Where children live has substantial implications for their health and longevity. Elsewhere in JAMA Network Open, Shanahan et al\(^1\) report the results of a large cross-sectional study, which includes data from 65,662 Census tracts representing almost 90% of the US population, finding that neighborhood conditions and access to resources are significantly associated with life expectancy at birth. Using merged data from the Child Opportunity Index (COI) 2.0 and the Centers for Disease Control and Prevention US Small-Area Life Expectancy Estimates Project, the authors found a stepwise reduction in life expectancy as childhood opportunity decreased; life expectancy in Census tracts with very low opportunity was 7 years lower than in Census tracts with very high opportunity. Notably, neighborhood opportunity explained almost 50% of the variation in life expectancy at birth, suggesting that the surroundings in which children are raised play an important role in shaping their future.

The recognition that both environmental and demographic characteristics impact our health is not novel. Yet, not until recently have researchers had access to robust socioeconomic measures of children’s health. The 2 most recognized are the Area Deprivation Index\(^2\) and the COI,\(^3\) the latter of which includes 29 factors across 3 broad domains: (1) educational (eg, high school graduation rates), (2) health and environmental (eg, access to healthy food and green spaces), and (3) social and economic opportunities (eg, unemployment rate and median income). Although there is an extensive body of literature concentrating on the association between sociodemographic factors and measures of survival, such as infant mortality and life expectancy, most studies to date, including 1 recent study by Boeing et al,\(^4\) have examined the association of individual factors, including area of residence (eg, zip code), race, and income, and have found a differential association with life expectancy. Shanahan et al\(^1\) expanded on the current literature by using the COI 2.0, which provides a more comprehensive evaluation of the interplay between sociodemographic factors and children’s life expectancy. Earlier investigation has been limited to studying larger geographic boundaries, including state and county lines,\(^4\) whereas the COI 2.0 uses the smaller measure of Census tracts. The benefit of this approach is a more focused evaluation of the population, which may be particularly useful for health care systems as they serve local communities. However, it should be noted that there is also value in studying measures of survival on larger scales. Legislative priorities, for instance, are often based on outcomes at the state or national level. Nevertheless, use of the COI 2.0, a wide-ranging measure of socioeconomic factors, applied across the more granular level of Census tracts, is perhaps the most novel aspect of the present study.

In contrast to measurement of individual sociodemographic factors, which are often fixed, the COI 2.0 allows for evaluation of potentially modifiable community factors. This feature is important to help researchers design effective strategies aimed at reducing disparities in life expectancy. Indeed, this importance has been recognized by organizations engaged in pediatric research, such as the Children’s Hospital Association, which has integrated the COI 2.0 with the Pediatric Health Information System database. Health systems have also developed opportunity index dashboards to better inform care delivery.\(^5\) As health care systems continue to place emphasis on diversity, equity, and inclusion, integration of opportunity indexes within health networks is likely to increase moving forward. The challenge for researchers will lie in implementation of interventions to improve child opportunity, both at the community and legislative levels.

The results of the study by Shanahan et al\(^1\) provide important insights into children’s life expectancy in the US, yet the findings should be interpreted within the context of several limitations,
many of which the authors point out. First, the US Small-Area Life Expectancy Estimates Project lacks information on race and ethnicity; therefore, these factors were not able to be examined. However, the author’s rightfully note that 66% of Black children and 58% of Hispanic children live in areas with very low or low COI scores compared with 18% of White children. Furthermore, Boing et al recently found that Census tracts with larger proportions of Black people are negatively associated with life expectancy. Future research should focus on children’s life expectancy and the interplay between race and ethnicity and neighborhood opportunity.

Second, there are other unmeasured factors not included in the COI 2.0 that may have implications for children’s life expectancy. For instance, exposure to adverse childhood experiences has been associated with a reduction in life expectancy of up to 20 years. In addition, household food insecurity has been associated with shorter life expectancy, which is notable because children living in areas with lower COI scores are likely to have more limited access to healthy food choices compared with those living in areas with higher COI scores. In a recent study of more than 50,000 adults, Men et al found that those with severe food insecurity had a 24% increased risk of death before age 65 years compared with adults who had food security.

Third, life expectancy data were not available for Census tracts with populations of fewer than 5000 people. Although 89% of Census tracts were included in the analysis, it is possible that more rural areas (eg, farming and agricultural communities) may have low opportunity but long life expectancy. Fourth, Census tract boundaries may differ from how individuals perceive their neighborhoods, which should be considered as interventions focused on health disparities are developed and implemented. These limitations notwithstanding, Shanahan et al should be applauded for their equity-focused evaluation of children’s life expectancy in the US and their contribution to the growing body of literature on health disparities.

ARTICLE INFORMATION
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