

Only about half of strokes may be attributable to known causative risk factors

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A large proportion of strokes may not be attributable to known causative risk factors, according to a study published in this week's *PLOS Medicine*. Michiel Bos and colleagues from the Erasmus Medical Center, in the Netherlands, report that only about half of all strokes are attributable to established causative factors for stroke, a much smaller proportion than estimated by previous studies.

The researchers reached these conclusions by using data from 6,844 individuals older than 55 years who had never had a stroke and were enrolled in the Rotterdam Study, a population-based cohort study, between 1990 and 1993. They followed these individuals for an average of 13 years, during which time 1020 strokes occurred. By examining known etiological (causative) factors for stroke, including hypertension, smoking, diabetes, irregular heartbeat, heart disease, and obesity, they calculated population attributable risks (PARs) and estimate that about half (PAR of 0.51) of the strokes in the study population were attributable to these etiological factors. Hypertension and smoking were the most important individual factors (PARs of 0.36 and 0.16, respectively).

The researchers acknowledge that some aspects of their study may have led to an underestimation of the proportion of stroke attributable to established factors and note that their findings may not be generalizable to less affluent or more racially diverse populations than that of the Rotterdam cohort.

The authors say: "About half of all strokes are attributable to established causal and modifiable factors. This finding encourages not only intervention on established etiological factors, but also further study of less well established factors."

In a related Editorial, Druin Burch and the *PLOS Medicine* Editors discuss the implications of these findings for what needs to be done to prevent stroke. They say: "As the chief known [risk factors](#) for stroke come under control, others will necessarily become more important. Future [stroke](#) prevention strategies will need to be based on understanding ever-shifting patterns of population attributable risk."

More information: Bos MJ, Koudstaal PJ, Hofman A, Ikram MA (2014) Modifiable Etiological Factors and the Burden of Stroke from the Rotterdam Study: A Population- Based Cohort Study. *PLoS Med* 11(4): e1001634. [DOI: 10.1371/journal.pmed.1001634](https://doi.org/10.1371/journal.pmed.1001634)

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