

AMBIENT TEMPERATURE OR SEASONAL VARIATIONS IN BLOOD PRESSURE: HOW IMPORTANT IS THIS IN SUB-SAHARAN AFRICA?

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Dear Editor:

Numerous studies have demonstrated the inverse association between ambient temperature and blood pressure (BP) in countries where the temperature varies considerably between seasons. This phenomenon is overlooked in blood pressure surveys in sub-Saharan Africa where most countries have two seasons, a cool rainy season and a warm-to-hot dry season. In the early 1920s, Hopman and Remen demonstrated that BP was higher in cold vs warm months.¹ Woodhouse et al also reported that BP was greatest during the winter across the whole distribution of blood pressure.² Ambient temperature has been implicated for this seasonal variation in BP in many studies.^{2,3}

Despite the extensive evidence on the ambient temperature–blood pressure relationship, not much attention has been paid to the implications it could have on routine clinical practice in sub-Saharan African countries and to the best of my knowledge very few studies have been conducted to investigate this relationship. Chifamba et al studied the effect of variation in environmental temperature on blood pressure in Zimbabwe and showed that SBP and DBP were significantly higher when recorded at 15°C than at 25°C.⁴ A recent study conducted in northern Ghana reported a significant inverse relationship between ambient temperature and blood pressure with SBP falling by 5 mm Hg per 10°C rise in ambient temperature.⁵

Cognizance of the phenomenon that there is a negative correlation between blood pressure and ambient temperature is

quite important for countries in sub-Saharan Africa. The underestimation or overestimation of blood pressure levels could especially complicate the management of high blood pressure in clinical practice.

To enhance comparability of data from epidemiological surveys, it would be useful to record ambient temperatures when doing blood pressure surveys and standardize the findings to a fixed ambient temperature such as 25°C. It would also be important to take the seasonal variation of BP into account during routine clinical practice such as the management of patients who have high BP. This phenomenon has major implications for both public health and clinical practice in sub-Saharan Africa and deserves further investigation.

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