Systematic analyses of health disparities cannot ignore measurement issues.

While describing an ambitious approach to understanding health disparities and turning research into practice for reducing such disparities, Koh al.[1] fail to consider crucial measurement issues. Solely for reasons related to the shapes of the underlying distributions, standard measures of differences between outcome rates tend to be affected by the overall prevalence of an outcome. Most notably, the rarer an outcome the greater tends to be the relative difference in experiencing it and the smaller tends to be the relative difference in avoiding it. Absolute differences and odds ratios tend also to be affected by the overall prevalence of an outcome. Roughly, as uncommon outcomes become more common, absolute differences tend to increase; as common outcomes become even more common, absolute differences tend to decrease. Odds ratios tend to change in the opposite direction of the absolute difference. [2-5]

Koh and colleagues cite the Agency for Healthcare Research and Quality's (AHRQ's) National Healthcare Disparities Report for finding continued or widening gaps for specific health outcomes such as immunization rates, AIDS diagnoses, and access to prenatal care. But for things like immunization and prenatal care, interpretations as to directions of change over time commonly turn on how one measures disparities. These procedures have tended to increase in overall prevalence. When that occurs, one typically observes decreases in relative differences in receiving the procedures but increasing relative differences in rates of failing to receive them.

A useful illustration may be found in a study by Morita et al. that appeared in Pediatrics in 2008.[6] The authors found that, in addition to increasing overall Hepatitis B vaccination rates, a school- entry vaccination requirement led to dramatic decreases in racial and ethnic disparities in vaccination rates. In measuring disparities, the authors relied on relative differences in vaccination rates (a fairly common approach). As discussed in a comment to that study,[7] because the National Center Health for Health Statistics (NCHS) would measure disparities in terms of relative differences in failing to be vaccinated, that agency would have found the disparities to have dramatically increased. AHRQ, which would have used relative differences in vaccination rates for part of the period examined and relative differences in failure to receive vaccination for another part of the period, would have agreed with Morita et al. as to part of the period and would have agreed with NCHS as to part of the period. Researchers who rely on absolute differences between rates would have agreed with Morita et al. as to part of the period examined and disagreed with them as to part of the period.

In discussing the United Kingdom's commitment to reducing disparities, Koh et al. note that mortality rates for cardiovascular disease and cancer for persons younger than 75 years in an identified target group had recently fallen faster than in the nation as a whole. But the source of that information [8] makes clear that it is talking of absolute decreases (which in the rate ranges at issue commonly are larger for groups with higher initial rates). The next entries in the source suggest that similar progress is not observed as to relative changes (which also is the common situation).

There is little point in talking about either progress in reducing disparities or the lack of such progress without discussing the way that different measures show different results or the extent to which the measures may systematically do so. Ideally, however, the discussion will squarely confront the issue of the extent to which observed patterns of changes in measures may be affected by overall prevalence of an outcome and address whether there exist satisfactory tools for measuring disparities that are not so affected (such as discussed in references 9 and 10).

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