



## Concerning the article recently published in this Journal by Aryal and colleagues entitled, “Blood pressure and hypertension in people living at high altitude in Nepal.”

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With great interest, we read the study presented by Aryal and colleagues in a current issue of this Journal [1]. The authors report higher mean values of systemic blood pressure and greater prevalence of hypertension among high-altitude populations in Nepal [1]. Derived from the use of a multivariate model, systolic blood pressure increased by 15.6 mmHg for every 1000 m gain in altitude. Although various potential confounders have been considered, the influence of temperature has not. However, it is well known that lower ambient temperature increases blood pressure due to cutaneous vasoconstriction [2, 3]. Therefore, temperature should be controlled for studies in which blood pressure is measured. We are surprised that this potentially important confounder has not been considered, despite the known decrease in temperature with increasing altitude (approximately 6.5 °C per 1000 m). Lower ambient temperature was shown to be associated with a 6.2 mmHg higher systolic blood pressure per 10 °C decrease in temperature [4]. Ambient conditions for which blood pressure values were taken are not described in more detail in the study by Aryal et al. [1]. These measurements were performed at the selected participants’ homes. Thus, depending on local conditions, such as altitude, weather, and time of day, and whether measurements were taken indoors or outdoors, a broad range of temperatures is conceivable. If the ambient temperature has been recorded, it would be of utmost interest to consider this factor in the multivariate model to evaluate its potential contribution to higher blood

pressure values at higher elevations. Such knowledge would not only reinforce the clinical relevance of temperature effects on systemic blood pressure but also enable preventive recommendations.

### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

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