations into account.

In a postal survey of adults (n = 605) in socially contrasting localities in western Scotland,[2] we asked respondents whether they belonged to any local associations (such as neighborhood watches, residents' associations, or community councils). Respondents were asked to rate their own health in the last year as "excellent," "good," "fair," or "poor" (from this, we created a dichotomous variable "excellent/good" vs "fair/poor") and to report the number of symptoms they had experienced in the last month from a list of 20 common symptoms.

At the individual level, belonging to a local association was not related to any of these health measures after individual age, sex, and social class were controlled for. However, when we aggregated respondents' membership up to the postcode (zip code) sector level (each with an average population of 6000 in Scotland), we found that aggregate membership was associated with individual health for both health measures after individual age, sex, and social class were controlled for (higher rates of membership being associated with better self-reported health).

Thus, our data show that an individual's health is not associated with whether or not he or she belongs to a local association, but it is associated with aggregate levels of participation. In our study, areas with higher levels of participation were also areas that had better amenities and services and a more pleasant, nonthreatening environment. It may be that local levels of participation in local associations influence the levels of resources that an area can command. Our findings support Kawachi et al.'s interpretation that the effect is operating through contextual (collective) rather than compositional (individual) mechanisms.

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Misperceptions of "Objective Measurements"?

In the context of risk for airbag-induced motor vehicle injuries, Segui-Gomez et al. measured the distance from the bridge of the nose to the center of the steering wheel of 1000 drivers.[1] Their objective was to assess the accuracy of self-perceived driver's distance from the steering wheel, the critical point being cited as a distance of 10 inches between the center of the steering wheel and the center of the chest.[2] Therein lies the fundamental problem with this study. The authors were obliged (for an unexplained reason) to measure from the center of the steering wheel to the bridge of the nose and thus were considering the hypotenuse of the triangle to be defined by the center of the wheel, the center of the chest, and the nose. The authors correctly identified this measurement modification as a potential limitation of the study, and they chose to accommodate the potential error by arbitrarily increasing the critical point of proximity to 12 inches and by including a sensitivity analysis, in which they considered the impact of changing this definition to 14 or 16 inches.

On the basis of an average distance of 15.8 inches from the bridge of the nose to the center of the chest,[3] the hypotenuse should be close to 18.7 inches in adults, if we assume that the center of the steering wheel is horizontal with the center of a driver's chest and that drivers sit vertically upright forming a right angle. This more realistic distance is greater than any of the critical distances considered by Segui-Gomez et al., including the values associated with the sensitivity analysis. Such a discrepancy cannot be considered "roughly equivalent."[1(p1110)] The discrepancy is further compounded when one considers the position in which most persons drive; rather than sitting vertically, drivers may recline at angles of up to 115°,[4] lengthening the hypotenuse measurement to 21 inches.

We also take issue with the analytical approach chosen by the authors to present their results. It is incorrect to quote Pearson correlation coefficients to describe agreement between measurements, as the statistic only describes strength of association.[5] That drivers were highly variable in their ability to correctly perceive distances between wheel and nose is obvious from the wide standard deviations, but we are left guessing about whether or not this was also true for those who sat farther from the wheel and for those who sat closer (an issue directly relevant to the research question). More informative would have been the calculation of the mean discrepancy between perceived and objective measures and the modeling of this according to driver characteristics and distance from the wheel. That would have addressed the research question without the imposition of arbitrary cutpoints.

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Segui-Gomez et al. Respond

We thank Drs Scuffham and Battistutta for offering constructive criticism on 3 issues. The first criticism relates to our definition of distance and measurement points. We want to remind the readers that the purpose of our work was to demonstrate the misperception of seating distance and to illustrate its impact on drivers who may consider applying for an airbag on–off switch.

Having said that, we agree with Drs Scuffham and Battistutta that the currently recommended 10 inches from the center of the steering wheel to the breastbone may not equal our reported 12-inch distance (nor the 14 or 16 inches used for the sensitivity analysis). Our choices of measurement procedure and distance were made so that we could compare our findings with those reported in the literature available at the time the study was designed (as we explained in the brief) and also because we knew that the measurement to the breastbone was more intrusive than the measurement to the nose, particularly for women. We believe the misperception problem would remain whether we had chosen the measurement to the breastbone or looked for alternative cutoff points of the seating distance, although such research should be done.

The second criticism refers to our analytical approach. A careful reading of the article reveals that we presented more information than Drs Scuffham and Battistutta suggest. We reported sensitivity and specificity values of the perceived distances for the whole sample and several subgroups of drivers (Table 2), which help illustrate the phenomenon of misperception among both those who thought they sat closer to the steering wheel than they do and those who thought they sat farther than they do. We also reported an additional reference[1] where we published a graph that displays the cumulative proportions of drivers according to their perceived and objectively measured distances.

The last criticism suggests that the use of the "mean discrepancy between perceived and objective measures" would be a better indicator for addressing our research question. We actually computed and analyzed these differences and obtained the same findings regarding the extent and direction of the misperception: the majority of drivers (regardless of their sex or height) did not accurately perceive the distance from the steering wheel; some drivers underestimated their seating distance, whereas others overestimated it. Hence, and for the sake of brevity given the Journal's space limitations, we chose not to present these data.

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