

# Relationship between family history of hypertension and cardiometabolic risk factors in adolescents

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## Abstract

Expressive measurements were utilized to decide the pre-conclusion smoking status and changes in smoking after malignant growth determination of the examination populace. Circulation of the malignancy locales were depicted for the pre-finding current smokers. Qualities of the post-finding supported smokers and weaklings were looked at utilizing chi-square or Fisher careful tests. Chances proportions (OR) and 95% certainty stretches (CI) were assessed by basic strategic relapse examination to assess the relationship between every factor and continued smoking. Multivariate calculated relapse examination was then led utilizing factors which indicated the p-estimation of  $< 0.05$  in the univariate investigation. Balanced chances proportions (aOR) were determined by altering for every related trademark as decided from the univariate examination. Separate subgroup investigations were acted in patients matured under 65 years and more than 65 years and for every malignant growth type gathering (smoking-related and non-smoking-related).

## Methods

### Study participants

We directed a cross-sectional concentrate by utilizing the informational collections of the Korean National Health and Nutrition Examination Survey (KNHANES) performed by the Korean Ministry of Health and Welfare among noninstitutionalized Korean regular folks in 2013. A separated, multistage likelihood examining configuration was utilized, with choice produced using inspecting units dependent on geographic territory, sex, and age bunches in family unit libraries. We included 694 members matured 13 to 19 years, the two young men and young ladies. Among them, 117 members were rejected on account of deficient review information, including cardiometabolic chance variables. We likewise barred 23 members who detailed having no information on their family ancestry. At long last, an aggregate of 554 members was dissected. The current examination is an auxiliary investigation of the KNHANES and was endorsed by the institutional survey board (IRB) of the Korean Centers of Disease Control and Prevention (KCDC; IRB endorsement No. 2013-07CON-03-4C).

### Demographic and lifestyle factors

The family study comprised of the accompanying three parts: wellbeing meeting review, wellbeing assessment overview, and nourishment study. Family salary was determined based on evened out pay (absolute family unit pay isolated by the square base of the quantity of family individuals). Dietary admission was surveyed by utilizing a solitary 24-hour dietary review strategy. The members were told to review and depict any food

and drinks devoured during the previous 24 hours. The supplement substance of the recorded things was measured by utilizing a Web-based program (Nutrition Solution Program; Korea Health Industry Development Institute, 2008).

Physical action was evaluated by utilizing the short-term Korean Version of International Physical Activity Questionnaire (IPAQ). Based on the IPAQ models, absence of physical action was characterized as a determined metabolic equal assignment (min/wk) that doesn't arrive at the degree of insignificant physical movement. Liquor utilization, smoking status, and rest term were evaluated by utilizing a self-administered poll. As per the National Institute on Alcohol Abuse and Alcoholism, underage drinking was characterized as liquor admission of people more youthful than the base lawful age of 19 years in Korea. Current smokers were characterized as the individuals who had smoked in any event once (even one puff) in the previous 30 days. The normal measure of rest every day was recorded, and absence of rest was characterized as  $< 7$  long periods of rest every night.

### Parental hypertension

All of the participants underwent a thorough history taking including family history. Data on the family history of hypertension were collected by using an interviewer-administered questionnaire. Each study participant was directly questioned on whether any of his or her family members had hypertension diagnosed by a physician. The family histories of the father, mother, and siblings were evaluated. The response options were "yes," "no," and "don't know." We defined the presence of parental hypertension as either paternal or maternal hypertension.

### Cardiometabolic risk factors

Well-trained inspectors performed anthropometric estimations, with the members wearing light dress and no shoes. Weight list (BMI) was determined by partitioning the weight (kg) by the tallness squared ( $m^2$ ). We utilized the symptomatic models of overweight and heftiness dependent on development outlines for Korean youngsters and teenagers (KCDC criteria). Overweight was characterized as a BMI  $\geq 85$ th percentile however  $< 95$ th percentile for offspring of a similar age and sex. Weight was characterized as either a BMI  $\geq 95$ th percentile for offspring of a similar age and sex, or a BMI  $\geq 25$  kg/ $m^2$  paying little heed to age- or sex-specific BMI percentile. Waist perimeter was taken to the closest 0.1 cm, estimating from the tightest point between the lower fringes of the rib confine and the iliac peak. Stomach weight was characterized as abdomen perimeter  $\geq 90$ th percentile

for age and sex<sup>15</sup> or past the grown-up cutoff esteem ( $\geq 90$  cm for men,  $\geq 85$  cm for women).

Pulse (BP) was estimated in the sitting situation after at any rate 10 minutes of rest. Three estimations were acquired at any rate 10 minutes separated, and the normal of the second and third estimations was utilized in the investigation. High BP was characterized as systolic BP  $\geq 130$  mm Hg or diastolic BP  $\geq 85$  mm Hg.<sup>17</sup> After a 12-hour short-term quick, venous blood tests were drawn. We arranged the accompanying cardiometabolic hazard factors as indicated by research center test outcomes: weakened fasting glucose (fasting plasma glucose  $\geq 100$  mg/dL),<sup>17</sup> hypercholesterolemia (complete cholesterol  $> 200$  mg/dL),<sup>18</sup> hypertriglyceridemia (triglycerides  $\geq 150$  mg/dL),<sup>17</sup> and low high-density lipoprotein cholesterol ( $< 40$  mg/dL).<sup>17</sup> Elevated serum alanine aminotransferase (ALT) was characterized as ALT  $> 35$  IU/L and considered a substitute marker for NAFLD in young people.

#### Statistical analysis

According to the sampling design of KNHANES, the sampling plan followed a multistage clustered probability design. To provide an equal probability of being sampled, weights were assigned to each respondent, enabling the results to represent the entire Korean adolescent population. This weighting method guaranteed unbiased point estimates of parameters for the entire population and its subsets.

We presented continuous variables as mean $\pm$ standard error and categorical variables as numbers with percentages. We performed the t test by using a complex sample general linear model for continuous variables and the chi-square test for categorical variables, to compare the differences in variables between the group with parental hypertension and the group without parental hypertension. Logistic regression analysis was performed to determine the risks of cardiometabolic abnormalities in adolescents according to the presence of a history of parental hypertension. The adjusted odds ratios (ORs) for cardiometabolic risk factors according to parental history of hypertension after adjustment for age, sex, and income are presented together with their 95% confidence intervals (CIs). A P value of  $< .05$  was accepted as statistically significant. All data were analyzed by using SPSS version 21.0 (IBM Corp, Armonk, NY, USA).

#### Results

##### Baseline characteristics of the study population

The demographic and lifestyle factors of the study population are presented in Table 1. Of the study participants, 16.2% had positive parental hypertension. Among them, 54.0% were boys and 46.0% were girls. The participants with parental hypertension were somewhat older and had a significantly higher weight compared with those without parental hypertension. Income levels and most of the lifestyle factors, including dietary intake, were not significantly different between the two groups.