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## SECTION 8

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# Anthropometry, Development History and Mortality in the Japan Collaborative Cohort Study for Evaluation of Cancer (JACC)

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### Abstract

A number of characteristics, including body mass index (BMI), blood pressure and childhood location and educational attainment were compared for their effects on mortality in the Japan Collaborative Cohort Study (JACC Study). The lowest body mass index was associated with a higher risk of death overall in both sexes, but the highest body mass index was also associated with a rise in risk in females. A low BMI was also linked with certain cancers, for example in the lung and oesophagus. A higher body mass index was associated with a higher risk of death due to ischemic heart disease. High blood pressure was also adversely linked to mortality, especially from ischemic heart and cerebrovascular diseases. The childhood environment also appeared to play a role, living in a city being associated with higher risk of mortality overall and from cancer. A high educational level was found to decrease the risk of total death and of cancer, particularly the lung and liver.

**Keywords:** Body mass index - blood pressure - childhood - education - mortality - cancer - circulatory disease

*Asian Pacific J Cancer Prev*, 8, JACC Supplement, 105-112

### Introduction

The JACC study surveyed some information about anthropometry and development history including educational background, childhood living history, and body height and weight. This section intended to examine the association between development history and wide range of health outcomes.

### Materials and Methods

Information was obtained about anthropometry and development history including educational background, childhood living history, and body height and weight. The sex-specific age adjusted hazard ratios and 95% confidence intervals were calculated by the Cox proportional hazard model.

### Results

#### *Body mass index*

Body mass index was calculated by dividing body weight (kg) by body height (m<sup>2</sup>). In the present study, subjects with the lowest body mass index had a higher mortality among both sexes (HR=1.46 in males, and HR=1.60 in females), while female with the highest body

mass index also showed a higher mortality (HR=1.50). The increased risks were observed among the subjects with the lowest category of body mass index for esophageal cancer in both sexes (HR=1.98 in males and HR=4.08 in females), stomach cancer (HR=1.44 in females) and cervical cancer (HR=2.45 in females), compared with the subjects with the second lowest category group of body mass index. For lung cancer, the increasing risks were shown as body mass index decreased in males (HR=0.38 in the highest category group, and HR=1.35 in the lowest category group). Of particular note, the risks for myeloid leukemia were substantially increased in the highest category of body mass index in both sexes (HR=7.55 in males and HR=4.66 in females). A higher body mass index was associated with a higher risk of death due to ischemic heart disease in both sexes (HR=2.27 and HR=1.52, 95% CI: 1.24, 1.85, in the first and second highest category groups for males, and HR=2.56 in the highest category group for females). However, the increased risks of death due to cerebrovascular disease were seen among the subjects with the lowest category of body mass index in both sexes (HR=1.34 in males and HR=1.77 in females).

#### *Blood pressure*

Positive associations between blood pressure and

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**Table 1. Age-adjusted Hazard Ratios\* and 95% Confidence Intervals(95% CI) According to Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Males**

	Person years		All causes		All cancers		Esophageal cancer		Stomach cancer		Colon cancer		Rectal cancer		Liver cancer		
	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	
Height (cm)																	
<160	139,480	3,330	1.00	1,192	1.00	37	1.00	247	1.00	69	1.00	47	1.00	128	1.00		
160-164	176,615	3,015	0.98 (0.93, 1.03)	1,198	1.04 (0.96, 1.13)	55	1.45 (0.95, 2.21)*	211	0.91 (0.75, 1.10)	59	0.84 (0.59, 1.20)	54	1.12 (0.75, 1.67)	145	1.03 (0.81, 1.32)		
165<=	233,489	3,090	1.05 (0.99, 1.10)*	1,273	1.11 (1.02, 1.20)*	54	1.34 (0.86, 2.08)	267	1.18 (0.98, 1.41)	80	1.13 (0.80, 1.58)	56	1.12 (0.74, 1.68)	164	1.07 (0.84, 1.37)		
Weight (kg)																	
<55	1,056	3,853	1.00	1,334	1.00	59	1.00	280	1.00	57	1.00	49	1.00	149	1.00		
55-62	202,818	3,362	0.86 (0.82, 0.90)**	1,378	0.96 (0.89, 1.04)	56	0.76 (0.52, 1.11)	260	0.88 (0.74, 1.04)	83	1.33 (0.94, 1.88)*	69	1.21 (0.83, 1.76)	152	0.86 (0.68, 1.08)		
63<=	211,498	2,440	0.81 (0.77, 0.86)**	1,021	0.88 (0.81, 0.96)**	33	0.50 (0.32, 0.78)**	198	0.83 (0.69, 1.01)*	66	1.32 (0.91, 1.91)	42	0.85 (0.55, 1.31)	149	0.93 (0.73, 1.19)		
Weight at age 20 (kg)																	
<55	233,591	4,443	1.00	1,622	1.00	51	1.00	339	1.00	73	1.00	61	1.00	232	1.00		
55-60	168,865	2,842	0.98 (0.92, 1.03)	1,152	1.16 (1.05, 1.27)**	47	1.37 (0.82, 2.30)	210	1.04 (0.84, 1.30)	74	1.91 (1.23, 2.97)**	48	1.42 (0.85, 2.36)	121	1.04 (0.78, 1.38)		
61<=	137,905	1,995	1.02 (0.96, 1.08)	822	1.22 (1.10, 1.36)**	45	1.92 (1.14, 3.23)*	157	1.17 (0.93, 1.48)	50	1.77 (1.10, 2.84)*	45	1.82 (1.08, 3.07)*	84	1.06 (0.77, 1.45)		
BMI(kg/m2)																	
<18.5	26,247	1,005	1.46 (1.37, 1.56)**	300	1.15 (1.02, 1.30)*	17	1.98 (1.18, 3.33)**	54	1.00 (0.75, 1.32)	12	0.86 (0.48, 1.57)	6	0.57 (0.25, 1.30)	36	1.34 (0.94, 1.90)*		
18.5-24	417,705	6,996	1.00	2,834	1.00	117	1.00	569	1.00	155	1.00	128	1.00	323	1.00		
25-29	97,094	1,281	0.93 (0.88, 0.99)*	473	0.82 (0.74, 0.91)**	11	0.43 (0.23, 0.80)**	89	0.78 (0.62, 0.97)*	36	1.14 (0.79, 1.65)	21	0.78 (0.49, 1.24)	72	1.01 (0.78, 1.30)		
30<=	5,974	86	1.07 (0.87, 1.33)	32	0.95 (0.67, 1.35)	1	0.64 (0.09, 4.63)	7	1.04 (0.49, 2.20)	1	0.54 (0.07, 3.90)	2	1.27 (0.31, 5.17)	6	1.46 (0.65, 3.28)		
Blood pressure (mmHg)(SDP/DBP)																	
(>=180/>=100)	16,982	364	1.47 (1.31, 1.65)**	110	1.03 (0.84, 1.27)	4	1.27 (0.43, 3.73)	21	1.11 (0.69, 1.78)	4	0.69 (0.24, 1.96)	11	2.88 (1.39, 5.95)**	12	1.07 (0.57, 2.00)		
(160-179/95-99)	26,743	661	1.26 (1.15, 1.39)**	210	1.01 (0.86, 1.18)	9	1.55 (0.70, 3.41)	44	1.16 (0.81, 1.65)	12	1.07 (0.54, 2.10)	14	1.96 (1.00, 3.86)*	25	1.23 (0.76, 1.98)		
(140-159/90-94)	111,154	2,268	1.12 (1.05, 1.20)**	822	1.03 (0.92, 1.14)	40	1.61 (0.94, 2.75)*	171	1.15 (0.90, 1.48)	57	1.27 (0.81, 1.99)	27	0.91 (0.51, 1.60)	89	1.20 (0.85, 1.68)		
(135-139/85-89)	81,786	1,305	1.05 (0.97, 1.13)	558	1.09 (0.97, 1.22)	22	1.23 (0.67, 2.24)	90	0.93 (0.70, 1.24)	29	1.03 (0.62, 1.71)	23	1.17 (0.65, 2.11)	52	1.12 (0.76, 1.63)		
(100-134.<85)	111,612	1,325	1.00	579	1.00	21	1.00	109	1.00	31	1.00	23	1.00	57	1.00		
SBP <100	148,079	3,014	0.89 (0.77, 1.04)	1,151	0.67 (0.51, 0.88)**	37	1.17 (0.24, 5.61)	227	0.21 (0.07, 0.58)**	56	NA	48	NA	91	0.96 (0.44, 2.08)		
Childhood living area(1)																	
city >=50,000	62,353	1,085	1.22 (1.14, 1.31)**	421	1.22 (1.09, 1.36)**	16	1.28 (0.72, 2.26)	73	1.07 (0.82, 1.39)	31	1.51 (0.98, 2.31)*	24	1.84 (1.13, 2.99)*	54	1.37 (0.98, 1.90)*		
city <50,000	24,871	330	1.11 (0.99, 1.24)*	125	1.02 (0.85, 1.23)	8	1.81 (0.85, 3.85)	15	0.62 (0.37, 1.06)*	9	1.20 (0.60, 2.41)	7	1.34 (0.60, 2.96)	24	1.66 (1.07, 2.57)*		
village	332,293	5,676	1.00	2,161	1.00	86	1.00	435	1.00	114	1.00	87	1.00	204	1.00		
others	19,383	438	1.25 (1.13, 1.38)**	158	1.24 (1.05, 1.47)**	8	1.78 (0.85, 3.72)	27	1.03 (0.69, 1.54)	5	0.66 (0.26, 1.63)	5	0.95 (0.38, 2.38)	21	1.56 (0.98, 2.47)*		
Childhood living area(2)																	
residential	37,081	578	1.00	230	1.00	5	1.00	43	1.00	13	1.00	17	1.00	33	1.00		
commercial/industrial	9,701	204	1.04 (0.89, 1.23)	78	1.06 (0.82, 1.38)	4	2.78 (0.74, 10.5)	12	0.83 (0.43, 1.58)	7	1.60 (0.62, 4.12)	3	0.56 (0.16, 1.93)	6	0.63 (0.26, 1.51)		
others	15,570	303	1.07 (0.93, 1.24)	113	1.04 (0.82, 1.31)	7	2.65 (0.79, 8.80)	18	0.91 (0.51, 1.60)	11	2.27 (0.99, 5.20)*	4	0.49 (0.16, 1.51)	15	1.09 (0.58, 2.03)		
Educational background																	
<=15	282,372	5,861	1.00	2,234	1.00	87	1.00	448	1.00	115	1.00	97	1.00	290	1.00		
16-18	188,814	2,516	0.88 (0.84, 0.93)**	1,006	0.91 (0.83, 0.99)*	46	0.94 (0.62, 1.44)	195	0.92 (0.75, 1.12)	54	0.94 (0.64, 1.39)	43	0.78 (0.51, 1.19)	115	0.89 (0.68, 1.17)		
19<=	70,430	1,093	0.87 (0.81, 0.94)**	417	0.88 (0.79, 0.99)*	14	0.74 (0.40, 1.37)	73	0.83 (0.63, 1.09)	35	1.40 (0.91, 2.18)	17	0.78 (0.44, 1.37)	33	0.59 (0.40, 0.88)*		

\*Adjusted for age and area of study. \*\* p<0.01; \* p<0.05; + p<0.10 NA: not applicable

**Table 1. Continued. Age-adjusted Hazard Ratios and 95% Confidence Intervals(95% CI) According to Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Males**

	Person -years	Gall bladder cancer		Pancreas cancer		Lung cancer		Prostate cancer	
		No	HR(95% CI)	No	HR(95% CI)	No	HR(95% CI)	No	HR(95% CI)
<b>Height (cm)</b>									
<160	139,480	30	1.00	54	1.00	290	1.00	68	1.00
160-164	176,615	25	0.90 (0.53, 1.56)	81	1.59 (1.12, 2.26)**	291	1.08 (0.91, 1.27)	48	0.84 (0.58, 1.22)
165<=	233,489	12	0.46 (0.23, 0.92)*	75	1.51 (1.05, 2.17)*	272	1.04 (0.87, 1.23)	42	0.84 (0.56, 1.25)
<b>Weight (kg)</b>									
<55	1,056	29	1.00	74	1.00	345	1.00	64	1.00
55-62	202,818	22	0.75 (0.43, 1.33)	70	0.91 (0.65, 1.27)	325	0.90 (0.77, 1.05)	57	0.97 (0.68, 1.40)
63<=	211,498	16	0.74 (0.39, 1.40)	68	1.14 (0.80, 1.61)	208	0.73 (0.61, 0.88)**	39	0.98 (0.65, 1.49)
<b>Weight at age 20 (kg)</b>									
<55	233,591	31	1.00	91	1.00	368	1.00	76	1.00
55-60	168,865	23	1.79 (0.83, 3.86)	60	0.96 (0.65, 1.43)	291	1.13 (0.94, 1.37)	54	1.27 (0.82, 1.97)
61<=	137,905	11	1.31 (0.54, 3.17)	54	1.27 (0.85, 1.91)	181	1.09 (0.88, 1.34)	28	0.98 (0.59, 1.63)
<b>BMI(kg/m2)</b>									
<18.5	26,247	6	1.18 (0.50, 2.79)	18	1.22 (0.74, 2.01)	85	1.35 (1.07, 1.70)**	17	1.39 (0.83, 2.34)
18.5-24	417,705	51	1.00	157	1.00	672	1.00	107	1.00
25-29	97,094	7	0.70 (0.32, 1.56)	32	1.02 (0.70, 1.50)	89	0.66 (0.53, 0.82)**	31	1.56 (1.04, 2.34)*
30<=	5,974	2	3.47 (0.84, 14.35)+	1	0.54 (0.07, 3.88)	3	0.38 (0.12, 1.18)+	1	0.87 (0.12, 6.29)
<b>Blood pressure (mmHg)(SDP/DBP)</b>									
(≥180/≥100)	16,982	4	3.08 (0.89, 10.66)+	4	0.84 (0.29, 2.42)	21	0.69 (0.43, 1.09)	7	1.60 (0.68, 3.77)
(160-179/95-99)	26,743	2	0.72 (0.15, 3.53)	9	0.94 (0.43, 2.03)	39	0.66 (0.46, 0.94)*	13	1.23 (0.61, 2.47)
(140-159/90-94)	111,154	18	1.73 (0.71, 4.18)	46	1.28 (0.78, 2.10)	181	0.83 (0.66, 1.03)+	30	0.75 (0.43, 1.31)
(135-139/85-89)	81,786	10	1.49 (0.56, 3.93)	49	2.20 (1.35, 3.57)**	145	1.02 (0.81, 1.29)	23	1.01 (0.56, 1.83)
(100-134.<85)	111,612	7	1.00	25	1.00	159	1.00	22	1.00
SBP <100	148,079	24	NA	66	1.28 (0.50, 3.22)	247	0.82 (0.51, 1.31)	57	1.01 (0.31, 3.30)
<b>Childhood living area(1)</b>									
cities >50,000	62,353	4	0.70 (0.24, 2.05)	23	1.24 (0.77, 1.99)	93	1.20 (0.95, 1.52)	20	1.20 (0.72, 2.00)
cities <50,000	24,871	0	NA	7	1.10 (0.50, 2.41)	25	0.89 (0.59, 1.34)	4	0.72 (0.26, 1.98)
villages	332,293	40	1.00	125	1.00	524	1.00	94	1.00
others	19,383	5	2.18 (0.84, 5.66)	13	1.66 (0.93, 2.98)+	43	1.53 (1.11, 2.10)**	8	1.19 (0.57, 2.49)
<b>Childhood living area(2)</b>									
residential area	37,081	2	1.00	13	1.00	48	1.00	12	1.00
commercial industrial	9,701	2	2.19 (0.27, 17.57)	2	0.46 (0.10, 2.08)	21	1.41 (0.83, 2.37)	5	0.95 (0.32, 2.82)
others	15,570	0	NA	8	1.00 (0.40, 2.52)	24	0.97 (0.57, 1.64)	3	0.68 (0.19, 2.44)
<b>Educational background</b>									
≤15	282,372	51	1.00	119	1.00	532	1.00	101	1.00
16-18	188,814	10	0.45 (0.21, 0.96)*	69	1.29 (0.90, 1.85)	235	0.84 (0.71, 1.01)+	38	0.87 (0.56, 1.34)
19<=	70,430	7	0.74 (0.31, 1.74)	21	0.90 (0.54, 1.51)	89	0.73 (0.58, 0.93)*	18	0.88 (0.50, 1.50)

\*\* p<0.01; \* p<0.05; +p<0.10 NA: not applicable

mortality were observed among both sexes. The HRs of the subjects with blood pressure of  $\geq 180/100$  mmHg were 1.47 in males and 1.67 in females, compared with those with blood pressure of less than 135/85 mmHg. This trend was mainly derived from the association between blood pressure, ischemic heart disease and cerebrovascular diseases. When compared with the subjects with blood pressure of less than 135/85 mmHg, the HRs for the subjects with a blood pressure of  $\geq 180/110$  mmHg were 2.29 in males and 3.22 in females for death due to ischemic heart disease, and 2.75 in males and 2.91 in females for death due to cerebrovascular diseases, marked effects.

#### Childhood living area

People who lived in large cities where population is more than 500,000 in their childhood had a higher risk of mortality in both sexes (HR=1.22 in males and HR=1.09 in females) when compared those who lived in local areas such as agricultural villages, fishing villages, or mountain

villages in their childhood. In addition, the risks of death due to cancers are also higher in people who lived in large cities in their childhood (HR=1.22 in males and HR=1.13 in females). In particular, cancers in rectum, liver, gallbladder are associated with a childhood residential area among either males or females or both sexes. Furthermore, men who lived in large cities in their childhood showed a higher risk of death due to ischemic heart disease (HR=1.37).

#### Educational background

In the present analyses, people with higher educational level had a decreased risk of total death in both sexes (HR=0.87 and HR=0.77 in males and females, respectively), and also men with a higher educational level had a decreased risk of death due to cancers (HR=0.88). The same trend was also seen for liver cancer and lung cancer in men. In addition, the risk of cerebrovascular diseases was also lower in the high education group (HRs=0.76 and 0.64, respectively).

**Table 1. Continued. Age-adjusted Hazard Ratios\* and 95% Confidence Intervals(95% CI) According to Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Males**

	Person years	Kidney Cancer		Urothelial cancer		Non-Hodgkin's		Multiple myeloma		Myeloid leukemia		Ischemic heart disease		Cerebrovascular	
		No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)
Height (cm)															
<160	139,480	15	1.00	27	1.00	23	1.00	12	1.00	12	1.00	224	1.00	467	1.00
160-164	176,615	12	0.72 (0.33, 1.56)	26	1.11 (0.64, 1.91)	27	1.17 (0.67, 2.07)	19	1.49 (0.72, 3.12)	13	0.97 (0.44, 2.16)	181	0.88 (0.72, 1.07)	386	0.94 (0.82, 1.08)
165<=	233,489	15	0.83 (0.39, 1.76)	29	1.33 (0.77, 2.30)	33	1.42 (0.81, 2.49)	13	0.98 (0.43, 2.22)	19	1.22 (0.56, 2.63)	211	1.07 (0.88, 1.30)	360	0.96 (0.83, 1.10)
Weight (kg)															
<55	1,056	14	1.00	28	1.00	23	1.00	12	1.00	10	1.00	220	1.00	522	1.00
55-62	202,818	12	0.79 (0.36, 1.73)	37	1.38 (0.83, 2.27)	42	1.71 (1.02, 2.87)*	20	1.51 (0.73, 3.11)	18	1.50 (0.68, 3.29)	211	0.97 (0.80, 1.17)	417	0.82 (0.72, 0.93)**
63<=	211,498	17	1.40 (0.66, 2.95)	20	1.01 (0.56, 1.84)	19	0.96 (0.51, 1.82)	15	1.41 (0.64, 3.12)	16	1.49 (0.65, 3.40)	204	1.24 (1.02, 1.52)*	296	0.81 (0.70, 0.94)**
Weight at age 20 (kg)															
<55	233,591	19	1.00	36	1.00	43	1.00	25	1.00	20	1.00	277	1.00	570	1.00
55-60	168,865	11	0.85 (0.36, 2.00)	30	1.91 (0.98, 3.71)*	20	0.77 (0.41, 1.46)	12	0.91 (0.38, 2.14)	14	0.90 (0.40, 2.01)	190	1.07 (0.85, 1.34)	365	0.89 (0.76, 1.04)
61<=	137,905	11	1.20 (0.50, 2.84)	16	1.60 (0.76, 3.39)	19	1.08 (0.56, 2.07)	10	0.98 (0.40, 2.42)	9	0.78 (0.31, 1.93)	145	1.22 (0.96, 1.56)*	242	0.87 (0.73, 1.04)
BMI(kg/m <sup>2</sup> )															
<18.5	26,247	1	0.32 (0.04, 2.41)	6	0.86 (0.37, 2.01)	4	0.62 (0.22, 1.72)	3	0.96 (0.29, 3.16)	1	0.37 (0.05, 2.75)	45	1.01 (0.74, 1.38)	124	1.34 (1.11, 1.63)**
18.5-24	417,705	32	1.00	67	1.00	70	1.00	36	1.00	33	1.00	431	1.00	894	1.00
25-29	97,094	7	1.13 (0.49, 2.57)	8	0.62 (0.29, 1.30)	8	0.58 (0.28, 1.21)	5	0.70 (0.27, 1.80)	7	1.03 (0.45, 2.35)	127	1.52 (1.24, 1.85)**	172	1.02 (0.86, 1.20)
30<=	5,974	1	2.89 (0.39, 21.31)	1	1.31 (0.18, 9.53)	1	1.26 (0.17, 9.11)	0	N.A	3	7.55 (2.30, 24.76)**	11	2.27 (1.25, 4.15)**	13	1.29 (0.75, 2.24)
Blood pressure (mmHg) (SDP/DBP)															
(>=180/>=100)	16,982	1	2.58 (0.23, 28.71)	2	0.91 (0.20, 4.14)	5	1.39 (0.51, 3.74)	2	1.62 (0.33, 7.91)	0	NA	30	2.29 (1.48, 3.53)**	63	2.75 (2.03, 3.73)**
(160-179/95-99)	26,743	1	1.25 (0.11, 13.89)	5	1.05 (0.36, 3.05)	4	0.55 (0.18, 1.65)	3	1.24 (0.31, 4.90)	4	2.00 (0.57, 6.97)	60	2.21 (1.55, 3.14)**	97	1.83 (1.40, 2.40)**
(140-159/90-94)	111,154	15	5.12 (1.16, 22.57)*	17	0.98 (0.45, 2.11)	14	0.49 (0.24, 0.99)*	9	0.90 (0.33, 2.47)	10	1.26 (0.47, 3.37)	159	1.56 (1.17, 2.08)**	351	1.66 (1.35, 2.04)**
(135-139/85-89)	81,786	11	6.11 (1.35, 27.66)*	15	1.43 (0.65, 3.14)	10	0.57 (0.26, 1.22)	7	1.12 (0.39, 3.23)	9	1.63 (0.60, 4.44)	76	1.22 (0.87, 1.69)	144	1.13 (0.89, 1.44)
(100-134/<85)	111,612	2	1.00	11	1.00	20	1.00	7	1.00	7	1.00	68	1.00	127	1.00
SBP <100	148,079	11	2.43 (0.31, 18.74)	29	0.57 (0.11, 3.01)	26	0.94 (0.27, 3.27)	17	1.70 (0.28, 10.12)	10	1.68 (0.29, 9.46)	194	1.46 (0.85, 2.50)	357	0.75 (0.44, 1.26)
Childhood living area(1)															
cities	62,353	4	0.57 (0.19, 1.67)	8	0.97 (0.44, 2.12)	13	1.64 (0.85, 3.16)	9	2.28 (1.00, 5.20)	3	0.56 (0.16, 1.92)	77	1.37 (1.06, 1.78)*	133	1.11 (0.91, 1.34)
cities50,000	24,871	0	NA	5	1.83 (0.71, 4.73)	3	1.18 (0.35, 3.89)	0	NA	4	2.20 (0.73, 6.61)	28	1.45 (0.97, 2.15)*	35	0.92 (0.65, 1.30)
villages	332,293	33	1.00	56	1.00	49	1.00	23	1.00	27	1.00	358	1.00	778	1.00
others	19,383	0	NA	2	0.64 (0.15, 2.68)	4	1.46 (0.51, 4.11)	2	1.55 (0.36, 6.66)	2	1.58 (0.36, 6.80)	33	1.45 (1.01, 2.09)*	75	1.48 (1.16, 1.88)**
Childhood living area(2)															
residential	37,081	3	1.00	5	1.00	6	1.00	4	1.00	1	1.00	43	1.00	71	1.00
commercial / industrial	9,701	0	NA	1	0.64 (0.07, 5.56)	2	1.17 (0.23, 5.84)	3	2.40 (0.52, 10.90)	1	3.67 (0.22, 60.64)	13	0.91 (0.49, 1.70)	22	0.89 (0.55, 1.45)
others	15,570	1	0.64 (0.06, 6.51)	2	0.71 (0.12, 3.96)	5	1.95 (0.56, 6.70)	2	0.83 (0.13, 5.02)	1	2.04 (0.12, 34.48)	21	0.88 (0.50, 1.56)	40	1.23 (0.82, 1.85)
Educational background															
<=15	282,372	21	1.00	52	1.00	48	1.00	26	1.00	22	1.00	351	1.00	766	1.00
16-18	188,814	17	1.48 (0.69, 3.20)	21	0.88 (0.49, 1.58)	22	0.87 (0.48, 1.56)	12	0.98 (0.42, 2.27)	12	0.71 (0.32, 1.57)	167	1.03 (0.83, 1.28)	311	0.80 (0.69, 0.93)**
19<=	70,430	6	1.08 (0.39, 2.96)	16	1.50 (0.79, 2.84)	11	1.02 (0.49, 2.10)	5	0.99 (0.34, 2.93)	10	1.51 (0.65, 3.48)	84	1.16 (0.88, 1.51)	131	0.76 (0.62, 0.92)**

\*Adjusted for age and area of study. \*\* p<0.01; \* p<0.05; + p<0.10 NA: not applicable

**Table 1. Continued. Age-adjusted Hazard Ratios\* and 95% Confidence Intervals(95% CI) According to Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Females**

	Person years		All causes		All cancers		Esophageal cancer		Stomach cancer		Colon cancer		Rectal cancer		Liver cancer		
	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	
Height (cm)																	
<149	240,390	1.00	2,756	1.00	807	1.00	9	1.00	145	1.00	72	1.00	26	1.00	64	1.00	
149-153	277,753	0.99 (0.94, 1.05)	2,059	0.99 (0.94, 1.05)	747	1.09 (0.98, 1.20) <sup>+</sup>	9	1.47 (0.57, 3.78)	112	0.98 (0.76, 1.26)	71	1.24 (0.88, 1.73)	34	1.50 (0.89, 2.53)	80	1.46 (1.04, 2.04) <sup>*</sup>	
154<=	253,618	1.08 (1.00, 1.15) <sup>*</sup>	1,377	1.08 (1.00, 1.15) <sup>*</sup>	547	1.15 (1.02, 1.29) <sup>*</sup>	6	1.64 (0.55, 4.88)	87	1.16 (0.87, 1.54)	51	1.37 (0.94, 2.00)	21	1.30 (0.70, 2.40)	58	1.57 (1.07, 2.28) <sup>*</sup>	
Weight (kg)																	
<49	253,589	1.00	3,046	1.00	812	1.00	9	1.00	156	1.00	73	1.00	33	1.00	56	1.00	
49-54	238,996	0.80 (0.76, 0.86) <sup>**</sup>	1,585	0.80 (0.76, 0.86) <sup>**</sup>	580	0.98 (0.88, 1.10)	5	0.92 (0.30, 2.79)	84	0.79 (0.60, 1.03) <sup>+</sup>	60	1.18 (0.83, 1.67)	22	0.82 (0.48, 1.43)	59	1.43 (0.99, 2.08)	
55<=	293,197	0.91 (0.85, 0.96) <sup>**</sup>	1,910	0.91 (0.85, 0.96) <sup>**</sup>	784	1.18 (1.06, 1.31) <sup>**</sup>	11	1.94 (0.77, 4.85)	118	1.01 (0.78, 1.29)	68	1.22 (0.86, 1.71)	29	0.93 (0.55, 1.56)	92	1.95 (1.38, 2.75) <sup>**</sup>	
Weight at age 20 (kg)																	
<47	340,041	1.00	3,251	1.00	1,026	1.00	12	1.00	167	1.00	69	1.00	35	1.00	110	1.00	
47-52	196,397	0.86 (0.80, 0.93) <sup>**</sup>	1,323	0.86 (0.80, 0.93) <sup>**</sup>	449	0.92 (0.81, 1.05)	5	0.52 (0.17, 1.55)	72	0.97 (0.70, 1.34)	58	1.62 (1.08, 2.45) <sup>*</sup>	16	1.00 (0.49, 2.02)	40	0.86 (0.56, 1.32)	
53<=	205,986	0.92 (0.86, 0.99) <sup>*</sup>	1,466	0.92 (0.86, 0.99) <sup>*</sup>	555	1.09 (0.96, 1.23)	6	0.60 (0.21, 1.68)	95	1.25 (0.92, 1.70)	59	1.59 (1.05, 2.40) <sup>*</sup>	28	1.66 (0.88, 3.11)	51	1.10 (0.73, 1.64)	
BMI(kg/m2)																	
<18.5	44,995	1.60 (1.48, 1.73) <sup>**</sup>	765	1.60 (1.48, 1.73) <sup>**</sup>	154	1.03 (0.87, 1.21)	5	4.08 (1.37, 12.14) <sup>*</sup>	37	1.44 (1.01, 2.05) <sup>*</sup>	14	0.98 (0.56, 1.71)	2	0.36 (0.08, 1.48)	8	0.56 (0.27, 1.15)	
18.5-24	546,688	1.00	3,971	1.00	1,393	1.00	10	1.00	227	1.00	128	1.00	58	1.00	134	1.00	
25-29	159,566	1.05 (0.98, 1.12)	1,212	1.05 (0.98, 1.12)	472	1.14 (1.02, 1.27) <sup>*</sup>	6	2.02 (0.72, 5.61)	66	0.98 (0.74, 1.30)	42	1.09 (0.77, 1.56)	19	1.04 (0.62, 1.76)	53	1.31 (0.95, 1.81) <sup>+</sup>	
30<=	16,384	1.50 (1.29, 1.74) <sup>**</sup>	191	1.50 (1.29, 1.74) <sup>**</sup>	60	1.36 (1.05, 1.76) <sup>*</sup>	2	5.95 (1.27, 27.87) <sup>*</sup>	11	1.52 (0.82, 2.80)	8	1.94 (0.94, 3.98) <sup>+</sup>	2	1.00 (0.24, 4.12)	5	1.09 (0.44, 2.69)	
Blood pressure (mmHg)(SDP/DBP)																	
(>=180/>=100)	19,149	1.67 (1.45, 1.92) <sup>**</sup>	255	1.67 (1.45, 1.92) <sup>**</sup>	64	1.19 (0.91, 1.55)	1	2.38 (0.24, 23.59)	8	0.72 (0.34, 1.50)	3	0.47 (0.14, 1.53)	3	2.09 (0.59, 7.40)	7	1.67 (0.73, 3.81)	
(160-179/95-99)	32,695	1.32 (1.18, 1.49) <sup>**</sup>	435	1.32 (1.18, 1.49) <sup>**</sup>	112	1.04 (0.84, 1.28)	1	1.12 (0.11, 11.17)	21	0.89 (0.55, 1.46)	13	0.98 (0.52, 1.83)	5	1.73 (0.61, 4.91)	5	0.62 (0.24, 1.62)	
(140-159/90-94)	141,067	1.16 (1.07, 1.26) <sup>**</sup>	1,564	1.16 (1.07, 1.26) <sup>**</sup>	455	1.01 (0.88, 1.16)	6	1.88 (0.46, 7.72)	76	0.80 (0.58, 1.12)	52	0.90 (0.60, 1.35)	14	1.04 (0.49, 2.24)	46	1.40 (0.88, 2.24)	
(135-139/85-89)	109,890	1.02 (0.93, 1.12)	814	1.02 (0.93, 1.12)	309	1.06 (0.91, 1.23)	6	2.71 (0.67, 10.93)	4	0.75 (0.51, 1.08)	29	0.79 (0.49, 1.26)	19	2.00 (0.99, 4.02) <sup>+</sup>	32	1.50 (0.92, 2.47)	
(100-134/<85)	210,855	1.00	988	1.00	417	1.00	3	1.00	79	1.00	48	1.00	14	1.00	32	1.00	
SBP <100	205,578	1.25 (1.05, 1.50) <sup>*</sup>	2,097	1.25 (1.05, 1.50) <sup>*</sup>	679	0.90 (0.64, 1.26)	6	4.10 (0.55, 30.61)	113	0.76 (0.33, 1.74)	44	0.74 (0.24, 2.24)	25	N.A	86	N.A	
Childhood living area(1)																	
cities >50,0000	117,260	1.09 (1.00, 1.17) <sup>*</sup>	879	1.09 (1.00, 1.17) <sup>*</sup>	316	1.13 (0.99, 1.29) <sup>+</sup>	6	2.04 (0.74, 5.60)	48	1.05 (0.75, 1.46)	31	1.07 (0.71, 1.62)	7	0.74 (0.32, 1.70)	34	1.46 (0.95, 2.23) <sup>+</sup>	
cities <50,000	40,111	1.18 (1.04, 1.33) <sup>**</sup>	283	1.18 (1.04, 1.33) <sup>**</sup>	108	1.23 (1.00, 1.51) <sup>*</sup>	0	N.A	11	0.70 (0.37, 1.29)	8	0.90 (0.43, 1.88)	7	2.67 (1.17, 6.09) <sup>*</sup>	11	1.45 (0.76, 2.74)	
villages	433,296	1.00	3,604	1.00	1,154	1.00	17	1.00	202	1.00	124	1.00	42	1.00	94	1.00	
others	36,928	1.11 (1.00, 1.23) <sup>*</sup>	425	1.11 (1.00, 1.23) <sup>*</sup>	113	1.00 (0.82, 1.22)	0	N.A	17	0.83 (0.50, 1.38)	13	0.99 (0.55, 1.78)	4	0.92 (0.32, 2.62)	10	1.16 (0.60, 2.27)	
Childhood living area(2)																	
residential	71,604	1.00	520	1.00	190	1.00	2	1.00	28	1.00	19	1.00	6	1.00	21	1.00	
commercial/industrial	16,174	0.90 (0.74, 1.10)	126	0.90 (0.74, 1.10)	42	0.87 (0.62, 1.22)	2	4.85 (0.64, 36.47)	6	0.82 (0.33, 2.03)	5	0.97 (0.36, 2.62)	1	0.87 (0.10, 7.45)	4	0.64 (0.21, 1.92)	
others	29,483	1.03 (0.87, 1.21)	233	1.03 (0.87, 1.21)	84	1.02 (0.78, 1.34)	2	2.12 (0.28, 15.61)	14	1.08 (0.55, 2.13)	7	0.70 (0.28, 1.74)	0	N.A	9	0.90 (0.39, 2.08)	
Educational background (years)																	
<=15	414,399	1.00	4,346	1.00	1,341	1.00	16	1.00	224	1.00	120	1.00	51	1.00	139	1.00	
16-18	295,208	0.85 (0.80, 0.91) <sup>**</sup>	1,770	0.85 (0.80, 0.91) <sup>**</sup>	667	0.95 (0.85, 1.06)	9	0.97 (0.39, 2.41)	101	0.92 (0.69, 1.21)	69	1.08 (0.76, 1.52)	31	1.45 (0.83, 2.53)	52	0.90 (0.60, 1.35)	
19<=	58,591	0.77 (0.68, 0.86) <sup>**</sup>	317	0.77 (0.68, 0.86) <sup>**</sup>	113	0.83 (0.68, 1.02) <sup>+</sup>	1	0.52 (0.06, 4.15)	25	1.18 (0.76, 1.83)	11	0.88 (0.46, 1.68)	3	0.73 (0.21, 2.47)	11	1.05 (0.54, 2.04)	

\*Adjusted for age and area of study. \*\* p<0.01; \* p<0.05; + p<0.10 NA: not applicable

**Table 1. Continued. Age-adjusted Hazard Ratios<sup>a</sup> and 95% Confidence Intervals(95% CI) Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Females**

	Person -years	Gallbladder cancer No	HR(95%CI)	Pancreas cancer No	HR(95%CI)	Lung cancer No	HR(95%CI)	Breast cancer No	HR(95%CI)	Cervical cancer No	HR(95%CI)
<b>Height (cm)</b>											
<149	240,390	40	1.00	83	1.00	97	1.00	26	1.00	11	1.00
149-153	277,753	24	0.72 (0.43, 1.21)	66	0.97 (0.69, 1.35)	86	1.04 (0.77, 1.40)	38	1.21 (0.72, 2.01)	14	1.15 (0.51, 2.59)
154<=	253,618	26	1.14 (0.67, 1.94)	48	1.03 (0.71, 1.51)	68	1.18 (0.85, 1.65)	36	1.24 (0.72, 2.12)	9	0.85 (0.33, 2.17)
<b>Weight (kg)</b>											
<49	253,589	39	1.00	65	1.00	101	1.00	27	1.00	17	1.00
49-54	238,996	21	0.76 (0.44, 1.31)	63	1.38 (0.97, 1.96) <sup>+</sup>	72	0.97 (0.71, 1.32)	24	0.89 (0.51, 1.56)	6	0.40 (0.15, 1.04) <sup>+</sup>
55<=	293,197	33	1.07 (0.66, 1.73)	73	1.42 (1.01, 2.01) <sup>*</sup>	82	0.98 (0.72, 1.33)	46	1.36 (0.84, 2.22)	12	0.67 (0.31, 1.43)
<b>Weight at age 20 (kg)</b>											
<47	340,041	45	1.00	95	1.00	123	1.00	46	1.00	21	1.00
47-52	196,397	17	0.72 (0.38, 1.34)	42	0.75 (0.50, 1.12)	54	0.86 (0.59, 1.24)	24	1.15 (0.62, 2.12)	6	0.46 (0.17, 1.24)
53<=	205,986	21	0.85 (0.47, 1.53)	51	0.85 (0.58, 1.25)	55	0.86 (0.59, 1.24)	20	0.88 (0.46, 1.68)	7	0.52 (0.20, 1.35)
<b>BMI(kg/m2)</b>											
<18.5	44,995	6	0.94 (0.40, 2.19)	9	0.59 (0.30, 1.16)	25	1.39 (0.91, 2.13)	5	1.00 (0.40, 2.49)	5	2.45 (0.92, 6.56) <sup>+</sup>
18.5-24	546,688	57	1.00	137	1.00	168	1.00	64	1.00	22	1.00
25-29	159,566	26	1.54 (0.96, 2.46) <sup>+</sup>	46	1.11 (0.79, 1.56)	53	1.07 (0.78, 1.46)	25	1.30 (0.81, 2.08)	6	0.95 (0.38, 2.36)
30<=	16,384	1	0.56 (0.07, 4.06)	4	0.90 (0.33, 2.46)	2	0.38 (0.09, 1.56)	2	0.97 (0.23, 4.01)	1	1.54 (0.20, 11.5)
<b>Blood pressure (mmHg) (SDP/DBP)</b>											
(>=180/>=100)	19,149	2	1.02 (0.23, 4.54)	4	0.76 (0.27, 2.15)	9	1.23 (0.60, 2.51)	4	2.06 (0.70, 6.05)	1	1.29 (0.15, 10.8)
(160-179/95-99)	32,695	9	2.42 (1.02, 5.72) <sup>*</sup>	11	1.01 (0.51, 2.01)	16	1.10 (0.62, 1.95)	2	0.61 (0.14, 2.62)	0	NA
(140-159/90-94)	141,067	17	1.16 (0.56, 2.42)	57	1.26 (0.82, 1.92)	58	0.99 (0.67, 1.45)	13	0.87 (0.43, 1.75)	4	0.73 (0.20, 2.57)
(135-139/85-89)	109,890	15	1.56 (0.75, 3.26)	31	1.09 (0.68, 1.76)	26	0.67 (0.42, 1.07)	14	1.18 (0.60, 2.30)	4	1.01 (0.29, 3.50)
(100-134/<85)	210,855	14	1.00	39	1.00	56	1.00	24	1.00	7	1.00
SBP <100	205,578	27	2.47 (0.74, 8.21)	50	0.71 (0.22, 2.29)	73	0.59 (0.20, 1.72)	33	NA	12	1.61 (0.33, 7.83)
<b>Childhood living area(1)</b>											
cities >50,000	17,260	13	1.17 (0.61, 2.27)	39	1.40 (0.95, 2.06) <sup>+</sup>	37	1.11 (0.75, 1.64)	17	1.30 (0.72, 2.35)	5	0.96 (0.33, 2.75)
cities <50,000	40,111	9	2.50 (1.19, 5.27) <sup>*</sup>	10	1.11 (0.57, 2.15)	17	1.55 (0.92, 2.61) <sup>+</sup>	5	1.29 (0.50, 3.29)	3	2.03 (0.57, 7.19)
villages	433,296	44	1.00	114	1.00	129	1.00	49	1.00	17	1.00
others	36,928	4	0.98 (0.34, 2.81)	10	0.87 (0.45, 1.68)	14	1.14 (0.65, 2.02)	4	0.97 (0.34, 2.75)	1	0.71 (0.09, 5.49)
<b>Childhood living area(2)</b>											
residential	71,604	7	1.00	23	1.00	22	1.00	10	1.00	4	1.00
commercial/industrial	16,174	3	1.66 (0.42, 6.50)	8	1.31 (0.58, 2.96)	3	0.55 (0.16, 1.86)	2	0.91 (0.19, 4.17)	1	1.20 (0.13, 10.9)
others	29,483	3	1.13 (0.28, 4.53)	8	1.00 (0.43, 2.28)	12	1.31 (0.63, 2.73)	5	1.32 (0.43, 4.05)	0	NA
<b>Educational background</b>											
<=15	414,399	55	1.00	110	1.00	159	1.00	61	1.00	19	1.00
16-18	295,208	27	0.82 (0.48, 1.40)	75	1.13 (0.80, 1.60)	67	0.66 (0.47, 0.92) <sup>*</sup>	29	0.70 (0.41, 1.20)	11	0.80 (0.33, 1.92)
19<=	58,591	5	0.76 (0.29, 1.98)	9	0.69 (0.34, 1.40)	16	0.85 (0.49, 1.46)	7	0.81 (0.34, 1.88)	2	0.68 (0.14, 3.18)

<sup>a</sup>Adjusted for age and area of study. \*\* p<0.01; \* p<0.05; + p<0.10 NA: not applicable

## Discussion

It is well known that body mass index is a strong indicator that related to morbidity and mortality, which is confirmed by the present findings. Further details which examined the association obesity and colon cancer (Tamakoshi et al., 2004) and cardiovascular disease (Cui et al., 2005) were previously reported elsewhere.

Educational background is commonly used to measure individual's socioeconomic status. It has been known that the association between socioeconomic status and health might be the result of a mixture of biological, lifestyle behavioural, environmental, and social factors, although several confounding factors and biases inherent in this study limit the discussion about causality. We previously reported a detailed discussion about the association between educational background and major cause of death among the elderly population from the JACC study (Fujino et al., 2005). In addition, we also reported an inverse correlation between education level and death from

stomach cancer (Fujino et al., 2002), although the present analyses did not show any association between educational level and stomach cancer.

The association between childhood living area and several health outcomes were observed in the present analyses, although there is no particular hypothesis that might cause these relationships. Probably, childhood residential area may influence people's lifelong life styles, which may affect health outcomes in their adulthood. In addition, environmental factors including foods, air and water quality may also mediate people's health.

## References \*(Non-JACC studies)

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**Table 1. Continued. Age-adjusted Hazard Ratios and 95% Confidence Intervals(95% CI) According to Anthropomorphic Measures, Blood Pressure, Childhood Environment and Educational Background in Females**

	Person years	Kidney Cancer		Urothelial cancer		Non-Hodgkin's		Multiple myeloma		Myeloid leukemia		Ischemic heart disease		Cerebrovascular	
		No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)	No	HR(95%CI)
Height (cm)															
<149	240,390	4	1.00	9	1.00	18	1.00	22	1.00	11	1.00	175	1.00	472	1.00
149-153	277,753	8	2.37 (0.70, 8.03)	18	2.66 (1.18, 6.01)*	15	0.92 (0.45, 1.85)	15	0.75 (0.38, 1.47)	13	1.25 (0.54, 2.86)	136	1.15 (0.92, 1.45)	275	0.84 (0.72, 0.97)*
154<=	253,618	2	0.85 (0.14, 4.93)	8	1.99 (0.74, 5.38)	23	1.93 (1.00, 3.74)*	7	0.47 (0.19, 1.16)	6	0.75 (0.26, 2.15)	71	1.10 (0.82, 1.46)	192	1.02 (0.85, 1.21)
Weight (kg)															
<49	253,589	6	1.00	20	1.00	17	1.00	18	1.00	12	1.00	182	1.00	529	1.00
49-54	238,996	3	0.76 (0.18, 3.10)	11	0.85 (0.40, 1.80)	20	1.60 (0.83, 3.09)	12	0.93 (0.44, 1.96)	6	0.62 (0.23, 1.69)	108	1.03 (0.81, 1.31)	214	0.67 (0.57, 0.79)**
55<=	293,197	7	1.70 (0.55, 5.28)	8	0.56 (0.24, 1.30)	23	1.66 (0.87, 3.17)	17	1.17 (0.59, 2.33)	13	1.15 (0.51, 2.60)	126	1.20 (0.95, 1.52)	281	0.86 (0.74, 1.00)*
Weight at age 20 (kg)															
<47	340,041	8	1.00	24	1.00	27	1.00	24	1.00	18	1.00	190	1.00	500	1.00
47-52	196,397	0	NA	6	0.80 (0.28, 2.31)	17	1.30 (0.63, 2.67)	9	0.76 (0.32, 1.81)	5	0.61 (0.19, 1.89)	86	0.98 (0.73, 1.31)	217	0.87 (0.72, 1.04)
53<=	205,986	5	0.92 (0.26, 3.24)	5	0.58 (0.19, 1.78)	13	1.01 (0.47, 2.18)	11	0.87 (0.38, 1.97)	8	0.88 (0.32, 2.40)	98	1.08 (0.82, 1.43)	221	0.86 (0.72, 1.02)*
BMI(kg/m2)															
<18.5	44,995	0	NA	3	0.96 (0.28, 3.20)	3	0.72 (0.22, 2.34)	2	0.59 (0.14, 2.48)	1	0.49 (0.06, 3.70)	39	1.22 (0.86, 1.71)	133	1.77 (1.46, 2.14)**
18.5-24	546,688	8	1.00	26	1.00	40	1.00	31	1.00	20	1.00	241	1.00	582	1.00
25-29	159,566	5	2.33 (0.76, 7.18)	5	0.65 (0.24, 1.70)	11	0.99 (0.51, 1.94)	7	0.77 (0.34, 1.77)	6	0.98 (0.39, 2.45)	79	1.18 (0.91, 1.53)	198	1.18 (1.00, 1.39)*
30<=	16,384	1	4.49 (0.55, 36.2)	1	1.23 (0.16, 9.16)	2	1.83 (0.44, 7.64)	4	4.34 (1.51, 12.5)	3	4.66 (1.36, 16.0)*	20	2.56 (1.61, 4.06)**	22	1.16 (0.75, 1.78)
Blood pressure (mmHg) (SBP/DBP)															
(>=180/>=100)	19,149	0	NA	1	0.72 (0.08, 5.85)	3	1.68 (0.47, 6.01)	1	1.42 (0.16, 12.4)	1	2.18 (0.23, 20.0)	24	3.22 (1.91, 5.42)**	56	2.91 (2.10, 4.03)**
(160-179/95-99)	32,695	1	4.09 (0.24, 69.1)	2	0.58 (0.12, 2.79)	2	0.60 (0.13, 2.73)	4	2.88 (0.75, 11.0)	1	1.15 (0.12, 10.6)	42	2.55 (1.62, 4.00)**	86	1.99 (1.50, 2.66)**
(140-159/90-94)	141,067	4	2.85 (0.30, 26.8)	4	0.27 (0.08, 0.93)*	6	0.46 (0.17, 1.22)	9	1.55 (0.50, 4.77)	6	1.54 (0.42, 5.65)	118	1.87 (1.28, 2.74)**	287	1.60 (1.28, 2.00)**
(135-139/85-89)	109,890	3	3.53 (0.36, 34.4)	4	0.52 (0.15, 1.74)	12	1.37 (0.62, 2.99)	4	1.11 (0.29, 4.18)	5	1.85 (0.49, 7.00)	50	1.54 (1.00, 2.36)*	118	1.17 (0.90, 1.52)
(100-134/<85)	210,855	1	1.00	8	1.00	14	1.00	5	1.00	4	1.00	37	1.00	112	1.00
SBP <100	205,578	4	14.84 (0.62, 350)*	18	1.20 (0.11, 12.9)	16	0.69 (0.08, 6.08)	20	8.03 (1.97, 32.7)**	12	NA	118	0.97 (0.42, 2.20)	306	1.89 (1.20, 2.99)**
Childhood living area(1)															
cities >=50,000	117,260	0	NA	4	0.71 (0.23, 2.15)	12	1.86 (0.89, 3.87)*	4	0.56 (0.19, 1.67)	8	2.88 (1.07, 7.72)*	54	1.09 (0.80, 1.49)	120	0.91 (0.74, 1.12)
cities <50,000	40,111	1	2.43 (0.29, 20.1)	1	0.74 (0.09, 5.56)	2	0.92 (0.21, 3.99)	4	1.86 (0.63, 5.47)	0	NA	21	1.36 (0.86, 2.15)	44	1.20 (0.88, 1.64)
villages	433,296	8	1.00	21	1.00	27	1.00	29	1.00	13	1.00	239	1.00	607	1.00
others	36,928	4	4.65 (1.33, 16.3)*	1	0.37 (0.05, 2.86)	4	1.55 (0.52, 4.62)	2	0.69 (0.16, 2.97)	0	NA	26	0.93 (0.62, 1.42)	74	1.05 (0.82, 1.35)
Childhood living area(2)															
residential	71,604	0	1.00	4	1.00	8	1.00	4	1.00	4	1.00	32	1.00	72	1.00
commercial/ industrial	16,174	0	NA	0	NA	1	0.46 (0.05, 3.77)	0	NA	0	NA	6	0.65 (0.27, 1.57)	21	1.03 (0.63, 1.69)
others	29,483	0	NA	0	NA	3	0.80 (0.20, 3.17)	0	NA	4	1.74 (0.39, 7.78)	16	1.23 (0.65, 2.32)	27	0.84 (0.52, 1.36)
Educational background															
<=15	414,399	6	1.00	32	1.00	34	1.00	28	1.00	21	1.00	279	1.00	708	1.00
16-18	295,208	9	4.09 (1.05, 15.9)*	6	0.44 (0.16, 1.18)	21	1.12 (0.57, 2.20)	15	0.97 (0.46, 2.04)	7	0.65 (0.23, 1.79)	109	0.83 (0.65, 1.07)	258	0.76 (0.65, 0.89)**
19<=	58,591	0	NA	1	0.34 (0.04, 2.65)	3	0.86 (0.25, 3.02)	3	0.98 (0.28, 3.47)	1	0.46 (0.05, 3.75)	24	0.90 (0.58, 1.39)	44	0.64 (0.47, 0.88)**

\*\*\*, p<0.01; \*, p<0.05; +, p<0.10 NA: not applicable

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