

Evaluation of lifestyle scores in relation to blood pressure in young and older adults of the airwave health monitoring study of British police force employees

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Adhering to a combination of healthy lifestyle behaviours instead of exclusively focusing on a single behaviour may have a greater impact on blood pressure (BP)⁽¹⁾. Risk factors included in previous studies were limited to either young adults or only a few risk factors at a time and do not capture the multitude of other lifestyle factors that may further lower the risk of hypertension⁽²⁾. In light of this, to promote targeted interventions, we aimed to evaluate lifestyle scores in relation to BP, and to understand the impact of these scores on BP in different age groups.

The Airwave Health Monitoring Study is a large-scale cohort of 40,462 British police force staff (>18 y) collected between 2007–2012. Uniquely, this cohort allows for the consideration of job strain and working patterns specific to the police force, which could impact the achievement and maintenance of a healthy lifestyle. Cross-sectional data were analyzed to calculate a basic lifestyle score including waist circumference, smoking and serum cholesterol in which participants were stratified into three mutually exclusive categories of lifestyle scores: poor (0–3 points), intermediate (4 points), and ideal (5–6 points). Individual/combined scores of other lifestyle factors (sleep duration, physical activity, alcohol intake, and diet quality) were also calculated (ranged 0–14 points). Analyses including diet quality were performed in a subset only (n = 8,546). Multivariable regression analysis was used to estimate BP associations in young (≤ 30 y) and older (>50 y) adults.

A 1-point higher basic lifestyle score was associated with a lower systolic BP (SBP) [SBP; -2.05 (95% CI: -2.15, -1.95)] and diastolic BP (DBP) [DBP; -1.98 (95% CI: -2.05, -1.91)] mmHg. SBP/DBP differences were -3.63/-3.53 mmHg ($p < 0.0001$) for 1-point higher waist circumference score, -0.07/-0.23 mmHg ($p = 0.20 < 0.001$) for smoking score, and -2.59/-2.36 mmHg ($p < 0.0001$) for cholesterol score. Combined scores of other factors showed attenuated but significant associations with addition of sleep, physical activity, and diet quality to the basic lifestyle score, however, alcohol intake did not further attenuate results. Lifestyle factors included in the basic lifestyle score showed a stronger association in the relation with BP among older (>50 y) [SBP -2.34 (95% CI: -2.70, -1.98); DBP -1.72 (95% CI: -1.93, -1.52)] mmHg compared to younger adults (≤ 30 y) [SBP -1.58 (95% CI: -1.80, -1.36); DBP -1.69 (95% CI: -1.86, -1.52)] mmHg.

Modifiable intermediary factors (waist circumference and cholesterol levels) have a stronger contribution to BP than others, and the factors that may directly influence them, including diet, physical activity and sleep. In young adults, <30 years of age, lifestyle scores were related to lower BP, supporting findings that healthy behaviors may favorably impact BP even at early an age.

Acknowledgments

This research was conducted using the Airwave Study Tissue Bank Resource. We thank the dietary coders who contributed to the generation of the dietary data.

References

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