

Kamarck, T.W., Polk, D.E., Sutton-Tyrrell, K. & Muldoon, M.F. (2002).
The incremental value of ambulatory BP persists after controlling for methodological
confounds: Associations with carotid atherosclerosis in a healthy sample.
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Objective. Ambulatory blood pressure (BP) assessments have been shown to be associated with subclinical and clinical endpoints even after controlling for the effects of clinic BP. No studies have examined the incremental validity of ambulatory over clinic pressures, however, when equivalent time periods, equivalent numbers of observations, and comparable measurement instruments are used across both settings.

Design, Methods. In this cross sectional study of 216 healthy, community volunteers (ages 50-70), we compared three types of assessments in terms of their association with carotid artery atherosclerosis: a) manual clinic BP (2 readings, 10 min interval), b) automated clinic BP (4 readings, 2-1/2 hour interval), and c) automated ambulatory BP (4 readings, 2-1/2 hour interval) using the same type of automated device for conditions b and c. These measurements were obtained during the morning hours on 3 separate occasions. Carotid intima-medial thickness (IMT) and plaque were assessed, by ultrasound, as markers of atherosclerosis.

Results. Higher ambulatory systolic and diastolic BP were associated with increased IMT and an increased prevalence of plaque (odds ratios > 3.0), even after statistical adjustment for clinic BP assessments and demographic covariates.

Conclusions. We conclude that the independent utility of ambulatory over clinic BP cannot be attributed to methodological issues that have traditionally confounded these comparisons. These findings highlight the potential importance of behavioral and lifestyle factors in contributing to the incremental value of ambulatory BP.