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FOOD DETERMINANTS OF BLOOD PRESSURE IN ADULT CHINESE: FOOD INDICES. THE MELBOURNE CHINESE HEALTH STUDY

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High blood pressure is one of the major risk factors for the development of cardiovascular disease. Studies which examine blood pressure and dietary intake relationships have so far focused mainly on dietary nutrients. Food intake can be expressed in individual foods or food indices in the study of food-health relationships. We present here two food indices as determinants of blood pressure in an adult Chinese population living in Melbourne.

Five hundred and forty seven ethnic Chinese, aged 25 and over, entered the Melbourne Chinese Health Study (a cross-sectional study of dietary factors and cardiovascular risk) in 1988-89. A food frequency questionnaire comprising 220 Australian and Chinese type foods was administered to establish the intake pattern. The *food acculturation index* was the difference between quantitative food intake indices for Chinese foods and Australian foods. The *food variety score* was the percentage of foods (220 items) ever consumed in the past 12 months. Blood pressure was measure twice using a random zero machine. 254 men and 249 women who were not being treated for hypertension are included in this report. Mean age was 43.8 yrs (sd=11.9) for men and 40.8 yrs (sd=11.8) for women. Mean SBP was 115.5 mmHg (sd=16.4) for men and 110.9 mmHg (sd=18.9) for women and mean DBP was 72.6 mmHg (sd=9.8) for men and 66.3 mmHg (sd=9.9) for women. The Generalized Linear model was used to test if the food acculturation index or food variety score predicts blood pressure in a multivariate model. Age, body mass index, and education level were treated as confounders and included in the analysis. Regression coefficients and significance level are shown in table.

	SBP (mmHg)				DBP (mmHg)			
	Men		Women		Men		Women	
	b	p	b	p	b	p	b	p
Age (yr)	1.60	****	0.70	NS	0.15	**	0.25	****
BMI (Kg/M^2)	0.80	**	-1.54	NS	0.91	****	0.55	**
Age*BMI	2.03	**	-0.049	*				
ED			1.34	NS	1.75	**	1.23	NS
CHAU			-11.99	***			-5.51	**
ED*CHAU			3.35	****			1.53	**
FVS	0.66	**	0.61	*				
Age*FVS	-0.019	***	-0.019	**				

Age*BMI, interaction between age and BMI; ED, education level (2='0-6 yrs', 3='7-9 yrs', 4='10-12 yrs', 5='13 + yrs'); CHAU, food acculturation (0 mean & unit variance); ED*CHAU, interaction between education level and food acculturation index; FVS, food variety score (0 mean & unit variance); age*FVS, interaction between age and food variety score. NS, P >= 0.05; *, P < 0.05; **, P < 0.01; ***, P < 0.001; ****, P < 0.0001.

We found that at univariate level food variety was protective of both systolic and diastolic blood pressure. However, the effect of food variety was significant only in relation to systolic blood pressure for men and women, when adjusted for age, BMI, and education. In addition, we estimated that Chinese men (>= 35 yrs) and women (>= 30 yrs) benefitted from an unit increase in food variety by reducing 2 mmHg of SBP per decade. The degree of food acculturation had a singnificant impact on women, but no on men. For women, the adverse effect of food acculturation on systolic and diastolic blood pressure operated through education. More educated women (greater than 10 years of schooling) were less likely to be affected if maintaining a traditional diet.

The complexity of food intake has been a major limitation for the exploration of food-health relationships. However, the use of food indices such as food variety and acculturation index has helped to characterise the scope of food intake and the direction of food selection in relation to blood pressure in Melbourne Chinese.

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