

Questioning a South African hypertension threshold of 150 mm Hg – Authors' reply

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Questioning a South African hypertension threshold of 150 mm Hg

Authors' reply

We are grateful for the opportunity to respond to Schutte and colleagues. We agree with Schutte and colleagues that the systolic blood pressure (SBP) measurements presented in our study could contain error.¹ However, of the potential sources of measurement error they note (white-coat effects [+2.5 mm Hg], averaging measurements from two different waves [+3.8 mm Hg], and supine measurements [+3–10 mm Hg]), only the white-coat effects potentially applies to our study. Although we average measurements from 2 different years, we assign the resulting SBP to the last year of data. Therefore, any bias would result in SBP measurements that are conservative, rather than inflated by 3.5 mm Hg. SBP in the National Income Dynamics Survey² is also measured in a sitting, not supine, position; however, Schutte and colleagues correctly identified our reporting error, and we have requested a formal correction. On balance, any measurement error is likely to be much smaller than Schutte and colleagues assert and would not change our main study conclusions.

Schutte and colleagues argue that all-cause mortality is a flawed outcome because it ignores the effect of SBP control on outcomes such as stroke. Although we agree that further studies are needed to compare the effect of different SBP thresholds

with other outcomes, all-cause mortality is a fundamental outcome for assessing health interventions and is commonly used in cardiovascular intervention trials and large-scale observational studies.^{3,4} Thus, we believe that presenting evidence using all-cause mortality is important for guiding decisions on how to provide hypertension care in South Africa.

We also agree with Schutte and colleagues that clinical guidelines should not be changed based on one observational study. However, there are currently no clinical trials comparing different SBP thresholds using a South African population; therefore, there is no definitive evidence on which to base guideline decisions. Clinical trial estimates are only unbiased for their study population and could be biased when applied to different contexts,⁶ casting doubt on whether the 140/90 mm Hg threshold can be exported from other populations to South Africa. For this reason, we believe that our paper creates a valuable starting point for informing care decisions by providing one of the first studies on the longitudinal relationship between SBP and mortality in South Africa using national data. We do not share Schutte and colleagues' view that presenting such evidence is irresponsible and rather believe that it can spur thoughtful open discussion on the best policy options given the country's epidemiological profile and resources.

We declare no competing interests.

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- 1 Diallo AO, Ali MK, Geldsetzer P, et al. Systolic blood pressure and 6-year mortality in South Africa: a country-wide, population-based cohort study. *Lancet Healthy Longev* 2021; **2**: e78–86.
- 2 SALDRU, Development South Africa. *National income dynamics study: fieldwork manual wave 2008*; **1**: 58.
- 3 McNeil JJ, Nelson MR, Woods RL, et al. Effect of aspirin on all-cause mortality in the healthy elderly. *N Engl J Med* 2018; **379**: 1519–28.
- 4 Yusuf S, Joseph P, Rangarajan S, et al. Modifiable risk factors, cardiovascular disease, and mortality in 155 722 individuals from 21 high-income, middle-income, and low-income countries (PURE): a prospective cohort study. *Lancet* 2020; **395**: 795–808.
- 5 Owolabi MO, Sarfo F, Akinyemi R, et al. Dominant modifiable risk factors for stroke in Ghana and Nigeria (SIREN): a case-control study. *Lancet Glob Health* 2018; **6**: e436–46.
- 6 Dahabreh IJ, Hernán MA. Extending inferences from a randomized trial to a target population. *Eur J Epidemiol* 2019; **34**: 719–22.

