

Prevalence of Hypertension in Rural Malagasy Farmers as Defined by AHA and WHO: A Comparative Analysis

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OBJECTIVES

This project aims to investigate hypertension in rural farmers in Madagascar and to compare the burden of disease between two differing diagnostic standards of hypertension: the American Heart Association (AHA) standard and the World Health Organization (WHO) definition of hypertension. It further aims to explore the implications of using these standards in low-resource settings and to explore potential relationships between high blood pressure (BP), and indicators of health, such as salt intake, sleep, stress, and BMI.

In 2017, the AHA, along with the American College of Cardiology, published a new evidence-supported guideline for diagnosis, prevention, treatment, and management of hypertension. The new guideline established a new cutoff (130/80mmHg) for hypertensive BP readings based on research that showed decreases in cardiac events when high BP was managed at the new cutoff.

The WHO definition and treatment standard for hypertension is the long-standing and globally accepted standard of care. Hypertension is defined as greater than or equal to 140/90mmHg.

Alin Taking Blood Pressure Reading (consent given)



METHODOLOGY



Household Salt Measured in Grams

Over 1,200 individual social surveys were performed in three villages in Madagascar over the course of eight field seasons, obtaining health information including basic demographics and vitals signs. Three BP readings were taken, and, in each case, the participant was in a sitting position and the reading was performed by a healthcare worker. BP readings were categorized as either “normal,” or “hypertensive” based on the two diagnostic standards:

The AHA standard: Hypertension = a systolic \geq 130mmHg and/or a diastolic \geq 80mmHg. Normal is below 130/80.

The WHO definition: Hypertension = a systolic \geq 140mmHg and/or a diastolic \geq 90mmHg. Normal is below 140/90.

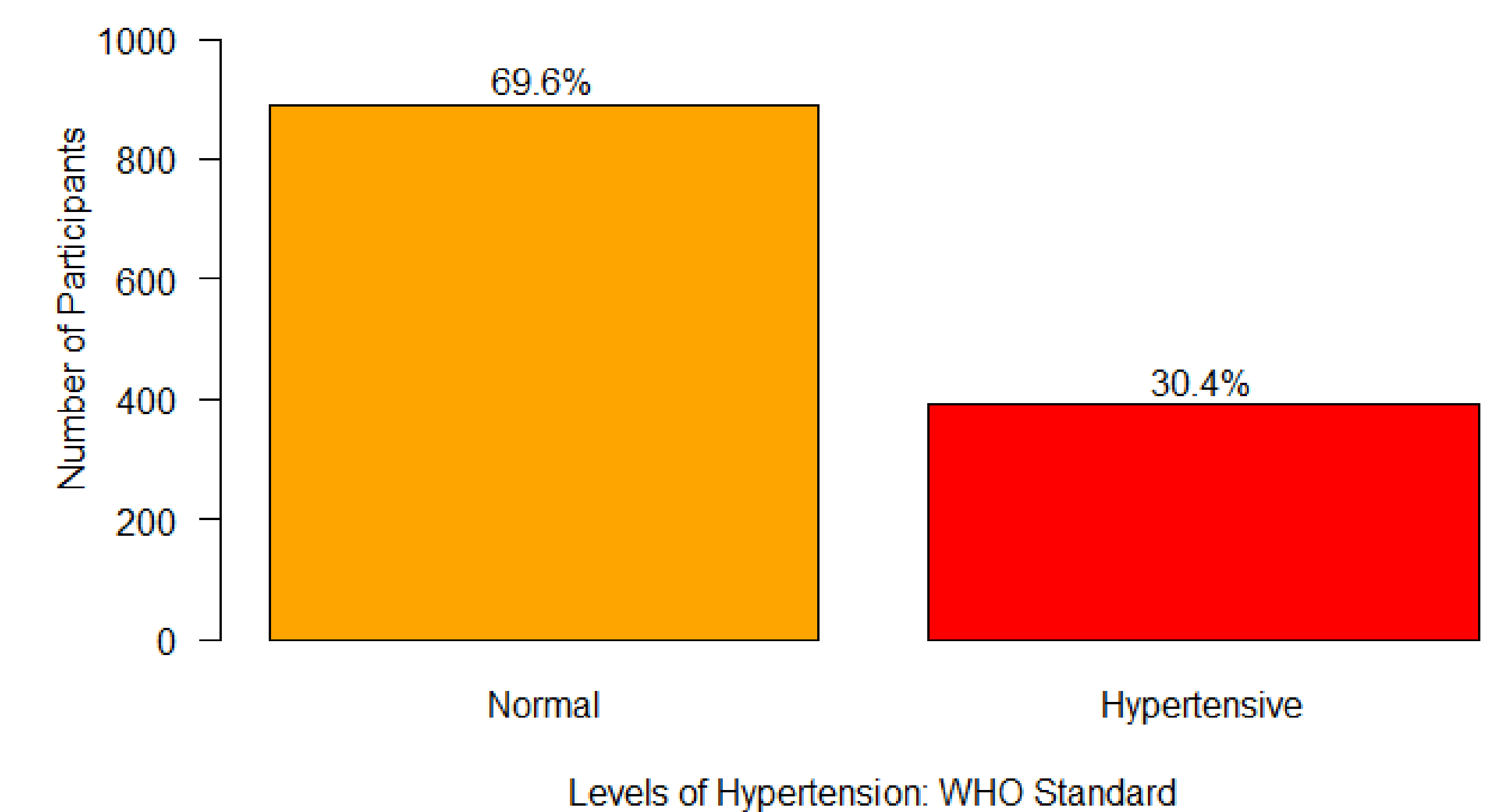
To determine potential indicators, during one field season household salt was measured for 94 participants. Follow-up salt measurements were taken seven days after the initial measurement. The difference between the two measurements will be used to determine household consumption.

An additional 30-minute survey was taken with a subset of 49 participants, asking questions about sleep patterns and stress.

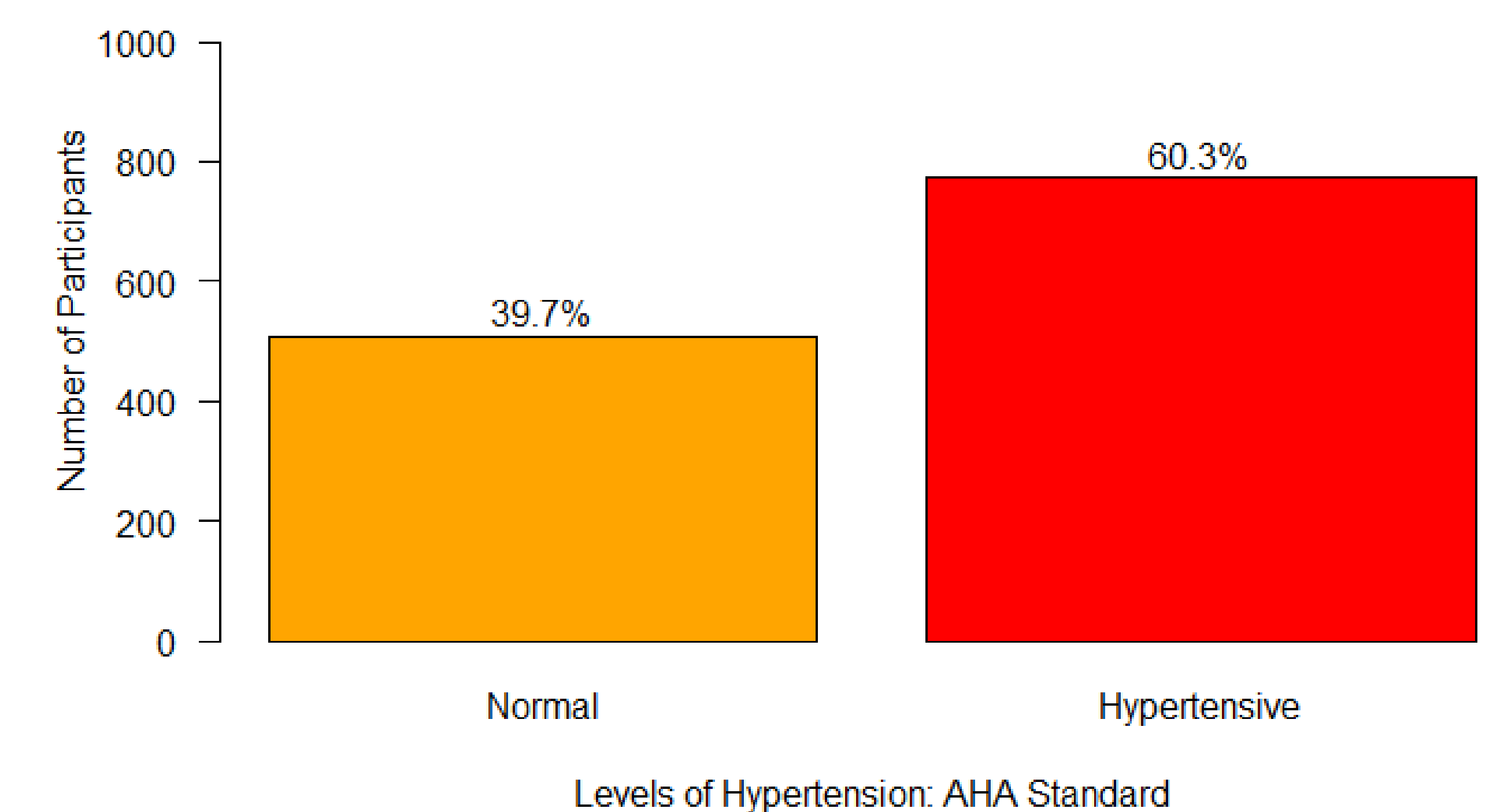
INITIAL FINDINGS

Initial comparison between the AHA standard and WHO definition shows that as the standard switches from the WHO to the AHA, the prevalence of hypertension in the population increases from 30% to 60%, doubling the prevalence of hypertension.

Hypertension Prevalence in 3 Villages in Madagascar



Hypertension Prevalence in 3 Villages in Madagascar



Further analysis will be done to explore the burden of disease and implications of these standards in low-resource settings. Measurements of the level of association between high BP readings and possible predictors will also be performed.

References
 AHA: <https://www.heart.org/en/health-topics/high-blood-pressure>
 WHO: <https://www.who.int/news-room/fact-sheets/detail/hypertension>