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Widening Racial Disparities in Risks for Stroke

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Abstract:	

Widening Racial Disparities in Risks for Stroke

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To the Editor:

Stroke incidence in the United States appears to be decreasing for reasons that remain unclear. It is possible that improvements in the prevention and control of vascular risk factors have resulted in lower event rates,[1] although the extent to which major risk factors have effectively declined in their contributions to stroke, especially in vulnerable populations, is unknown.

We examined age-adjusted temporal trends in the contributions of major vascular risk factors (hypertension, obesity, diabetes, hypercholesterolemia, and smoking) to stroke in four communities in the United States,[2] including 15,350 adults (56% women, 26% black, *Supplemental Table 1*) followed from 1987 to 2013 (*Supplemental Methods*).[3] During the follow-up period (319,036 person-years), we observed 1,243 new-onset stroke cases. The contributions of all risk factors, combined, decreased from years 1990 to 2010 in the total sample (population attributable risk [PAR] 73% to 41%, *P*=0.023), and this trend was driven mainly by reductions in the contributions of hypertension (*P*=0.001), smoking (*P*<0.001), and diabetes (*P*=0.004) (*Figure*, *Supplemental Table 2*). However, in race-stratified analyses, the contribution of all risk factors combined exhibited a decline that was more prominent in whites (PAR 66% to 34%, *P*=0.07) than blacks (PAR 84% to 63%, *P*=0.40). This difference was largely due to a reduction in hypertension-related risk experienced by whites (PAR 47% to 20%, *P*=0.001) but not blacks (PAR 65% to 51%, *P*=0.34); more specifically, the hypertension-related hazard remained more persistently elevated over time in blacks (hazard ratio [HR] 3.8 [2.1-7.0] to 2.2 [1.1-4.1], *P*=0.20) than in whites (HR 2.9 [2.0-4.2] to 1.4 [1.1-1.9], *P*<0.001). In addition to hypertension, smoking and diabetes also demonstrated race-specific time trends in their contributions to stroke incidence (*Figure*). By contrast, the vascular risk factor contributions to incident stroke showed similarly declining trends in men compared with women (*Figure*).

A temporal trends analysis of multi-cohort community data suggests that although the contribution of modifiable risk factors for stroke has been decreasing over the past two decades, there is a widening disparity in the extent to which these improvements are seen in blacks compared to whites. Further research is needed to understand why public health strategies aimed at curbing stroke risk, especially hypertension-related risk, may be effective in some populations and not others. Given the potential for active interventions to substantially modify outcomes,[4] more targeted prevention and control of vascular risk factors may be warranted as part of continuing efforts to reduce the overall burden of stroke.

Disclosures

None.

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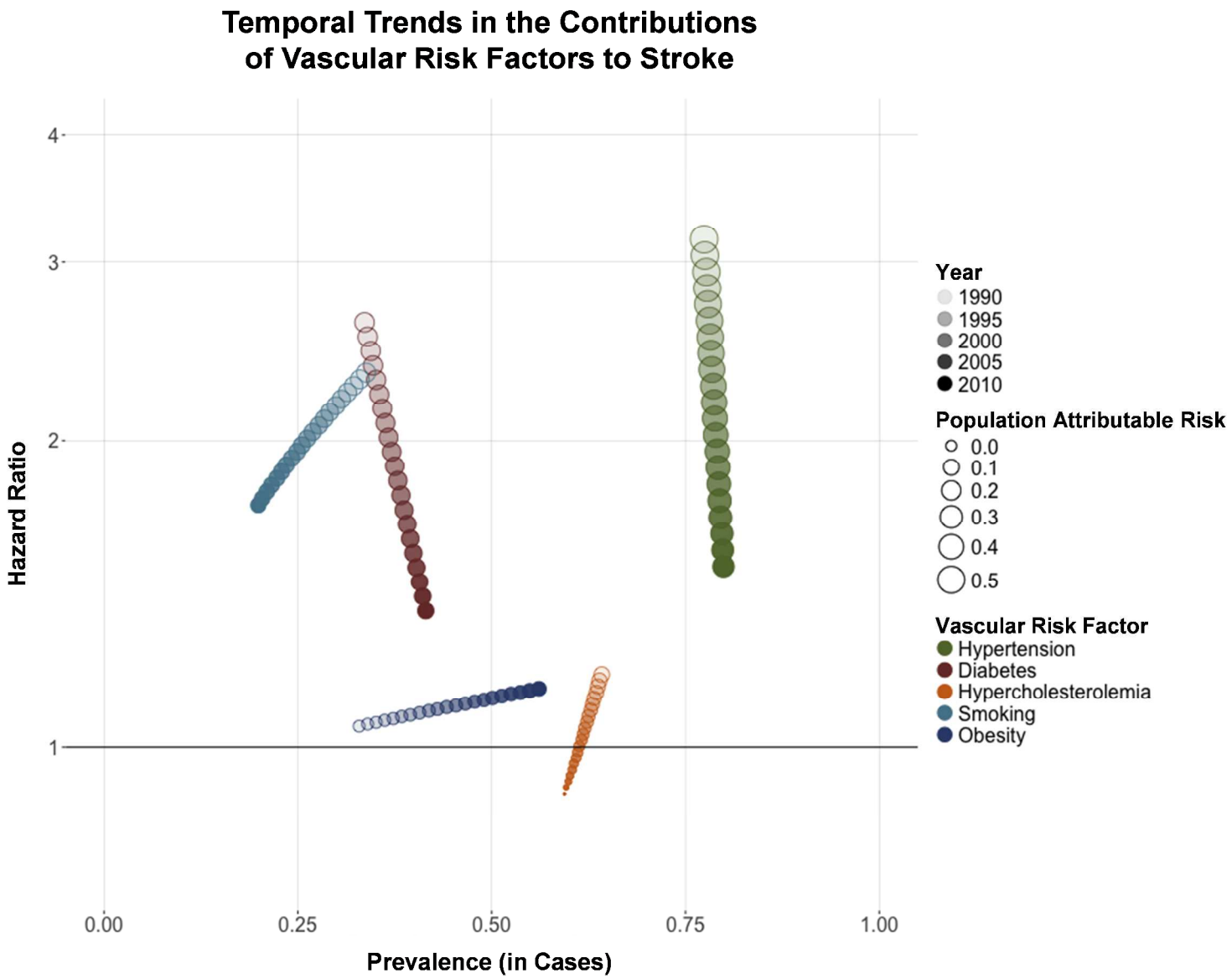
Figure Legend

Figure. Vascular Risk Factor Contributions to Stroke Incidence from Years 1990 to 2010.

Panel A displays estimates of prevalence, hazard ratio, and population attributable risk (PAR) for each vascular risk factor with trailing patterns indicating trends from year 1990 (lightest circles) through 2010 (darkest circles). Relative estimates of PAR are depicted by size of the color-filled circles for diabetes (red), hypertension (green), hypercholesterolemia (yellow), smoking (light blue), and obesity (dark blue). Panel B displays race- and sex-stratified estimates of each vascular risk factor's contribution to stroke incidence over time in conceptual Sankey diagrams wherein rank order from top to bottom is based on average values, such that risk factors with similar PAR values may switch rank position at different time points. The height of each "bar" is proportional to the PAR value for a given risk factor at a given time point.

Figure. Vascular Risk Factor Contributions to Stroke Incidence from Years 1990 to 2010.

A.



B.