

Debunking Paradoxes: Integrating Complexity in Cardiovascular Disease Research Among Latino Populations

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Consistent with the migration history of the United States, immigrants today represent a large and important segment of the population and the nation's health. Latino/Hispanic (herein Latino) individuals represented more than half of the growth of the US population from 2000 to 2010 and are projected to represent 30% of the population by 2060.¹ The growth of the Latino population in the United States is a function of both migration and US-born descendants, as nearly 1 in 4 young people enrolled in school today are of Latino origin.² Although research on the health of Latino communities has not kept pace with this fast-growing population, several key findings have emerged over the past few decades.

First, all-cause mortality rates tend to be lower among Latinos than their non-Latino white counterparts,³ with some evidence suggesting that methodological issues may explain this health advantage in part but not fully.⁴ Second, abundant evidence indicates that Latino groups have a disproportionate burden of cardiovascular disease (CVD) risk factors. The Hispanic Community Health Study/Study of Latinos is the largest epidemiological study of Latino people living in the United States and showed a high prevalence of obesity, diabetes mellitus, hypertension, and physical inactivity,⁵ the latter a particularly modifiable health behavior consistently associated with better health. Nonetheless, age-adjusted CVD mortality rates remain lower among Latinos than non-Latino whites.⁶ This apparent health advantage is often referred to as the *Latino health paradox*,⁷ given that Latino people are more likely to live in poverty, have lower educational attainment, and often lack health insurance access. Third, and finally,

studies indicate that the health of Latinos varies by ethnic group, migration, and “acculturation”-related factors such as nativity, generational status, age at migration, length of time in the United States, and English language proficiency. For example, although all Latino populations have lower CVD mortality than non-Latino white populations, there are striking differences in the prevalence of cardiovascular risk factors and CVD mortality across Latino subgroups and by nativity status. Puerto Ricans have the highest smoking prevalence and Mexicans have one of the lowest,⁵ whereas US-born Latino people overall and regardless of country of origin experience lower CVD mortality relative to their foreign-born counterparts.⁸ Similarly, research suggests that the relationship between any of these acculturation proxies and health may differ depending on the outcome examined. Increased English language proficiency may exert a detrimental effect on health if it is a proxy for adoption of health-damaging behaviors such as smoking, physical inactivity, and poor diet, all of which are prevalent problems in the United States. Conversely, increased English language proficiency has been associated with improved health outcomes among those diagnosed with CVD or associated risk factors, such as diabetes mellitus, where language proficiency is essential for proper disease care and management.⁹

In this issue of the *Journal of the American Heart Association (JAHA)*, Rodriguez and colleagues¹⁰ build on this prior research to consider how broader social environments influence CVD mortality among Latino communities. The authors characterized counties where CVD deaths occurred according to the proportion of the population of the county that was of Latino origin. This measure of the social environment is based on theories of “ethnic enclaves,” which suggest that living in an area with a high concentration of immigrants or coethnic peers can provide cultural, emotional, and material resources that can support health.¹¹ Of the counties included in the study sample, nearly 35% had a Latino ethnic concentration that ranged from 20% to as high as 96%. However, as Latino density increased, so did poverty, unemployment, lack of English language proficiency, and limited health insurance or access to primary care physicians. Contrary to their hypothesis, the authors found that increased Latino ethnic density was positively associated with CVD

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mortality rates. This association held among Latino populations even after adjusting for other county-level demographic, socioeconomic, and healthcare factors. In contrast, there was no statistically significant association between Latino ethnic density and CVD mortality in unadjusted models for non-Latino white populations, and in fact, models adjusting for socioeconomic and healthcare factors showed a protective effect for this group, albeit not statistically significant.

At first glance, the authors' findings that increased Latino density is associated with increased CVD mortality would seem to raise another potentially paradoxical finding. However, the authors appropriately suggest that living in Latino-dense counties may represent racially and ethnically based segregation processes that create living conditions with limited social and health-enhancing opportunities.¹² Selected studies have investigated experiences of racial discrimination among Latino populations and shown detrimental health effects.¹³ Other explanations may be methodological in nature. Only counties with at least 20 Latino deaths were included and thus may represent contexts in which non-Latino whites select to live in these areas but have resources to counter the deleterious health effects of segregation. Similarly, the authors restricted their analysis to a rather large geographic space (ie, counties) because of data limitations and could not explore the effect of neighborhoods¹⁴ or other smaller geographic contexts that may be more relevant to health. This approach potentially introduced bias due to the modifiable area unit problem or to having captured a distinct spatial phenomenon associated with the geographic unit used.¹⁵ It is also possible that the main findings would have differed substantively if the authors examined the largest Latino group living in each county (ie, percentage Mexican or Puerto Rican) and the extent to which this county-level ethnic group matched a given individual's ethnic origin and its association with CVD mortality.

Perhaps what is most intriguing about this study is that it calls into question the continued use of "paradoxes" to explain Latino health. Rodriguez and colleagues have cleared the way for us to embrace a more nuanced, contextualized understanding of the health of Latino populations. English language proficiency or other acculturation-related factors alone may not explain CVD—60% of Latinos are US-born and likely have a good command of the English language. Focusing on individual-level cardiovascular risk factors alone will not suffice—the contexts under which Latino people live matter. Latino participants in this study tended to live in impoverished places with limited economic opportunities and educational advancement. This social landscape is also often accompanied by other features of the places where people live that limit the adoption of healthful behaviors. An abundant body of research has shown that the creation of safe, green, walkable, and aesthetically pleasing places, for example, can not only

increase physical activity and improve cardiovascular health but also reduce mortality.¹⁶

Now more than ever, understanding the health of populations requires a comprehensive, transdisciplinary, and multilevel approach that addresses the complexity of the communities in which people live.^{17,18} Results from the study by Rodriguez and colleagues are in line with recent calls in public health to advance understanding not only of the "causes" of disease but also of a science of "consequence" to improve health.¹⁹ There is also increasing recognition that we need to move research toward testing the dissemination and implementation of real-world solutions to solve our most pressing public health problems.²⁰ And it is important to note that *JAHA*, with a largely clinical audience, is at the vanguard of this change and advancing our nation's mission to reduce health inequalities and to preserve and improve the health of all people, regardless of immigration status, racial/ethnic background, or language spoken.

Disclosures

None.

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