



Sex-Specific Blood Pressure Cutoffs

Associated with Cardiovascular Events:

A Real-World Cohort Study of 1,931,155 Chinese Individuals

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Introduction

- Cardiovascular disease (CVD) is the leading cause of death.
- Elevated systolic blood pressure (SBP) is the main modifiable risk factor and is more closely linked to CVD in women than in men.
- In Western populations, CVD occurs at lower SBP levels in women, suggesting a lower diagnostic and treatment cutoffs.
- However, sex-specific differences in other population such as Chinese have not been reported.
- This study aims to explore the association between blood pressure (BP) and CVD in a general Chinese population using data from the Hong Kong Hospital Authority.

Methods



Study design:
cohort study



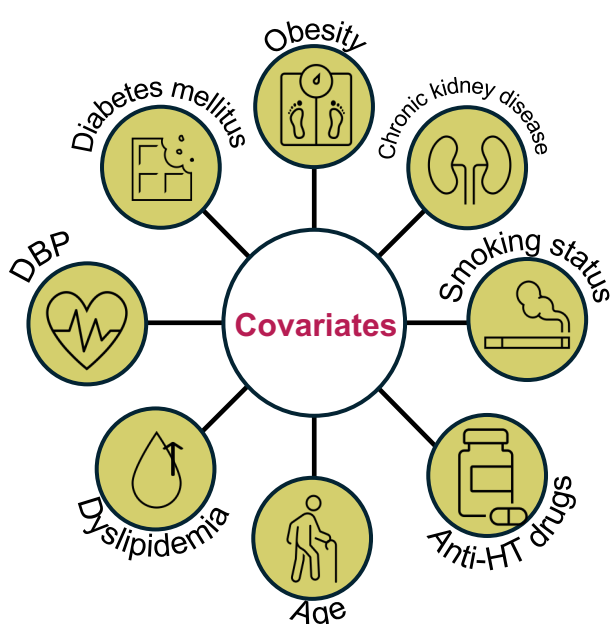
Eligibility criteria:
adults who had completed and non-extreme SBP and diastolic blood pressure (DBP), without history of CVD



Exposure: SBP
SBP levels were categorized into <110, 110-120, 120-130, 130-140, 140-150, 150-160, >160 mmHg

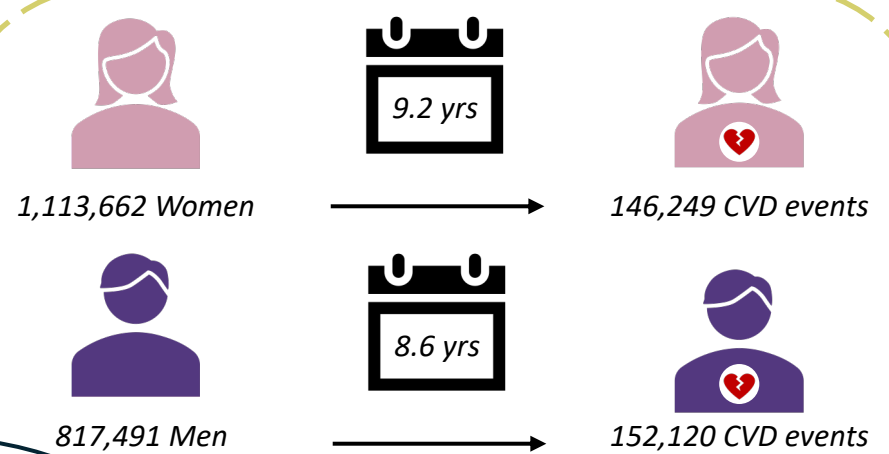


Primary outcome:
a composite cardiovascular event consisting of cardiovascular mortality combined with nonfatal coronary events, heart failure and stroke.



Statistical analysis:
Sex-stratified accelerated failure time models were used, incorporating SBP categories and adjusting for previously described covariates.

Results



Baseline Characteristics (women vs men):

Mean age (yrs): 54 vs 56, $p < 0.001$

SBP/DBP (mmHg):

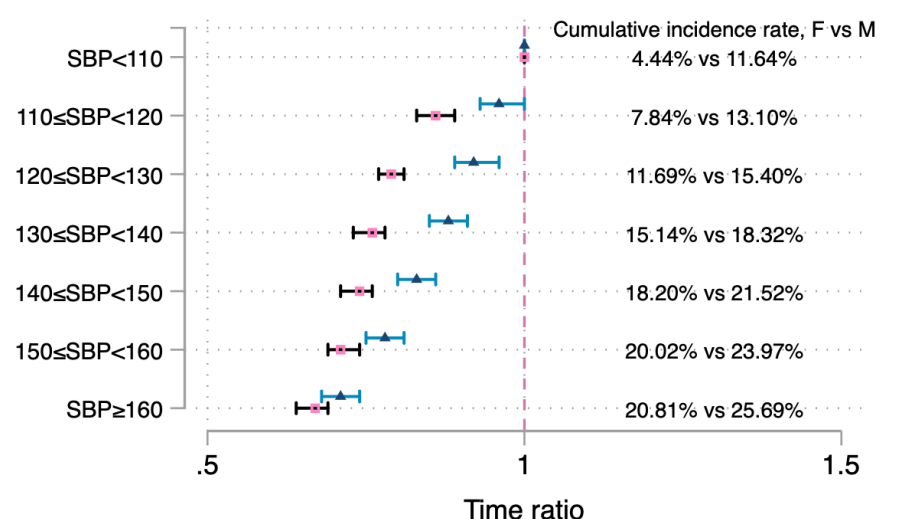
131/75 vs 136/80, $p < 0.001$

Diabetes: 12% vs 16%, $p < 0.001$

Antihypertensive drug use:

54% vs 64%, $p < 0.001$

Association between SBP levels and CVD Stratified by sex



➤ **Key finding 1:** CVD risk rises steeply starting at a lower SBP level in Chinese women (110-119 mmHg)

➤ **Key finding 2:** the magnitude of time ratio observed in women (TR: 0.86 [0.84-0.89]) with SBP 110-119 was comparable to that observed in men with SBP 130-139 (TR: 0.87 [0.84-0.90]).

Conclusion

- Chinese women experienced increased CVD risks at lower SBP levels.
- CVD risk associated with SBP of 130-140mmHg in men is comparable to that of an SBP of 110-120mmHg in women
- Our findings suggested a lower diagnostic and treatment thresholds for women.
- Our findings were comparable to Western studies and require further investigation