

Genetic estimations of correlations and causalities between multifaceted modifiable factors and gastro-oesophageal reflux disease

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Table S1. An overview of the modifiable factors associated with the risk of GORD

Factors	Previous MR analysis conducted (Yes/No)	Previous MR analysis conducted (PMID)	Previous MR analysis conducted (Published reference)
Daily habits			
Alcohol consumption	Yes	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Coffee consumption	Yes	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Caffeine consumption	No	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Smoking behaviors	Yes	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Sugar intakes	No	NA	NA
Fat intakes	No	NA	NA
Carbohydrate intakes	No	NA	NA
Breakfast skipping	No	NA	NA
Circadian rhythm	No	NA	NA
Sleep disorders	No	NA	NA
Daytime sleepiness	No	NA	NA
Daytime napping	No	NA	NA
Physical activity levels	No	NA	NA
Health status			
Childhood-onset asthma	Yes	PMID: 35292014	Asthma and the risk of gastrointestinal disorders: a Mendelian randomization study
Adult-onset asthma	Yes	PMID: 35292014	Asthma and the risk of gastrointestinal disorders: a Mendelian randomization study
Type 2 diabetes	Yes	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Coronary artery disease	No	NA	NA
Atrial fibrillation	No	NA	NA
Ulcerative colitis	No	NA	NA
Crohn's disease	No	NA	NA
Nutritional & biochemical biomarkers			
Fasting glucose	No	NA	NA
Insulin	No	NA	NA
Postprandial plasma glucose	No	NA	NA
Glycosylated hemoglobin (HbA1c)	No	NA	NA
HDL cholesterol	No	NA	NA
LDL cholesterol	No	NA	NA
Total cholesterol	No	NA	NA
Triglycerides	No	NA	NA
Lipoprotein	No	NA	NA
Adiponectin	No	NA	NA
Leptin	No	NA	NA
Vitamin C	No	NA	NA
Vitamin D	No	NA	NA
Nutritional & developmental status			
Obesity	Yes	PMID: 35119566	Adiposity, diabetes, lifestyle factors and risk of gastroesophageal reflux disease: a Mendelian randomization study
Visceral adipose tissue	Yes	No	NA
Waist circumference	Yes	PMID: 32588049	Genetic evidence that higher central adiposity causes gastro-oesophageal reflux disease: a Mendelian randomization study
Hip circumference	Yes	PMID: 32588049	Genetic evidence that higher central adiposity causes gastro-oesophageal reflux disease: a Mendelian randomization study
Waist-to-hip ratio	Yes	PMID: 32588049	Genetic evidence that higher central adiposity causes gastro-oesophageal reflux disease: a Mendelian randomization study
Weight loss	No	NA	NA
Height	Yes	PMID: 30355295	Adult height and risk of 50 diseases: a combined epidemiological and genetic analysis
Muscle mass	No	NA	NA
Birth weight	No	NA	NA
Childhood obesity	No	NA	NA
Emotional factors			
Negative emotions	No	NA	NA
Positive subjective well-beings	No	NA	NA
Socioeconomic factors			
Income	No	NA	NA
Educational attainment	No	NA	NA
Sex-hormone-related factors			
Menopausal transit	No	NA	NA
Oestradiol levels (female)	No	NA	NA
Oestradiol levels (male)	No	NA	NA
Sex hormone-binding globulin levels (female)	No	NA	NA
Sex hormone-binding globulin levels (male)	No	NA	NA
Testosterone levels (female)	No	NA	NA
Testosterone levels (male)	No	NA	NA
Common medications			

Aspirin	No	NA	NA
Calcium channel blockers	No	NA	NA
Statin	No	NA	NA
Metformin	No	NA	NA

Table S2. The detailed information of the 66 exposures included in MR analysis.					
Exposure	Source	Definition	Unit	GWAS model	Covariates
Daily habits					
Alcohol consumption	PMID: 30643251	The average number of drinks a participant reported drinking each week, aggregated across all types of alcohol.	Drinks per week	BOLT-LMM	Age, age-squared, sex, and genetic principal components
Coffee consumption	PMID: 31046077	24-h recall questionnaire about cups of coffee drunked each day	Cups per day	BOLT-LMM	Age, sex, top 20 principal components of population sub-structure.
Caffeine consumption	PMID: 33287642	Caffeine intake was calculated as the number of cups of coffee or tea multiplied by the caffeine content in per cup of different types of coffee or tea. Combined caffeine intake from both coffee and tea was calculated as the sum of the daily caffeine intake from coffee and tea from individuals.	mg per day	BOLT-LMM	Age, sex, genotyping array, and the first 30 principal components to adjust for population stratification
Smoking initiation (current or former vs. never)	PMID: 30643251	Binary phenotype with current smokers or former smokers and never being regular smokers	Events	BOLT-LMM	Age, age-squared, sex and genetic principal components
Lifetime smoking	PMID: 31689377	Smoking measures available in the UK Biobank were self-reported and collected at initial assessment. They included: smoking status (current, former, never – field 20116), age at initiation in years (fields 3436/2867), age at cessation in years (field 2897) and number of cigarettes smoked per day (fields 3456/2887). Anyone self-reporting to smoke more than 100 cigarettes per day was contacted for confirmation. Hand-rolled cigarette smokers were told 1 g of tobacco equates to one cigarette. UK Biobank removed individuals smoking fewer than 1 or more than 150 cigarettes a day. Based on the method outlined by Leffondré, Abrahamowicz, Xiao, and Siemiatycki, smoking measures were combined into a lifetime smoking index along with a simulated half-life (τ) constant.	Lifetime smoking index	BOLT-LMM	Sex and genotyping chip
Cigarette consumption	PMID: 30643251	The average number of cigarettes smoked per day, either as a current smoker or former smoker, and whether self-rolled or manufactured are smoked.	Cigarettes per day	BOLT-LMM	Age, age-squared, sex, and genetic principal components.
Age of initiation of smoking	PMID: 30643251	Age at which an individual started smoking cigarettes regularly	Years		
Smoking cessation (current vs. former smokers)	PMID: 30643251	Binary phenotype with current smokers and former smoker	Events		
Intake of total sugar	PMID: 32393786	Dietary intakes derived from 24h-dietary-recall questionnaires exhibiting 200 food items. For convenience, the energy values of the macronutrients were obtained using the conversion factor of 4 kcal/gram for sugar and carbohydrate, and 9 kcal/gram for fat.	Kcal/day	BOLT-LMM	Sex, age, age-squared, sex multiply by age, sex multiply by age- squared, and the first 10 principal components of the cohort- specific genotype matrix
Intake of fat	PMID: 32393786		Kcal/day		
Intake of carbohydrate	PMID: 32393786		Kcal/day		
Breakfast skipping	PMID: 31190057	24h-diet-recall questionnaires were used to estimate the participants breakfast skipping. Responses from all completed recalls (≤ 5) were considered for each participant. Responses were categorized as “breakfast skipping” if the participant always responded “No”, “sometimes breakfast skipping” if the participant sometimes responded “Yes”, and “breakfast consumers” if the participant always responded “Yes”.	Always/sometimes/never	BOLT-LMM	Age, sex, 10 principal components of ancestry
Morning person	PMID: 30696823	A binary phenotype using the same data-field as for Chronotype. Participants answering “Definitely an ‘evening’ person” and “More an ‘evening’ than a ‘morning’ person” were coded as 0 (controls) and those answering “Definitely a ‘morning’ person” and “More a ‘morning’ than ‘evening’ person” were coded as 1 (cases). Participants answering “Do not know” or “Prefer not to answer” were coded as missing.	Events	BOLT-LMM	Age, sex, study centre and a derived variable representing genotyping release
Insomnia (never/rarely vs. usually)	PMID: 30804566	A binary phenotype about the self-reported insomnia symptom being permeated into the question “do you have trouble falling asleep at night or do you wake up in the middle of the night?” was recorded as “never/rarely” vs. “usually”.	Events	BOLT-LMM	Age, sex, 10 principal components and genotyping array
Short sleep (<7h vs. 7-8h/d)	PMID: 30846698	Participants were asked: About how many hours sleep do you get in every 24 h? (including naps), with responses in hour increments. Sleep duration was treated as a continuous variable and also categorized as either short (6 h or less), normal (7 or 8 h), or long (9 h or more) sleep duration. Extreme responses of less than 3 h or more than 18 h were excluded and do not know or prefer not to answer responses were set to missing. Participants who self-reported any sleep medication were excluded.	Events	BOLT-LMM	Age, sex, 10 principal components of ancestry, genotyping array, and genetic correlation matrix
Long sleep (≥ 9 h vs. 7-8h/d)	PMID: 30846698		Events		
Daytime sleepiness	PMID: 31409809	Self-reported daytime sleepiness was ascertained using the question “How likely are you to dose off or fall asleep during the daytime when you don’t mean to? (e.g. when working, reading or driving)” with the response options of “Never/rarely”, “sometimes”, “often”, “all of the time”, “do not know”, and “prefer not to answer”. Participants reporting “do not know” and “prefer not to answer” were set to missing. Other responses were coded continuously as 1 to 4 corresponding to the severity of daytime sleepiness.	Never/ sometimes/often/always	BOLT-LMM	Age, sex, genotyping array,10 principal components of ancestry and genetic relatedness matrix
Daytime napping	PMID: 33568662	Participants were asked "Do you have a nap during the day?" with responses Never/rarely, Sometimes, Usually, prefer not to answer. Responses were treated as continuous variable in the GWAS. Prefer not to answer responses were set to missing.	Never or rarely/sometimes/always	BOLT-LMM	Age, sex, 10 principal components of ancestry, genotyping array and genetic correlation matrix with a maximum per SNP missingness of 10% and per sample missingness of 40%

Leisure sedentary behavior (TV watching)	PMID: 32317632	During the first visit, participants were asked three questions, “In a typical day, how many hours do you spend watching TV?”, “In a typical day, how many hours do you spend using the computer? (Do not include using a computer at work)” and “In a typical day, how many hours do you spend driving?”. Participants outside a 99.5% range on the right side of the normal distribution were excluded on a per-phenotype basis.	Hours	BOLT-LMM	age-squared, age, sex, age-sex interaction, the first 30 principal components and genotyping array
Leisure sedentary behavior (computer use)	PMID: 32317632		Hours		
Moderate to vigorous physical activity levels	PMID: 29899525	Moderate-to-vigorous physical activity was calculated by taking the sum of total minutes/week of moderate physical activity multiplied by four and the total number of vigorous physical activity minutes/week multiplied by eight, corresponding to their metabolic equivalents.	MET-minutes/week	BOLT-LMM	Age, sex, genotyping chip, first 10 genomic principal components, and center as independent variables
10+ minutes vigorous activity (≥3 vs 0 days/week)	PMID: 29899525	Participants were asked: “In a typical week, how many days did you do 10 minutes or more of vigorous physical activity? (These are activities that make you sweat or breathe hard such as fast cycling, aerobics, heavy lifting)”. Individuals who selected “prefer not to answer” or “do not know” on the above questions, those reporting not being able to walk, and individuals reporting more than 16 hours vigorous physical activity per day were excluded.	Events		
Strenuous sports or other exercises (≥2-3 vs. 0 days/week)	PMID: 29899525	Participants were asked “In the last 4 weeks did you spend any time doing the following?” to assess the frequency and typical duration of “strenuous sports” and of “other exercises”. The possible responses to the initial question were: ‘walking for pleasure’, ‘other exercises’, ‘strenuous sports’, ‘light DIY’, ‘heavy DIY’, ‘none of the above’, and ‘prefer not to answer’. Individuals spending 2-3 days/week or more doing strenuous sports or other exercises were identified, for a duration of 15- 30 minutes or greater. Controls were those individuals who did not indicate spending any time in the last 4 weeks doing either strenuous sports or other exercises. Individuals that did not fall into either of these two groups were excluded.	Events		
Health status					
Childhood-onset asthma	PMID: 30929738	Childhood-onset asthma: a child or teenager, specifically at or before age 19 (n = 13,962) was first diagnosed as asthma; Adult-onset asthma: a young or middle- aged adult, between the ages of 20 and 39 (n = 11,709); or an older adult, between the ages of 40 and 60 (n = 14,873), was first diagnosed as asthma.	Events	BOLT-LMM	Age, sex, and an indicator of the genotyping array
Adult-onset asthma	PMID: 30929738		Events		
Type 2 diabetes	PMID: 30297969	Summary-level data for type 2 diabetes were retrieved from the DIAbetes Genetics Replication And Meta-analysis (DIAGRAM) consortium, which contains 32 studies for 898,130 European individuals (74124 cases and 824006 controls).	Events	Linear mixed model	Age, sex, and the first 10 genetic principal components
Coronary artery disease	PMID: 29212778	CAD was defined using the following ICD 10 codes: I21-I25 covering ischemic heart diseases and the following Office of Population Censuses and Surveys Classification of Interventions and Procedures, version 4 (OPCS-4) codes: K40-K46, K49, K50 and K75 which includes replacement, transluminal balloon angioplasty, and other therapeutic transluminal operations on coronary artery and percutaneous transluminal balloon angioplasty and insertion of stent into coronary artery. Self-reported CAD was also used in the definition (heart attack/myocardial infarction, coronary angioplasty +/- stent and triple heart bypass).	Events	BOLT-LMM	Age, gender, the first 30 principal components to account for population stratification and genotyping array
Atrial fibrillation	PMID: 30061737	Summary-level data from the selected cohorts including HUNT, deCODE, MGI, DiscovEHR, UK Biobank and AFGen Consortium.	Events	BOLT-LMM	Age, sex and the first 4 principal components
Ulcerative colitis	PMID: 26192919	Recruitment of patients and matched controls genotyped with the Immunochip was performed in 15 countries in Europe, North America and Oceania. Diagnosis of IBD was based on accepted radiologic, endoscopic, and histopathologic evaluation. All included cases fulfill clinical criteria for IBD.	Events	Linear mixed model	The 7 principal components
Crohn's disease	PMID: 26192919		Events		The 10 principal components
Nutritional & biochemical biomarkers					
Fasting glucose	PMID: 34059833	Analyses included data for FG and 2hGlu measured in mmol/l, FI measured in pmol/l, and HbA1c in %. Individuals were excluded if they had type 1 or type 2 diabetes (defined by physician diagnosis); reported use of diabetes-relevant medication(s); or had a FG ≥7 mmol/L, 2hGlu ≥11.1mmol/L, or HbA1c ≥ 6.5%. 2h Glu measures were obtained 120 minutes after a glucose challenge in an oral glucose tolerance test (OGTT). Measures for FG and FI taken from whole blood were corrected to plasma level using the correction factor 1.1380.	mmol/L	Linear model	study-specific covariates, and principal components
Fating insulin	PMID: 34059833		pmol/L		
2-hour blood glucose	PMID: 34059833		mmol/L		
Glycosylated hemoglobin (HbA1c)	PMID: 34059833		Percentage		
HDL cholesterol	PMID: 24097068	Blood lipid levels were typically measured after >8 h of fasting. Individuals known to be on lipid-lowering medication were excluded. LDL cholesterol levels were directly measured in ten studies (24% of total study individuals) and were estimated using the Friedewald formula.	mg/dL	BOLT-LMM and SAIGE	Age, age-squared, principal components of ancestry and any necessary study-specific covariates
LDL cholesterol	PMID: 24097068		mg/dL		
Total cholesterol	PMID: 24097068		mg/dL		
Triglycerides	PMID: 24097068		mg/dL		
Adiponectin	PMID: 22479202	Adiponectin levels were measured using ELISA or RIA methods	ln(mg/dL)	Addictive model	Age, sex, BMI, principal components of population stratification, study sites and for family structure in cohorts
Leptin	PMID: 26833098	Circulating leptin levels in serum	log(ng/mL)	Linear regression model	Age, age-squared and any necessary study-specific covariates

Vitamin C	PMID: 33203707	Plasma vitamin C was measured using high-performance liquid chromatography with ultraviolet detection in EPIC-InterAct and EPIC-CVD using samples that had been stored at −196°C (−150°C for Danish samples). In EPIC-Norfolk and Fenland, plasma vitamin C was measured with a fluorometric assay using samples stored at −70°C. For each of these studies, plasma was stabilized in a standardized volume of metaphosphoric acid. The cohorts included the meta-analysis of GWAS of plasma vitamin C levels were the Fenland study (n = 10,771), European Prospective Investigation into Cancer and Nutrition (EPIC)-InterAct study (n== 16,841), EPIC Norfolk study (n = 16,756, excluding duplicated samples with EPIC-InterAct), and the EPIC-CVD study (n = 7,650, excluding duplicated samples with EPIC-InterAct or EPIC-Norfolk).	μmol/L	Linear regression model	Age, sex, study center and the first 10 genetic principal components of ancestry
25-Hydroxyvitamin D	PMID: 32242144	Vitamin D 25OHD levels were measured in blood samples collected at two instances: the initial assessment visit, conducted between 2006 and 2010, and a repeat assessment visit, conducted between 2012 and 2013. The Diasorin Liason®, a chemiluminescent immunoassay (CLIA) was used for the quantitative determination of 25OHD. The assay measures total 25OHD concentration (i.e., 25OHD3 and 25OHD2). Participants with 25OHD concentrations below or above the validated range for the assay (10–375 nmol L−1) were excluded. The average within-laboratory coefficient of variation (CV) (and standard deviation) ranged from 5.04 (4.73) to 6.14 (2.21).	nmol/L	Linear model	Age at time of assessment, sex, assessment month, assessment centre, supplement-intake information, genotyping batch and the first 40 ancestry principal components
Nutritional & developmental status					
Body mass index	MRC-IEU	Dataset: ukb-b-19953; Category: continuous; 21001: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Kg/m^2	BOLT-LMM	Sex and genotype array
Body fat percentage	MRC-IEU	Dataset: ukb-b-8909; Category: continuous; 23099: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Percentage		
Whole body fat mass	MRC-IEU	Dataset: ukb-b-19393; Category: continuous; 23100: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Kg		
Whole body fat-free mass	MRC-IEU	Dataset: ukb-b-13354; Category: continuous; 23101: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Kg		
Visceral adipose tissue	PMID: 31501611	Initially, two UKBB subcohorts were constructed: one training dataset with VAT mass measured by DXA (instance 2; n=5109), to which the prediction models were calibrated; and one application dataset (instances 0 and 1; n=502638), in which VAT mass was predicted using the calibrated prediction models. To avoid potential bias due to population structure, only white British participants were included in the analysis, and all entries of “do not know”, “prefer not to answer” or “NA” for any of the explored predictor variables or in the response were set to missing. After removal, n=4212 participants remained in the training dataset and n=397,170 participants remained in the application dataset.	Kg	BOLT-LMM	Age, a batch indicator variable for the two genotyping arrays and the first 10 principal components
Waist circumference	MRC-IEU	Dataset: ukb-b-9405; Category: continuous; 48: Output from GWAS pipeline using Phesant derived variables from UKBiobank	cm	BOLT-LMM	Sex and genotype array
Hip circumference	MRC-IEU	Dataset: ukb-b-15590; Category: continuous; 49: Output from GWAS pipeline using Phesant derived variables from UKBiobank	cm		
Waist-to-hip ratio	PMID: 30239722	The waist-to-hip ratio is the dimensionless ratio of the circumference of the waist to that of the hip. In this study, previous GWAS dataset of the GIANT consortium studies with new GWAS dataset of the waist-to-hip ratio in participants of the UK Biobank.	Percentage	BOLT-LMM	Sex, age, age-squared and assessment centre
Standing height	MRC-IEU	Dataset: ukb-b-10787; Category: continuous; 50: Output from GWAS pipeline using Phesant derived variables from UKBiobank	cm	BOLT-LMM	Sex and genotype array
Sitting height	MRC-IEU	Dataset: ukb-b-16881; Category: continuous; 20015: Output from GWAS pipeline using Phesant derived variables from UKBiobank	cm		
Hand grip strength (left)	MRC-IEU	Dataset: ukb-b-7478; Category: continuous; 46: Output from GWAS pipeline using Phesant derived variables from UKBiobank.	Kg	BOLT-LMM	Gestational age, principal components, array or kinship matrix
Hand grip strength (right)	MRC-IEU	Dataset: ukb-b-10215; Category: continuous; 47: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Kg		
Birth weight	PMID: 31043758	The data of birth weight was collected from the parental or self-reported report, birth register or medical record.	Kg		
Childhood BMI	PMID: 26604143	The discovery analysis included 20 studies with an age range from 3 to 10 years. Different centers had own standard to define recruit the obese child. The Danish Childhood Obesity Biobank defined that children were received from the age of three years if their BMI was above the 90th percentile for sex and age according to the Danish BMI charts. In GOYA study, Cases are defined as having at least one BMI above the age specific 95% percentile and controls as having all BMI below the 50th percentile.	Kg/m^2	Linear regression model	Principal components if this was deemed needed in the individual studies
Emotional factors					
Major depressive disorder	PMID: 30718901	Case and control status of broad depression was defined by the participants’ response to the questions ‘Have you ever seen a general practitioner for nerves, anxiety, tension or depression?’ or ‘Have you ever seen a psychiatrist for nerves, anxiety, tension or depression?’. Exclusions were applied to participants who were identified with bipolar disorder, schizophrenia, personality disorder or prescriptions for antipsychotic medications.	Events	BOLT-LMM	Sex, age, genotyping array, and the first 8 principal components
Anxious feeling	PMID: 29500382	Neuroticism was measured using the Eysenck Personality Questionnaire, Revised Short Form (EPQ-R-S)11, consisting of 12 dichotomous items (‘yes’ or ‘no’). Participants completing <9 items were excluded from further analysis. The description of anxious or tense feeling was recorded as "Would you call yourself tense or ‘highly strung’?"	Events		
Schizophrenia	PMID: 35396580	EUR schizophrenia patients and controls were obtained from the PGC. All samples of EUR ancestry were included in this study except for the deCODE samples (1513 cases and 66236 controls).	Events	Additive logistic regression model	The first 20 principal components

Bipolar disorder	PMID: 34002096	Cases were required to meet international consensus criteria (DSM-IV, ICD-9, or ICD-10) for a lifetime diagnosis of bipolar disorder established using structured diagnostic instruments from assessments by trained interviewers, clinician-administered checklists, or medical record review. Controls in most samples were screened for the absence of lifetime psychiatric disorders, as indicated.	Events	Additive logistic regression model	Principal components 1-5
Anorexia nervosa	PMID: 31308545	The definition of anorexia nervosa established a lifetime diagnosis of anorexia nervosa via hospital or register records, structured clinical interviews, or on-line questionnaires, whereas in the UK Biobank cases self-reported a diagnosis of anorexia nervosa. Controls were carefully matched for ancestry, and some, but not all control cohorts were screened for lifetime eating and/or some or all psychiatric disorders	Events	Additive model	The phenotype in univariate analysis ($P < 0.05$) and the 5 ancestry principal components
Life satisfaction	PMID: 30643256	Life satisfaction refers to a longer-term evaluation of one’s life. A typical survey question would be “How satisfied are you with your life as a whole?”	Life satisfaction score	Linear regression model	Sex, z-score of age at the time of assessment, age-squared, the first 4 principal components, study-specific covariates such as study site or batch effects
Positive affect	PMID: 30643256	Positive affect refers to the frequency and intensity of positive emotions and feeling happy. Typical survey questions that gauge positive affect include “During the past week, I was happy?” and “How would you rate your emotional wellbeing at present	Positive affect score		
Socioeconomic factors					
Income	MRC-IEU	Dataset: ukb-b-7408; Category: Categorical Ordered; 738: Output from GWAS pipeline using Phesant derived variables from UKBiobank	Dollars	BOLT-LMM	Sex and genotype array
Educational attachment	PMID: 30038396	The Educational years phenotype was constructed by mapping each major educational qualification that can be identified from the cohort’s survey measure to an International Standard Classification of Education (ISCED) category and imputing a years-of-education equivalent for each ISCED category.	Years	BOLT-LMM	Age, sex, the first 10 principal components
Intelligence	PMID: 29942086	Different measures of intelligence were assessed in each cohort but were all operationalized to index a common latent g factor underlying multiple dimensions of cognitive functioning.	<i>g</i> phenotype	Linear regression model	Age, sex, ancestry principal components

MRC-IEU, MRC-IEU; BOLT-LMM, association analysis assuming a Bayesian mixture-of-normals prior for the random effect attributed to SNPs other than the one being tested; SAIGE, Scalable and Accurate Implementation of GEneralized mixed model.

Table S3. The summary of statistical genetic correlation ($P \leq 0.05$)

Exposure1	Exposure2	Rg	SE	Z-score	P value
10+ minutes vigorous activity	10+ minutes vigorous activity	1	2.160E-07	4.630E+06	0
25-Hydroxyvitamin D	25-Hydroxyvitamin D	1	2.050E-07	4.880E+06	0
2-hour blood glucose	2-hour blood glucose	1	2.540E-07	3.940E+06	0
Adiponectin	Adiponectin	1	2.000E-04	6.152E+03	0
Adult-onset asthma	Adult-onset asthma	1	3.810E-07	2.620E+06	0
Age of initiation of regular smoking	Age of initiation of regular smoking	1	8.370E-07	1.190E+06	0
Alcohol consumption	Alcohol consumption	1	3.810E-06	2.625E+05	0
Anorexia nervosa	Anorexia nervosa	1	1.520E-08	6.590E+07	0
Anxious feeling	Anxious feeling	1	4.190E-06	2.389E+05	0
Anxious feeling	Life satisfaction	-0.718	0.018	-41.082	0
Anxious feeling	Positive affect	-0.713	0.018	-40.297	0
Atrial fibrillation	Atrial fibrillation	1	6.440E-06	1.553E+05	0
Bipolar disorder	Bipolar disorder	1	6.760E-07	1.480E+06	0
Birth weight	Birth weight	1	2.220E-07	4.510E+06	0
BMI	BMI	1	1.300E-07	7.720E+06	0
BMI	Visceral adipose tissue	0.932	4.415E-03	211.000	0
BMI	Whole body fat mass	0.897	5.066E-03	177.000	0
BMI	Waist circumference	0.900	5.310E-03	169.500	0
BMI	Body fat percentage	0.852	5.932E-03	143.600	0
BMI	Hip circumference	0.849	7.572E-03	112.100	0
Body fat percentage	Body fat percentage	1	4.540E-08	2.200E+07	0
Body fat percentage	Whole body fat mass	0.948	2.400E-03	387.342	0
Body fat percentage	Visceral adipose tissue	0.929	5.000E-03	184.798	0
Body fat percentage	Waist circumference	0.877	5.700E-03	152.524	0
Body fat percentage	Hip circumference	0.811	8.100E-03	99.559	0
Breakfast skipping	Breakfast skipping	1	1.080E-06	9.236E+05	0
Caffeine consumption	Caffeine consumption	1	9.270E-07	1.080E+06	0
Childhood BMI	Childhood BMI	1	8.930E-07	1.120E+06	0
Childhood-onset asthma	Childhood-onset asthma	1	1.200E-05	8.349E+04	0
Cigarette consumption	Cigarette consumption	1	5.900E-07	1.700E+06	0
Coffee consumption	Coffee consumption	1	1.890E-06	5.278E+05	0
Coffee consumption	Caffeine consumption	0.950	8.400E-03	113.101	0
Coronary artery disease	Coronary artery disease	1	2.040E-07	4.900E+06	0
Crohn's disease	Crohn's disease	1	3.010E-08	3.320E+07	0
Daytime napping	Daytime napping	1	1.830E-07	5.460E+06	0
Daytime sleepiness	Daytime sleepiness	1	1.400E-08	7.120E+07	0
Daytime sleepiness	Daytime napping	0.701	0.017	42.500	0
Educational attainment	Educational attainment	1	2.710E-08	3.690E+07	0
Fasting glucose	Fasting glucose	1	2.470E-06	4.051E+05	0
Fasting insulin	Fasting insulin	1	4.530E-08	2.210E+07	0

Hand grip strength (left)	Hand grip strength (left)	1	1.790E-07	5.600E+06	0
Hand grip strength (left)	Hand grip strength (right)	0.981	2.900E-03	341.203	0
Hand grip strength (right)	Hand grip strength (right)	1	3.020E-07	3.320E+06	0
HbA1c	HbA1c	1	1.700E-06	5.887E+05	0
HDL cholesterol	HDL cholesterol	1	5.810E-06	1.722E+05	0
Hip circumference	Hip circumference	1	8.000E-08	1.250E+07	0
Income	Income	1	4.200E-08	2.380E+07	0
Income	Educational attainment	0.804	0.012	67.234	0
Insomnia	Insomnia	1	2.590E-07	3.860E+06	0
Intake of carbohydrate	Intake of carbohydrate	1	5.510E-08	1.820E+07	0
Intake of fat	Intake of fat	1	3.180E-07	3.140E+06	0
Intake of total sugar	Intake of total sugar	1	1.330E-06	7.500E+05	0
Intelligence	Intelligence	1	1.010E-06	9.857E+05	0
Intelligence	Educational attainment	0.807	0.011	65.687	0
LDL cholesterol	LDL cholesterol	1	2.000E-04	4.559E+03	0
LDL cholesterol	Total cholesterol	0.969	0.022	46.387	0
Leisure sedentary behaviour (computer use)	Leisure sedentary behaviour (computer use)	1	1.430E-07	7.000E+06	0
Leisure sedentary behaviour (TV watching)	Leisure sedentary behaviour (TV watching)	1	6.860E-08	1.460E+07	0
Leisure sedentary behaviour (TV watching)	Educational attainment	-0.667	0.012	-54.600	0
Leptin	Leptin	1	1.310E-06	7.659E+05	0
Life satisfaction	Life satisfaction	1	5.470E-06	1.828E+05	0
Life satisfaction	Positive affect	0.975	2.900E-03	341.356	0
Lifetime smoking	Lifetime smoking	1	1.050E-06	9.496E+05	0
Long sleep	Long sleep	1	3.690E-07	2.710E+06	0
Major depressive disorder	Major depressive disorder	1	5.000E-09	2.000E+08	0
Major depressive disorder	Life satisfaction	-0.859	0.011	-81.156	0
Major depressive disorder	Positive affect	-0.844	0.011	-74.688	0
Moderate to vigorous physical activity levels	Moderate to vigorous physical activity levels	1	2.430E-07	4.120E+06	0
Moderate to vigorous physical activity levels	10+ minutes vigorous activity	0.853	0.015	58.800	0
Morning person	Morning person	1	7.930E-09	1.260E+08	0
Positive affect	Positive affect	1	1.570E-06	6.372E+05	0
Schizophrenia	Schizophrenia	1	1.150E-07	8.710E+06	0
Schizophrenia	Bipolar disorder	0.684	0.017	41.381	0
Short sleep	Short sleep	1	2.720E-07	3.670E+06	0
Sitting height	Sitting height	1	2.270E-06	4.407E+05	0
Smoking cessation	Smoking cessation	1	6.930E-07	1.440E+06	0
Smoking initiation	Smoking initiation	1	5.200E-07	1.920E+06	0
Smoking initiation	Lifetime smoking	0.869	0.011	77.467	0
Standing height	Standing height	1	3.570E-06	2.803E+05	0

Standing height	Sitting height	0.846	6.600E-03	129.010	0
Strenuous sports or other exercises	Strenuous sports or other exercises	1	1.910E-06	5.227E+05	0
Total cholesterol	Total cholesterol	1	3.000E-04	2.970E+03	0
Triglycerides	Triglycerides	1	4.560E-05	2.191E+04	0
Type 2 diabetes	Type 2 diabetes	1	6.490E-09	1.540E+08	0
Ulcerative colitis	Ulcerative colitis	1	6.450E-07	1.550E+06	0
Visceral adipose tissue	Visceral adipose tissue	1	3.940E-07	2.540E+06	0
Visceral adipose tissue	Waist circumference	0.979	2.600E-03	369.786	0
Visceral adipose tissue	Hip circumference	0.829	0.010	82.933	0
Visceral adipose tissue	Waist-to-hip ratio	0.790	0.012	67.832	0
Vitamin C	Vitamin C	1	4.940E-06	2.023E+05	0
Waist circumference	Waist circumference	1	1.110E-07	8.990E+06	0
Waist circumference	Hip circumference	0.868	7.400E-03	117.960	0
Waist circumference	Waist-to-hip ratio	0.777	0.010	75.845	0
Waist-to-hip ratio	Waist-to-hip ratio	1	7.620E-09	1.310E+08	0
Whole body fat mass	Whole body fat mass	1	1.060E-07	9.400E+06	0
Whole body fat mass	Waist circumference	0.947	3.300E-03	283.106	0
Whole body fat mass	Hip circumference	0.927	3.300E-03	283.153	0
Whole body fat mass	Visceral adipose tissue	0.959	3.800E-03	250.087	0
Whole body fat mass	Whole body fat-free mass	0.646	0.012	54.756	0
Whole body fat-free mass	Whole body fat-free mass	1	8.360E-07	1.200E+06	0
Whole body fat-free mass	Hip circumference	0.764	9.100E-03	84.395	0
Whole body fat-free mass	Waist circumference	0.660	0.012	55.764	0
Whole body fat-free mass	Sitting height	0.650	0.013	50.285	0
Whole body fat-free mass	Standing height	0.643	0.013	48.033	0
10+ minutes vigorous activity	Strenuous sports or other exercises	0.698	0.019	36.100	3.100E-285
Whole body fat-free mass	Visceral adipose tissue	0.568	0.016	35.950	5.160E-283
Intake of total sugar	Intake of carbohydrate	0.730	0.021	35.539	1.230E-276
BMI	Whole body fat-free mass	0.572	0.017	33.940	1.450E-252
BMI	Waist-to-hip ratio	0.610	0.018	33.880	1.360E-251
Insomnia	Short sleep	0.645	0.019	33.473	1.210E-245
Leisure sedentary behaviour (computer use)	Educational attainment	0.508	0.016	32.600	1.910E-232
Lifetime smoking	Age of initiation of regular smoking	-0.674	0.021	-31.880	5.050E-223
Lifetime smoking	Educational attainment	-0.471	0.015	-31.637	1.160E-219
Whole body fat mass	Waist-to-hip ratio	0.608	0.020	31.178	2.100E-213
Body fat percentage	Waist-to-hip ratio	0.621	0.021	30.124	2.350E-199
Smoking initiation	Age of initiation of regular smoking	-0.684	0.023	-30.115	3.090E-199
Major depressive disorder	Anxious feeling	0.648	0.022	30.022	5.010E-198
Leisure sedentary behaviour (TV watching)	Income	-0.574	0.019	-29.600	1.560E-192
Type 2 diabetes	Waist circumference	0.602	0.021	29.053	1.400E-185
Type 2 diabetes	Waist-to-hip ratio	0.584	0.020	28.943	3.420E-184
Leisure sedentary behaviour (TV watching)	Visceral adipose tissue	0.463	0.017	27.900	7.840E-172

watching)					
Standing height	Hand grip strength (right)	0.460	0.017	27.791	5.630E-170
Age of initiation of regular smoking	Educational attainment	0.599	0.022	27.531	7.400E-167
Whole body fat-free mass	Hand grip strength (left)	0.409	0.015	27.240	2.190E-163
Leisure sedentary behaviour (TV watching)	Body fat percentage	0.436	0.016	27.000	1.530E-160
Intelligence	Leisure sedentary behaviour (computer use)	0.501	0.019	26.793	3.920E-158
Lifetime smoking	Smoking cessation	0.658	0.025	26.702	4.440E-157
Type 2 diabetes	Visceral adipose tissue	0.614	0.023	26.667	1.130E-156
Standing height	Hand grip strength (left)	0.429	0.016	26.509	7.670E-155
Waist-to-hip ratio	Educational attainment	-0.313	0.012	-26.360	3.910E-153
Strenuous sports or other exercises	Educational attainment	0.508	0.019	26.350	5.160E-153
Visceral adipose tissue	Educational attainment	-0.381	0.015	-26.302	1.820E-152
Lifetime smoking	Cigarette consumption	0.545	0.021	26.225	1.370E-151
Body fat percentage	Educational attainment	-0.342	0.013	-25.914	4.630E-148
Leisure sedentary behaviour (computer use)	Income	0.498	0.019	25.700	3.100E-145
Whole body fat-free mass	Hand grip strength (right)	0.422	0.017	25.510	1.540E-143
Intelligence	Leisure sedentary behaviour (TV watching)	-0.442	0.017	-25.390	3.250E-142
BMI	Educational attainment	-0.333	0.013	-25.220	2.550E-140
BMI	Type 2 diabetes	0.566	0.023	25.043	2.100E-138
Lifetime smoking	Income	-0.452	0.019	-24.448	5.250E-132
Smoking initiation	Educational attainment	-0.362	0.015	-24.094	2.860E-128
Leisure sedentary behaviour (TV watching)	Whole body fat mass	0.397	0.017	23.700	3.070E-124
Lifetime smoking	Waist circumference	0.352	0.015	23.604	3.510E-123
Leisure sedentary behaviour (TV watching)	Waist circumference	0.388	0.017	23.600	7.230E-123
BMI	Leisure sedentary behaviour (TV watching)	0.404	0.017	23.370	8.480E-121
BMI	Lifetime smoking	0.354	0.015	23.210	3.290E-119
Sitting height	Hand grip strength (right)	0.414	0.018	23.163	1.080E-118
Hip circumference	Sitting height	0.347	0.015	23.059	1.190E-117
Lifetime smoking	Visceral adipose tissue	0.401	0.018	22.866	1.020E-115
Lifetime smoking	Body fat percentage	0.327	0.014	22.715	3.200E-114
Waist circumference	Educational attainment	-0.294	0.013	-22.600	4.350E-113
Lifetime smoking	Whole body fat mass	0.325	0.014	22.504	3.770E-112
Type 2 diabetes	Whole body fat mass	0.540	0.024	22.479	6.600E-112
Strenuous sports or other exercises	Income	0.542	0.024	22.322	2.270E-110
Insomnia	Life satisfaction	-0.451	0.020	-22.266	7.950E-110
Whole body fat mass	Educational attainment	-0.294	0.013	-22.173	6.330E-109
Sitting height	Hand grip strength (left)	0.384	0.017	22.106	2.800E-108

Insomnia	Positive affect	-0.446	0.020	-22.051	9.250E-108
Leisure sedentary behaviour (TV watching)	Waist-to-hip ratio	0.352	0.017	21.300	1.690E-100
Alcohol consumption	Intake of carbohydrate	-0.644	0.030	-21.270	1.970E-100
Type 2 diabetes	Body fat percentage	0.525	0.025	21.106	7.040E-99
Lifetime smoking	Waist-to-hip ratio	0.349	0.017	21.096	8.600E-99
Whole body fat-free mass	Birth weight	0.370	0.018	21.057	1.990E-98
BMI	Childhood BMI	0.641	0.031	20.950	1.900E-97
Bipolar disorder	Major depressive disorder	0.451	0.022	20.708	2.940E-95
Smoking cessation	Educational attainment	-0.502	0.024	-20.689	4.310E-95
Insomnia	Major depressive disorder	0.458	0.022	20.530	1.150E-93
Alcohol consumption	Smoking initiation	0.407	0.020	20.400	1.710E-92
Short sleep	Educational attainment	-0.358	0.018	-19.859	9.310E-88
Waist-to-hip ratio	Income	-0.318	0.016	-19.816	2.150E-87
Standing height	Birth weight	0.379	0.019	19.589	1.930E-85
Childhood-onset asthma	Adult-onset asthma	0.737	0.038	19.461	2.350E-84
Body fat percentage	Whole body fat-free mass	0.369	0.019	19.252	1.350E-82
Hip circumference	Standing height	0.298	0.016	18.997	1.810E-80
Coronary artery disease	Waist-to-hip ratio	0.365	0.019	18.993	1.960E-80
Intake of fat	Intake of carbohydrate	-0.602	0.032	-18.891	1.350E-79
Leisure sedentary behaviour (TV watching)	Strenuous sports or other exercises	-0.467	0.025	-18.800	7.150E-79
Intelligence	Moderate to vigorous physical activity levels	-0.438	0.024	-18.520	1.420E-76
Type 2 diabetes	Coronary artery disease	0.406	0.022	18.431	7.440E-76
Lifetime smoking	Leisure sedentary behaviour (TV watching)	0.380	0.021	18.119	2.270E-73
Hip circumference	Childhood BMI	0.563	0.031	18.101	3.140E-73
Age of initiation of regular smoking	Income	0.532	0.029	18.081	4.530E-73
BMI	Income	-0.297	0.017	-17.970	3.320E-72
Visceral adipose tissue	Income	-0.345	0.019	-17.768	1.260E-70
Age of initiation of regular smoking	Leisure sedentary behaviour (TV watching)	-0.456	0.026	-17.374	1.300E-67
Alcohol consumption	Lifetime smoking	0.341	0.020	17.080	1.950E-65
Schizophrenia	Life satisfaction	-0.339	0.020	-17.083	1.980E-65
Body fat percentage	Income	-0.297	0.018	-16.885	5.850E-64
Whole body fat mass	Childhood BMI	0.534	0.032	16.869	7.600E-64
Schizophrenia	Positive affect	-0.342	0.020	-16.835	1.340E-63
Smoking initiation	Visceral adipose tissue	0.303	0.018	16.680	1.830E-62
Smoking initiation	Income	-0.321	0.019	-16.651	3.000E-62
Coronary artery disease	Waist circumference	0.330	0.020	16.597	7.340E-62
Smoking initiation	Waist-to-hip ratio	0.257	0.016	16.590	8.280E-62
Leisure sedentary behaviour (TV watching)	Hip circumference	0.297	0.018	16.500	5.000E-61

Lifetime smoking	Hip circumference	0.242	0.015	16.160	9.740E-59
Intake of carbohydrate	Breakfast skipping	-0.536	0.033	-16.149	1.160E-58
Waist circumference	Income	-0.269	0.017	-16.113	2.070E-58
Whole body fat mass	Sitting height	0.219	0.014	15.946	3.060E-57
Sitting height	Birth weight	0.340	0.021	15.941	3.280E-57
Bipolar disorder	Life satisfaction	-0.385	0.024	-15.927	4.140E-57
Long sleep	Daytime napping	0.421	0.026	15.926	4.200E-57
Waist circumference	Childhood BMI	0.517	0.033	15.903	6.040E-57
Type 2 diabetes	Hip circumference	0.435	0.027	15.863	1.140E-56
Leisure sedentary behaviour (TV watching)	Leisure sedentary behaviour (computer use)	-0.316	0.020	-15.800	2.780E-56
Lifetime smoking	Major depressive disorder	0.336	0.021	15.795	3.370E-56
BMI	Smoking initiation	0.259	0.016	15.790	3.860E-56
Smoking cessation	Income	-0.480	0.031	-15.759	5.950E-56
Smoking initiation	Waist circumference	0.266	0.017	15.722	1.080E-55
Long sleep	Educational attainment	-0.351	0.022	-15.618	5.540E-55
Coronary artery disease	Educational attainment	-0.260	0.017	-15.539	1.900E-54
BMI	Coronary artery disease	0.325	0.021	15.497	3.620E-54
Coronary artery disease	Visceral adipose tissue	0.375	0.024	15.442	8.590E-54
Smoking initiation	Whole body fat mass	0.247	0.016	15.265	1.300E-52
Schizophrenia	Anxious feeling	0.365	0.024	15.185	4.470E-52
Schizophrenia	Major depressive disorder	0.324	0.021	15.180	4.770E-52
Standing height	Educational attainment	0.182	0.012	15.108	1.440E-51
Insomnia	Educational attainment	-0.268	0.018	-15.035	4.310E-51
Type 2 diabetes	Educational attainment	-0.252	0.017	-14.878	4.580E-50
Visceral adipose tissue	Childhood BMI	0.526	0.035	14.853	6.630E-50
Bipolar disorder	Positive affect	-0.376	0.025	-14.838	8.300E-50
Smoking initiation	Body fat percentage	0.238	0.016	14.784	1.860E-49
Lifetime smoking	Breakfast skipping	0.450	0.031	14.684	8.230E-49
Atrial fibrillation	Whole body fat-free mass	0.307	0.021	14.672	9.790E-49
Smoking initiation	Major depressive disorder	0.309	0.021	14.582	3.670E-48
BMI	Anorexia nervosa	-0.329	0.023	-14.560	5.390E-48
Age of initiation of regular smoking	Waist-to-hip ratio	-0.317	0.022	-14.526	8.310E-48
Strenuous sports or other exercises	Body fat percentage	-0.298	0.021	-14.479	1.640E-47
Short sleep	Income	-0.355	0.025	-14.443	2.790E-47
Body fat percentage	Childhood BMI	0.460	0.032	14.440	2.890E-47
Ulcerative colitis	Crohn's disease	0.701	0.049	14.409	4.570E-47
Bipolar disorder	Anxious feeling	0.369	0.026	14.402	5.000E-47
Type 2 diabetes	Lifetime smoking	0.252	0.018	14.376	7.350E-47
Intelligence	Waist-to-hip ratio	-0.205	0.014	-14.370	8.010E-47
Smoking initiation	Intake of carbohydrate	-0.386	0.027	-14.311	1.880E-46
Intelligence	Age of initiation of regular smoking	0.361	0.025	14.237	5.390E-46
Intelligence	Long sleep	-0.380	0.027	-14.171	1.380E-45
Whole body fat mass	Standing height	0.198	0.014	14.163	1.560E-45

Standing height	Income	0.233	0.016	14.160	1.610E-45
Anorexia nervosa	Body fat percentage	-0.347	0.025	-14.158	1.660E-45
Anorexia nervosa	Whole body fat mass	-0.336	0.024	-14.018	1.210E-44
Strenuous sports or other exercises	Visceral adipose tissue	-0.326	0.024	-13.911	5.460E-44
Coronary artery disease	Body fat percentage	0.310	0.022	13.858	1.140E-43
Coronary artery disease	Lifetime smoking	0.293	0.021	13.775	3.630E-43
Whole body fat mass	Income	-0.237	0.017	-13.766	4.080E-43
Hip circumference	Educational attainment	-0.190	0.014	-13.740	5.830E-43
Anorexia nervosa	Waist circumference	-0.334	0.024	-13.721	7.630E-43
Atrial fibrillation	Hip circumference	0.284	0.021	13.703	9.740E-43
Cigarette consumption	Smoking cessation	0.440	0.032	13.641	2.290E-42
Hip circumference	Waist-to-hip ratio	0.368	0.027	13.576	5.520E-42
Alcohol consumption	Intake of total sugar	-0.423	0.031	-13.550	7.470E-42
BMI	Age of initiation of regular smoking	-0.307	0.023	-13.510	1.380E-41
Anorexia nervosa	Visceral adipose tissue	-0.354	0.026	-13.509	1.390E-41
Coronary artery disease	Whole body fat mass	0.285	0.021	13.405	5.680E-41
Age of initiation of regular smoking	Body fat percentage	-0.295	0.022	-13.358	1.070E-40
Smoking initiation	Smoking cessation	0.391	0.029	13.320	1.770E-40
Age of initiation of regular smoking	Visceral adipose tissue	-0.356	0.027	-13.309	2.060E-40
Coffee consumption	Waist circumference	0.293	0.022	13.220	6.720E-40
Short sleep	Leisure sedentary behaviour (TV watching)	0.313	0.024	13.198	8.970E-40
Intake of total sugar	Breakfast skipping	-0.531	0.040	-13.185	1.070E-39
Lifetime smoking	Intake of carbohydrate	-0.356	0.027	-13.178	1.170E-39
Major depressive disorder	Income	-0.306	0.023	-13.173	1.250E-39
Age of initiation of regular smoking	Waist circumference	-0.300	0.023	-13.172	1.280E-39
Smoking initiation	Breakfast skipping	0.403	0.031	13.135	2.070E-39
Type 2 diabetes	Leisure sedentary behaviour (TV watching)	0.287	0.022	13.128	2.290E-39
Anorexia nervosa	Hip circumference	-0.302	0.023	-13.114	2.750E-39
Moderate to vigorous physical activity levels	Strenuous sports or other exercises	0.347	0.026	13.100	3.010E-39
Smoking initiation	Leisure sedentary behaviour (TV watching)	0.275	0.021	13.079	4.340E-39
Intelligence	Visceral adipose tissue	-0.233	0.018	-13.066	5.180E-39
Insomnia	Leisure sedentary behaviour (TV watching)	0.279	0.022	13.007	1.120E-38
Leptin	Body fat percentage	0.829	0.064	12.960	2.070E-38
Lifetime smoking	Short sleep	0.333	0.026	12.956	2.170E-38
BMI	Coffee consumption	0.301	0.023	12.920	3.320E-38
Leptin	Whole body fat mass	0.814	0.063	12.882	5.710E-38
Lifetime smoking	Life satisfaction	-0.280	0.022	-12.842	9.580E-38
Leptin	Visceral adipose tissue	0.791	0.062	12.799	1.660E-37
Intelligence	Lifetime smoking	-0.252	0.020	-12.765	2.570E-37

Smoking initiation	Life satisfaction	-0.252	0.020	-12.730	4.020E-37
Intake of total sugar	Intake of fat	-0.511	0.040	-12.693	6.480E-37
Whole body fat-free mass	Childhood BMI	0.447	0.035	12.690	6.750E-37
Whole body fat-free mass	Waist-to-hip ratio	0.277	0.022	12.641	1.250E-36
Life satisfaction	Income	0.318	0.025	12.624	1.560E-36
Type 2 diabetes	Whole body fat-free mass	0.303	0.024	12.607	1.930E-36
Insomnia	Anxious feeling	0.326	0.026	12.569	3.140E-36
Smoking cessation	Leisure sedentary behaviour (TV watching)	0.388	0.031	12.534	4.850E-36
Coffee consumption	Whole body fat mass	0.283	0.023	12.529	5.210E-36
Leisure sedentary behaviour (computer use)	Moderate to vigorous physical activity levels	-0.329	0.026	-12.500	8.880E-36
Atrial fibrillation	Whole body fat mass	0.256	0.021	12.473	1.040E-35
Type 2 diabetes	HbA1c	0.445	0.036	12.452	1.360E-35
Insomnia	Income	-0.292	0.024	-12.421	2.000E-35
Coffee consumption	Hip circumference	0.306	0.025	12.352	4.740E-35
Strenuous sports or other exercises	Whole body fat mass	-0.258	0.021	-12.351	4.790E-35
Smoking initiation	Positive affect	-0.243	0.020	-12.348	5.000E-35
Positive affect	Income	0.308	0.025	12.333	6.040E-35
Intelligence	BMI	-0.181	0.015	-12.328	6.370E-35
Lifetime smoking	Strenuous sports or other exercises	-0.305	0.025	-12.328	6.400E-35
Lifetime smoking	Positive affect	-0.271	0.022	-12.281	1.140E-34
Cigarette consumption	Income	-0.286	0.023	-12.278	1.190E-34
Leptin	Waist circumference	0.774	0.063	12.205	2.920E-34
Short sleep	Major depressive disorder	0.309	0.026	12.028	2.530E-33
Intelligence	Body fat percentage	-0.191	0.016	-12.025	2.630E-33
Strenuous sports or other exercises	Waist-to-hip ratio	-0.258	0.022	-11.923	9.030E-33
Caffeine consumption	Educational attainment	0.244	0.021	11.920	9.350E-33
Atrial fibrillation	Waist circumference	0.251	0.021	11.910	1.050E-32
Short sleep	Life satisfaction	-0.284	0.024	-11.891	1.330E-32
Lifetime smoking	Insomnia	0.275	0.023	11.885	1.410E-32
Strenuous sports or other exercises	Waist circumference	-0.266	0.022	-11.883	1.450E-32
Cigarette consumption	Waist circumference	0.372	0.031	11.882	1.480E-32
Atrial fibrillation	Standing height	0.213	0.018	11.843	2.340E-32
BMI	Leptin	0.770	0.065	11.810	3.640E-32
BMI	Cigarette consumption	0.350	0.030	11.800	3.840E-32
Age of initiation of regular smoking	Whole body fat mass	-0.276	0.023	-11.796	4.090E-32
Hip circumference	Birth weight	0.201	0.017	11.792	4.320E-32
Daytime napping	Waist circumference	0.183	0.016	11.800	4.890E-32
Daytime napping	Waist-to-hip ratio	0.181	0.015	11.700	8.790E-32
Leptin	Hip circumference	0.741	0.064	11.576	5.430E-31
Coronary artery disease	Leisure sedentary behaviour (TV watching)	0.262	0.023	11.574	5.560E-31
Smoking initiation	Hip circumference	0.184	0.016	11.475	1.760E-30

Cigarette consumption	Hip circumference	0.309	0.027	11.410	3.720E-30
Short sleep	Visceral adipose tissue	0.260	0.023	11.381	5.180E-30
Atrial fibrillation	Sitting height	0.212	0.019	11.363	6.390E-30
BMI	Smoking cessation	0.285	0.025	11.330	9.360E-30
Short sleep	Positive affect	-0.276	0.025	-11.279	1.670E-29
Long sleep	Income	-0.373	0.033	-11.224	3.120E-29
Alcohol consumption	Breakfast skipping	0.321	0.029	11.200	3.870E-29
Cigarette consumption	Educational attainment	-0.285	0.026	-11.135	8.440E-29
Cigarette consumption	Whole body fat mass	0.345	0.031	11.103	1.210E-28
Sitting height	Educational attainment	0.143	0.013	11.091	1.380E-28
Intelligence	Standing height	0.153	0.014	11.056	2.060E-28
Short sleep	Strenuous sports or other exercises	-0.293	0.027	-11.038	2.490E-28
Short sleep	Waist-to-hip ratio	0.222	0.020	11.031	2.720E-28
Hand grip strength (right)	Birth weight	0.240	0.022	11.026	2.850E-28
Anorexia nervosa	Waist-to-hip ratio	-0.251	0.023	-11.006	3.600E-28
Coronary artery disease	Smoking initiation	0.223	0.021	10.909	1.040E-27
Sitting height	Income	0.203	0.019	10.896	1.210E-27
BMI	Short sleep	0.249	0.023	10.880	1.470E-27
Daytime napping	Whole body fat mass	0.170	0.016	10.900	1.590E-27
Cigarette consumption	Body fat percentage	0.330	0.030	10.846	2.090E-27
Daytime napping	Body fat percentage	0.175	0.016	10.800	2.220E-27
Hand grip strength (left)	Birth weight	0.232	0.022	10.750	5.940E-27
Coffee consumption	Visceral adipose tissue	0.256	0.024	10.718	8.410E-27
Waist circumference	Standing height	0.149	0.014	10.706	9.530E-27
Smoking cessation	Strenuous sports or other exercises	-0.397	0.037	-10.696	1.060E-26
Smoking initiation	Short sleep	0.236	0.022	10.695	1.070E-26
10+ minutes vigorous activity	Body fat percentage	-0.219	0.021	-10.600	2.740E-26
Coffee consumption	Body fat percentage	0.227	0.022	10.542	5.560E-26
Intelligence	Smoking cessation	-0.303	0.029	-10.529	6.380E-26
Smoking cessation	Waist circumference	0.265	0.025	10.418	2.040E-25
BMI	Strenuous sports or other exercises	-0.232	0.022	-10.400	2.390E-25
Waist circumference	Sitting height	0.147	0.014	10.401	2.460E-25
Coronary artery disease	Insomnia	0.242	0.023	10.367	3.510E-25
Coffee consumption	Whole body fat-free mass	0.283	0.027	10.338	4.760E-25
Insomnia	Strenuous sports or other exercises	-0.268	0.026	-10.334	4.950E-25
Coronary artery disease	Major depressive disorder	0.207	0.020	10.330	5.140E-25
Type 2 diabetes	HDL cholesterol	-0.431	0.042	-10.306	6.590E-25
Type 2 diabetes	Daytime napping	0.189	0.018	10.279	8.800E-25
Coronary artery disease	Atrial fibrillation	0.241	0.024	10.274	9.220E-25
Daytime napping	Visceral adipose tissue	0.205	0.020	10.300	1.060E-24
HDL cholesterol	Waist-to-hip ratio	-0.425	0.041	-10.258	1.090E-24
Cigarette consumption	Waist-to-hip ratio	0.299	0.029	10.234	1.390E-24
HDL cholesterol	Visceral adipose tissue	-0.398	0.039	-10.218	1.640E-24
Schizophrenia	Long sleep	0.310	0.030	10.218	1.650E-24

Short sleep	Waist circumference	0.232	0.023	10.194	2.100E-24
Smoking cessation	Visceral adipose tissue	0.297	0.029	10.194	2.100E-24
Coronary artery disease	Income	-0.238	0.023	-10.180	2.430E-24
Type 2 diabetes	Cigarette consumption	0.307	0.030	10.174	2.600E-24
Anorexia nervosa	Positive affect	-0.295	0.029	-10.165	2.830E-24
Age of initiation of regular smoking	Strenuous sports or other exercises	0.342	0.034	10.150	3.310E-24
Intelligence	Smoking initiation	-0.185	0.018	-10.144	3.510E-24
Smoking cessation	Body fat percentage	0.251	0.025	10.100	5.530E-24
Intelligence	Strenuous sports or other exercises	0.249	0.025	10.095	5.840E-24
Cigarette consumption	Age of initiation of regular smoking	-0.369	0.037	-10.035	1.070E-23
Leptin	Waist-to-hip ratio	0.556	0.056	10.018	1.270E-23
Lifetime smoking	Whole body fat-free mass	0.158	0.016	9.919	3.440E-23
Anorexia nervosa	Educational attainment	0.239	0.024	9.906	3.910E-23
Intelligence	Schizophrenia	-0.203	0.021	-9.845	7.210E-23
Schizophrenia	Intelligence	-0.203	0.021	-9.845	7.210E-23
Intelligence	Caffeine consumption	0.229	0.023	9.844	7.240E-23
Anorexia nervosa	Life satisfaction	-0.289	0.029	-9.836	7.850E-23
HDL cholesterol	Waist circumference	-0.396	0.040	-9.813	9.860E-23
Lifetime smoking	Long sleep	0.285	0.029	9.797	1.160E-22
Alcohol consumption	Caffeine consumption	0.267	0.027	9.786	1.290E-22
Intelligence	Anxious feeling	-0.227	0.023	-9.785	1.310E-22
Breakfast skipping	Body fat percentage	0.273	0.028	9.781	1.350E-22
Anorexia nervosa	Leisure sedentary behaviour (TV watching)	-0.287	0.030	-9.707	2.810E-22
Atrial fibrillation	Visceral adipose tissue	0.210	0.022	9.707	2.820E-22
BMI	Atrial fibrillation	0.203	0.021	9.641	5.350E-22
Intelligence	Whole body fat mass	-0.149	0.016	-9.625	6.290E-22
BMI	Daytime napping	0.154	0.016	9.617	6.760E-22
Type 2 diabetes	Income	-0.214	0.022	-9.591	8.700E-22
Smoking cessation	Waist-to-hip ratio	0.244	0.025	9.573	1.040E-21
Daytime napping	Life satisfaction	-0.209	0.022	-9.520	1.650E-21
Major depressive disorder	Educational attainment	-0.173	0.018	-9.525	1.650E-21
Intelligence	Sitting height	0.148	0.016	9.516	1.800E-21
Age of initiation of regular smoking	Short sleep	-0.318	0.033	-9.505	2.010E-21
Short sleep	Body fat percentage	0.206	0.022	9.498	2.140E-21
Insomnia	Body fat percentage	0.198	0.021	9.473	2.730E-21
Strenuous sports or other exercises	Hip circumference	-0.190	0.020	-9.426	4.270E-21
Smoking cessation	Whole body fat mass	0.238	0.025	9.425	4.300E-21
Waist-to-hip ratio	Sitting height	-0.154	0.016	-9.421	4.480E-21
Age of initiation of regular smoking	Major depressive disorder	-0.261	0.028	-9.403	5.300E-21
Cigarette consumption	Visceral adipose tissue	0.366	0.039	9.402	5.340E-21
10+ minutes vigorous activity	Whole body fat mass	-0.201	0.021	-9.400	5.660E-21
Coronary artery disease	HDL cholesterol	-0.297	0.032	-9.391	5.960E-21
Smoking initiation	Whole body fat-free mass	0.145	0.016	9.383	6.400E-21

Daytime sleepiness	Life satisfaction	-0.234	0.025	-9.380	6.830E-21
Schizophrenia	Lifetime smoking	0.185	0.020	9.366	7.550E-21
Age of initiation of regular smoking	Insomnia	-0.291	0.031	-9.362	7.810E-21
Long sleep	Body fat percentage	0.223	0.024	9.345	9.160E-21
BMI	Standing height	-0.142	0.015	-9.337	9.930E-21
Body fat percentage	Hand grip strength (left)	-0.156	0.017	-9.309	1.290E-20
Long sleep	Major depressive disorder	0.302	0.033	9.295	1.470E-20
Intelligence	Waist circumference	-0.141	0.015	-9.239	2.480E-20
Short sleep	Whole body fat mass	0.201	0.022	9.197	3.690E-20
Cigarette consumption	Whole body fat-free mass	0.210	0.023	9.187	4.040E-20
Daytime napping	Positive affect	-0.200	0.022	-9.180	4.190E-20
Strenuous sports or other exercises	Major depressive disorder	-0.253	0.028	-9.178	4.380E-20
BMI	HDL cholesterol	-0.359	0.039	-9.113	7.990E-20
Coronary artery disease	Hip circumference	0.194	0.021	9.105	8.610E-20
Caffeine consumption	Hip circumference	0.220	0.024	9.071	1.180E-19
Smoking cessation	Leisure sedentary behaviour (computer use)	-0.291	0.032	-9.060	1.310E-19
Smoking initiation	Insomnia	0.195	0.022	9.053	1.400E-19
Anorexia nervosa	Major depressive disorder	0.287	0.032	9.049	1.440E-19
Type 2 diabetes	Smoking initiation	0.155	0.017	9.029	1.730E-19
Caffeine consumption	Whole body fat-free mass	0.244	0.027	9.008	2.100E-19
Daytime sleepiness	Positive affect	-0.225	0.025	-9.000	2.170E-19
Coronary artery disease	Triglycerides	0.288	0.032	8.997	2.320E-19
Fasting insulin	Waist-to-hip ratio	0.279	0.031	8.950	3.480E-19
Type 2 diabetes	Strenuous sports or other exercises	-0.231	0.026	-8.938	3.970E-19
Strenuous sports or other exercises	Life satisfaction	0.250	0.028	8.927	4.390E-19
Anorexia nervosa	Anxious feeling	0.331	0.037	8.921	4.620E-19
Cigarette consumption	Daytime napping	0.211	0.024	8.907	5.240E-19
Insomnia	Waist-to-hip ratio	0.189	0.021	8.881	6.630E-19
Type 2 diabetes	Age of initiation of regular smoking	-0.233	0.026	-8.876	6.920E-19
Hip circumference	Anxious feeling	-0.174	0.020	-8.874	7.050E-19
Coronary artery disease	Short sleep	0.207	0.023	8.865	7.690E-19
Cigarette consumption	Strenuous sports or other exercises	-0.311	0.035	-8.860	8.010E-19
Insomnia	Visceral adipose tissue	0.213	0.024	8.853	8.550E-19
Daytime napping	Major depressive disorder	0.195	0.022	8.820	1.120E-18
Waist-to-hip ratio	Major depressive disorder	0.159	0.018	8.812	1.230E-18
BMI	Breakfast skipping	0.267	0.030	8.810	1.260E-18
Moderate to vigorous physical activity levels	Educational attainment	-0.210	0.024	-8.770	1.750E-18
Atrial fibrillation	Body fat percentage	0.184	0.021	8.754	2.070E-18
Strenuous sports or other exercises	Positive affect	0.247	0.028	8.733	2.480E-18
25-Hydroxyvitamin D	Educational attainment	-0.208	0.024	-8.732	2.510E-18
Type 2 diabetes	Fasting glucose	0.415	0.048	8.713	2.950E-18
Coronary artery disease	Intelligence	-0.157	0.018	-8.703	3.240E-18

Body fat percentage	Hand grip strength (right)	-0.145	0.017	-8.687	3.710E-18
Breakfast skipping	Leisure sedentary behaviour (TV watching)	0.272	0.032	8.650	5.140E-18
Visceral adipose tissue	Major depressive disorder	0.172	0.020	8.648	5.250E-18
10+ minutes vigorous activity	Visceral adipose tissue	-0.206	0.024	-8.640	5.590E-18
Daytime napping	Hip circumference	0.138	0.016	8.630	6.140E-18
Caffeine consumption	Intake of carbohydrate	-0.299	0.035	-8.577	9.720E-18
Intelligence	Short sleep	-0.182	0.021	-8.572	1.020E-17
Leisure sedentary behaviour (computer use)	Whole body fat-free mass	0.147	0.017	8.550	1.190E-17
Breakfast skipping	Visceral adipose tissue	0.274	0.032	8.493	2.020E-17
Waist-to-hip ratio	Childhood BMI	0.278	0.033	8.484	2.170E-17
Breakfast skipping	Waist-to-hip ratio	0.241	0.028	8.464	2.590E-17
Insomnia	Daytime sleepiness	0.237	0.028	8.444	3.080E-17
Caffeine consumption	Income	0.261	0.031	8.439	3.210E-17
Long sleep	Visceral adipose tissue	0.248	0.029	8.418	3.820E-17
Breakfast skipping	Whole body fat mass	0.243	0.029	8.414	3.960E-17
Smoking initiation	Cigarette consumption	0.284	0.034	8.414	3.960E-17
Breakfast skipping	Waist circumference	0.253	0.030	8.368	5.860E-17
Coronary artery disease	Standing height	-0.142	0.017	-8.354	6.580E-17
Coronary artery disease	Age of initiation of regular smoking	-0.248	0.030	-8.335	7.730E-17
BMI	Adult-onset asthma	0.191	0.023	8.332	7.960E-17
Adult-onset asthma	Major depressive disorder	0.254	0.031	8.329	8.170E-17
BMI	Caffeine consumption	0.201	0.024	8.318	8.950E-17
Triglycerides	Waist-to-hip ratio	0.383	0.046	8.313	9.350E-17
Long sleep	Strenuous sports or other exercises	-0.308	0.037	-8.312	9.450E-17
Breakfast skipping	Short sleep	0.315	0.038	8.307	9.810E-17
Long sleep	Waist-to-hip ratio	0.227	0.027	8.285	1.190E-16
10+ minutes vigorous activity	Hip circumference	-0.187	0.023	-8.270	1.360E-16
Schizophrenia	Anorexia nervosa	0.211	0.026	8.258	1.480E-16
Leisure sedentary behaviour (computer use)	Sitting height	0.143	0.017	8.250	1.520E-16
10+ minutes vigorous activity	Waist circumference	-0.192	0.023	-8.250	1.580E-16
Hip circumference	Income	-0.145	0.018	-8.250	1.580E-16
Caffeine consumption	Waist circumference	0.194	0.024	8.200	2.410E-16
Alcohol consumption	Coffee consumption	0.223	0.027	8.188	2.650E-16
HDL cholesterol	Triglycerides	-0.650	0.080	-8.161	3.330E-16
Cigarette consumption	Insomnia	0.225	0.028	8.149	3.660E-16
Coronary artery disease	Strenuous sports or other exercises	-0.197	0.024	-8.134	4.160E-16
Insomnia	Waist circumference	0.189	0.023	8.124	4.500E-16
Cigarette consumption	Breakfast skipping	0.344	0.042	8.110	5.080E-16
Bipolar disorder	Lifetime smoking	0.172	0.021	8.073	6.870E-16
Intake of fat	Breakfast skipping	0.376	0.047	8.067	7.210E-16
Waist circumference	Major depressive disorder	0.143	0.018	8.058	7.780E-16

HDL cholesterol	Whole body fat mass	-0.330	0.041	-8.052	8.140E-16
Age of initiation of regular smoking	Hip circumference	-0.193	0.024	-8.048	8.430E-16
Smoking cessation	Hip circumference	0.195	0.024	8.036	9.290E-16
Smoking initiation	Intake of total sugar	-0.239	0.030	-8.016	1.090E-15
Insomnia	Daytime napping	0.199	0.025	8.015	1.100E-15
Type 2 diabetes	Leptin	0.503	0.063	7.967	1.630E-15
Whole body fat mass	Birth weight	0.134	0.017	7.965	1.660E-15
Bipolar disorder	Anorexia nervosa	0.229	0.029	7.954	1.800E-15
Type 2 diabetes	2-hour blood glucose	0.413	0.052	7.954	1.810E-15
Body fat percentage	Major depressive disorder	0.130	0.016	7.950	1.860E-15
Moderate to vigorous physical activity levels	Income	-0.228	0.029	-7.860	3.740E-15
Caffeine consumption	Whole body fat mass	0.184	0.023	7.856	3.960E-15
Intelligence	10+ minutes vigorous activity	-0.214	0.027	-7.847	4.270E-15
Long sleep	Leisure sedentary behaviour (computer use)	-0.226	0.029	-7.823	5.150E-15
Breakfast skipping	Educational attainment	-0.214	0.027	-7.794	6.490E-15
Lifetime smoking	Daytime napping	0.167	0.021	7.791	6.630E-15
Long sleep	Whole body fat mass	0.186	0.024	7.782	7.150E-15
Intelligence	25-Hydroxyvitamin D	-0.220	0.028	-7.775	7.550E-15
Cigarette consumption	Leisure sedentary behaviour (TV watching)	0.228	0.029	7.773	7.680E-15
HbA1c	Waist circumference	0.190	0.025	7.691	1.460E-14
Schizophrenia	Daytime napping	0.158	0.021	7.682	1.570E-14
Adult-onset asthma	Body fat percentage	0.171	0.022	7.659	1.880E-14
Life satisfaction	Educational attainment	0.161	0.021	7.649	2.030E-14
HbA1c	Waist-to-hip ratio	0.199	0.026	7.641	2.150E-14
Insomnia	Whole body fat mass	0.169	0.022	7.587	3.290E-14
BMI	Insomnia	0.181	0.024	7.580	3.450E-14
Adult-onset asthma	Waist circumference	0.184	0.024	7.562	3.980E-14
BMI	Anxious feeling	-0.149	0.020	-7.561	4.010E-14
Type 2 diabetes	Childhood BMI	0.291	0.039	7.541	4.660E-14
Bipolar disorder	Leisure sedentary behaviour (TV watching)	-0.155	0.021	-7.534	4.940E-14
Breakfast skipping	Strenuous sports or other exercises	-0.291	0.039	-7.521	5.440E-14
Leptin	Whole body fat-free mass	0.398	0.053	7.513	5.780E-14
Smoking cessation	Breakfast skipping	0.366	0.049	7.506	6.090E-14
Insomnia	Hand grip strength (left)	-0.167	0.022	-7.491	6.830E-14
Whole body fat-free mass	Anxious feeling	-0.144	0.019	-7.472	7.900E-14
HbA1c	Visceral adipose tissue	0.204	0.027	7.445	9.670E-14
Leisure sedentary behaviour (TV watching)	Fasting insulin	0.188	0.025	7.420	1.130E-13
Moderate to vigorous physical activity levels	Body fat percentage	-0.145	0.020	-7.420	1.140E-13

HDL cholesterol	Body fat percentage	-0.308	0.041	-7.421	1.160E-13
HDL cholesterol	Educational attainment	0.202	0.027	7.399	1.370E-13
Smoking cessation	Short sleep	0.258	0.035	7.396	1.400E-13
HDL cholesterol	Whole body fat-free mass	-0.222	0.030	-7.385	1.530E-13
Daytime sleepiness	Waist circumference	0.151	0.021	7.370	1.690E-13
Leisure sedentary behaviour (TV watching)	Standing height	-0.121	0.017	-7.360	1.890E-13
Intake of total sugar	Body fat percentage	-0.184	0.025	-7.344	2.080E-13
BMI	Major depressive disorder	0.131	0.018	7.334	2.240E-13
Leisure sedentary behaviour (computer use)	Standing height	0.122	0.017	7.330	2.320E-13
Coronary artery disease	Life satisfaction	-0.154	0.021	-7.327	2.360E-13
Caffeine consumption	Leisure sedentary behaviour (TV watching)	-0.183	0.025	-7.325	2.400E-13
Leisure sedentary behaviour (TV watching)	Triglycerides	0.195	0.027	7.310	2.730E-13
BMI	HbA1c	0.178	0.024	7.296	2.970E-13
Schizophrenia	Income	-0.156	0.022	-7.261	3.850E-13
Insomnia	Hand grip strength (right)	-0.157	0.022	-7.249	4.210E-13
Type 2 diabetes	Intelligence	-0.132	0.018	-7.246	4.280E-13
Coffee consumption	Waist-to-hip ratio	0.166	0.023	7.246	4.290E-13
Caffeine consumption	Smoking initiation	0.172	0.024	7.245	4.320E-13
Type 2 diabetes	Anorexia nervosa	-0.195	0.027	-7.242	4.410E-13
Triglycerides	Waist circumference	0.285	0.039	7.238	4.560E-13
Short sleep	Long sleep	-0.286	0.040	-7.233	4.720E-13
Smoking initiation	Strenuous sports or other exercises	-0.190	0.026	-7.221	5.150E-13
Coffee consumption	Intake of carbohydrate	-0.269	0.037	-7.214	5.430E-13
Short sleep	Hip circumference	0.160	0.022	7.205	5.820E-13
Cigarette consumption	Short sleep	0.223	0.031	7.178	7.080E-13
Adult-onset asthma	Waist-to-hip ratio	0.168	0.024	7.124	1.050E-12
Leisure sedentary behaviour (TV watching)	10+ minutes vigorous activity	-0.199	0.028	-7.100	1.230E-12
Adult-onset asthma	Whole body fat mass	0.165	0.023	7.097	1.280E-12
Long sleep	Waist circumference	0.176	0.025	7.083	1.410E-12
Moderate to vigorous physical activity levels	Hand grip strength (left)	0.157	0.022	7.080	1.460E-12
Type 2 diabetes	Insomnia	0.187	0.026	7.074	1.510E-12
Anorexia nervosa	Whole body fat-free mass	-0.164	0.023	-7.070	1.550E-12
Age of initiation of regular smoking	Smoking cessation	-0.291	0.041	-7.056	1.710E-12
Type 2 diabetes	Smoking cessation	0.199	0.028	7.036	1.980E-12
Fasting insulin	Childhood BMI	-0.324	0.046	-7.030	2.060E-12
Fasting glucose	HbA1c	0.410	0.058	7.030	2.070E-12
Intake of carbohydrate	Body fat percentage	-0.182	0.026	-7.028	2.100E-12
Moderate to vigorous physical activity	25-Hydroxyvitamin D	0.256	0.037	7.020	2.290E-12

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Daytime sleepiness	Visceral adipose tissue	0.156	0.022	7.010	2.450E-12
BMI	Daytime sleepiness	0.139	0.020	6.999	2.580E-12
Type 2 diabetes	Short sleep	0.182	0.026	6.997	2.620E-12
Bipolar disorder	Smoking initiation	0.151	0.022	6.984	2.870E-12
Lifetime smoking	Intake of total sugar	-0.221	0.032	-6.962	3.340E-12
Smoking cessation	Insomnia	0.228	0.033	6.952	3.610E-12
Cigarette consumption	HDL cholesterol	-0.220	0.032	-6.942	3.860E-12
HbA1c	Whole body fat mass	0.169	0.024	6.933	4.130E-12
Breakfast skipping	Insomnia	0.225	0.033	6.919	4.540E-12
Intelligence	Daytime napping	-0.134	0.019	-6.916	4.660E-12
Smoking cessation	Major depressive disorder	0.229	0.033	6.915	4.680E-12
Age of initiation of regular smoking	Long sleep	-0.272	0.039	-6.909	4.870E-12
Cigarette consumption	Long sleep	0.263	0.038	6.905	5.010E-12
Strenuous sports or other exercises	25-Hydroxyvitamin D	0.222	0.032	6.904	5.060E-12
Caffeine consumption	Leisure sedentary behaviour (computer use)	0.192	0.028	6.895	5.390E-12
2-hour blood glucose	Whole body fat-free mass	-0.243	0.035	-6.890	5.420E-12
Daytime napping	Triglycerides	0.176	0.026	6.880	5.790E-12
10+ minutes vigorous activity	25-Hydroxyvitamin D	0.296	0.043	6.860	6.930E-12
Schizophrenia	Morning person	-0.136	0.020	-6.843	7.760E-12
Leisure sedentary behaviour (computer use)	25-Hydroxyvitamin D	-0.193	0.028	-6.830	8.460E-12
Anorexia nervosa	Strenuous sports or other exercises	0.231	0.034	6.822	9.000E-12
BMI	Schizophrenia	-0.109	0.016	-6.790	1.120E-11
Coronary artery disease	Daytime napping	0.137	0.020	6.785	1.160E-11
Intake of carbohydrate	Whole body fat mass	-0.175	0.026	-6.782	1.190E-11
Long sleep	Life satisfaction	-0.207	0.031	-6.781	1.200E-11
Waist-to-hip ratio	Hand grip strength (right)	-0.120	0.018	-6.773	1.260E-11
Waist-to-hip ratio	Life satisfaction	-0.126	0.019	-6.773	1.260E-11
Fasting insulin	Educational attainment	-0.142	0.021	-6.770	1.300E-11
Cigarette consumption	Life satisfaction	-0.199	0.029	-6.767	1.320E-11
Schizophrenia	Smoking initiation	0.143	0.021	6.736	1.630E-11
Anxious feeling	Educational attainment	-0.146	0.022	-6.733	1.660E-11
Whole body fat mass	Anxious feeling	-0.138	0.021	-6.732	1.670E-11
Type 2 diabetes	Fasting insulin	0.283	0.042	6.729	1.710E-11
Morning person	25-Hydroxyvitamin D	0.148	0.022	6.724	1.770E-11
Whole body fat mass	Major depressive disorder	0.111	0.017	6.708	1.980E-11
Cigarette consumption	10+ minutes vigorous activity	-0.227	0.034	-6.703	2.050E-11
Alcohol consumption	Morning person	-0.137	0.021	-6.689	2.250E-11
Intelligence	Coffee consumption	0.156	0.023	6.678	2.430E-11
Adult-onset asthma	Visceral adipose tissue	0.179	0.027	6.669	2.580E-11
Daytime sleepiness	Major depressive disorder	0.167	0.025	6.650	2.850E-11
Intake of fat	Strenuous sports or other exercises	-0.251	0.038	-6.654	2.850E-11

Strenuous sports or other exercises	Fasting insulin	-0.220	0.033	-6.651	2.920E-11
Long sleep	Leisure sedentary behaviour (TV watching)	0.218	0.033	6.648	2.970E-11
Intake of carbohydrate	Waist-to-hip ratio	-0.175	0.026	-6.637	3.210E-11
Age of initiation of regular smoking	Life satisfaction	0.190	0.029	6.630	3.360E-11
Hip circumference	Hand grip strength (right)	0.121	0.018	6.619	3.620E-11
HDL cholesterol	Hip circumference	-0.274	0.042	-6.604	4.010E-11
Coronary artery disease	Daytime sleepiness	0.146	0.022	6.584	4.570E-11
Anxious feeling	Income	-0.182	0.028	-6.554	5.590E-11
Smoking cessation	Life satisfaction	-0.220	0.034	-6.554	5.610E-11
Coronary artery disease	Positive affect	-0.143	0.022	-6.543	6.020E-11
Waist-to-hip ratio	Hand grip strength (left)	-0.116	0.018	-6.527	6.710E-11
Intake of total sugar	Whole body fat mass	-0.166	0.025	-6.525	6.780E-11
BMI	Long sleep	0.169	0.026	6.519	7.100E-11
Type 2 diabetes	Major depressive disorder	0.139	0.021	6.513	7.360E-11
Positive affect	Educational attainment	0.140	0.022	6.505	7.750E-11
Intake of carbohydrate	Waist circumference	-0.173	0.027	-6.492	8.500E-11
Leisure sedentary behaviour (TV watching)	HDL cholesterol	-0.199	0.031	-6.490	8.640E-11
Adult-onset asthma	Insomnia	0.195	0.030	6.485	8.890E-11
Cigarette consumption	Positive affect	-0.193	0.030	-6.484	8.940E-11
Type 2 diabetes	Triglycerides	0.351	0.054	6.475	9.490E-11
Lifetime smoking	HDL cholesterol	-0.166	0.026	-6.472	9.650E-11
Bipolar disorder	Long sleep	0.226	0.035	6.470	9.780E-11
Schizophrenia	Hip circumference	-0.112	0.017	-6.469	9.840E-11
Hand grip strength (right)	Income	0.144	0.022	6.461	1.040E-10
Coronary artery disease	Cigarette consumption	0.294	0.046	6.455	1.080E-10
Cigarette consumption	Triglycerides	0.193	0.030	6.454	1.090E-10
Daytime napping	Income	-0.153	0.024	-6.450	1.110E-10
Waist circumference	Birth weight	0.110	0.017	6.433	1.250E-10
Bipolar disorder	Educational attainment	0.112	0.018	6.433	1.260E-10
Long sleep	Positive affect	-0.202	0.032	-6.406	1.500E-10
HbA1c	Body fat percentage	0.158	0.025	6.400	1.560E-10
Moderate to vigorous physical activity levels	Whole body fat mass	-0.133	0.021	-6.390	1.700E-10
Coronary artery disease	Smoking cessation	0.187	0.029	6.365	1.950E-10
Intelligence	Insomnia	-0.131	0.021	-6.363	1.980E-10
Coronary artery disease	Birth weight	-0.160	0.025	-6.360	2.010E-10
Triglycerides	Body fat percentage	0.231	0.036	6.350	2.160E-10
BMI	Triglycerides	0.246	0.039	6.342	2.270E-10
Intake of fat	Leisure sedentary behaviour (TV watching)	0.194	0.031	6.336	2.360E-10
Coffee consumption	Educational attainment	0.120	0.019	6.318	2.660E-10
Hand grip strength (right)	Life satisfaction	0.144	0.023	6.295	3.070E-10

Triglycerides	Visceral adipose tissue	0.293	0.047	6.279	3.410E-10
Daytime sleepiness	Hip circumference	0.129	0.021	6.270	3.710E-10
Waist-to-hip ratio	Positive affect	-0.116	0.019	-6.247	4.180E-10
Schizophrenia	Whole body fat-free mass	-0.097	0.016	-6.239	4.400E-10
Type 2 diabetes	Long sleep	0.214	0.034	6.239	4.420E-10
Fasting insulin	HDL cholesterol	-0.316	0.051	-6.240	4.500E-10
Intake of total sugar	Waist circumference	-0.158	0.025	-6.226	4.780E-10
Hand grip strength (left)	Life satisfaction	0.138	0.022	6.210	5.310E-10
Caffeine consumption	Long sleep	-0.238	0.039	-6.187	6.110E-10
Smoking cessation	Positive affect	-0.211	0.034	-6.188	6.110E-10
Age of initiation of regular smoking	Positive affect	0.176	0.029	6.187	6.120E-10
Leisure sedentary behaviour (TV watching)	Life satisfaction	-0.141	0.023	-6.180	6.410E-10
Schizophrenia	Waist circumference	-0.097	0.016	-6.171	6.800E-10
Coffee consumption	Lifetime smoking	0.179	0.029	6.158	7.370E-10
25-Hydroxyvitamin D	Whole body fat-free mass	0.091	0.015	6.152	7.660E-10
Lifetime smoking	HbA1c	0.152	0.025	6.145	7.980E-10
Anorexia nervosa	10+ minutes vigorous activity	0.236	0.038	6.142	8.130E-10
Coffee consumption	Childhood BMI	0.285	0.046	6.139	8.310E-10
Birth weight	Childhood BMI	0.212	0.035	6.125	9.050E-10
Cigarette consumption	Intake of carbohydrate	-0.207	0.034	-6.108	1.010E-09
Hand grip strength (right)	Educational attainment	0.100	0.016	6.100	1.060E-09
Hand grip strength (right)	Positive affect	0.141	0.023	6.100	1.060E-09
Schizophrenia	Whole body fat mass	-0.098	0.016	-6.095	1.100E-09
Birth weight	Educational attainment	0.113	0.019	6.083	1.180E-09
Intake of carbohydrate	Visceral adipose tissue	-0.174	0.029	-6.074	1.250E-09
Moderate to vigorous physical activity levels	Hip circumference	-0.133	0.022	-6.070	1.290E-09
Coronary artery disease	HbA1c	0.182	0.030	6.064	1.330E-09
Adult-onset asthma	Hip circumference	0.146	0.024	6.040	1.540E-09
Hand grip strength (left)	Positive affect	0.135	0.022	6.028	1.660E-09
Daytime napping	Strenuous sports or other exercises	-0.144	0.024	-6.020	1.780E-09
Daytime sleepiness	Whole body fat mass	0.124	0.021	6.020	1.780E-09
Type 2 diabetes	Daytime sleepiness	0.123	0.021	5.999	1.990E-09
Coffee consumption	Smoking initiation	0.150	0.025	5.994	2.040E-09
Leisure sedentary behaviour (computer use)	Hip circumference	0.109	0.018	5.990	2.040E-09
Hip circumference	Hand grip strength (left)	0.103	0.017	5.983	2.190E-09
Leisure sedentary behaviour (TV watching)	Whole body fat-free mass	0.111	0.019	5.980	2.210E-09
Lifetime smoking	Standing height	-0.082	0.014	-5.981	2.220E-09
Daytime sleepiness	Waist-to-hip ratio	0.119	0.020	5.970	2.380E-09
Triglycerides	Whole body fat mass	0.219	0.037	5.955	2.600E-09
Caffeine consumption	Intake of total sugar	-0.235	0.040	-5.954	2.620E-09

Alcohol consumption	HDL cholesterol	0.195	0.033	5.951	2.670E-09
Smoking cessation	Long sleep	0.260	0.044	5.905	3.540E-09
Lifetime smoking	Triglycerides	0.158	0.027	5.890	3.870E-09
Adult-onset asthma	Type 2 diabetes	0.160	0.027	5.831	5.500E-09
Bipolar disorder	Daytime napping	0.133	0.023	5.817	6.000E-09
Short sleep	Standing height	-0.101	0.017	-5.810	6.260E-09
Coronary artery disease	Long sleep	0.175	0.030	5.804	6.490E-09
Smoking initiation	Daytime napping	0.123	0.021	5.784	7.280E-09
Intake of total sugar	Moderate to vigorous physical activity levels	0.233	0.040	5.769	7.990E-09
Daytime sleepiness	Body fat percentage	0.117	0.020	5.760	8.340E-09
Caffeine consumption	Lifetime smoking	0.162	0.028	5.752	8.810E-09
2-hour blood glucose	HbA1c	0.311	0.054	5.750	8.890E-09
Triglycerides	Educational attainment	-0.169	0.029	-5.740	9.470E-09
Breakfast skipping	Income	-0.195	0.034	-5.731	9.990E-09
Morning person	Moderate to vigorous physical activity levels	0.134	0.023	5.727	1.020E-08
Hand grip strength (right)	Major depressive disorder	-0.117	0.020	-5.722	1.050E-08
Age of initiation of regular smoking	HDL cholesterol	0.218	0.038	5.719	1.070E-08
Leisure sedentary behaviour (TV watching)	Positive affect	-0.132	0.023	-5.700	1.200E-08
Age of initiation of regular smoking	Breakfast skipping	-0.261	0.046	-5.683	1.320E-08
Short sleep	Anxious feeling	0.159	0.028	5.681	1.340E-08
Intake of total sugar	Waist-to-hip ratio	-0.147	0.026	-5.669	1.440E-08
BMI	Intake of carbohydrate	-0.149	0.026	-5.665	1.470E-08
Morning person	Educational attainment	-0.093	0.017	-5.653	1.580E-08
BMI	10+ minutes vigorous activity	-0.129	0.023	-5.647	1.630E-08
Breakfast skipping	Hip circumference	0.166	0.029	5.633	1.770E-08
Adult-onset asthma	Life satisfaction	-0.156	0.028	-5.623	1.880E-08
Short sleep	HbA1c	0.148	0.026	5.618	1.930E-08
Leisure sedentary behaviour (TV watching)	Leptin	0.271	0.048	5.600	2.150E-08
Coronary artery disease	Hand grip strength (left)	-0.115	0.021	-5.597	2.180E-08
Waist circumference	Life satisfaction	-0.104	0.019	-5.590	2.270E-08
Intake of total sugar	Visceral adipose tissue	-0.157	0.028	-5.585	2.340E-08
Fasting insulin	Birth weight	-0.203	0.036	-5.580	2.350E-08
Insomnia	Hip circumference	0.125	0.023	5.584	2.360E-08
Daytime napping	Leisure sedentary behaviour (TV watching)	0.115	0.021	5.570	2.490E-08
Visceral adipose tissue	Life satisfaction	-0.112	0.020	-5.566	2.600E-08
10+ minutes vigorous activity	Waist-to-hip ratio	-0.129	0.023	-5.560	2.660E-08
Daytime sleepiness	Anxious feeling	0.155	0.028	5.550	2.820E-08
Type 2 diabetes	Birth weight	-0.168	0.030	-5.538	3.070E-08
Smoking cessation	Daytime napping	0.176	0.032	5.536	3.100E-08

Triglycerides	25-Hydroxyvitamin D	-0.210	0.038	-5.490	4.020E-08
Bipolar disorder	Alcohol consumption	0.135	0.025	5.487	4.100E-08
Triglycerides	Income	-0.180	0.033	-5.480	4.260E-08
Strenuous sports or other exercises	HDL cholesterol	0.182	0.033	5.460	4.770E-08
Fasting glucose	Childhood BMI	-0.219	0.040	-5.455	4.900E-08
Anorexia nervosa	HDL cholesterol	0.199	0.036	5.454	4.920E-08
Waist circumference	Anxious feeling	-0.117	0.021	-5.454	4.920E-08
BMI	25-Hydroxyvitamin D	0.088	0.016	5.438	5.370E-08
Intake of fat	10+ minutes vigorous activity	-0.234	0.043	-5.434	5.500E-08
Anorexia nervosa	Intake of carbohydrate	0.200	0.037	5.430	5.620E-08
Childhood-onset asthma	Educational attainment	0.118	0.022	5.423	5.870E-08
Smoking cessation	Standing height	-0.113	0.021	-5.421	5.930E-08
Leisure sedentary behaviour (computer use)	Strenuous sports or other exercises	0.139	0.026	5.420	5.980E-08
Schizophrenia	25-Hydroxyvitamin D	-0.119	0.022	-5.419	6.000E-08
Age of initiation of regular smoking	Daytime napping	-0.157	0.029	-5.407	6.410E-08
2-hour blood glucose	Hip circumference	-0.198	0.037	-5.390	7.200E-08
10+ minutes vigorous activity	Hand grip strength (left)	0.133	0.025	5.380	7.290E-08
Coffee consumption	Cigarette consumption	0.198	0.037	5.356	8.520E-08
Type 2 diabetes	Breakfast skipping	0.181	0.034	5.348	8.920E-08
Atrial fibrillation	Waist-to-hip ratio	0.108	0.020	5.335	9.530E-08
2-hour blood glucose	Birth weight	-0.242	0.046	-5.310	1.100E-07
Breakfast skipping	Life satisfaction	-0.177	0.033	-5.298	1.170E-07
Intelligence	Birth weight	0.111	0.021	5.284	1.260E-07
Long sleep	Anxious feeling	0.181	0.034	5.283	1.270E-07
HbA1c	Hip circumference	0.131	0.025	5.281	1.290E-07
Daytime napping	Educational attainment	-0.109	0.021	-5.270	1.350E-07
Smoking initiation	Morning person	-0.102	0.019	-5.266	1.400E-07
Moderate to vigorous physical activity levels	Waist circumference	-0.116	0.022	-5.260	1.410E-07
Insomnia	Leisure sedentary behaviour (computer use)	-0.116	0.022	-5.254	1.490E-07
Caffeine consumption	Body fat percentage	0.123	0.023	5.253	1.500E-07
Age of initiation of regular smoking	Standing height	0.102	0.020	5.251	1.520E-07
Intelligence	Major depressive disorder	-0.101	0.019	-5.243	1.580E-07
Insomnia	10+ minutes vigorous activity	-0.158	0.030	-5.242	1.590E-07
Coffee consumption	Leisure sedentary behaviour (computer use)	0.146	0.028	5.232	1.670E-07
Short sleep	Daytime sleepiness	0.150	0.029	5.233	1.670E-07
Coffee consumption	Income	0.158	0.030	5.227	1.720E-07
Body fat percentage	Anxious feeling	-0.109	0.021	-5.214	1.840E-07
Schizophrenia	Leisure sedentary behaviour (TV watching)	-0.112	0.021	-5.210	1.890E-07
Fasting insulin	2-hour blood glucose	0.303	0.058	5.200	2.000E-07

Adult-onset asthma	Positive affect	-0.144	0.028	-5.182	2.200E-07
Hand grip strength (right)	Anxious feeling	-0.107	0.021	-5.169	2.350E-07
Caffeine consumption	Anxious feeling	-0.160	0.031	-5.163	2.430E-07
Coronary artery disease	Hand grip strength (right)	-0.109	0.021	-5.153	2.570E-07
Intelligence	Morning person	-0.094	0.018	-5.146	2.660E-07
Leptin	Educational attainment	-0.219	0.043	-5.146	2.670E-07
Alcohol consumption	Age of initiation of regular smoking	-0.160	0.031	-5.142	2.720E-07
Daytime napping	Anxious feeling	0.136	0.026	5.140	2.760E-07
Short sleep	Hand grip strength (right)	-0.113	0.022	-5.139	2.760E-07
Age of initiation of regular smoking	Leisure sedentary behaviour (computer use)	0.169	0.033	5.134	2.840E-07
Breakfast skipping	Major depressive disorder	0.179	0.035	5.133	2.850E-07
Moderate to vigorous physical activity levels	Visceral adipose tissue	-0.114	0.022	-5.110	3.270E-07
Smoking cessation	Intake of carbohydrate	-0.233	0.046	-5.103	3.340E-07
Smoking initiation	HDL cholesterol	-0.130	0.026	-5.084	3.700E-07
HDL cholesterol	Income	0.161	0.032	5.081	3.760E-07
Waist-to-hip ratio	Standing height	-0.081	0.016	-5.068	4.020E-07
Caffeine consumption	Visceral adipose tissue	0.136	0.027	5.055	4.300E-07
Intake of carbohydrate	Morning person	0.147	0.029	5.047	4.500E-07
Leisure sedentary behaviour (computer use)	Anxious feeling	-0.134	0.027	-5.040	4.560E-07
Cigarette consumption	HbA1c	0.148	0.029	5.033	4.840E-07
Intake of total sugar	10+ minutes vigorous activity	0.200	0.040	5.031	4.890E-07
Insomnia	Standing height	-0.088	0.018	-5.020	5.160E-07
Hand grip strength (left)	Income	0.109	0.022	5.019	5.180E-07
Coffee consumption	Long sleep	-0.199	0.040	-5.011	5.430E-07
Daytime napping	Whole body fat-free mass	0.076	0.015	5.010	5.440E-07
Anorexia nervosa	Moderate to vigorous physical activity levels	0.176	0.035	4.991	6.000E-07
Triglycerides	Major depressive disorder	0.130	0.026	4.974	6.570E-07
Waist circumference	Positive affect	-0.093	0.019	-4.955	7.250E-07
Intelligence	Cigarette consumption	-0.114	0.023	-4.952	7.350E-07
Body fat percentage	Life satisfaction	-0.089	0.018	-4.949	7.470E-07
Cigarette consumption	Intake of total sugar	-0.153	0.031	-4.908	9.200E-07
Hand grip strength (left)	Educational attainment	0.081	0.017	4.897	9.710E-07
HbA1c	Educational attainment	-0.106	0.022	-4.891	1.000E-06
Short sleep	Sitting height	-0.084	0.017	-4.890	1.010E-06
Standing height	Major depressive disorder	-0.068	0.014	-4.882	1.050E-06
Coffee consumption	Intake of total sugar	-0.206	0.042	-4.875	1.090E-06
Adult-onset asthma	Anxious feeling	0.163	0.033	4.865	1.150E-06
Breakfast skipping	Positive affect	-0.164	0.034	-4.853	1.220E-06
Bipolar disorder	Daytime sleepiness	0.119	0.025	4.848	1.250E-06
Caffeine consumption	Birth weight	0.125	0.026	4.821	1.430E-06

Strenuous sports or other exercises	Triglycerides	-0.157	0.033	-4.821	1.430E-06
Age of initiation of regular smoking	25-Hydroxyvitamin D	-0.129	0.027	-4.810	1.510E-06
Smoking initiation	Triglycerides	0.124	0.026	4.803	1.570E-06
Visceral adipose tissue	Positive affect	-0.100	0.021	-4.795	1.620E-06
Coronary artery disease	Fasting insulin	0.157	0.033	4.782	1.740E-06
Schizophrenia	Visceral adipose tissue	-0.085	0.018	-4.781	1.740E-06
Caffeine consumption	2-hour blood glucose	-0.244	0.051	-4.780	1.760E-06
Anorexia nervosa	Daytime napping	-0.157	0.033	-4.778	1.770E-06
HbA1c	Whole body fat-free mass	0.111	0.023	4.768	1.860E-06
Smoking initiation	Long sleep	0.135	0.028	4.740	2.140E-06
BMI	Intake of total sugar	-0.131	0.028	-4.736	2.180E-06
Daytime napping	HDL cholesterol	-0.134	0.028	-4.730	2.270E-06
Alcohol consumption	Strenuous sports or other exercises	0.127	0.027	4.714	2.430E-06
Breakfast skipping	Long sleep	0.221	0.047	4.698	2.620E-06
Leisure sedentary behaviour (TV watching)	Sitting height	-0.075	0.016	-4.690	2.760E-06
Schizophrenia	Moderate to vigorous physical activity levels	0.127	0.027	4.688	2.760E-06
25-Hydroxyvitamin D	Major depressive disorder	-0.092	0.020	-4.686	2.790E-06
Bipolar disorder	Cigarette consumption	0.123	0.026	4.684	2.810E-06
Schizophrenia	Body fat percentage	-0.078	0.017	-4.683	2.830E-06
Moderate to vigorous physical activity levels	Sitting height	-0.094	0.020	-4.680	2.840E-06
Adult-onset asthma	Smoking initiation	0.110	0.024	4.675	2.930E-06
Adult-onset asthma	Leisure sedentary behaviour (TV watching)	0.125	0.027	4.673	2.970E-06
25-Hydroxyvitamin D	Positive affect	0.092	0.020	4.668	3.040E-06
Morning person	Positive affect	0.103	0.022	4.667	3.050E-06
Type 2 diabetes	10+ minutes vigorous activity	-0.122	0.026	-4.657	3.210E-06
Strenuous sports or other exercises	Hand grip strength (left)	0.109	0.023	4.644	3.410E-06
Intake of carbohydrate	Hip circumference	-0.118	0.025	-4.642	3.460E-06
LDL cholesterol	Triglycerides	0.380	0.082	4.620	3.840E-06
Morning person	10+ minutes vigorous activity	0.127	0.028	4.612	3.980E-06
Breakfast skipping	Standing height	-0.123	0.027	-4.610	4.040E-06
Caffeine consumption	Strenuous sports or other exercises	0.157	0.034	4.608	4.060E-06
Anorexia nervosa	Age of initiation of regular smoking	0.174	0.038	4.607	4.080E-06
Lifetime smoking	Morning person	-0.105	0.023	-4.607	4.090E-06
Morning person	Daytime napping	0.104	0.023	4.591	4.410E-06
Hip circumference	Major depressive disorder	0.077	0.017	4.582	4.610E-06
Hand grip strength (left)	Major depressive disorder	-0.095	0.021	-4.577	4.730E-06
Moderate to vigorous physical activity levels	Anxious feeling	0.154	0.034	4.570	4.790E-06
Moderate to vigorous physical activity levels	Hand grip strength (right)	0.102	0.022	4.570	4.850E-06

Ulcerative colitis	Anxious feeling	0.191	0.042	4.571	4.860E-06
Anorexia nervosa	Intake of fat	-0.196	0.043	-4.568	4.930E-06
Schizophrenia	Cigarette consumption	0.111	0.024	4.567	4.940E-06
Intake of total sugar	Morning person	0.146	0.032	4.567	4.950E-06
Atrial fibrillation	Lifetime smoking	0.095	0.021	4.564	5.020E-06
Cigarette consumption	Childhood BMI	0.173	0.038	4.561	5.100E-06
2-hour blood glucose	Standing height	-0.146	0.032	-4.560	5.110E-06
Leisure sedentary behaviour (TV watching)	Birth weight	-0.106	0.023	-4.550	5.280E-06
Coronary artery disease	Leptin	0.221	0.049	4.549	5.380E-06
Intelligence	Life satisfaction	0.104	0.023	4.546	5.460E-06
Short sleep	Hand grip strength (left)	-0.104	0.023	-4.512	6.410E-06
Anorexia nervosa	Fasting insulin	-0.172	0.038	-4.509	6.520E-06
Anorexia nervosa	Income	0.134	0.030	4.508	6.550E-06
Smoking initiation	2-hour blood glucose	-0.164	0.037	-4.503	6.710E-06
Morning person	Life satisfaction	0.098	0.022	4.502	6.730E-06
Type 2 diabetes	Life satisfaction	-0.109	0.024	-4.496	6.940E-06
Short sleep	Whole body fat-free mass	0.090	0.020	4.485	7.280E-06
Leptin	Income	-0.245	0.055	-4.483	7.350E-06
Type 2 diabetes	Atrial fibrillation	0.106	0.024	4.475	7.630E-06
Coronary artery disease	Whole body fat-free mass	0.083	0.019	4.468	7.890E-06
Birth weight	Income	0.107	0.024	4.461	8.160E-06
25-Hydroxyvitamin D	Hip circumference	0.077	0.017	4.431	9.390E-06
Alcohol consumption	Insomnia	0.100	0.023	4.426	9.620E-06
Lifetime smoking	Leptin	0.215	0.049	4.415	1.008E-05
Coronary artery disease	2-hour blood glucose	0.175	0.040	4.411	1.030E-05
Fasting glucose	2-hour blood glucose	0.303	0.069	4.402	1.070E-05
Daytime sleepiness	Leisure sedentary behaviour (TV watching)	0.115	0.026	4.400	1.090E-05
Intake of total sugar	Hip circumference	-0.112	0.025	-4.397	1.096E-05
Coronary artery disease	Breakfast skipping	0.145	0.033	4.394	1.110E-05
Long sleep	Daytime sleepiness	0.143	0.033	4.385	1.160E-05
25-Hydroxyvitamin D	Life satisfaction	0.085	0.019	4.376	1.210E-05
Leisure sedentary behaviour (TV watching)	25-Hydroxyvitamin D	0.090	0.020	4.380	1.210E-05
Intelligence	Intake of total sugar	-0.120	0.028	-4.368	1.260E-05
Atrial fibrillation	Major depressive disorder	0.111	0.026	4.366	1.270E-05
Fasting glucose	Birth weight	-0.145	0.033	-4.350	1.360E-05
Fasting glucose	Fasting insulin	0.252	0.058	4.342	1.410E-05
Cigarette consumption	Leptin	0.301	0.069	4.340	1.424E-05
Age of initiation of regular smoking	Intake of carbohydrate	0.185	0.043	4.338	1.440E-05
Body fat percentage	Positive affect	-0.078	0.018	-4.326	1.520E-05
BMI	Life satisfaction	-0.086	0.020	-4.323	1.540E-05
Age of initiation of regular smoking	Triglycerides	-0.165	0.038	-4.318	1.580E-05

Total cholesterol	Standing height	-0.101	0.023	-4.315	1.600E-05
Childhood-onset asthma	Intelligence	0.099	0.023	4.305	1.670E-05
Coffee consumption	Birth weight	0.109	0.025	4.305	1.670E-05
Childhood-onset asthma	Leisure sedentary behaviour (computer use)	0.106	0.025	4.303	1.690E-05
Age of initiation of regular smoking	Whole body fat-free mass	-0.102	0.024	-4.300	1.710E-05
Daytime napping	Leptin	0.226	0.053	4.300	1.730E-05
Schizophrenia	Hand grip strength (right)	-0.082	0.019	-4.278	1.890E-05
Ulcerative colitis	Schizophrenia	0.144	0.034	4.277	1.900E-05
Coronary artery disease	Sitting height	-0.073	0.017	-4.249	2.150E-05
Cigarette consumption	25-Hydroxyvitamin D	-0.093	0.022	-4.244	2.201E-05
Smoking cessation	Birth weight	-0.122	0.029	-4.232	2.319E-05
HDL cholesterol	Childhood BMI	-0.208	0.049	-4.217	2.480E-05
Lifetime smoking	Anxious feeling	0.105	0.025	4.195	2.728E-05
Adult-onset asthma	Strenuous sports or other exercises	-0.132	0.032	-4.195	2.730E-05
Lifetime smoking	Childhood BMI	0.143	0.034	4.191	2.783E-05
Caffeine consumption	Childhood BMI	0.192	0.046	4.185	2.846E-05
Visceral adipose tissue	Sitting height	0.066	0.016	4.184	2.860E-05
Total cholesterol	Triglycerides	0.487	0.117	4.184	2.870E-05
Fasting insulin	Hip circumference	-0.120	0.029	-4.180	2.920E-05
Triglycerides	Hip circumference	0.140	0.034	4.172	3.020E-05
10+ minutes vigorous activity	Sitting height	-0.079	0.019	-4.160	3.150E-05
2-hour blood glucose	Waist-to-hip ratio	0.149	0.036	4.150	3.300E-05
Intake of carbohydrate	Moderate to vigorous physical activity levels	0.150	0.036	4.137	3.516E-05
Coffee consumption	Breakfast skipping	0.193	0.047	4.134	3.570E-05
Caffeine consumption	Major depressive disorder	-0.106	0.026	-4.133	3.575E-05
Smoking cessation	HbA1c	0.140	0.034	4.133	3.588E-05
Coffee consumption	Anxious feeling	-0.125	0.030	-4.124	3.720E-05
2-hour blood glucose	25-Hydroxyvitamin D	-0.165	0.040	-4.120	3.760E-05
Daytime sleepiness	Income	-0.108	0.026	-4.120	3.830E-05
Intake of fat	Moderate to vigorous physical activity levels	-0.173	0.042	-4.111	3.940E-05
Atrial fibrillation	Smoking initiation	0.076	0.018	4.105	4.050E-05
Morning person	Strenuous sports or other exercises	0.095	0.023	4.097	4.190E-05
Smoking initiation	Childhood BMI	0.137	0.034	4.072	4.667E-05
Anorexia nervosa	Intake of total sugar	0.161	0.040	4.064	4.830E-05
Caffeine consumption	Cigarette consumption	0.130	0.032	4.053	5.057E-05
Crohn's disease	Long sleep	0.179	0.044	4.051	5.100E-05
Anorexia nervosa	Leptin	-0.267	0.066	-4.045	5.240E-05
Lifetime smoking	Leisure sedentary behaviour (computer use)	-0.091	0.023	-4.037	5.420E-05
Bipolar disorder	Hand grip strength (right)	-0.086	0.021	-4.036	5.450E-05
2-hour blood glucose	Hand grip strength (left)	-0.133	0.033	-4.000	6.270E-05

Schizophrenia	Alcohol consumption	0.087	0.022	3.999	6.360E-05
Age of initiation of regular smoking	Anxious feeling	-0.137	0.034	-3.998	6.380E-05
Cigarette consumption	Moderate to vigorous physical activity levels	-0.116	0.029	-3.993	6.538E-05
Smoking initiation	Anxious feeling	0.098	0.025	3.988	6.661E-05
Age of initiation of regular smoking	Daytime sleepiness	-0.140	0.035	-3.981	6.860E-05
Whole body fat mass	Life satisfaction	-0.073	0.018	-3.977	6.990E-05
Intelligence	Positive affect	0.092	0.023	3.963	7.410E-05
Moderate to vigorous physical activity levels	Standing height	-0.081	0.020	-3.950	7.710E-05
Coronary artery disease	Fasting glucose	0.113	0.029	3.952	7.760E-05
Caffeine consumption	Breakfast skipping	0.186	0.047	3.948	7.875E-05
Alcohol consumption	2-hour blood glucose	-0.166	0.042	-3.945	7.960E-05
Alcohol consumption	Fasting insulin	-0.126	0.032	-3.943	8.040E-05
Leisure sedentary behaviour (computer use)	10+ minutes vigorous activity	-0.122	0.031	-3.940	8.070E-05
Leisure sedentary behaviour (TV watching)	Hand grip strength (left)	-0.074	0.019	-3.940	8.080E-05
Adult-onset asthma	Short sleep	0.132	0.033	3.941	8.110E-05
Hand grip strength (left)	Anxious feeling	-0.082	0.021	-3.932	8.430E-05
Caffeine consumption	Life satisfaction	0.111	0.028	3.932	8.442E-05
Schizophrenia	Coffee consumption	-0.098	0.025	-3.926	8.620E-05
Daytime napping	Fasting insulin	0.101	0.026	3.920	8.750E-05
Leisure sedentary behaviour (TV watching)	Hand grip strength (right)	-0.075	0.019	-3.900	9.490E-05
Type 2 diabetes	Positive affect	-0.095	0.024	-3.899	9.660E-05
Triglycerides	Standing height	-0.080	0.021	-3.889	1.010E-04
10+ minutes vigorous activity	Hand grip strength (right)	0.092	0.024	3.880	1.040E-04
Smoking cessation	Whole body fat-free mass	0.093	0.024	3.864	1.114E-04
Coffee consumption	2-hour blood glucose	-0.210	0.055	-3.861	1.130E-04
Triglycerides	Life satisfaction	-0.094	0.024	-3.862	1.130E-04
Breakfast skipping	Sitting height	-0.105	0.027	-3.853	1.170E-04
Atrial fibrillation	Hand grip strength (left)	0.088	0.023	3.848	1.190E-04
Strenuous sports or other exercises	Leptin	-0.233	0.061	-3.839	1.240E-04
HDL cholesterol	Leptin	-0.246	0.064	-3.837	1.250E-04
Type 2 diabetes	Intake of total sugar	-0.135	0.035	-3.836	1.250E-04
Adult-onset asthma	Hand grip strength (left)	-0.100	0.026	-3.834	1.260E-04
Caffeine consumption	Fasting insulin	-0.150	0.039	-3.825	1.306E-04
Long sleep	Hip circumference	0.094	0.025	3.823	1.320E-04
Atrial fibrillation	Hand grip strength (right)	0.090	0.023	3.821	1.330E-04
Leisure sedentary behaviour (TV watching)	Total cholesterol	0.111	0.029	3.810	1.380E-04
Age of initiation of regular smoking	Hand grip strength (right)	0.100	0.026	3.808	1.400E-04
Total cholesterol	Sitting height	-0.094	0.025	-3.804	1.420E-04

25-Hydroxyvitamin D	Income	-0.077	0.020	-3.798	1.460E-04
Adult-onset asthma	Income	-0.104	0.027	-3.784	1.540E-04
Coronary artery disease	Childhood BMI	0.127	0.034	3.756	1.730E-04
2-hour blood glucose	Sitting height	-0.125	0.033	-3.750	1.760E-04
Leisure sedentary behaviour (TV watching)	LDL cholesterol	0.133	0.036	3.750	1.790E-04
Bipolar disorder	Strenuous sports or other exercises	0.094	0.025	3.742	1.830E-04
Daytime sleepiness	Whole body fat-free mass	0.073	0.020	3.740	1.850E-04
Leisure sedentary behaviour (computer use)	Hand grip strength (right)	0.079	0.021	3.730	1.880E-04
Schizophrenia	Leisure sedentary behaviour (computer use)	-0.075	0.020	-3.734	1.880E-04
Lifetime smoking	Birth weight	-0.070	0.019	-3.721	1.981E-04
Intake of fat	Educational attainment	-0.110	0.029	-3.719	2.002E-04
10+ minutes vigorous activity	Positive affect	0.116	0.031	3.710	2.040E-04
Coronary artery disease	10+ minutes vigorous activity	-0.105	0.028	-3.714	2.040E-04
Coronary artery disease	LDL cholesterol	0.183	0.049	3.711	2.070E-04
Fasting insulin	Income	-0.113	0.030	-3.700	2.130E-04
Short sleep	Fasting glucose	0.119	0.032	3.701	2.150E-04
LDL cholesterol	Standing height	-0.107	0.029	-3.700	2.160E-04
Adult-onset asthma	Atrial fibrillation	0.121	0.033	3.690	2.250E-04
Fasting glucose	Educational attainment	-0.075	0.021	-3.676	2.370E-04
Intelligence	Fasting insulin	-0.095	0.026	-3.675	2.380E-04
Daytime napping	25-Hydroxyvitamin D	-0.071	0.019	-3.670	2.420E-04
Age of initiation of regular smoking	Fasting insulin	-0.117	0.032	-3.669	2.440E-04
Strenuous sports or other exercises	Anxious feeling	-0.124	0.034	-3.667	2.450E-04
Atrial fibrillation	Educational attainment	-0.067	0.018	-3.666	2.460E-04
Total cholesterol	Whole body fat-free mass	-0.098	0.027	-3.666	2.460E-04
Caffeine consumption	Positive affect	0.104	0.028	3.661	2.511E-04
Insomnia	Birth weight	-0.092	0.025	-3.659	2.530E-04
Schizophrenia	Smoking cessation	0.108	0.030	3.655	2.570E-04
Age of initiation of regular smoking	HbA1c	-0.133	0.036	-3.645	2.670E-04
Standing height	Life satisfaction	0.059	0.016	3.642	2.710E-04
Atrial fibrillation	Age of initiation of regular smoking	-0.094	0.026	-3.639	2.740E-04
Daytime sleepiness	Hand grip strength (left)	-0.089	0.024	-3.630	2.820E-04
Intelligence	Daytime sleepiness	-0.082	0.023	-3.631	2.830E-04
Leptin	Childhood BMI	0.333	0.092	3.626	2.880E-04
Strenuous sports or other exercises	Hand grip strength (right)	0.084	0.023	3.626	2.880E-04
Short sleep	Triglycerides	0.116	0.032	3.625	2.890E-04
Atrial fibrillation	Insomnia	0.094	0.026	3.621	2.930E-04
Fasting insulin	Whole body fat-free mass	-0.099	0.028	-3.600	3.140E-04
Triglycerides	Birth weight	-0.112	0.031	-3.603	3.140E-04
Cigarette consumption	Intake of fat	0.139	0.039	3.602	3.160E-04
Adult-onset asthma	Leisure sedentary behaviour	0.107	0.030	3.589	3.320E-04

	(computer use)				
Intake of fat	Morning person	-0.131	0.037	-3.587	3.347E-04
Bipolar disorder	Intelligence	-0.069	0.019	-3.585	3.370E-04
Intelligence	Bipolar disorder	-0.069	0.019	-3.585	3.370E-04
Insomnia	Fasting glucose	0.095	0.026	3.584	3.390E-04
Long sleep	2-hour blood glucose	0.219	0.061	3.584	3.390E-04
HbA1c	LDL cholesterol	0.226	0.063	3.573	3.530E-04
Visceral adipose tissue	Anxious feeling	-0.077	0.022	-3.563	3.660E-04
Morning person	Major depressive disorder	-0.078	0.022	-3.561	3.690E-04
BMI	Positive affect	-0.072	0.020	-3.550	3.859E-04
Smoking initiation	HbA1c	0.080	0.023	3.545	3.930E-04
25-Hydroxyvitamin D	Childhood BMI	0.110	0.031	3.541	3.980E-04
Visceral adipose tissue	Birth weight	0.066	0.019	3.533	4.110E-04
Intake of total sugar	25-Hydroxyvitamin D	0.100	0.028	3.527	4.210E-04
Atrial fibrillation	Short sleep	0.092	0.026	3.524	4.250E-04
10+ minutes vigorous activity	Life satisfaction	0.108	0.031	3.510	4.420E-04
Atrial fibrillation	Birth weight	0.085	0.024	3.508	4.510E-04
HbA1c	Total cholesterol	0.198	0.056	3.506	4.540E-04
Ulcerative colitis	Major depressive disorder	0.121	0.035	3.498	4.680E-04
Lifetime smoking	Intake of fat	0.134	0.038	3.493	4.772E-04
HbA1c	Income	-0.098	0.028	-3.493	4.780E-04
Atrial fibrillation	Childhood BMI	0.144	0.041	3.493	4.790E-04
Intelligence	Hand grip strength (right)	0.068	0.020	3.490	4.840E-04
Coffee consumption	Fasting insulin	-0.129	0.037	-3.487	4.880E-04
Ulcerative colitis	Life satisfaction	-0.125	0.036	-3.486	4.900E-04
25-Hydroxyvitamin D	Whole body fat mass	0.057	0.016	3.484	4.940E-04
BMI	Birth weight	0.058	0.017	3.477	5.066E-04
Total cholesterol	Childhood BMI	-0.182	0.052	-3.477	5.070E-04
BMI	2-hour blood glucose	-0.120	0.034	-3.471	5.188E-04
Intelligence	HDL cholesterol	0.093	0.027	3.470	5.210E-04
Schizophrenia	Daytime sleepiness	0.084	0.024	3.461	5.380E-04
Coronary artery disease	Anxious feeling	0.077	0.022	3.444	5.740E-04
10+ minutes vigorous activity	Fasting insulin	-0.138	0.040	-3.440	5.820E-04
Lifetime smoking	10+ minutes vigorous activity	-0.089	0.026	-3.437	5.893E-04
Anorexia nervosa	HbA1c	-0.135	0.039	-3.434	5.940E-04
Triglycerides	Positive affect	-0.083	0.024	-3.433	5.970E-04
Smoking initiation	Intake of fat	0.106	0.031	3.432	5.994E-04
Intake of carbohydrate	Leisure sedentary behaviour (TV watching)	-0.096	0.028	-3.430	6.040E-04
Lifetime smoking	Daytime sleepiness	0.094	0.027	3.427	6.107E-04
Ulcerative colitis	Positive affect	-0.126	0.037	-3.420	6.260E-04
Daytime sleepiness	Strenuous sports or other exercises	-0.099	0.029	-3.420	6.270E-04
Type 2 diabetes	Moderate to vigorous physical activity levels	-0.082	0.024	-3.408	6.530E-04

Alcohol consumption	HbA1c	-0.091	0.027	-3.397	6.821E-04
Bipolar disorder	Insomnia	0.080	0.024	3.397	6.830E-04
Atrial fibrillation	HDL cholesterol	-0.113	0.033	-3.383	7.180E-04
Leptin	Hand grip strength (right)	-0.156	0.046	-3.382	7.200E-04
Crohn's disease	Anxious feeling	0.115	0.034	3.378	7.300E-04
BMI	Fasting insulin	-0.091	0.027	-3.377	7.333E-04
Whole body fat mass	Positive affect	-0.063	0.019	-3.370	7.510E-04
Leisure sedentary behaviour (TV watching)	HbA1c	0.086	0.026	3.370	7.540E-04
Morning person	Leisure sedentary behaviour (computer use)	-0.070	0.021	-3.364	7.670E-04
Adult-onset asthma	Hand grip strength (right)	-0.094	0.028	-3.359	7.840E-04
2-hour blood glucose	Hand grip strength (right)	-0.115	0.034	-3.350	8.090E-04
2-hour blood glucose	Childhood BMI	-0.220	0.066	-3.340	8.380E-04
Smoking cessation	Sitting height	-0.066	0.020	-3.332	8.609E-04
10+ minutes vigorous activity	Major depressive disorder	-0.100	0.030	-3.330	8.720E-04
Daytime sleepiness	Hand grip strength (right)	-0.076	0.023	-3.330	8.820E-04
Crohn's disease	Major depressive disorder	0.093	0.028	3.321	8.960E-04
Intake of fat	Daytime sleepiness	0.122	0.037	3.321	8.971E-04
25-Hydroxyvitamin D	Waist-to-hip ratio	-0.052	0.016	-3.311	9.290E-04
Fasting insulin	25-Hydroxyvitamin D	-0.105	0.032	-3.310	9.340E-04
Type 2 diabetes	Intake of carbohydrate	-0.113	0.034	-3.299	9.710E-04
2-hour blood glucose	Whole body fat mass	-0.113	0.034	-3.300	9.790E-04
BMI	Fasting glucose	-0.070	0.021	-3.296	9.797E-04
Age of initiation of regular smoking	10+ minutes vigorous activity	0.115	0.035	3.294	9.870E-04
Fasting glucose	Waist-to-hip ratio	0.090	0.028	3.283	1.030E-03
Fasting insulin	Triglycerides	0.284	0.087	3.280	1.030E-03
Alcohol consumption	Smoking cessation	0.108	0.033	3.282	1.032E-03
Caffeine consumption	Standing height	0.079	0.024	3.273	1.064E-03
Daytime sleepiness	Triglycerides	0.100	0.031	3.270	1.090E-03
Short sleep	HDL cholesterol	-0.097	0.030	-3.264	1.100E-03
Bipolar disorder	Hip circumference	-0.060	0.018	-3.248	1.160E-03
Insomnia	HbA1c	0.088	0.027	3.240	1.200E-03
Age of initiation of regular smoking	Intake of fat	-0.142	0.044	-3.236	1.210E-03
Intelligence	Hip circumference	-0.051	0.016	-3.233	1.220E-03
Daytime sleepiness	Educational attainment	-0.067	0.021	-3.230	1.230E-03
LDL cholesterol	Educational attainment	-0.125	0.039	-3.231	1.230E-03
Insomnia	Sitting height	-0.058	0.018	-3.225	1.260E-03
Short sleep	Birth weight	-0.077	0.024	-3.222	1.270E-03
Type 2 diabetes	Standing height	-0.059	0.018	-3.224	1.270E-03
Adult-onset asthma	Childhood BMI	0.144	0.045	3.221	1.280E-03
Strenuous sports or other exercises	Fasting glucose	-0.104	0.032	-3.221	1.280E-03
Intake of carbohydrate	HDL cholesterol	-0.125	0.039	-3.218	1.293E-03
Intake of fat	HbA1c	0.123	0.038	3.208	1.335E-03

Breakfast skipping	Hand grip strength (right)	-0.098	0.031	-3.192	1.410E-03
Anorexia nervosa	Triglycerides	-0.122	0.038	-3.189	1.430E-03
Smoking cessation	Triglycerides	0.141	0.044	3.187	1.437E-03
Leisure sedentary behaviour (computer use)	Waist circumference	0.058	0.018	3.160	1.580E-03
Alcohol consumption	Intake of fat	-0.122	0.039	-3.151	1.625E-03
Sitting height	Major depressive disorder	-0.051	0.016	-3.147	1.650E-03
Crohn's disease	Schizophrenia	0.099	0.031	3.141	1.680E-03
Childhood BMI	Anxious feeling	-0.122	0.039	-3.138	1.700E-03
Smoking cessation	HDL cholesterol	-0.152	0.049	-3.135	1.719E-03
Caffeine consumption	Waist-to-hip ratio	0.080	0.025	3.127	1.765E-03
Alcohol consumption	Major depressive disorder	0.073	0.024	3.126	1.770E-03
Lifetime smoking	Hand grip strength (right)	-0.058	0.019	-3.117	1.825E-03
Leptin	Anxious feeling	-0.160	0.052	-3.104	1.910E-03
Smoking cessation	Leptin	0.226	0.073	3.102	1.926E-03
Intake of total sugar	Major depressive disorder	-0.100	0.032	-3.088	2.019E-03
Fasting insulin	Adiponectin	-0.831	0.270	-3.080	2.100E-03
Atrial fibrillation	Cigarette consumption	0.088	0.029	3.062	2.200E-03
Morning person	Short sleep	0.074	0.024	3.059	2.220E-03
Lifetime smoking	Sitting height	-0.046	0.015	-3.053	2.267E-03
Fasting glucose	Sitting height	0.064	0.021	3.050	2.290E-03
Standing height	Positive affect	0.050	0.017	3.038	2.380E-03
Age of initiation of regular smoking	Sitting height	0.065	0.022	3.036	2.390E-03
Caffeine consumption	Triglycerides	-0.114	0.038	-3.033	2.419E-03
Long sleep	10+ minutes vigorous activity	-0.116	0.038	-3.030	2.450E-03
Fasting insulin	Anxious feeling	0.100	0.033	3.020	2.530E-03
Crohn's disease	Educational attainment	-0.090	0.030	-3.015	2.570E-03
Smoking initiation	Daytime sleepiness	0.074	0.025	3.011	2.604E-03
Crohn's disease	Daytime sleepiness	0.110	0.037	3.008	2.630E-03
Total cholesterol	Educational attainment	-0.099	0.033	-3.005	2.650E-03
Bipolar disorder	Whole body fat mass	-0.055	0.018	-2.998	2.720E-03
Strenuous sports or other exercises	Standing height	0.054	0.018	2.996	2.740E-03
Smoking cessation	Hand grip strength (right)	-0.084	0.028	-2.989	2.800E-03
Smoking cessation	Morning person	-0.085	0.029	-2.985	2.837E-03
Fasting glucose	Hip circumference	-0.075	0.025	-2.984	2.840E-03
Fasting glucose	Standing height	0.061	0.020	2.977	2.910E-03
10+ minutes vigorous activity	HDL cholesterol	0.108	0.037	2.960	3.050E-03
Intake of fat	25-Hydroxyvitamin D	-0.098	0.033	-2.961	3.064E-03
LDL cholesterol	Waist-to-hip ratio	0.155	0.052	2.953	3.150E-03
Type 2 diabetes	Hand grip strength (left)	-0.061	0.021	-2.950	3.170E-03
Type 2 diabetes	Alcohol consumption	-0.067	0.023	-2.946	3.220E-03
Type 2 diabetes	Schizophrenia	-0.055	0.019	-2.944	3.240E-03
Lifetime smoking	Total cholesterol	0.096	0.033	2.939	3.292E-03
Leisure sedentary behaviour (computer use)	Birth weight	0.072	0.025	2.920	3.470E-03

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Smoking cessation	Intake of fat	0.158	0.054	2.922	3.482E-03
Coffee consumption	Positive affect	0.083	0.029	2.914	3.570E-03
Morning person	Daytime sleepiness	0.063	0.022	2.909	3.630E-03
Bipolar disorder	Age of initiation of regular smoking	-0.076	0.026	-2.902	3.710E-03
HbA1c	Leptin	0.180	0.062	2.901	3.720E-03
Crohn's disease	Life satisfaction	-0.087	0.030	-2.897	3.770E-03
Crohn's disease	Positive affect	-0.088	0.031	-2.892	3.830E-03
25-Hydroxyvitamin D	Hand grip strength (left)	0.053	0.018	2.890	3.860E-03
Childhood-onset asthma	Smoking cessation	-0.099	0.034	-2.886	3.900E-03
Alcohol consumption	Cigarette consumption	0.083	0.029	2.883	3.935E-03
Type 2 diabetes	Hand grip strength (right)	-0.059	0.021	-2.883	3.940E-03
Type 2 diabetes	Intake of fat	0.124	0.043	2.882	3.950E-03
Age of initiation of regular smoking	Childhood BMI	-0.142	0.050	-2.872	4.080E-03
Crohn's disease	Bipolar disorder	0.098	0.034	2.872	4.080E-03
Intake of carbohydrate	Insomnia	-0.090	0.031	-2.869	4.112E-03
10+ minutes vigorous activity	Standing height	-0.056	0.020	-2.870	4.120E-03
Leptin	Hand grip strength (left)	-0.136	0.048	-2.863	4.200E-03
Anorexia nervosa	Lifetime smoking	-0.083	0.029	-2.853	4.330E-03
Adult-onset asthma	Age of initiation of regular smoking	-0.108	0.038	-2.848	4.390E-03
Intake of fat	Income	-0.102	0.036	-2.842	4.483E-03
Short sleep	Leisure sedentary behaviour (computer use)	-0.075	0.026	-2.840	4.510E-03
Alcohol consumption	Income	0.071	0.025	2.832	4.619E-03
Anorexia nervosa	Intelligence	0.085	0.030	2.832	4.620E-03
Intelligence	Anorexia Nervosa	0.085	0.030	2.832	4.620E-03
Coffee consumption	Major depressive disorder	-0.076	0.027	-2.820	4.800E-03
Intake of carbohydrate	10+ minutes vigorous activity	0.106	0.038	2.820	4.800E-03
BMI	Moderate to vigorous physical activity levels	-0.060	0.021	-2.820	4.807E-03
Crohn's disease	Visceral adipose tissue	0.079	0.028	2.819	4.820E-03
LDL cholesterol	Sitting height	-0.082	0.029	-2.816	4.870E-03
Cigarette consumption	Daytime sleepiness	0.081	0.029	2.815	4.874E-03
Anorexia nervosa	Long sleep	-0.114	0.041	-2.813	4.910E-03
Caffeine consumption	HDL cholesterol	0.101	0.036	2.811	4.932E-03
Adult-onset asthma	Whole body fat-free mass	0.073	0.026	2.811	4.940E-03
Insomnia	Fasting insulin	0.087	0.031	2.806	5.010E-03
Coffee consumption	Life satisfaction	0.080	0.029	2.805	5.030E-03
Intake of fat	Waist-to-hip ratio	0.086	0.031	2.803	5.060E-03
Coffee consumption	Leptin	0.163	0.058	2.792	5.240E-03
Sitting height	Anxious feeling	-0.052	0.019	-2.789	5.290E-03
Insomnia	Triglycerides	0.075	0.027	2.781	5.430E-03
Intake of total sugar	Positive affect	0.093	0.034	2.762	5.741E-03
Daytime sleepiness	25-Hydroxyvitamin D	-0.062	0.022	-2.760	5.860E-03

Intake of fat	Daytime napping	0.085	0.031	2.751	5.944E-03
10+ minutes vigorous activity	Educational attainment	0.067	0.024	2.740	6.090E-03
Daytime sleepiness	HDL cholesterol	-0.088	0.032	-2.740	6.190E-03
Smoking cessation	Hand grip strength (left)	-0.080	0.029	-2.731	6.317E-03
Intake of fat	Body fat percentage	0.085	0.031	2.729	6.346E-03
Coffee consumption	Standing height	0.066	0.024	2.728	6.370E-03
Strenuous sports or other exercises	HbA1c	-0.085	0.031	-2.727	6.390E-03
Ulcerative colitis	Childhood BMI	-0.172	0.063	-2.724	6.460E-03
Breakfast skipping	Daytime napping	0.090	0.033	2.718	6.570E-03
Long sleep	Leptin	0.216	0.080	2.708	6.770E-03
Intake of fat	Whole body fat mass	0.089	0.033	2.707	6.782E-03
Morning person	Fasting insulin	-0.082	0.030	-2.706	6.820E-03
Age of initiation of regular smoking	Leptin	-0.172	0.064	-2.701	6.910E-03
Cigarette consumption	Hand grip strength (left)	-0.058	0.022	-2.700	6.941E-03
Alcohol consumption	Anxious feeling	0.072	0.027	2.699	6.959E-03
Ulcerative colitis	Bipolar disorder	0.093	0.035	2.685	7.250E-03
25-Hydroxyvitamin D	Hand grip strength (right)	0.048	0.018	2.684	7.270E-03
Smoking cessation	LDL cholesterol	0.169	0.063	2.684	7.271E-03
Intake of carbohydrate	Whole body fat-free mass	-0.068	0.025	-2.682	7.323E-03
Triglycerides	Leptin	0.210	0.078	2.681	7.350E-03
Hip circumference	Life satisfaction	-0.050	0.019	-2.680	7.360E-03
Daytime napping	10+ minutes vigorous activity	-0.073	0.028	-2.660	7.730E-03
Intake of fat	Waist circumference	0.086	0.032	2.662	7.770E-03
Atrial fibrillation	Leisure sedentary behaviour (TV watching)	0.055	0.021	2.662	7.770E-03
Adiponectin	Waist-to-hip ratio	-0.286	0.108	-2.662	7.800E-03
Adult-onset asthma	Standing height	-0.062	0.023	-2.661	7.800E-03
Caffeine consumption	Insomnia	-0.092	0.035	-2.654	7.952E-03
Total cholesterol	Waist-to-hip ratio	0.102	0.039	2.654	7.960E-03
BMI	Hand grip strength (right)	-0.045	0.017	-2.651	8.017E-03
2-hour blood glucose	Adiponectin	-0.651	0.246	-2.650	8.080E-03
Crohn's disease	Body fat percentage	0.075	0.028	2.647	8.110E-03
Childhood-onset asthma	Bipolar disorder	0.075	0.028	2.641	8.280E-03
Adiponectin	Hip circumference	0.250	0.095	2.636	8.400E-03
Daytime napping	Fasting glucose	0.067	0.025	2.630	8.500E-03
Long sleep	HbA1c	0.094	0.036	2.626	8.650E-03
Atrial fibrillation	Income	-0.061	0.023	-2.623	8.720E-03
HDL cholesterol	Adiponectin	0.691	0.265	2.612	8.990E-03
Breakfast skipping	10+ minutes vigorous activity	-0.107	0.041	-2.605	9.190E-03
Bipolar disorder	Hand grip strength (left)	-0.059	0.023	-2.605	9.200E-03
Intake of total sugar	Strenuous sports or other exercises	0.096	0.037	2.603	9.255E-03
Anorexia nervosa	Breakfast skipping	-0.115	0.044	-2.600	9.320E-03
Coronary artery disease	Intake of total sugar	-0.079	0.030	-2.600	9.330E-03
Lifetime smoking	LDL cholesterol	0.105	0.040	2.595	9.454E-03

Birth weight	Anxious feeling	-0.065	0.025	-2.589	9.620E-03
Intake of total sugar	Life satisfaction	0.085	0.033	2.578	9.928E-03
Intake of fat	Childhood BMI	-0.159	0.062	-2.573	0.010
Bipolar disorder	Leisure sedentary behaviour (computer use)	0.062	0.024	2.572	0.010
Childhood-onset asthma	Moderate to vigorous physical activity levels	-0.074	0.029	-2.571	0.010
Bipolar disorder	Fasting insulin	-0.077	0.030	-2.570	0.010
HbA1c	Anxious feeling	-0.073	0.028	-2.569	0.010
Breakfast skipping	Hand grip strength (left)	-0.080	0.031	-2.562	0.010
Bipolar disorder	Morning person	-0.056	0.022	-2.560	0.011
Adult-onset asthma	Bipolar disorder	0.073	0.029	2.555	0.011
Strenuous sports or other exercises	2-hour blood glucose	-0.132	0.052	-2.556	0.011
Short sleep	10+ minutes vigorous activity	-0.081	0.032	-2.553	0.011
Type 2 diabetes	Adiponectin	-0.265	0.104	-2.553	0.011
Crohn's disease	Whole body fat mass	0.068	0.027	2.548	0.011
Triglycerides	Whole body fat-free mass	0.079	0.031	2.545	0.011
Breakfast skipping	25-Hydroxyvitamin D	-0.076	0.030	-2.541	0.011
Long sleep	Triglycerides	0.130	0.051	2.543	0.011
Alcohol consumption	25-Hydroxyvitamin D	0.058	0.023	2.541	0.011
Sitting height	Life satisfaction	0.046	0.018	2.536	0.011
Bipolar disorder	Whole body fat-free mass	-0.045	0.018	-2.535	0.011
Whole body fat-free mass	Educational attainment	-0.035	0.014	-2.530	0.011
Intake of fat	Positive affect	-0.092	0.036	-2.526	0.012
Bipolar disorder	25-Hydroxyvitamin D	-0.062	0.025	-2.524	0.012
10+ minutes vigorous activity	Whole body fat-free mass	-0.054	0.022	-2.520	0.012
Insomnia	Total cholesterol	0.096	0.038	2.521	0.012
Insomnia	Childhood BMI	-0.103	0.041	-2.512	0.012
Total cholesterol	Income	-0.104	0.042	-2.509	0.012
LDL cholesterol	Income	-0.120	0.048	-2.507	0.012
Crohn's disease	Smoking initiation	0.068	0.027	2.498	0.013
Insomnia	LDL cholesterol	0.093	0.037	2.493	0.013
Smoking initiation	Moderate to vigorous physical activity levels	0.061	0.025	2.491	0.013
Bipolar disorder	Body fat percentage	-0.046	0.019	-2.485	0.013
Long sleep	HDL cholesterol	-0.114	0.046	-2.483	0.013
10+ minutes vigorous activity	Leptin	-0.178	0.072	-2.480	0.013
Fasting glucose	25-Hydroxyvitamin D	-0.070	0.028	-2.480	0.013
Alcohol consumption	Triglycerides	-0.097	0.039	-2.481	0.013
BMI	Hand grip strength (left)	-0.042	0.017	-2.476	0.013
Crohn's disease	Daytime napping	0.080	0.032	2.472	0.014
Morning person	Sitting height	-0.037	0.015	-2.469	0.014
Schizophrenia	Hand grip strength (left)	-0.049	0.020	-2.465	0.014
Type 2 diabetes	Morning person	0.050	0.020	2.464	0.014

Coffee consumption	Leisure sedentary behaviour (TV watching)	-0.058	0.024	-2.459	0.014
Leisure sedentary behaviour (computer use)	Whole body fat mass	0.046	0.019	2.460	0.014
Age of initiation of regular smoking	Hand grip strength (left)	0.066	0.027	2.443	0.015
Cigarette consumption	Fasting insulin	0.079	0.032	2.442	0.015
Caffeine consumption	Sitting height	0.059	0.024	2.439	0.015
Childhood-onset asthma	Income	0.062	0.025	2.436	0.015
Crohn's disease	Intelligence	-0.077	0.032	-2.432	0.015
Childhood BMI	Educational attainment	-0.072	0.030	-2.422	0.015
Intelligence	Triglycerides	-0.061	0.025	-2.424	0.015
Leisure sedentary behaviour (TV watching)	Fasting glucose	0.069	0.028	2.420	0.015
Schizophrenia	Caffeine consumption	-0.060	0.025	-2.423	0.015
Smoking cessation	Total cholesterol	0.130	0.054	2.421	0.015
Intake of fat	Visceral adipose tissue	0.084	0.035	2.421	0.015
Triglycerides	Adiponectin	-0.523	0.216	-2.418	0.016
Daytime sleepiness	Leptin	0.139	0.058	2.410	0.016
10+ minutes vigorous activity	Childhood BMI	0.107	0.044	2.410	0.016
Total cholesterol	Birth weight	-0.078	0.033	-2.401	0.016
Moderate to vigorous physical activity levels	Waist-to-hip ratio	-0.049	0.021	-2.390	0.017
Coffee consumption	Strenuous sports or other exercises	0.080	0.033	2.387	0.017
Adult-onset asthma	Coronary artery disease	0.071	0.030	2.381	0.017
Atrial fibrillation	Coffee consumption	0.067	0.028	2.371	0.018
LDL cholesterol	Birth weight	-0.095	0.040	-2.367	0.018
Schizophrenia	Waist-to-hip ratio	-0.039	0.017	-2.367	0.018
BMI	Bipolar disorder	-0.043	0.018	-2.364	0.018
Intake of fat	Life satisfaction	-0.084	0.036	-2.360	0.018
Anorexia nervosa	Short sleep	0.077	0.033	2.357	0.018
Moderate to vigorous physical activity levels	Leptin	-0.164	0.070	-2.350	0.019
Alcohol consumption	Life satisfaction	-0.061	0.026	-2.343	0.019
Coronary artery disease	Adiponectin	-0.216	0.092	-2.340	0.019
Intake of total sugar	Leisure sedentary behaviour (TV watching)	-0.063	0.027	-2.338	0.019
Daytime napping	Hand grip strength (left)	-0.050	0.021	-2.330	0.020
Fasting insulin	Standing height	0.061	0.026	2.330	0.020
Schizophrenia	10+ minutes vigorous activity	0.067	0.029	2.332	0.020
Intelligence	Alcohol consumption	0.052	0.022	2.329	0.020
Breakfast skipping	Leisure sedentary behaviour (computer use)	-0.080	0.035	-2.323	0.020
Short sleep	Moderate to vigorous physical activity levels	0.072	0.031	2.322	0.020

25-Hydroxyvitamin D	Visceral adipose tissue	0.039	0.017	2.320	0.020
Adiponectin	Whole body fat mass	0.161	0.070	2.318	0.020
Adiponectin	Birth weight	0.265	0.115	2.304	0.021
Fasting glucose	Adiponectin	-0.326	0.142	-2.301	0.021
Adult-onset asthma	Cigarette consumption	0.100	0.044	2.297	0.022
Total cholesterol	Major depressive disorder	0.081	0.035	2.294	0.022
Cigarette consumption	LDL cholesterol	0.100	0.044	2.288	0.022
Cigarette consumption	Total cholesterol	0.086	0.038	2.285	0.022
Childhood-onset asthma	Alcohol consumption	-0.059	0.026	-2.285	0.022
Atrial fibrillation	Life satisfaction	-0.057	0.025	-2.282	0.023
Fasting glucose	Anxious feeling	0.082	0.036	2.278	0.023
Intake of carbohydrate	2-hour blood glucose	0.127	0.056	2.275	0.023
Age of initiation of regular smoking	Intake of total sugar	0.092	0.040	2.271	0.023
Moderate to vigorous physical activity levels	Fasting insulin	-0.086	0.038	-2.270	0.023
Sitting height	Positive affect	0.041	0.018	2.262	0.024
HDL cholesterol	Total cholesterol	0.227	0.100	2.255	0.024
Leisure sedentary behaviour (computer use)	Hand grip strength (left)	0.048	0.021	2.260	0.024
LDL cholesterol	Childhood BMI	-0.127	0.057	-2.252	0.024
Smoking cessation	Moderate to vigorous physical activity levels	0.086	0.038	2.252	0.024
Age of initiation of regular smoking	Birth weight	0.063	0.028	2.248	0.025
BMI	Sitting height	-0.031	0.014	-2.247	0.025
Hip circumference	Positive affect	-0.043	0.019	-2.246	0.025
Caffeine consumption	Moderate to vigorous physical activity levels	-0.075	0.033	-2.239	0.025
Cigarette consumption	Hand grip strength (right)	-0.047	0.021	-2.237	0.025
Fasting insulin	Life satisfaction	-0.068	0.030	-2.230	0.026
Ulcerative colitis	Whole body fat mass	-0.063	0.028	-2.233	0.026
Fasting insulin	Leptin	0.177	0.079	2.230	0.026
Adult-onset asthma	Triglycerides	0.079	0.035	2.224	0.026
Adiponectin	Body fat percentage	0.153	0.069	2.223	0.026
Daytime napping	Sitting height	0.034	0.015	2.220	0.026
Breakfast skipping	2-hour blood glucose	-0.138	0.062	-2.220	0.026
HbA1c	Triglycerides	0.103	0.046	2.220	0.026
Leisure sedentary behaviour (computer use)	Fasting glucose	-0.060	0.027	-2.220	0.026
Alcohol consumption	Positive affect	-0.060	0.027	-2.217	0.027
Long sleep	Standing height	-0.052	0.024	-2.200	0.028
Coffee consumption	Adiponectin	0.265	0.121	2.187	0.029
Leisure sedentary behaviour (TV watching)	Anxious feeling	0.053	0.024	2.190	0.029
Intake of carbohydrate	Anxious feeling	0.069	0.032	2.182	0.029

Intelligence	HbA1c	-0.056	0.026	-2.180	0.029
Schizophrenia	Age of initiation of regular smoking	-0.056	0.026	-2.180	0.029
Bipolar disorder	10+ minutes vigorous activity	0.066	0.030	2.179	0.029
Anorexia nervosa	Insomnia	0.072	0.033	2.175	0.030
Fasting glucose	Income	-0.058	0.027	-2.174	0.030
Moderate to vigorous physical activity levels	Childhood BMI	0.088	0.040	2.170	0.030
Caffeine consumption	Adiponectin	0.298	0.138	2.160	0.031
Intake of fat	Fasting insulin	0.133	0.062	2.159	0.031
Adult-onset asthma	Leptin	0.141	0.065	2.158	0.031
Daytime sleepiness	HbA1c	0.062	0.029	2.150	0.031
Bipolar disorder	Moderate to vigorous physical activity levels	0.064	0.030	2.149	0.032
Type 2 diabetes	25-Hydroxyvitamin D	-0.045	0.021	-2.149	0.032
BMI	Adiponectin	0.143	0.067	2.149	0.032
Fasting insulin	Waist circumference	0.055	0.026	2.140	0.032
Adiponectin	25-Hydroxyvitamin D	0.287	0.134	2.140	0.032
Standing height	Childhood BMI	-0.075	0.035	-2.138	0.033
Childhood-onset asthma	Intake of fat	-0.081	0.038	-2.130	0.033
Coffee consumption	HbA1c	0.065	0.030	2.121	0.034
Smoking cessation	Anxious feeling	0.082	0.039	2.120	0.034
HDL cholesterol	25-Hydroxyvitamin D	0.068	0.032	2.111	0.035
LDL cholesterol	Body fat percentage	0.100	0.047	2.111	0.035
10+ minutes vigorous activity	Income	0.068	0.032	2.110	0.035
Adult-onset asthma	Intake of fat	-0.087	0.041	-2.107	0.035
Adult-onset asthma	Smoking cessation	-0.088	0.042	-2.101	0.036
Intelligence	Leptin	-0.104	0.050	-2.100	0.036
BMI	Leisure sedentary behaviour (computer use)	0.053	0.018	2.099	0.036
Visceral adipose tissue	Standing height	0.032	0.015	2.092	0.036
Triglycerides	Sitting height	-0.047	0.023	-2.089	0.037
Visceral adipose tissue	Hand grip strength (right)	-0.042	0.020	-2.088	0.037
Type 2 diabetes	LDL cholesterol	0.112	0.054	2.086	0.037
Intake of fat	Hip circumference	0.067	0.032	2.085	0.037
Daytime napping	HbA1c	0.049	0.023	2.080	0.038
Anorexia nervosa	LDL cholesterol	-0.110	0.053	-2.075	0.038
Hand grip strength (left)	Childhood BMI	0.080	0.038	2.075	0.038
Breakfast skipping	Triglycerides	0.078	0.038	2.072	0.038
Adult-onset asthma	Moderate to vigorous physical activity levels	-0.076	0.037	-2.070	0.038
Coronary artery disease	Total cholesterol	0.116	0.056	2.068	0.039
Bipolar disorder	Sitting height	-0.039	0.019	-2.065	0.039
Daytime napping	Total cholesterol	0.065	0.032	2.060	0.039
Bipolar disorder	Waist circumference	-0.037	0.018	-2.063	0.039

Atrial fibrillation	Fasting insulin	-0.064	0.031	-2.062	0.039
Crohn's disease	Cigarette consumption	0.074	0.036	2.060	0.039
Daytime napping	Adiponectin	-0.189	0.092	-2.060	0.039
Smoking cessation	Intake of total sugar	-0.088	0.043	-2.060	0.039
Childhood-onset asthma	Atrial fibrillation	0.060	0.029	2.059	0.040
HDL cholesterol	Birth weight	0.061	0.030	2.058	0.040
Coronary artery disease	Moderate to vigorous physical activity levels	-0.057	0.028	-2.055	0.040
Schizophrenia	Breakfast skipping	0.062	0.030	2.056	0.040
Smoking initiation	Leptin	0.099	0.048	2.055	0.040
Alcohol consumption	Hip circumference	-0.047	0.023	-2.053	0.040
Crohn's disease	Sitting height	0.048	0.024	2.052	0.040
Alcohol consumption	Educational attainment	0.041	0.020	2.050	0.040
Adult-onset asthma	10+ minutes vigorous activity	-0.083	0.041	-2.049	0.041
Intake of total sugar	Total cholesterol	-0.096	0.047	-2.047	0.041
Alcohol consumption	10+ minutes vigorous activity	0.058	0.028	2.046	0.041
Adult-onset asthma	HDL cholesterol	-0.075	0.037	-2.045	0.041
Visceral adipose tissue	Hand grip strength (left)	-0.042	0.021	-2.038	0.042
10+ minutes vigorous activity	Triglycerides	-0.062	0.030	-2.040	0.042
2-hour blood glucose	Triglycerides	0.139	0.069	2.030	0.042
Breakfast skipping	Morning person	-0.064	0.032	-2.017	0.044
Waist-to-hip ratio	Birth weight	-0.039	0.019	-2.015	0.044
Adult-onset asthma	Long sleep	0.083	0.041	2.012	0.044
Atrial fibrillation	Positive affect	-0.051	0.025	-2.006	0.045
Strenuous sports or other exercises	LDL cholesterol	-0.099	0.049	-2.006	0.045
Strenuous sports or other exercises	Childhood BMI	0.082	0.041	2.004	0.045
Adult-onset asthma	Schizophrenia	0.057	0.029	2.001	0.045
Caffeine consumption	Fasting glucose	-0.076	0.038	-1.999	0.046
Smoking initiation	Standing height	-0.024	0.012	-1.997	0.046
Standing height	Anxious feeling	-0.036	0.018	-1.994	0.046
Coffee consumption	Sitting height	0.047	0.024	1.990	0.047
Age of initiation of regular smoking	Fasting glucose	-0.062	0.031	-1.986	0.047
Childhood-onset asthma	Age of initiation of regular smoking	0.063	0.032	1.984	0.047
Crohn's disease	Waist circumference	0.053	0.027	1.977	0.048
Caffeine consumption	Short sleep	-0.057	0.029	-1.974	0.048
Coffee consumption	Moderate to vigorous physical activity levels	-0.068	0.034	-1.973	0.049
Crohn's disease	Total cholesterol	-0.089	0.045	-1.971	0.049
Smoking cessation	10+ minutes vigorous activity	-0.082	0.042	-1.968	0.049
Intake of carbohydrate	Short sleep	-0.064	0.033	-1.961	0.050

Table S4. The summary of the MR results in the discovery phase

Exposure	Used SNPs	I ² (%) ^a	IVW method				Weighted median method				MR-Egger method				MR PRESSO model					P value for heterogeneity ^b	P value for pleiotropy ^c			
			95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE	BETA	95%CI	OR			P value	SE	BETA
Daily habits																								
Alcohol consumption	91	26.329	0.788-1.155	0.954	0.632	0.097	-0.047	0.625-1.100	0.829	0.194	0.144	-0.187	0.628-1.325	0.912	0.630	0.191	-0.092	0.791-1.151	0.955	0.627	0.096	-0.047	0.011	0.782
Coffee consumption	29	10.811	0.714-1.108	0.889	0.295	0.112	-0.118	0.658-1.280	0.918	0.614	0.170	-0.086	0.824-2.107	1.318	0.259	0.239	0.276	0.694-1.454	0.889	0.361	0.127	-0.118	0.255	0.067
Caffeine consumption	26	9.464	0.773-1.057	0.904	0.205	0.08	-0.101	0.727-1.169	0.922	0.504	0.121	-0.081	0.904-1.773	1.266	0.183	0.172	0.236	0.754-1.083	0.904	0.284	0.092	-0.101	0.277	0.068
Smoking initiation	347	28.523	1.217-1.383	1.297	1.376E-15	0.033	0.260	1.125-1.332	1.224	2.898E-06	0.043	0.202	0.973-1.648	1.266	0.080	0.134	0.236	1.216-1.378	1.294	1.009E-14	0.032	0.258	1.075E-06	0.851
Lifetime smoking	119	31.540	1.846-2.794	2.271	8.561E-15	0.106	0.820	1.478-2.601	1.961	3.007E-06	0.144	0.673	0.663-3.339	1.488	0.337	0.412	0.398	1.825-2.727	2.231	1.890E-12	0.102	0.802	6.644E-04	0.291
Cigarette consumption	53	7.712	1.077-1.323	1.194	7.701E-04	0.053	0.177	0.923-1.295	1.093	0.301	0.086	0.089	0.850-1.256	1.033	0.746	0.100	0.032	1.071-1.332	1.194	2.342E-03	0.056	0.178	0.282	0.087
Age of initiation of smoking	7	270.622	0.563-1.282	0.849	0.436	0.210	-0.163	0.475-1.295	0.784	0.342	0.256	-0.243	0.507-43.779	4.710	0.231	1.138	1.550	0.626-1.328	0.911	0.642	0.192	-0.093	0.899	0.186
Smoking cessation	24	18.400	1.082-1.377	1.221	1.170E-03	0.061	0.200	1.044-1.473	1.240	0.015	0.088	0.215	0.819-1.655	1.164	0.407	0.180	0.152	1.068-1.395	1.221	7.583E-03	0.068	0.200	0.170	0.776
Intake of total sugar	9	47.507	0.716-1.248	0.946	0.693	0.142	-0.056	0.669-1.550	1.019	0.931	0.214	0.019	0.026-3.405	0.298	0.362	1.243	-1.211	0.630-1.420	0.946	0.795	0.208	-0.056	0.033	0.377
Intake of fat	5	3.141	0.770-1.497	1.074	0.674	0.169	0.071	0.657-1.503	0.994	0.976	0.211	-0.006	0.538-2.576	1.177	0.710	0.400	0.163	0.771-1.495	1.074	0.694	0.169	0.071	0.275	0.810
Intake of carbohydrate	10	29.697	0.544-1.016	0.743	0.062	0.159	-0.297	0.616-1.549	0.976	0.919	0.235	-0.024	0.009-1.026	0.097	0.088	1.205	-2.336	0.512-1.126	0.759	0.201	0.201	-0.275	0.119	0.124
Breakfast skipping	6	15.374	0.834-1.909	1.262	0.271	0.211	0.233	0.644-2.105	1.165	0.613	0.302	0.153	1.351-41.474	7.484	0.083	0.874	2.013	0.823-1.934	1.262	0.334	0.218	0.233	0.923	0.104
Morning person	115	19.939	0.993-1.117	1.053	0.083	0.030	0.052	0.950-1.118	1.031	0.466	0.042	0.030	0.878-1.280	1.060	0.544	0.096	0.059	1.000-1.121	1.058	0.054	0.029	0.057	0.032	0.943
Insomnia	38	32.624	1.873-3.986	2.733	1.809E-07	0.193	1.005	1.426-3.744	2.310	6.745E-04	0.246	0.837	0.734-9.439	2.632	0.146	0.652	0.968	1.958-4.031	2.809	1.828E-06	0.184	1.033	0.023	0.952
Short sleep	24	50.288	1.521-8.631	3.623	3.651E-03	0.443	1.287	0.814-6.086	2.226	0.119	0.513	0.800	0.707-2179.697	39.254	0.087	2.049	3.670	1.658-8.476	3.749	3.947E-03	0.416	1.322	0.002	0.247
Long sleep	8	29.657	0.119-2.498	0.545	0.434	0.777	-0.608	0.045-2.078	0.306	0.226	0.977	-1.183	5.729E-05-8.585	0.022	0.257	3.040	-3.809	0.074-4.006	0.545	0.569	1.018	-0.608	0.127	0.307
Daytime sleepiness	37	36.553	1.646-4.786	2.807	1.499E-04	0.272	1.032	1.252-4.325	2.327	7.547E-03	0.316	0.845	0.435-49.212	4.626	0.213	1.206	1.532	1.725-4.981	2.931	3.146E-04	0.271	1.075	0.011	0.673
Daytime napping	99	29.165	1.183-1.945	1.517	1.033E-03	0.127	0.417	1.326-2.566	1.845	2.762E-04	0.168	0.612	1.353-7.376	3.159	9.169E-03	0.433	1.150	1.166-1.908	1.492	1.937E-03	0.126	0.400	0.004	0.079
Leisure sedentary behavior (TV watching)	131	36.588	1.495-1.950	1.708	2.735E-15	0.068	0.535	1.361-1.896	1.606	1.978E-08	0.084	0.474	0.864-2.991	1.608	0.136	0.317	0.475	1.520-1.969	1.730	7.749E-14	0.066	0.548	2.341E-05	0.846

Leisure sedentary behavior (computer use)	47	11.611	0.597-0.858	0.716	3.100E-04	0.093	-0.334	0.558-0.942	0.725	0.016	0.134	-0.322	0.079-0.982	0.278	0.053	0.644	-1.280	0.587-0.873	0.716	1.817E-03	0.101	-0.334	0.219	0.144
Moderate to vigorous physical activity levels	18	34.455	0.641-1.199	0.877	0.411	0.160	-0.131	0.545-1.388	0.870	0.559	0.239	-0.140	0.016-1.843	0.171	0.165	1.214	-1.768	0.583-1.319	0.877	0.537	0.208	-0.131	0.055	0.190
10+ minutes vigorous activity	6	20.534	0.126-0.676	0.292	4.047E-03	0.428	-1.229	0.095-1.095	0.323	0.070	0.623	-1.131	1.777E-07-1.381	4.031E-04	0.133	4.153	-7.816	0.088-0.975	0.292	0.046	0.614	-1.229	0.178	0.185
Strenuous sports or other exercises	12	21.041	0.240-0.992	0.488	0.047	0.362	-0.718	0.307-2.297	0.840	0.734	0.513	-0.174	0.103-200.544	4.554	0.451	1.931	1.516	0.151-1.015	0.391	0.067	0.486	-0.939	0.176	0.263
Health status																								
Childhood-onset asthma	99	21.940	0.999-1.034	1.018	0.068	9.743E-03	0.018	0.987-1.042	1.014	0.315	0.014	0.014	0.966-1.058	1.011	0.638	0.023	0.011	0.999-1.037	1.018	0.061	0.010	0.018	0.027	0.744
Adult-onset asthma	45	37.637	0.987-1.088	1.036	0.153	0.025	0.036	0.960-1.096	1.026	0.450	0.034	0.026	0.837-1.137	0.128	0.749	0.078	-0.025	0.987-1.088	1.036	0.160	0.025	0.036	5.069E-03	0.416
Type 2 diabetes	345	21.254	1.002-1.043	1.023	0.030	0.010	0.022	0.988-1.054	1.021	0.214	0.017	0.021	0.960-1.040	0.999	0.978	0.021	-5.755E-04	1.000-1.040	1.020	0.048	0.010	0.020	4.419E-04	0.197
Coronary artery disease	144	30.657	1.013-1.088	1.050	7.613E-03	0.018	0.049	1.009-1.112	1.060	0.019	0.025	0.058	0.943-1.089	1.013	0.717	0.037	0.013	1.013-1.088	1.050	8.493E-03	0.018	0.049	4.517E-06	0.231
Atrial fibrillation	111	15.710	0.991-1.042	1.016	0.216	0.013	0.016	0.970-1.062	1.015	0.520	0.023	0.015	0.948-1.057	1.001	0.969	0.028	1.077E-03	0.988-1.044	1.016	0.261	0.014	0.016	0.079	0.536
Ulcerative colitis	37	8.609	1.000-1.033	1.016	0.056	8.326E-03	0.016	0.977-1.027	1.002	0.903	0.013	1.575E-03	0.980-1.064	1.021	0.332	0.021	0.021	0.999-1.033	1.016	0.077	8.531E-03	0.016	0.280	0.802
Crohn's disease	51	47.280	0.987-1.024	1.006	0.542	9.362E-03	5.707E-03	0.974-1.020	0.997	0.778	0.012	-3.352E-03	0.960-1.045	1.002	0.940	0.021	1.615E-03	0.988-1.023	1.005	0.553	9.026E-03	5.391E-03	9.384E-05	0.832
Nutritional & biochemical biomarkers																								
Fasting glucose	68	9.119	0.901-1.221	1.005	0.930	0.056	4.933E-03	0.909-1.287	1.081	0.378	0.089	0.078	0.856-1.284	1.048	0.651	0.104	0.047	0.901-1.119	1.009	0.865	0.053	9.003E-03	0.637	0.630
Fating insulin	37	16.784	0.904-1.346	1.103	0.332	0.102	0.098	0.838-1.500	1.121	0.441	0.149	0.114	0.474-1.782	0.919	0.805	0.338	-0.084	0.886-1.374	1.103	0.385	0.112	0.098	0.159	0.570
2-hour blood glucose	13	43.786	0.906-1.059	0.979	0.598	0.040	-0.021	0.896-1.112	0.998	0.977	0.055	-1.590E-03	0.673-1.024	0.831	0.511	0.107	-0.186	0.909-1.055	0.979	0.594	0.038	-0.021	0.682	0.126
HbA1c	72	3.792	0.863-1.159	1.000	0.999	0.075	-2.129E-05	0.803-1.298	1.021	0.868	0.123	0.020	0.841-1.442	1.101	0.485	0.137	0.096	0.866-1.155	1.000	0.995	0.073	4.583E-04	0.532	0.405
HDL cholesterol	136	19.853	0.805-1.008	0.901	0.070	0.057	-0.104	0.830-1.165	0.984	0.848	0.087	-0.017	0.813-1.241	1.004	0.967	0.108	4.440E-03	0.807-1.006	0.901	0.067	0.056	-0.104	0.023	0.237
LDL cholesterol	110	15.158	0.866-1.025	0.942	0.163	0.043	-0.060	0.819-1.046	0.925	0.214	0.062	-0.078	0.795-1.065	0.920	0.266	0.075	-0.084	0.863-1.036	0.945	0.229	0.047	-0.056	0.087	0.684
Total cholesterol	130	10.860	0.895-1.059	0.974	0.537	0.043	-0.027	0.854-1.108	0.973	0.678	0.066	-0.028	0.797-1.067	0.922	0.278	0.074	-0.081	0.907-1.081	0.990	0.825	0.045	-9.952E-03	0.148	0.354
Triglycerides	115	32.948	0.834-1.064	0.942	0.336	0.062	-0.060	0.750-1.049	0.887	0.163	0.086	-0.120	0.694-1.049	0.853	0.134	0.106	-0.159	0.843-1.071	0.950	0.403	0.061	-0.051	4.227E-04	0.246
Adiponectin	7	61.395	0.886-1.571	1.180	0.258	0.146	0.165	0.848-1.431	1.102	0.469	0.134	0.097	0.501-2.537	1.127	0.785	0.414	0.119	0.886-1.571	1.180	0.301	0.146	0.165	8.281E-03	0.909
Leptin	5	15.136	0.678-1.162	0.887	0.385	0.138	-0.120	0.595-1.231	0.856	0.401	0.185	-0.156	6.132E-04-17.527	0.104	0.45	2.617	-2.267	0.871-1.148	0.871	0.373	0.141	-0.138	0.194	0.471

Vitamin C	10	22.448	0.891-1.064	0.974	0.555	0.045	-0.027	0.858-1.066	0.956	0.419	0.055	-0.045	0.797-1.115	0.943	0.510	0.086	-0.059	0.888-1.081	0.980	0.697	0.050	-0.020	0.170	0.638
25-Hydroxyvitamin D	116	18.292	0.939-1.107	1.019	0.647	0.042	0.019	0.882-1.133	0.999	0.993	0.064	-5.953E-04	0.817-1.062	0.931	0.289	0.067	-0.071	0.942-1.111	1.023	0.589	0.042	0.022	0.045	0.087
Nutritional & developmental status																								
Body mass index	436	28.637	1.361-1.543	1.449	5.108E-31	0.032	0.371	1.235-1.466	1.346	1.310E-11	0.044	0.297	0.936-1.325	1.113	0.226	0.089	0.107	1.386-1.508	1.447	1.791E-28	0.031	0.369	4.697E-08	0.102
Body fat percentage	378	30.422	1.450-1.735	1.586	5.999E-24	0.046	0.461	1.281-1.631	1.446	1.991E-09	0.062	0.369	1.098-1.964	1.468	0.010	0.148	0.384	1.435-1.714	1.568	8.505E-21	0.045	0.450	4.207E-08	0.584
Whole body fat mass	418	27.834	1.279-1.456	1.365	4.366E-21	0.033	0.311	1.179-1.410	1.289	2.770E-08	0.046	0.254	0.959-1.388	1.154	0.131	0.094	0.143	1.281-1.455	1.365	1.047E-19	0.033	0.311	2.376E-07	0.058
Whole body fat-free mass	532	27.579	0.879-1.025	0.949	0.180	0.039	-0.053	0.860-1.060	0.955	0.384	0.053	-0.046	0.700-1.010	0.841	0.065	0.094	-0.173	0.884-1.028	0.953	0.215	0.039	-0.048	1.040E-08	0.156
Visceral adipose tissue	184	31.705	1.287-1.513	1.395	7.476E-16	0.041	0.333	1.207-1.488	1.340	3.990E-08	0.053	0.293	0.846-1.407	1.091	0.501	0.130	0.087	1.275-1.490	1.378	5.230E-14	0.040	0.321	3.479E-05	0.097
Waist circumference	356	40.154	1.372-1.635	1.498	1.073E-19	0.045	0.404	1.257-1.572	1.406	2.552E-09	0.057	0.341	0.984-1.647	1.273	0.067	0.131	0.241	1.370-1.627	1.493	4.284E-18	0.044	0.401	2.401E-14	0.189
Hip circumference	396	24.992	1.119-1.270	1.192	5.563E-08	0.032	0.176	1.007-1.212	1.105	0.035	0.047	0.100	0.794-1.138	0.950	0.580	0.092	-0.051	1.114-1.262	1.186	1.487E-07	0.032	0.170	8.469E-06	0.129
Waist-to-hip ratio	338	29.275	1.272-1.489	1.376	2.400E-15	0.040	0.319	1.201-1.499	1.342	1.872E-07	0.056	0.294	0.815-1.249	1.009	0.933	0.109	9.170E-03	1.270-1.483	1.372	2.048E-14	0.040	0.316	6.738E-07	0.235
Standing height	742	22.633	0.860-0.943	0.900	9.371E-06	0.024	-0.105	0.895-1.029	0.960	0.244	0.035	-0.041	0.887-1.068	0.973	0.562	0.047	-0.027	0.859-0.941	0.899	5.666E-06	0.023	-0.106	9.875E-08	0.060
Sitting height	576	22.569	0.848-0.944	0.895	4.387E-05	0.027	-0.111	0.853-0.996	0.922	0.040	0.040	-0.082	0.815-1.038	0.920	0.176	0.062	-0.084	0.853-0.948	0.899	8.006E-05	0.027	-0.106	2.354E-06	0.621
Hand grip strength (left)	153	18.480	0.665-0.897	0.772	7.408E-04	0.077	-0.258	0.585-0.888	0.721	2.069E-03	0.106	-0.327	0.426-1.331	0.753	0.331	0.291	-0.283	0.663-0.893	0.769	7.161E-04	0.076	-0.263	0.026	0.929
Hand grip strength (right)	168	30.497	0.656-0.894	0.766	7.150E-04	0.079	-0.267	0.590-0.877	0.719	1.139E-03	0.101	-0.330	0.342-1.025	0.592	0.063	0.280	-0.524	0.654-0.883	0.759	4.277E-04	0.077	-0.275	1.442E-04	0.340
Birth weight	170	25.119	0.816-0.958	0.884	2.569E-03	0.041	-0.123	0.765-0.957	0.856	6.522E-03	0.057	-0.156	0.660-1.013	0.817	0.067	0.109	-0.202	0.825-0.966	0.893	5.249E-03	0.040	-0.113	1.982E-03	0.439
Childhood BMI	18	50.203	0.973-1.050	1.011	0.575	0.019	0.011	0.973-1.029	1.001	0.952	0.014	8.556E-04	0.960-1.044	1.001	0.957	0.021	1.172E-03	0.973-1.050	1.011	0.582	0.019	0.011	5.204E-03	0.319
Emotional factors																								
Major depressive disorder	47	0.242	1.414-1.702	1.551	1.802E-20	0.047	0.439	1.318-1.739	1.514	4.761E-09	0.071	0.414	1.638-4.404	2.686	3.027E-04	0.252	0.988	1.400-1.695	1.541	9.838E-12	0.049	0.432	0.435	0.092
Anxious feeling	22	39.022	1.340-2.750	1.920	3.804E-04	0.184	0.652	1.596-3.432	2.341	1.327E-05	0.195	0.850	1.324-215.480	16.891	0.042	1.299	2.827	1.340-2.750	1.920	1.880E-03	0.184	0.652	0.023	0.107
Schizophrenia	189	21.293	0.984-1.038	1.010	0.442	0.014	0.010	0.977-1.052	1.014	0.467	0.019	0.014	0.892-1.153	1.014	0.830	0.065	0.014	0.983-1.035	1.008	0.523	0.013	8.457E-03	6.570E-03	0.469
Bipolar disorder	53	22.702	0.999-1.002	1.000	0.639	8.277E-04	3.880E-04	0.997-1.001	0.999	0.594	1.282E-03	-6.842E-04	0.999-1.017	1.008	0.105	4.756E-03	7.850E-03	0.999-1.002	1.001	0.586	9.590E-04	5.252E-04	0.063	0.115
Anorexia nervosa	6	170.613	0.855-1.011	0.930	0.090	0.043	-0.073	0.866-1.063	0.960	0.429	0.052	-0.041	0.652-1.245	0.901	0.561	0.165	-0.105	0.898-0.982	0.939	0.028	0.023	-0.063	0.764	0.851
Life satisfaction	75	36.327	0.284-0.515	0.382	2.510E-10	0.152	-0.962	0.295-0.637	0.434	2.063E-05	0.196	-0.835	0.087-1.949	0.667	0.267	0.793	-0.888	0.282-0.499	0.375	2.354E-09	0.145	-0.980	9.741E-04	0.924
Positive affect	90	25.992	0.313-0.530	0.407	2.140E-11	0.134	-0.899	0.284-0.597	0.412	2.880E-06	0.189	-0.886	0.342-3.113	1.032	0.956	0.563	0.031	0.323-0.538	0.416	1.391E-09	0.130	-0.876	0.013	0.093
Socioeconomic factors																								

Income	43	27.953	0.480-0.692	0.577	3.274E-09	0.093	-0.551	0.446-0.719	0.566	3.026E-06	0.122	-0.569	0.333-1.574	0.724	0.420	0.396	-0.322	0.493-0.696	0.586	2.094E-07	0.088	-0.535	0.039	0.557
Educational attainment	1207	15.067	0.474-0.530	0.501	4.688E-131	0.028	-0.691	0.482-0.564	0.522	6.906E-59	0.040	-0.651	0.439-0.647	0.533	2.720E-10	0.099	-0.630	0.480-0.536	0.507	2.475E-107	0.028	-0.679	1.621E-05	0.519
Intelligence	166	35.029	0.622-0.748	0.682	3.165E-16	0.047	-0.383	0.606-0.768	0.683	2.418E-10	0.060	-0.382	0.365-0.862	0.561	9.223E-03	0.219	-0.578	0.622-0.748	0.682	6.838E-14	0.047	-0.383	8.302E-06	0.363

SNP, single nucleotide polymorphism; OR, odds ratio; CI, confidence interval; SE, standard error

^a I^2 was utilized to quantify the heterogeneity among SNPs for each exposure.

^b P value for heterogeneity was the P value of Cochran’s Q test. P value ≤ 0.05 was deemed as a statistically significant heterogeneity.

^c P value for pleiotropy was the P value of MR-Egger intercept test. P value ≤ 0.05 was deemed as a statistically significant horizontal pleiotropy

Exposures	Used SNPs	I ² (%) ^a	IVW method				Weighted median method					MR-Egger method				MR PRESSO model					<i>P</i> value for heterogeneity ^b	<i>P</i> value for pleiotropy ^c		
			95%CI	OR	<i>P</i> value	SE	BETA	95%CI	OR	<i>P</i> value	SE	BETA	95%CI	OR	<i>P</i> value	SE	BETA	95%CI	OR	<i>P</i> value			SE	BETA
Daily habits																								
Alcohol consumption	90	24.689	0.802-1.521	1.104	0.544	0.163	0.099	0.783-1.953	1.236	0.363	0.233	0.212	0.344-1.621	0.747	0.462	0.395	-0.292	0.775-1.463	1.065	0.700	0.162	0.063	0.018	0.280
Coffee consumption	27	35.635	0.598-1.458	0.934	0.763	0.227	-0.068	0.647-1.984	1.133	0.662	0.286	0.125	0.500-2.895	1.203	0.684	0.448	0.185	0.598-1.458	0.934	0.766	0.227	-0.068	0.027	0.516
Caffeine consumption	26	44.392	0.583-1.168	0.825	0.279	0.177	-0.192	0.710-1.560	1.053	0.798	0.201	0.051	0.663-2.633	1.321	0.437	0.352	0.278	0.583-1.168	0.825	0.289	0.177	-0.192	5.894E-03	0.139
Smoking initiation	334	17.250	1.129-1.365	1.241	8.065E-06	0.048	0.216	1.072-1.401	1.226	2.864E-03	0.068	0.203	1.006-1.511	1.233	0.022	0.104	0.210	1.114-1.344	1.224	3.014E-05	0.048	0.202	4.844E-03	0.029
Lifetime smoking	117	15.737	1.111-1.903	1.454	6.360E-03	0.137	0.374	1.057-2.497	1.625	0.027	0.219	0.485	0.144-1.651	0.488	0.251	0.622	-0.717	1.072-1.8985	1.425	0.016	0.145	0.354	0.074	0.073
Cigarette consumption	51	23.305	1.031-1.420	1.210	0.020	0.082	0.191	0.892-1.501	1.157	0.273	0.133	0.146	0.748-1.449	1.041	0.811	0.169	0.040	1.000-1.442	1.201	0.055	0.093	0.183	0.061	0.288
Age of initiation of smoking	8	313.903	0.490-1.670	0.904	0.748	0.313	-0.101	0.373-1.932	0.849	0.697	0.419	-0.164	1.599-709.447	33.686	0.064	1.555	3.517	0.420-1.662	0.836	0.621	0.351	-0.180	0.946	0.055
Smoking cessation	21	6.966	0.941-1.430	1.160	0.165	0.107	0.148	0.752-1.406	1.028	0.862	0.160	0.028	0.454-1.452	0.812	0.492	0.297	-0.208	0.925-1.455	1.160	0.214	0.116	0.148	0.310	0.209
Intake of total sugar	9	1.583	0.656-1.541	1.005	0.980	0.218	5.357E-03	0.582-1.809	1.026	0.928	0.289	0.026	0.113-27.523	1.763	0.698	1.402	0.567	0.650-1.554	1.005	0.981	0.222	5.36E-03	0.321	0.697
Intake of fat	5	118.714	0.785-2.602	1.429	0.243	0.306	0.357	0.574-2.659	1.235	0.589	0.391	0.211	0.106-3.418	0.602	0.607	0.886	-0.507	0.857-2.382	1.429	0.243	0.261	0.357	0.607	0.375
Intake of carbohydrate	9	5.306	0.637-1.723	1.047	0.855	0.254	0.046	0.482-1.873	0.950	0.882	0.346	-0.051	0.025-14.435	0.602	0.763	1.621	-0.507	0.705-1.943	1.170	0.558	0.259	0.157	0.295	0.739
Breakfast skipping	6	58.474	0.993-1.027	1.010	0.245	8.580E-03	9.972E-03	0.994-1.038	1.016	0.151	0.011	0.016	0.973-1.118	1.043	0.304	0.035	0.042	0.995-1.025	1.010	0.251	7.687E-03	9.972E-03	0.532	0.407
Morning person	113	18.844	0.898-1.077	0.983	0.719	0.046	-0.017	0.885-1.124	0.998	0.969	0.061	-2.341E-03	0.756-1.333	1.004	0.979	0.145	3.904E-03	0.904-1.077	0.987	0.765	0.045	-0.013	0.042	0.881
Insomnia	36	20.214	1.215-3.153	1.958	5.748E-03	0.243	0.672	0.871-3.736	1.804	0.112	0.372	0.590	0.200-5.452	1.046	0.958	0.843	0.045	1.297-3.845	2.233	6.292E-03	0.277	0.803	0.120	0.436
Short sleep	24	42.630	1.632-5.153	2.900	6.927E-03	0.293	1.065	1.838-37.090	8.258	5.878E-03	0.766	2.111	0.017-35753.988	24.580	0.398	3.716	3.202	1.895-6.633	3.545	3.980E-03	0.320	1.266	0.011	0.698
Long sleep	8	62.520	0.741-2.540	1.640	0.808	0.459	0.495	0.065-67.602	2.092	0.677	1.773	0.738	5.736E-06-5995004.000	5.864	0.811	7.060	1.769	0.030-88.530	1.640	0.815	2.035	0.495	4.746E-03	0.856
Daytime sleepiness	36	28.073	0.486-2.458	1.093	0.829	0.413	0.089	0.237-1.800	0.653	0.410	0.517	-0.426	0.010-12.781	0.366	0.583	1.813	-1.006	0.518-2.551	1.149	0.734	0.407	0.139	0.049	0.539
Daytime napping	91	28.117	0.804-1.781	1.197	0.375	0.203	0.180	0.755-2.119	1.265	0.373	0.263	0.235	0.185-3.248	0.776	0.729	0.730	-0.254	0.782-1.715	1.158	0.466	0.200	0.147	6.898E-03	0.538
Leisure sedentary behavior (TV watching)	113	16.359	1.225-1.739	1.460	2.299E-05	0.089	0.378	0.971-1.633	1.259	0.082	0.133	0.230	0.282-1.696	0.692	0.423	0.457	-0.368	1.231-1.773	1.477	5.141E-05	0.093	0.390	0.069	0.098
Leisure sedentary behavior (computer use)	45	4.217	0.549-0.977	0.732	0.034	0.147	-0.311	0.461-1.066	0.701	0.097	0.214	-0.355	0.035-1.705	0.245	0.163	0.989	-1.406	0.543-0.988	0.732	0.047	0.153	-0.311	0.351	0.269
Moderate to vigorous physical activity levels	18	18.694	0.546-1.404	0.876	0.582	0.241	-0.133	0.421-1.537	0.805	0.511	0.330	-0.217	0.022-4.538	0.313	0.407	1.364	-1.162	0.563-1.362	0.879	0.564	0.225	-0.133	0.575	0.455
10+ minutes vigorous activity	7	68.470	0.314-3.220	1.006	0.992	0.593	6.144E-03	0.376-7.473	1.677	0.498	0.762	0.517	2.111E-03-137142.000	17.017	0.564	4.589	2.834	0.392-2.585	1.006	0.990	0.481	6.144E-03	0.614	0.562
Strenuous sports or other exercises	12	11.973	0.039-0.368	0.120	2.078E-04	0.571	-2.119	0.032-0.735	0.154	0.019	0.796	-1.868	7.017E-04-30.010	0.145	0.494	2.720	-1.930	0.050-0.409	0.143	3.477E-03	0.536	-1.944	0.456	0.945
Health status																								
Childhood-onset asthma	90	13.859	0.970-1.026	0.998	0.878	0.014	-2.211E-03	0.956-1.048	1.001	0.968	0.024	9.398E-04	0.909-1.055	0.979	0.586	0.038	-0.021	0.968-1.029	0.998	0.907	0.015	-1.810E-03	0.126	0.593
Adult-onset asthma	37	3.222	1.013-1.163	1.086	0.020	0.035	0.082	0.993-1.220	1.101	0.067	0.052	0.096	0.739-1.238	0.957	0.739	0.131	-0.044	1.011-1.166	1.086	0.030	0.036	0.082	0.368	0.325
Type 2 diabetes	324	16.876	1.013-1.078	1.045	5.702E-03	0.016	0.044	0.986-1.083	1.034	0.168	0.024	0.033	0.965-1.095	1.028	0.399	0.032	0.027	1.011-1.072	1.041	8.421E-03	0.015	0.040	6.429E-03	0.552
Coronary artery disease	137	11.772	0.963-1.060	1.011	0.664	0.024	0.011	0.929-1.101	1.011	0.798	0.043	0.011	0.943-1.170	1.051	0.372	0.055	0.049	0.960-1.064	1.011	0.684	0.026	0.011	0.124	0.427

Atrial fibrillation	107	1.304	0.979-1.057	1.017	0.387	0.020	0.017	0.981-1.109	1.043	0.180	0.031	0.042	0.967-1.122	1.042	0.286	0.038	0.041	0.977-1.056	1.015	0.443	0.020	0.015	0.417	0.466
Ulcerative colitis	34	4.197	1.010-1.071	1.040	7.931E-03	0.015	0.039	0.998-1.085	1.040	0.065	0.021	0.040	0.937-1.139	1.033	0.514	0.050	0.033	1.012-1.070	1.041	7.876E-03	0.014	0.040	0.483	0.894
Crohn's disease	48	46.961	0.987-1.032	1.009	0.412	0.011	9.361E-03	0.968-1.033	1.000	0.994	0.017	1.193E-04	0.944-1.054	0.997	0.921	0.028	-2.800E-03	0.989-1.026	1.007	0.426	9.132E-03	7.333E-03	0.942	0.638
Nutritional & biochemical biomarkers																								
Fasting glucose	65	17.783	0.928-1.303	1.100	0.272	0.087	0.095	0.896-1.661	1.220	0.206	0.157	0.199	0.963-1.925	1.361	0.086	0.177	0.308	0.912-1.320	1.097	0.328	0.094	0.093	0.099	0.155
Fating insulin	38	23.908	0.735-1.379	1.007	0.964	0.160	7.170E-03	0.537-1.423	0.874	0.588	0.248	-0.135	0.151-1.555	0.484	0.231	0.595	-0.726	0.696-1.457	1.007	0.970	0.188	7.170E-03	0.078	0.203
2-hour blood glucose	11	26.433	0.871-1.125	0.990	0.876	0.065	-0.010	0.791-1.177	0.965	0.724	0.102	-0.036	0.799-1.920	1.239	0.363	0.223	0.214	0.849-1.144	0.986	0.854	0.076	-0.014	0.138	0.310
HbA1c	69	10.439	0.882-1.437	1.126	0.340	0.124	0.119	0.870-1.865	1.274	0.213	0.195	0.242	0.660-1.708	1.062	0.804	0.242	0.060	0.896-1.420	1.128	0.308	0.117	0.120	0.664	0.780
HDL cholesterol	103	22.269	0.735-1.045	0.877	0.143	0.090	-0.132	0.652-1.061	0.832	0.138	0.124	-0.184	0.696-1.330	0.962	0.815	0.165	-0.039	0.732-1.042	0.874	0.136	0.090	-0.135	0.013	0.504
LDL cholesterol	104	19.188	0.841-1.119	0.971	0.681	0.073	-0.030	0.791-1.175	0.964	0.717	0.101	-0.037	0.972-1.482	1.200	0.092	0.108	0.183	0.844-1.124	0.974	0.722	0.073	-0.026	0.045	9.911E-03
Total cholesterol	121	11.679	0.902-1.166	1.026	0.697	0.066	0.025	0.887-1.363	1.010	0.386	0.109	0.095	1.001-1.563	1.251	0.051	0.114	0.224	0.909-1.195	1.042	0.556	0.070	0.041	0.138	0.029
Triglycerides	114	10.494	0.910-1.227	1.057	0.471	0.076	0.055	0.911-1.507	1.171	0.218	0.128	0.158	0.883-1.479	1.143	0.312	0.132	0.134	0.911-1.241	1.063	0.437	0.079	0.061	0.169	0.451
Adiponectin	10	155.875	0.924-1.442	1.154	0.207	0.114	0.143	0.814-1.453	1.087	0.571	0.148	0.084	0.484-1.618	0.885	0.702	0.308	-0.122	0.988-1.348	1.154	0.104	0.079	0.143	0.898	0.380
Leptin	5	45.520	0.280-1.224	0.586	0.155	0.376	-0.535	0.322-1.322	0.653	0.237	0.360	-0.426	2.942E-08-114.703	1.837E-03	0.345	5.634	-6.300	0.318-1.097	0.590	0.156	0.316	-0.527	0.027	0.381
Vitamin C	7	14.059	0.864-1.368	1.087	0.477	0.117	0.083	0.952-1.720	1.280	0.102	0.151	0.247	0.987-6.430	2.519	0.111	0.478	0.924	0.870-1.452	1.124	0.400	0.131	0.117	0.385	0.129
25-Hydroxyvitamin D	109	1.401	0.923-1.169	1.039	0.525	0.060	0.038	0.788-1.139	0.947	0.567	0.094	-0.054	0.777-1.161	0.950	0.617	0.103	-0.052	0.925-1.175	1.043	0.493	0.061	0.042	0.414	0.279
Nutritional & developmental status																								
Body mass index	416	12.345	1.144-1.366	1.251	8.122E-07	0.045	0.224	1.103-1.518	1.294	1.549E-03	0.081	0.258	0.836-1.345	1.061	0.628	0.121	0.059	1.130-1.348	1.234	3.743E-06	0.045	0.211	0.023	0.144
Body fat percentage	363	20.137	1.097-1.431	1.253	8.808E-04	0.068	0.226	0.962-1.416	1.168	0.116	0.099	0.155	0.689-1.633	1.061	0.790	0.220	0.059	1.093-1.419	1.245	1.042E-03	0.066	0.219	6.799E-04	0.426
Whole body fat mass	403	19.041	1.081-1.308	1.189	3.672E-04	0.049	0.173	0.982-1.309	1.134	0.086	0.073	0.126	0.926-1.579	1.209	0.164	0.136	0.190	1.083-1.304	1.188	3.182E-04	0.048	0.172	7.858E-04	0.896
Whole body fat-free mass	509	5.416	0.785-0.964	0.870	8.012E-03	0.052	-0.139	0.675-0.954	0.803	0.013	0.088	-0.220	0.573-0.940	0.734	0.015	0.126	-0.309	0.777-0.957	0.862	5.609E-03	0.053	-0.148	0.172	0.137
Visceral adipose tissue	175	23.030	1.051-1.335	1.184	5.449E-03	0.061	0.169	0.972-1.404	1.168	0.098	0.094	0.156	0.738-1.548	1.069	0.726	0.189	0.066	1.051-1.322	1.179	5.401E-03	0.058	0.164	4.156E-03	0.566
Waist circumference	341	13.772	1.107-1.388	1.240	1.957E-04	0.058	0.215	1.084-1.590	1.313	5.383E-03	0.098	0.272	0.782-1.482	1.076	0.653	0.163	0.073	1.095-1.368	1.224	4.143E-03	0.057	0.202	0.020	0.355
Hip circumference	387	17.037	0.923-1.110	1.012	0.803	0.047	0.012	0.816-1.073	0.936	0.341	0.070	-0.066	0.747-1.234	0.960	0.750	0.128	-0.041	0.925-1.108	1.012	0.793	0.046	0.012	3.103E-03	0.659
Waist-to-hip ratio	333	6.219	1.119-1.380	1.243	4.726E-05	0.053	0.217	0.989-1.428	1.188	0.066	0.091	0.172	0.919-1.611	1.217	0.172	0.143	0.196	1.136-1.395	1.259	1.358E-05	0.052	0.230	0.184	0.874
Standing height	707	11.221	0.828-0.951	0.887	6.865E-04	0.035	-0.120	0.786-0.977	0.876	0.017	0.056	-0.132	0.813-1.075	0.935	0.345	0.071	-0.068	0.831-0.952	0.889	7.153E-04	0.034	-0.117	0.010	0.403
Sitting height	559	9.549	0.796-0.931	0.861	1.729E-04	0.0400	-0.150	0.756-0.964	0.854	0.011	0.062	-0.158	0.739-1.056	0.884	0.174	0.091	-0.124	0.806-0.938	0.870	3.317E-04	0.039	-0.140	0.040	0.748
Hand grip strength (left)	141	10.593	0.624-0.972	0.779	0.027	0.113	-0.250	0.529-1.027	0.737	0.072	0.169	-0.305	0.190-1.126	0.463	0.092	0.454	-0.770	0.607-0.968	0.766	0.027	0.119	-0.266	0.146	0.236
Hand grip strength (right)	160	2.445	0.642-0.972	0.790	0.026	0.106	-0.236	0.546-1.013	0.744	0.060	0.157	-0.296	0.185-0.857	0.398	0.020	0.392	-0.922	0.962-1.338	1.135	0.151	0.084	0.126	0.548	0.105
Birth weight	165	18.232	0.733-0.937	0.829	2.604E-03	0.062	-0.188	0.658-0.932	0.783	5.813E-03	0.089	-0.245	0.430-0.850	0.604	4.322E-03	0.174	-0.504	0.736-0.935	0.829	2.504E-03	0.061	-0.187	0.024	0.054
Childhood BMI	18	41.695	0.945-1.043	0.993	0.767	0.025	-7.431E-03	0.951-1.029	0.989	0.593	0.020	-0.011	0.931-1.037	0.982	0.528	0.028	-0.018	0.945-1.043	0.993	0.770	0.025	-7.431E-03	0.023	0.378
Emotional factors																								
Major depressive disorder	44	5.287	1.297-1.755	1.509	9.842E-08	0.077	0.411	1.034-1.627	1.297	0.024	0.116	0.260	0.471-3.005	1.190	0.715	0.473	0.174	1.310-1.765	1.520	1.546E-06	0.076	0.419	0.332	0.613
Anxious feeling	22	39.568	0.888-2.614	1.524	0.126	0.275	0.421	0.735-2.478	1.349	0.334	0.310	0.300	0.359-700.032	15.851	0.168	1.933	2.763	0.888-2.614	1.524	0.141	0.275	0.421	0.021	0.235
Schizophrenia	131	5.674	1.006-1.082	1.043	0.023	0.019	0.042	0.995-1.105	1.049	0.074	0.027	0.048	0.833-1.149	0.978	0.790	0.082	-0.022	0.997-1.077	1.036	0.072	0.020	0.035	0.255	0.424
Bipolar disorder	47	12.319	0.906-1.032	0.967	0.307	0.033	-0.034	0.884-1.063	0.969	0.507	0.047	-0.031	0.704-1.355	0.977	0.888	0.167	-0.024	0.909-1.028	0.967	0.285	0.032	-0.034	0.644	0.950

Anorexia nervosa	6	92.256	0.866-1.124	0.987	0.843	0.067	-0.013	0.853-1.200	1.012	0.894	0.087	0.012	0.463-1.264	0.765	0.354	0.256	-0.268	0.819-1.052	0.928	0.280	0.064	-0.074	0.627	0.361
Life satisfaction	73	17.802	0.357-0.754	0.518	5.864E-04	0.191	-0.657	0.435-1.427	0.788	0.432	0.303	-0.238	0.008-0.701	0.075	0.026	1.142	-2.594	0.381-0.860	0.573	8.875E-03	0.208	-0.558	0.088	0.089
Positive affect	92	14.990	0.367-0.724	0.516	1.334E-04	0.173	-0.662	0.319-0.930	0.545	0.026	0.273	-0.607	0.045-1.152	0.228	0.077	0.827	-1.479	0.387-0.801	0.557	2.151E-03	0.186	-0.586	0.106	0.313
Socioeconomic factors																								
income	42	16.122	0.601-0.984	0.769	0.037	0.126	-0.263	0.531-1.086	0.760	0.132	0.182	-0.275	0.279-4.469	1.116	0.877	0.708	0.110	0.598-1.001	0.774	0.057	0.131	-0.257	0.158	0.594
Educational attainment	1147	15.335	0.595-0.710	0.650	1.725E-21	0.045	-0.431	0.624-0.794	0.704	1.056E-08	0.061	-0.351	0.551-1.036	0.756	0.082	0.161	-0.280	0.607-0.724	0.663	1.610E-19	0.045	-0.411	1.793E-05	0.328
Intelligence	158	15.813	0.791-1.025	0.900	0.113	0.066	-0.105	0.762-1.087	0.910	0.299	0.091	-0.094	0.632-2.395	1.231	0.542	0.340	0.207	0.792-1.024	0.900	0.112	0.066	-0.105	0.048	0.350

SNP, single nucleotide polymorphism; OR, odds ratio; CI, confidence interval; SE, standard error

^a I^2 was utilized to quantify the heterogeneity among SNPs for each exposure.

^b P value for heterogeneity was the P value of Cochran’s Q test. P value ≤ 0.05 was deemed as a statistically significant heterogeneity.

^c P value for pleiotropy was the P value of MR-Egger intercept test. P value ≤ 0.05 was deemed as a statistically significant horizontal pleiotropy.

Table S6. The summary of the MR results of the meta-analysis

Exposures	Used SNPs	I ² (%) ^a	IVW-method				Weighted median method					MR-Egger method					MR PRESSO model					P value for heterogeneity ^b	P value for pleiotropy ^c	
			95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE			BETA
Daily habits																								
Alcohol consumption	94	38.248	0.824-1.196	0.993	0.938	0.095	-7.429E-03	0.657-1.128	0.861	0.277	0.138	-0.150	0.596-1.284	0.874	0.495	0.196	-0.134	0.818-1.182	0.983	0.859	0.094	-0.017	1.129E-04	0.460
Coffee consumption	29	23.895	0.723-1.066	0.878	0.188	0.099	-0.131	0.768-1.330	1.011	0.938	0.140	0.011	0.830-2.039	1.301	0.262	0.229	0.263	0.691-1.114	0.878	0.293	0.122	-0.131	0.099	0.057
Caffeine consumption	25	14.171	0.762-1.009	0.877	0.066	0.071	-0.131	0.825-1.224	1.005	0.959	0.101	5.113E-03	0.930-1.724	1.266	0.147	0.157	0.236	0.737-1.043	0.877	0.150	0.088	-0.131	0.217	0.127
Smoking initiation	345	27.458	1.214-1.359	1.284	2.942E-18	0.029	0.250	1.144-1.334	1.236	7.766E-08	0.040	0.212	0.880-1.399	1.110	0.379	0.118	0.104	1.200-1.343	1.270	1.389E-15	0.029	0.239	3.262E-06	0.203
Lifetime smoking	117	27.115	1.649-2.356	1.971	9.127E-14	0.091	0.678	1.409-2.253	1.782	1.427E-06	0.120	0.578	0.585-2.380	1.180	0.645	0.358	0.165	1.623-2.292	1.929	1.443E-11	0.088	0.657	4.051E-03	0.141
Cigarette consumption	51	0.473	1.105-1.326	1.211	3.944E-05	0.047	0.191	0.980-1.313	1.134	0.092	0.075	0.126	0.869-1.209	1.025	0.771	0.084	0.025	1.110-1.347	1.223	1.507E-04	0.049	0.201	0.424	0.074
Age of initiation of regular smoking	7	389.324	0.645-1.330	0.926	0.678	0.185	-0.077	0.527-1.344	0.841	0.469	0.239	-0.173	0.966-46.466	6.700	0.112	0.988	1.902	0.610-1.430	0.934	0.621	0.351	-0.180	0.942	0.097
Smoking cessation	24	17.381	1.081-1.344	1.206	8.558E-04	0.056	0.187	0.979-1.338	1.145	0.089	0.080	0.135	0.776-1.463	1.065	0.699	0.162	0.064	1.068-1.362	1.206	6.170E-03	0.062	0.187	0.181	0.415
Intake of total sugar	8	11.364	0.641-1.086	0.834	0.178	0.134	-0.181	0.606-1.265	0.875	0.478	0.188	-0.133	0.062-1.811	0.335	0.251	0.861	-1.094	0.614-1.133	0.834	0.284	0.156	-0.181	0.246	0.323
Intake of fat	5	26.311	0.847-1.553	1.147	0.375	0.155	0.137	0.790-1.674	1.150	0.466	0.192	0.140	0.431-2.594	1.057	0.911	0.458	0.056	0.804-1.636	1.147	0.492	0.181	0.137	0.143	0.855
Intake of carbohydrate	10	21.242	0.589-1.033	0.780	0.083	0.143	-0.249	0.568-1.294	0.857	0.463	0.210	-0.154	0.023-1.145	0.163	0.106	0.996	-1.816	0.585-1.158	0.823	0.290	0.174	-0.194	0.179	0.149
Breakfast skipping	6	139.588	0.833-1.710	1.194	0.335	0.183	0.177	0.701-1.730	1.102	0.674	0.23	0.097	0.646-12.170	2.804	0.241	0.749	1.031	0.885-1.611	1.194	0.299	0.153	0.177	0.720	0.305
Morning Person	116	24.017	0.970-1.078	1.023	0.406	0.027	0.022	0.962-1.115	1.036	0.351	0.038	0.035	0.889-1.245	1.052	0.552	0.086	0.051	0.974-1.080	1.025	0.340	0.026	0.025	0.011	0.725
Insomnia	39	41.714	1.653-3.344	2.351	1.957E-06	0.180	0.855	1.504-3.508	2.297	1.184E-04	0.216	0.832	0.667-6.824	2.134	0.209	0.593	0.758	1.768-3.532	2.499	6.522E-06	0.177	0.916	2.858E-03	0.865
Short sleep	23	28.845	2.019-5.896	3.450	5.867E-06	0.273	1.239	1.348-7.234	3.123	7.895E-03	0.429	1.139	2.729-1438.835	62.657	0.017	1.599	4.138	1.974-7.303	3.797	5.300E-04	0.334	1.334	0.075	0.078
Long sleep	9	43.974	0.115-4.781	0.742	0.754	0.950	-0.298	0.041-1.226	0.224	0.085	0.868	-1.498	2.500E-04-35.661	0.094	0.461	3.028	-2.360	0.115-4.781	0.742	0.762	0.950	-0.298	0.046	0.495
Daytime sleepiness	37	33.656	1.353-3.403	2.146	1.161E-03	0.235	0.764	1.068-3.327	1.885	0.029	0.290	0.634	0.296-17.515	2.277	0.435	1.041	0.823	1.416-3.560	2.245	1.460E-03	0.235	0.809	0.020	0.954
Daytime napping	102	44.414	1.087-1.772	1.388	8.569E-03	0.125	0.328	1.086-1.926	1.446	0.012	0.146	0.369	0.932-5.198	2.202	0.075	0.438	0.789	1.072-1.740	1.366	0.013	0.124	0.312	1.106E-06	0.275
Leisure sedentary behavior (TV watching)	130	39.096	1.422-1.812	1.606	1.835E-14	0.062	0.473	1.375-1.857	1.598	9.679E-10	0.077	0.469	0.751-2.327	1.322	0.336	0.289	0.279	1.444-1.829	1.625	3.430E-13	0.060	0.485	4.548E-06	0.491
Leisure sedentary behavior (computer use)	47	20.459	0.614-0.846	0.721	6.203E-05	0.082	-0.327	0.585-0.940	0.742	0.014	0.121	-0.298	0.083-0.870	0.269	0.034	0.599	-1.314	0.599-0.867	0.721	1.154E-03	0.094	-0.327	0.095	0.103
10+ minutes vigorous activity	7	35.784	0.303-1.152	0.591	0.123	0.341	-0.525	0.192-1.236	0.488	0.130	0.475	-0.718	9.040E-06-28.048	0.016	0.327	3.813	-4.140	0.239-1.462	0.591	0.299	0.462	-0.525	0.096	0.383
Moderate to vigorous physical activity levels	18	17.077	0.668-1.149	0.876	0.340	0.139	-0.132	0.547-1.173	0.801	0.254	0.195	-0.222	0.034-1.251	0.206	0.105	0.920	-1.578	0.635-1.208	0.876	0.430	0.164	-0.132	0.199	0.130
Strenuous sports or other exercises	13	12.070	0.217-0.734	0.399	3.138E-03	0.311	-0.919	0.249-1.401	0.591	0.232	0.441	-0.527	0.059-34.153	1.421	0.833	1.622	0.351	0.183-0.692	0.356	9.438E-03	0.340	-1.033	0.456	0.945
Health status																								
Childhood-onset asthma	99	29.721	0.992-1.029	1.011	0.242	9.169E-03	0.011	0.986-1.037	1.011	0.379	0.013	0.011	0.959-1.044	1.001	0.968	0.022	8.838E-04	0.994-1.029	1.011	0.217	8.991E-03	0.011	3.104E-03	0.622
Adult-onset asthma	45	21.027	1.012-1.085	1.048	9.092E-03	0.018	0.047	0.980-1.093	1.035	0.214	0.028	0.035	0.851-1.100	0.967	0.615	0.065	-0.033	1.006-1.091	1.048	0.029	0.020	0.047	0.092	0.206
Type 2 diabetes	347	23.232	1.008-1.045	1.026	5.447E-03	9.212E-03	0.026	0.976-1.032	1.004	0.789	0.014	3.799E-03	0.973-1.047	1.010	0.602	0.018	9.635E-03	1.005-1.040	1.022	0.014	8.902E-03	0.022	1.084E-04	0.318
Coronary artery disease	144	28.995	1.006-1.071	1.038	0.018	0.016	0.038	0.992-1.084	1.037	0.110	0.023	0.036	0.961-1.091	1.024	0.470	0.033	0.024	1.006-1.071	1.038	0.019	0.016	0.038	7.762E-04	0.622
Atrial fibrillation	110	8.423	0.992-1.037	1.014	0.200	0.011	0.014	0.986-1.060	1.022	0.238	0.019	0.022	0.968-1.059	1.013	0.586	0.023	0.012	0.992-1.038	1.015	0.203	0.017	0.015	0.220	0.923
Ulcerative colitis	37	11.789	1.007-1.037	1.022	4.269E-03	7.558E-03	0.022	1.000-1.047	1.023	0.048	0.012	0.023	0.980-1.064	1.021	0.319	0.021	0.021	1.005-1.037	1.021	0.013	7.924E-03	0.021	0.230	0.352

Crohn's disease	50	29.264	0.988-1.017	1.002	0.771	7.315E-03	2.128E-03	0.974-1.014	0.994	0.548	0.010	-6.242E-03	0.969-1.035	1.001	0.933	0.017	1.423E-03	0.988-1.016	1.002	0.819	7.0415E-03	1.617E-03	0.024	0.963
Nutritional & biochemical biomarkers																								
Fasting glucose	68	1.552	0.939-1.138	1.033	0.501	0.049	0.033	0.954-1.306	1.116	0.170	0.080	0.110	0.945-1.354	1.131	0.184	0.092	0.123	0.942-1.140	1.036	0.469	0.049	0.036	0.407	0.246
Fating insulin	37	31.908	0.875-1.351	1.087	0.449	0.111	0.084	0.827-1.407	1.079	0.577	0.136	0.076	0.391-1.457	0.755	0.408	0.335	-0.281	0.875-1.351	1.087	0.454	0.111	0.084	0.027	0.257
2-hour blood glucose	14	23.177	0.919-1.055	0.985	0.661	0.035	-0.015	0.917-1.108	1.008	0.873	0.048	7.680E-03	0.747-1.108	0.910	0.365	0.101	-0.095	0.908-1.068	0.985	0.715	0.042	-0.015	0.153	0.403
Glycosylated hemoglobin (HbA1c)	72	4.857	0.906-1.178	1.033	0.626	0.067	0.033	0.864-1.323	1.069	0.539	0.109	0.067	0.853-1.391	1.089	0.494	0.125	0.086	0.910-1.174	1.033	0.614	0.065	0.033	0.555	0.616
HDL cholesterol	83	17.553	0.902-0.981	0.941	4.171E-03	0.021	-0.061	0.887-1.012	0.947	0.106	0.033	-0.054	0.880-1.048	0.961	0.367	0.044	-0.040	0.903-0.988	0.944	0.014	0.023	-0.057	0.080	0.577
LDL cholesterol	79	18.138	0.927-0.990	0.958	0.011	0.017	-0.043	0.939-1.049	0.992	0.787	0.028	-7.676E-03	0.923-1.027	0.973	0.322	0.027	-0.027	0.927-0.996	0.961	0.034	0.018	-0.040	0.077	0.416
Total cholesterol	86	6.709	0.944-1.012	0.977	0.202	0.018	-0.023	0.930-1.044	0.985	0.607	0.029	-0.015	0.911-1.025	0.966	0.258	0.030	-0.034	0.948-1.017	0.982	0.304	0.018	-0.019	0.279	0.631
Triglycerides	53	42.993	0.962-1.090	1.024	0.451	0.032	0.024	0.944-1.087	1.013	0.722	0.036	0.013	0.925-1.130	1.022	0.671	0.051	0.022	0.962-1.090	1.024	0.454	0.032	0.024	4.618E-04	0.957
Adiponectin	8	41.810	0.866-1.151	0.998	0.980	0.072	-1.834E-03	0.810-1.189	0.982	0.851	0.098	-0.018	0.771-2.279	1.326	0.347	0.276	0.282	0.814-1.224	0.998	0.986	0.104	-1.834E-03	0.061	0.311
Leptin	5	33.812	0.620-0.995	0.785	0.045	0.121	-0.242	0.630-1.349	0.922	0.674	0.194	-0.082	1.971E-04-5.122	0.032	0.276	2.593	-3.449	0.575-1.050	0.777	0.162	0.154	-0.253	0.110	0.303
Vitamin C	10	42.561	0.874-1.098	0.980	0.725	0.058	-0.020	0.841-1.035	0.933	0.188	0.053	-0.070	0.761-1.093	0.912	0.350	0.092	-0.092	0.886-1.106	0.990	0.861	0.057	-0.010	0.047	0.348
25-Hydroxyvitamin D	115	16.839	0.952-1.084	1.016	0.630	0.033	0.016	0.890-1.101	0.990	0.847	0.054	-0.010	0.839-1.058	0.942	0.317	0.059	-0.060	0.948-1.097	1.020	0.598	0.037	0.020	0.061	0.108
Nutritional & developmental status																								
Body mass index	437	26.108	1.317-1.468	1.391	1.859E-32	0.028	0.330	1.193-1.391	1.288	1.083E-10	0.039	0.253	0.942-1.269	1.093	0.242	0.076	0.089	1.313-1.462	1.386	8.431E-29	0.027	0.326	9.744E-07	0.096
Body fat percentage	378	34.633	1.377-1.621	1.494	4.751E-22	0.042	0.402	1.210-1.515	1.354	1.209E-07	0.057	0.303	1.002-1.699	1.304	0.049	0.135	0.266	1.372-1.612	1.487	5.424E-20	0.041	0.397	1.157E-10	0.290
Whole body fat mass	415	27.917	1.225-1.373	1.297	3.035E-19	0.029	0.260	1.103-1.321	1.207	4.319E-05	0.046	0.188	0.999-1.382	1.176	0.051	0.083	0.162	1.228-1.374	1.299	2.373E-18	0.029	0.262	2.366E-07	0.204
Whole body fat-free mass	531	14.325	0.857-0.980	0.916	0.011	0.034	-0.087	0.812-0.986	0.895	0.025	0.049	-0.111	0.698-0.965	0.821	0.017	0.083	-0.197	0.863-0.986	0.923	0.018	0.034	-0.081	4.404E-08	0.143
Visceral adipose tissue	180	34.109	1.222-1.413	1.314	2.002E-13	0.037	0.273	1.037-1.272	1.148	8.006E-03	0.052	0.138	0.892-1.408	1.121	0.330	0.117	0.114	1.211-1.391	1.298	4.662E-12	0.035	0.261	7.647E-06	0.152
Waist circumference	358	41.395	1.298-1.514	1.402	9.657E-18	0.039	0.338	1.145-1.413	1.272	7.070E-06	0.054	0.241	0.966-1.520	1.212	0.097	0.115	0.192	1.297-1.511	1.400	1.745E-16	0.039	0.336	1.467E-15	0.180
Hip circumference	399	31.554	1.087-1.219	1.151	1.614E-06	0.029	0.141	1.022-1.211	1.113	0.014	0.043	0.107	0.904-1.244	1.060	0.473	0.081	0.059	1.087-1.218	1.151	1.674E-06	0.029	0.140	4.092E-09	0.282
Waist-to-hip ratio	337	28.011	1.280-1.469	1.371	1.978E-19	0.035	0.316	1.212-1.466	1.333	3.209E-09	0.049	0.288	0.961-1.394	1.157	0.123	0.095	0.146	1.276-1.460	1.365	1.389E-17	0.035	0.311	2.461E-06	0.055
Standing height	740	24.560	0.864-0.938	0.900	7.002E-07	0.021	-0.105	0.842-0.952	0.895	4.056E-04	0.031	-0.111	0.889-1.050	0.966	0.415	0.043	-0.035	0.860-0.933	0.896	1.504E-07	0.021	-0.110	5.136E-09	0.057
Sitting height	573	20.804	0.835-0.917	0.875	1.739E-08	0.024	-0.134	0.834-0.962	0.896	2.514E-03	0.036	-0.110	0.799-0.986	0.887	0.026	0.054	-0.120	0.839-0.919	0.878	3.119E-08	0.023	-0.130	0.040	0.748
Hand grip strength (left)	154	18.542	0.646-0.845	0.739	9.596E-06	0.068	-0.303	0.683-0.983	0.819	0.032	0.093	-0.199	0.316-0.853	0.519	0.011	0.254	-0.655	0.641-0.838	0.733	1.070E-05	0.068	-0.310	0.026	0.151
Hand grip strength (right)	166	20.187	0.677-0.877	0.771	7.802E-05	0.066	-0.260	0.671-0.972	0.808	0.024	0.094	-0.213	0.331-0.832	0.525	6.724E-03	0.235	-0.645	0.680-0.876	0.772	8.903E-05	0.064	-0.259	0.013	0.090
Birth weight	170	27.181	0.802-0.925	0.861	4.522E-05	0.037	-0.149	0.784-0.953	0.864	3.521E-03	0.050	-0.146	0.636-0.941	0.773	0.011	0.100	-0.257	0.809-0.932	0.868	1.262E-04	0.036	-0.141	7.747E-04	0.251
Childhood BMI	18	58.208	0.970-1.041	1.005	0.796	0.018	4.655E-03	0.974-1.023	0.998	0.871	0.012	-2.025E-03	0.957-1.034	0.995	0.790	0.020	-5.334E-03	0.970-1.041	1.005	0.799	0.018	4.655E-03	6.195E-04	0.257
Emotional factors																								
Major depressive disorder	47	2.857	1.417-1.671	1.539	1.084E-24	0.042	0.431	1.344-1.719	1.520	2.578E-11	0.063	0.419	1.399-3.503	2.214	1.448E-03	0.234	0.795	1.410-1.669	1.534	2.292E-13	0.043	0.428	0.377	0.121
Anxious feeling	21	36.284	1.414-2.624	1.926	3.214E-05	0.158	0.656	1.491-3.025	2.124	3.000E-05	0.180	0.753	1.047-88.907	9.649	0.060	1.133	2.267	1.414-2.624	1.926	4.865E-04	0.158	0.656	0.037	0.167
Schizophrenia	195	30.834	0.992-1.042	1.016	0.200	0.013	0.016	0.986-1.051	1.018	0.264	0.016	0.018	0.916-1.147	1.025	0.666	0.057	0.025	0.988-1.037	1.012	0.325	0.012	0.012	3.925E-05	0.877
Bipolar disorder	52	38.391	0.930-1.021	0.975	0.278	0.024	-0.026	0.914-1.025	0.968	0.263	0.029	-0.033	0.799-1.348	1.038	0.782	0.133	0.037	0.930-1.019	0.973	0.251	0.023	-0.027	2.436E-03	0.634
Anorexia Nervosa	6	154.389	0.879-1.019	0.947	0.144	0.038	-0.055	0.846-1.013	0.926	0.094	0.046	-0.077	0.645-1.138	0.857	0.346	0.145	-0.154	0.915-1.005	0.959	0.126	0.024	-0.042	0.742	0.516
Life satisfaction	76	34.808	0.318-0.533	0.412	1.464E-11	0.131	-0.887	0.314-0.593	0.432	2.226E-07	0.162	-0.840	0.071-1.073	0.275	0.067	0.694	-1.289	0.332-0.555	0.429	8.493E-09	0.131	-0.846	1.591E-03	0.557
Positive affect	91	29.906	0.337-0.538	0.426	6.869E-13	0.119	-0.853	0.316-0.589	0.431	1.240E-07	0.159	-0.841	0.231-1.718	0.630	0.369	0.512	-0.462	0.360-0.571	0.453	1.548E-09	0.118	-0.791	3.999E-03	0.434
Socioeconomic factors																								

Income	43	19.253	0.540-0.709	0.619	5.427E-12	0.070	-0.480	0.486-0.739	0.600	1.677E-06	0.107	-0.511	0.386-1.503	0.762	0.437	0.3466	-0.272	0.543-0.727	0.629	1.291E-07	0.074	-0.464	0.116	0.542
Educational attainment	1206	18.617	0.514-0.568	0.540	1.121E-127	0.026	-0.616	0.510-0.588	0.548	1.375E-61	0.036	-0.602	0.480-0.683	0.573	6.886E-10	0.090	-0.558	0.522-0.576	0.548	6.766E-104	0.025	-0.603	6.844E-08	0.500
Intelligence	164	30.937	0.697-0.816	0.754	2.252E-12	0.040	-0.283	0.694-0.848	0.767	2.397E-07	0.051	-0.265	0.495-1.060	0.724	0.099	0.194	-0.323	0.697-0.816	0.754	5.172E-11	0.040	-0.283	1.316E-04	0.834

SNP, single nucleotide polymorphism; OR, odds ratio; CI, confidence interval; SE, standard error

^a I^2 was utilized to quantify the heterogeneity among SNPs for each exposure.

^b P value for heterogeneity was the P value of Cochran’s Q test. P value ≤ 0.05 was deemed as a statistically significant heterogeneity.

^c P value for pleiotropy was the P value of MR-Egger intercept test. P value ≤ 0.05 was deemed as a statistically significant horizontal pleiotropy.

Table S7. The summary of the MVMR results with MVMR-IVW and MVMR-Egger method

	Exposures	N.SNPs	MVMR-IVW				MVMR-Egger					P value for pleiotropy ^a	
			95%CI	OR	P value	SE	BETA	95%CI	OR	P value	SE		BETA
Hub exposures	Educational attainment	156	0.516-0.650	0.579	1.426E-20	0.059	-0.546	0.516-0.651	0.579	1.235E-18	0.059	-0.546	0.967
	Smoking initiation	25	1.007-1.231	1.114	0.036	0.051	0.108	1.007-1.232	1.114	0.037	0.051	0.108	
	BMI	328	1.136-1.296	1.214	8.715E-09	0.034	0.194	1.136-1.297	1.214	1.641E-08	0.034	0.194	
BMI, smoking initiation and educational attainment adjusted	Cigarette consumption	9	0.927-1.206	1.057	0.407	0.067	0.056	0.926-1.206	1.057	0.413	0.067	0.055	0.816
	BMI	323	1.127-1.294	1.207	9.099E-08	0.035	0.189	1.127-1.293	1.207	1.471E-07	0.035	0.188	
	Smoking initiation	24	1.001-1.227	1.108	0.048	0.052	0.103	1.001-1.227	1.108	0.049	0.052	0.103	
BMI, smoking initiation and educational attainment adjusted	Educational attainment	157	0.520-0.656	0.584	9.685E-20	0.059	-0.538	0.519-0.656	0.584	5.121E-18	0.060	-0.539	
	Insomnia	6	1.684-3.104	2.286	1.176E-07	0.156	0.827	1.291-2.363	1.747	3.283E-04	0.154	0.558	0.765
	BMI	326	1.122-1.276	1.196	5.026E-08	0.033	0.179	1.083-1.283	1.179	1.445E-03	0.043	0.165	
BMI, smoking initiation and educational attainment adjusted	Smoking initiation	25	0.983-1.194	1.083	0.108	0.050	0.080	0.876-1.093	0.979	0.701	0.056	-0.021	
	Educational attainment	155	0.552-0.695	0.620	3.363E-16	0.059	-0.479	0.494-0.662	0.572	2.003E-13	0.075	-0.559	
	Short sleep	7	2.281-3.409	2.788	2.134E-05	0.103	1.025	2.207-3.541	2.795	9.198E-05	0.121	1.028	0.859
BMI, smoking initiation and educational attainment adjusted	BMI	328	1.110-1.266	1.185	4.161E-07	0.034	0.170	1.110-1.266	1.185	6.085E-07	0.034	0.170	
	Smoking initiation	25	0.989-1.207	1.092	0.082	0.051	0.088	0.989-1.207	1.093	0.082	0.051	0.089	
	Educational attainment	156	0.547-0.693	0.615	8.425E-16	0.060	-0.485	0.547-0.695	0.616	1.611E-14	0.061	-0.484	
BMI, smoking initiation and educational attainment adjusted	Leisure sedentary behavior (TV watching)	46	0.985-1.490	1.212	0.069	0.106	0.192	0.987-1.498	1.216	0.067	0.106	0.196	0.762
	BMI	260	1.096-1.277	1.183	1.593E-05	0.039	0.168	1.096-1.277	1.183	2.081E-05	0.039	0.168	
	Smoking initiation	23	0.972-1.198	1.079	0.155	0.053	0.076	0.972-1.198	1.079	0.157	0.053	0.076	
BMI, smoking initiation and educational attainment adjusted	Educational attainment	133	0.541-0.766	0.644	6.683E-07	0.089	-0.441	0.542-0.771	0.646	1.799E-06	0.090	-0.436	
	Waist-to-hip ratio	188	1.089-1.313	1.195	1.837E-04	0.048	0.179	1.089-1.314	1.196	2.075E-04	0.048	0.179	0.909
	BMI	263	1.032-1.214	1.119	6.741E-03	0.042	0.113	1.031-1.214	1.119	7.054E-03	0.042	0.113	
BMI, smoking initiation and educational attainment adjusted	Smoking initiation	23	0.951-1.172	1.056	0.305	0.053	0.055	0.951-1.172	1.056	0.312	0.053	0.054	
	Educational attainment	139	0.513-0.652	0.578	4.685E-19	0.062	-0.549	0.511-0.652	0.577	1.625E-17	0.062	-0.550	
	Standing height	658	0.903-0.988	0.944	0.013	0.023	-0.057	0.902-0.987	0.944	0.013	0.023	-0.058	0.803
BMI, smoking initiation and educational attainment adjusted	BMI	93	1.067-1.267	1.162	6.034E-04	0.044	0.150	1.067-1.268	1.163	6.207E-04	0.044	0.151	
	Smoking initiation	11	0.899-1.124	1.005	0.924	0.057	5.448E-03	0.899-1.124	1.006	0.923	0.057	5.492E-03	
	Educational attainment	47	0.478-0.643	0.555	7.532E-15	0.076	-0.590	0.478-0.645	0.555	3.376E-14	0.076	-0.588	
BMI, smoking initiation and educational attainment adjusted	Sitting height	448	0.880-0.978	0.928	5.544E-03	0.027	-0.075	0.880-0.978	0.928	5.735E-03	0.027	-0.075	0.707
	BMI	149	1.028-1.205	1.113	8.281E-03	0.041	0.107	1.027-1.204	1.112	9.268E-03	0.041	0.106	
	Smoking initiation	14	0.903-1.134	1.012	0.838	0.058	0.012	0.902-1.133	1.011	0.855	0.058	0.011	
BMI, smoking initiation and educational attainment adjusted	Educational attainment	81	0.526-0.698	0.606	4.532E-12	0.073	-0.501	0.525-0.697	0.605	1.071E-11	0.073	-0.503	
	Major depressive disorder	18	1.240-1.493	1.361	7.761E-11	0.047	0.308	1.241-1.495	1.362	1.919E-10	0.047	0.308	0.670
	BMI	321	1.122- 1.274	1.195	3.458E-08	0.032	0.178	1.122-1.274	1.196	5.619E-08	0.032	0.179	
BMI, smoking initiation and educational attainment adjusted	Smoking initiation	22	0.946-1.154	1.045	0.389	0.051	0.044	0.946-1.154	1.045	0.382	0.051	0.044	
	Educational attainment	151	0.543-0.680	0.608	2.930E-18	0.057	-0.498	0.544-0.683	0.610	1.571E-16	0.058	-0.495	
	Anxious feeling	3	1.194-1.847	1.485	3.753E-04	0.111	0.396	1.196-1.851	1.488	3.993E-04	0.111	0.397	0.489
BMI, smoking initiation and educational attainment adjusted	BMI	320	1.184-1.362	1.270	2.055E-11	0.036	0.239	1.185-1.363	1.271	5.861E-11	0.036	0.240	
	Smoking initiation	24	0.995-1.215	1.099	0.064	0.051	0.095	0.995-1.216	1.100	0.063	0.051	0.096	
	Educational attainment	152	0.535-0.678	0.602	4.206E-17	0.060	-0.508	0.536-0.681	0.604	1.641E-15	0.061	-0.504	
BMI, smoking initiation and educational attainment adjusted	Life satisfaction	14	0.342-0.624	0.462	4.673E-07	0.153	-0.772	0.341-0.623	0.461	7.215E-07	0.154	-0.775	0.799
	BMI	270	1.148-1.326	1.234	1.131E-08	0.037	0.210	1.148-1.327	1.234	2.251E-08	0.037	0.211	

adjusted	Smoking initiation	22	0.912-1.139	1.019	0.737	0.057	0.019	0.912-1.140	1.020	0.732	0.057	0.020	
	Educational attainment	130	0.542-0.692	0.612	3.158E-15	0.062	-0.491	0.542-0.695	0.614	1.156E-13	0.063	-0.488	
BMI, smoking initiation and educational attainment adjusted	Positive affect	20	0.385-0.699	0.519	1.597E-05	0.152	-0.656	0.384-0.698	0.518	2.017E-05	0.152	-0.658	0.835
	BMI	270	1.147-1.328	1.234	1.574E-08	0.037	0.210	1.148-1.329	1.235	3.082E-08	0.037	0.211	
BMI and educational attainment adjusted	Smoking initiation	23	0.915-1.143	1.023	0.696	0.057	0.022	0.915-1.144	1.023	0.689	0.057	0.023	0.994
	Educational attainment	126	0.529-0.677	0.598	2.754E-16	0.063	-0.514	0.529-0.680	0.600	1.409E-14	0.064	-0.511	
	Leisure sedentary behavior (computer use)	11	0.782-1.209	0.972	0.799	0.111	-0.028	0.781-1.209	0.972	0.799	0.111	-0.028	
	BMI	344	1.163-1.322	1.240	5.245E-11	0.033	0.215	1.163-1.322	1.398	2.360E-21	0.033	0.335	
BMI and educational attainment adjusted	Educational attainment	155	0.426-0.579	0.497	5.931E-19	0.079	-0.700	0.483-0.635	0.554	2.616E-16	0.070	-0.591	0.753
	Hand grip strength (left)	48	0.715-0.983	0.838	0.031	0.081	-0.177	0.715-0.984	0.839	0.035	0.081	-0.176	
	BMI	320	1.169-1.324	1.244	5.723E-12	0.031	0.219	1.168-1.324	1.244	2.282E-11	0.032	0.218	
BMI and educational attainment adjusted	Educational attainment	148	0.514-0.639	0.573	7.902E-24	0.055	-0.557	0.513-0.638	0.572	1.265E-21	0.056	-0.558	0.637
	Hand grip strength (right)	49	0.689-0.977	0.820	0.027	0.089	-0.197	0.689-0.977	0.820	0.027	0.089	-0.198	
	BMI	317	1.168-1.324	1.244	7.769E-12	0.032	0.218	1.167-1.323	1.243	2.973E-11	0.032	0.217	
BMI and educational attainment adjusted	Educational attainment	146	0.515-0.640	0.574	1.413E-23	0.055	-0.555	0.514-0.639	0.573	1.654E-21	0.056	-0.557	0.781
	Birth weight	15	0.696-0.941	0.811	6.940E-03	0.078	-0.210	0.696-0.944	0.811	7.215E-03	0.078	-0.210	
	BMI	326	1.165-1.328	1.244	5.636E-11	0.033	0.218	1.165-1.329	1.244	1.573E-10	0.033	0.219	
	Educational attainment	119	0.522-0.667	0.590	2.984E-17	0.063	-0.528	0.522-0.668	0.590	6.726E-16	0.063	-0.527	

N.SNPs, numbers of single nucleotide polymorphisms; OR, odds ratio; CI, confidence interval; SE, standard error

^a*P* value for pleiotropy was the *p* value of MVMR-Egger intercept test. *P* value < 0.05 was deemed as a statistically significant horizontal pleiotropy.

MR Test



Inverse variance weighted



Weighted median



MR Egger

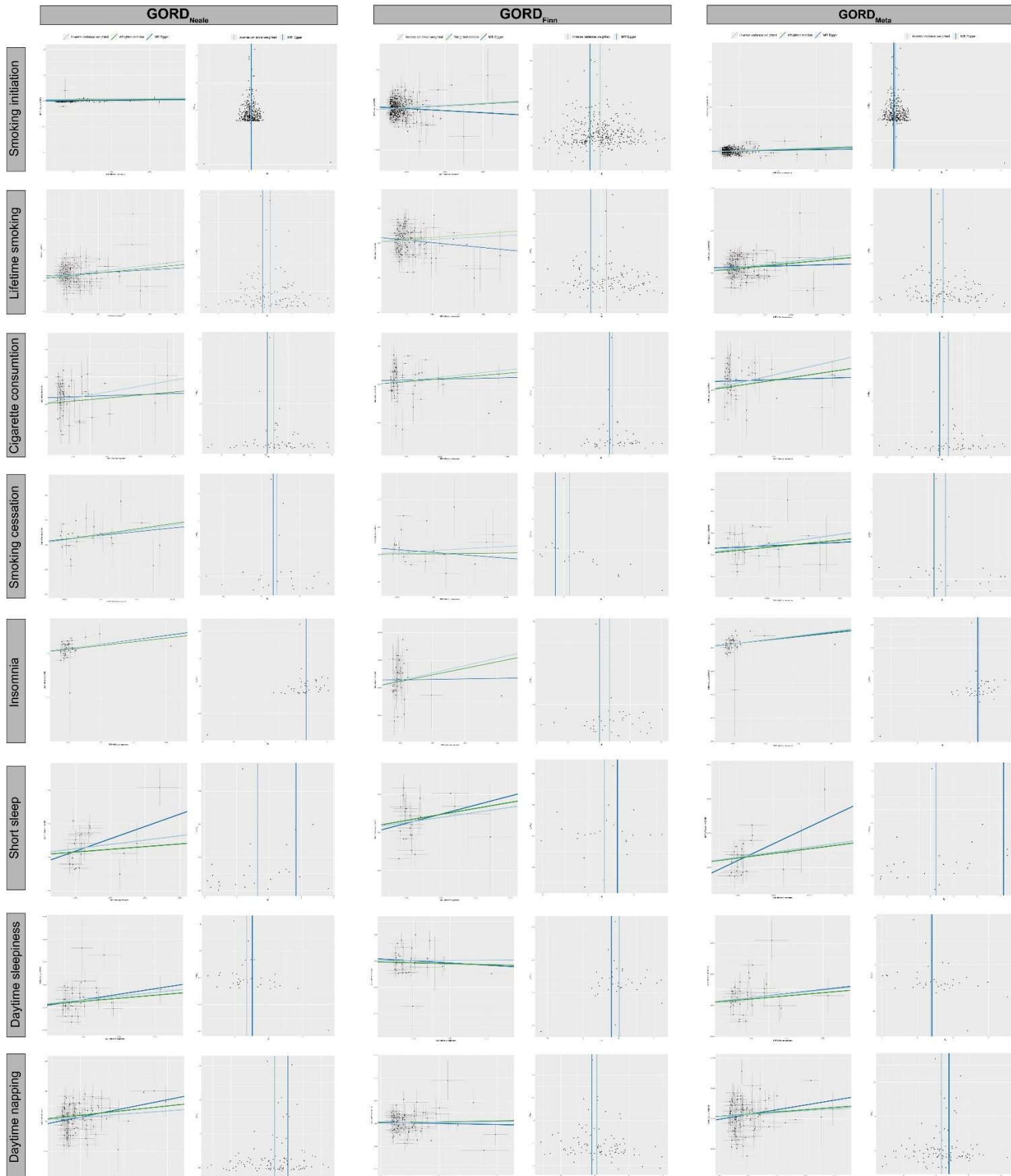


Figure S1. Scatter plots and funnel plots for exposures (smoking initiation, lifetime smoking, cigarette consumption, smoking cessation, insomnia, short sleep, daytime sleepiness and daytime napping) for $GORD_{Neale}$, $GORD_{Finn}$ and $GORD_{Meta}$

In scatter plot, X and Y axes respectively represented the genetic correlation of IVs (dots) on the exposures and outcomes, whose ratio was the slope of the slashes. The upward slashes represented the positive causal effects of exposures on the outcomes. On the contrary, the downward slashes represented the negative causal effects of exposures on the outcomes. In funnel plots, whether the distributions of IVs (dots) is symmetrical or not was used to judge the possible heterogeneity visually. MR-Egger regression was the main method to quantify the heterogeneity.

MR Test

Inverse variance weighted

Weighted median

MR Egger

Leisure sedentary behaviour
(TV watching)

Leisure sedentary behaviour
(computer use)

10+ minutes vigorous activity

Strenuous sports
or other exercises

Adult-onset asthma

Type 2 diabetes

Coronary artery disease

Ulcerative colitis

GORD_{Neale}

GORD_{Finn}

GORD_{Meta}

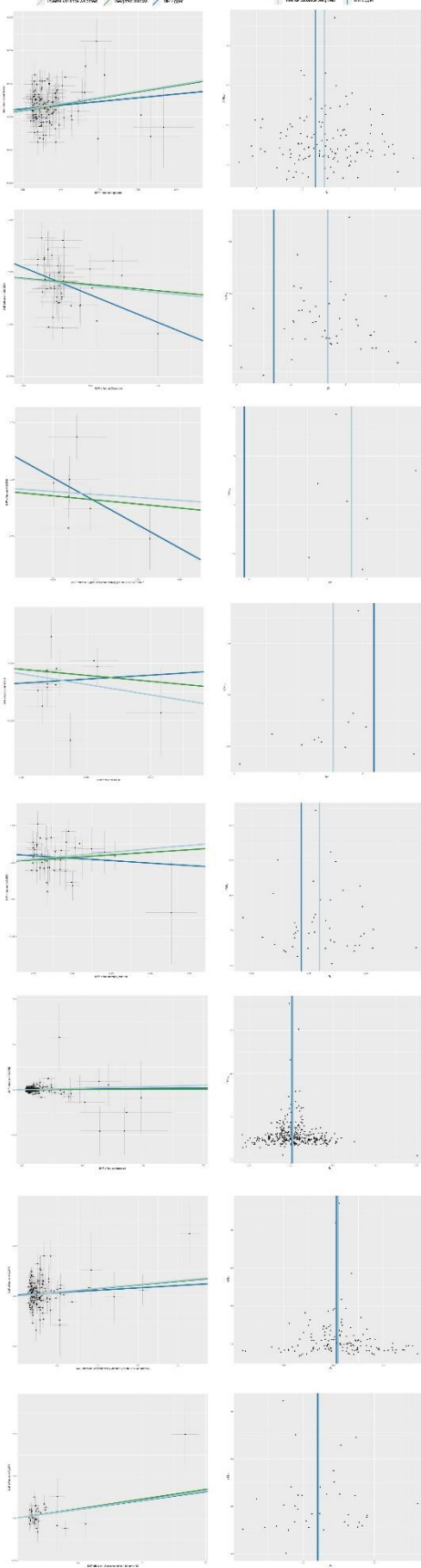
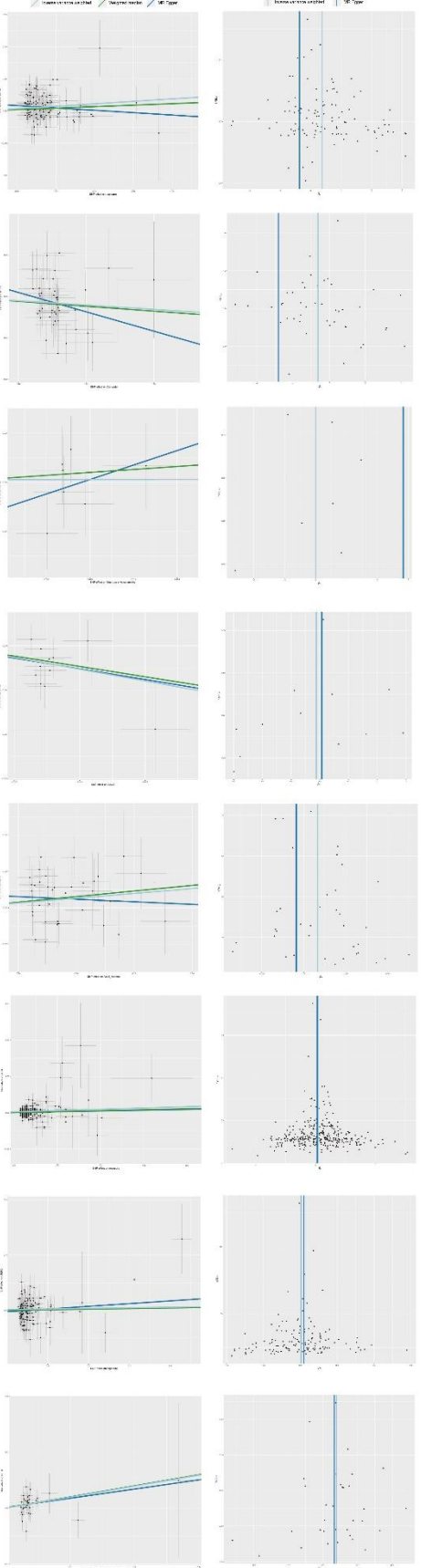
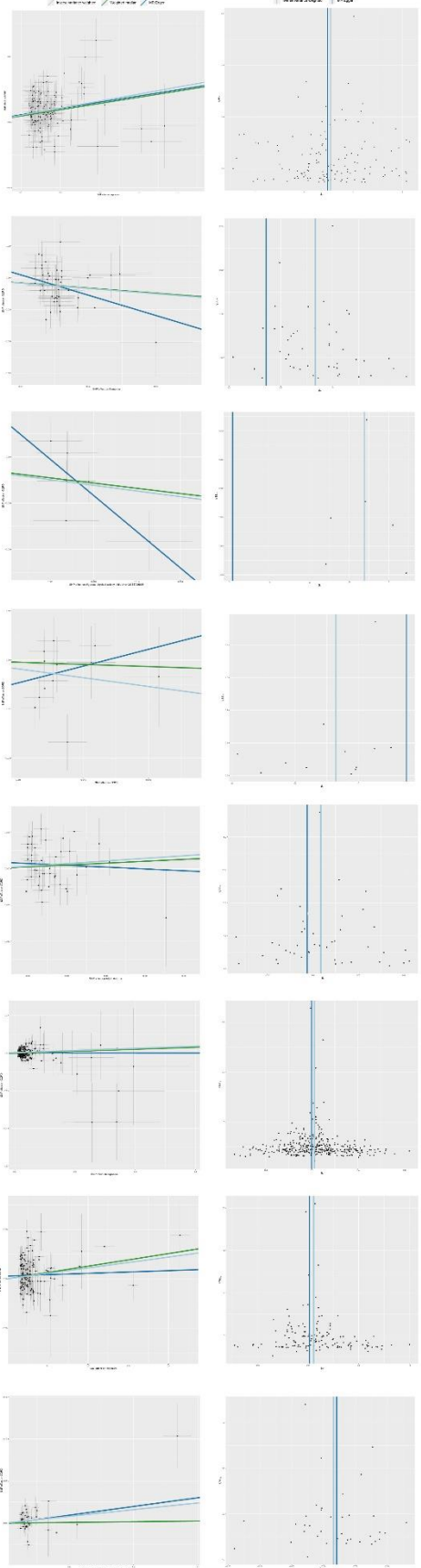


Figure S2. Scatter plots and funnel plots for exposures (leisure sedentary behavior (TV watching), Leisure sedentary behavior (computer use), 10+ minutes vigorous activity, strenuous sports or other exercises, adult-onset asthma, type 2 diabetes, coronary artery disease and ulcerative colitis) for $GORD_{Neale}$, $GORD_{Finn}$ and $GORD_{Meta}$

In scatter plot, X and Y axes respectively represented the genetic correlation of IVs (dots) on the exposures and outcomes, whose ratio was the slope of the slashes. The upward slashes represented the positive causal effects of exposures on the outcomes. On the contrary, the downward slashes represented the negative causal effects of exposures on the outcomes. In funnel plots, whether the distributions of IVs (dots) is symmetrical or not was used to judge the possible heterogeneity visually. MR-Egger regression was the main method to quantify the heterogeneity.

MR Test



Inverse variance weighted



Weighted median



MR Egger

GORD_{Neale}

GORD_{Finn}

GORD_{Meta}

HDL cholesterol

HDL cholesterol

Leptin

BMI

Body fat percentage

Whole body fat mass

Whole body fat-free mass

Visceral adipose tissue

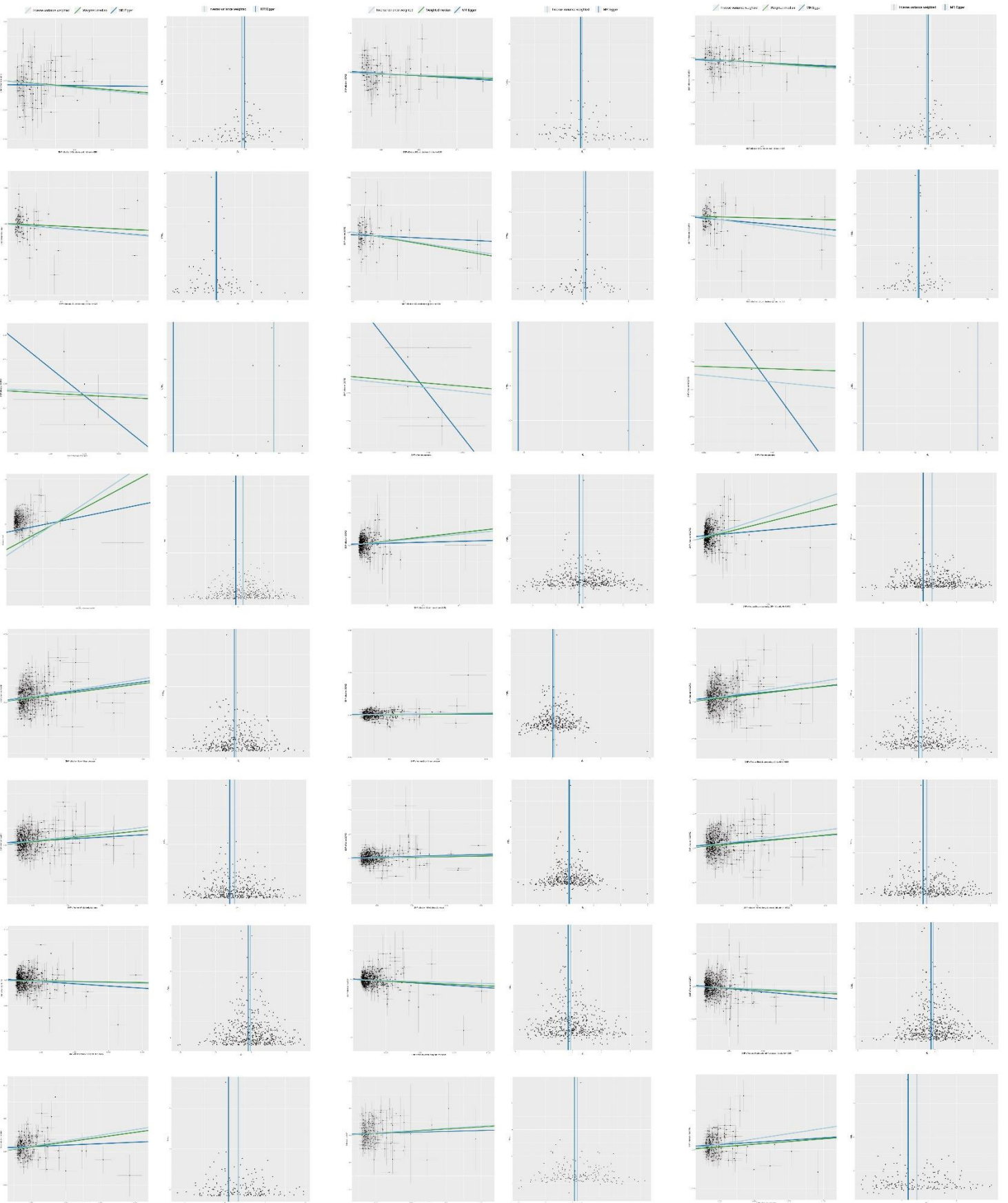


Figure S3. Scatter plots and funnel plots for exposures (HDL cholesterol, LDL cholesterol, leptin, BMI, body fat percentage, whole body fat mass, whole body fat-free mass and visceral adipose tissue) for $GORD_{Neale}$, $GORD_{Finn}$ and $GORD_{Meta}$

In scatter plot, X and Y axes respectively represented the genetic correlation of IVs (dots) on the exposures and outcomes, whose ratio was the slope of the slashes. The upward slashes represented the positive causal effects of exposures on the outcomes. On the contrary, the downward slashes represented the negative causal effects of exposures on the outcomes. In funnel plots, whether the distributions of IVs (dots) is symmetrical or not was used to judge the possible heterogeneity visually. MR-Egger regression was the main method to quantify the heterogeneity.

MR Test



Inverse variance weighted



Weighted median



MR Egger

GORD_{Neale}GORD_{Finn}GORD_{Meta}

Waist circumference

Hip circumference

Waist to hip ratio

Standing height

Sitting height

Hand grip strength (left)

Hand grip strength (right)

Birth weight

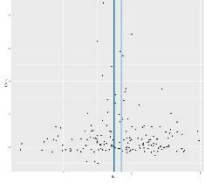
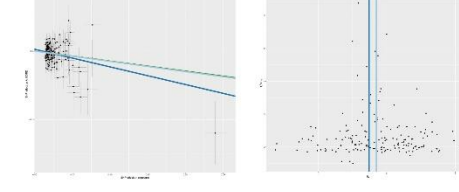
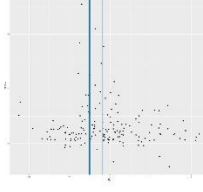
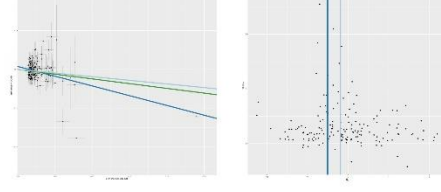
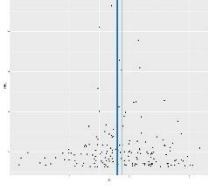
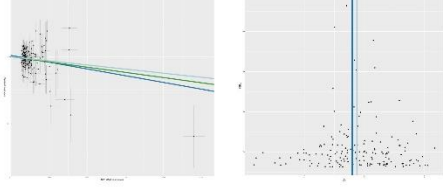
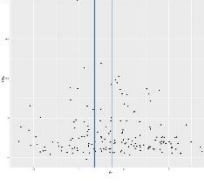
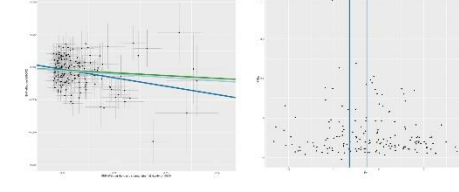
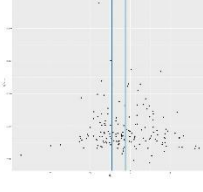
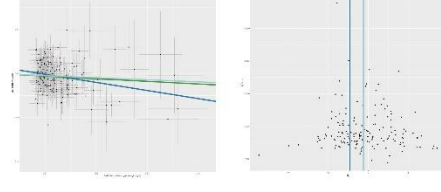
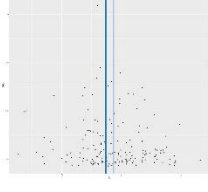
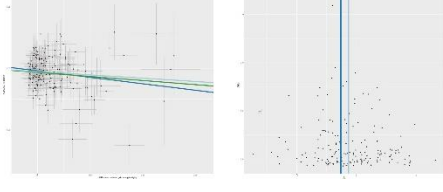
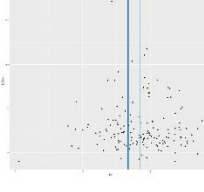
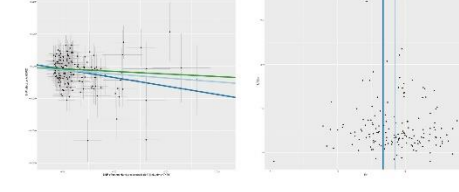
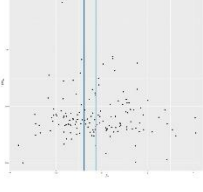
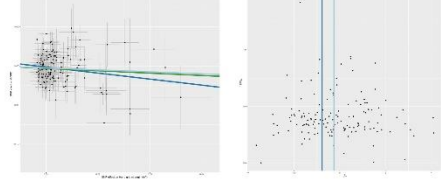
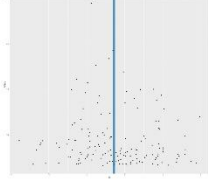
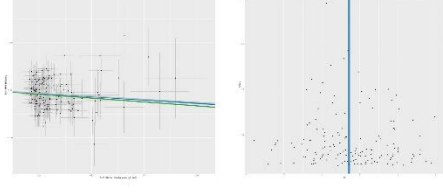
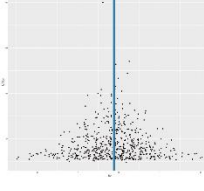
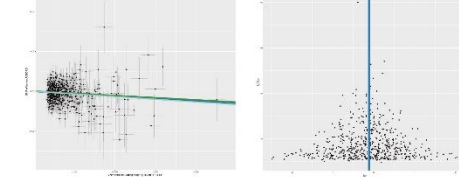
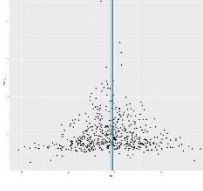
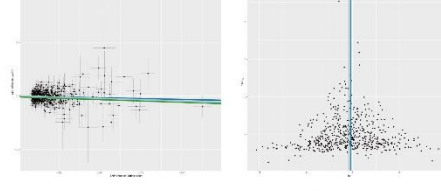
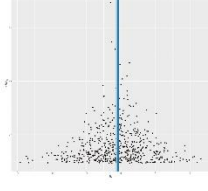
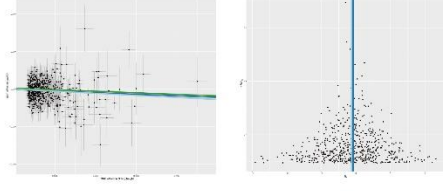
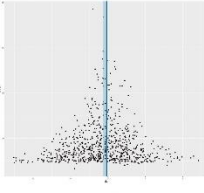
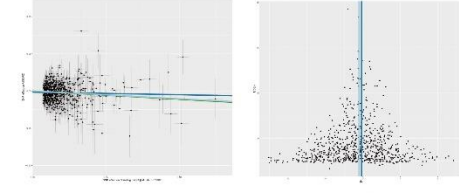
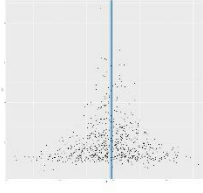
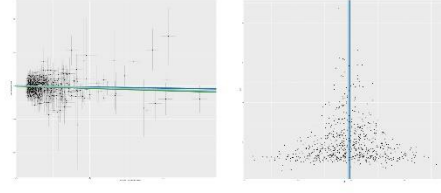
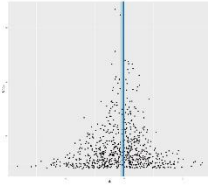
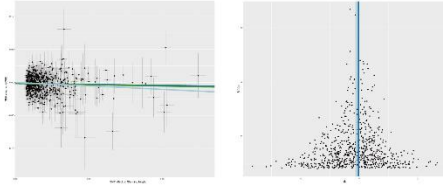
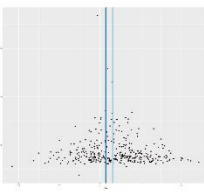
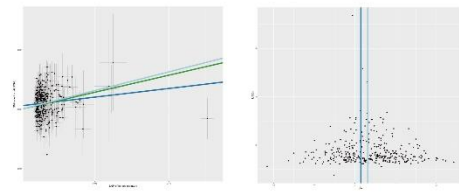
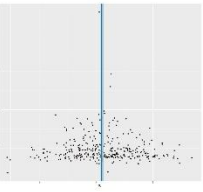
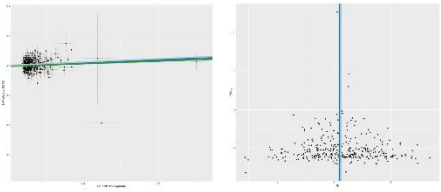
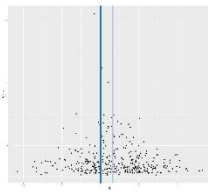
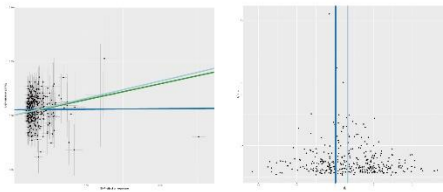
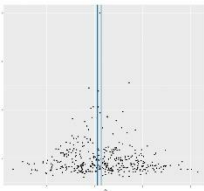
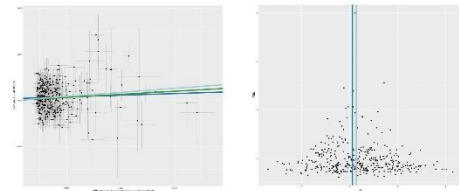
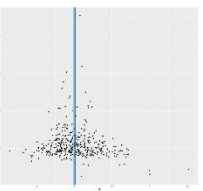
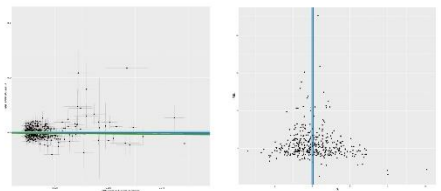
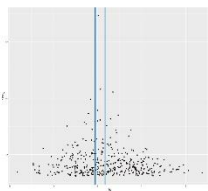
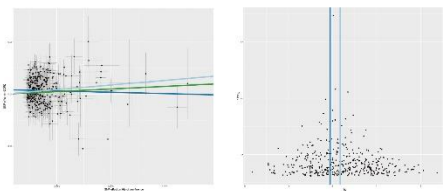
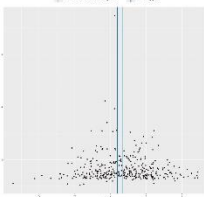
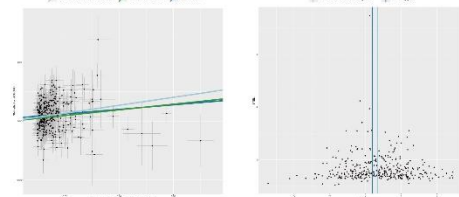
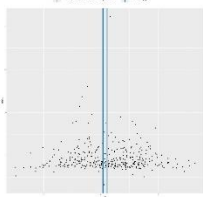
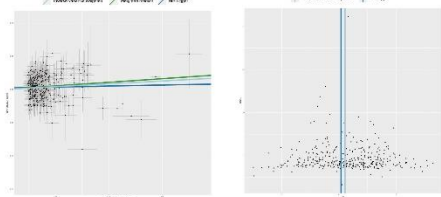
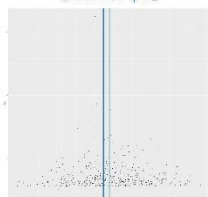
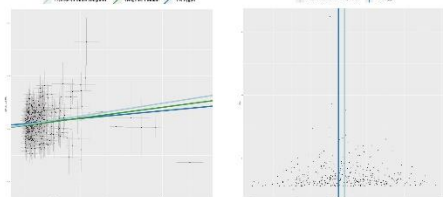


Figure S4. Scatter plots and funnel plots for exposures (waist circumference, hip circumference, waist-to-hip ratio, height (standing and sitting), hand grip strength (left and right) and birth weight) for $GORD_{Neale}$, $GORD_{Finn}$ and $GORD_{Meta}$

In scatter plot, X and Y axes respectively represented the genetic correlation of IVs (dots) on the exposures and outcomes, whose ratio was the slope of the slashes. The upward slashes represented the positive causal effects of exposures on the outcomes. On the contrary, the downward slashes represented the negative causal effects of exposures on the outcomes. In funnel plots, whether the distributions of IVs (dots) is symmetrical or not was used to judge the possible heterogeneity visually. MR-Egger regression was the main method to quantify the heterogeneity.

MR Test



Inverse variance weighted



Weighted median



MR Egger

GORD_{Neale}GORD_{Finn}GORD_{Meta}

Major depressive disorder

Anxious feeling

Schizophrenia

Life satisfaction

Positive affect

Income

Educational attainment

Cognitive performance

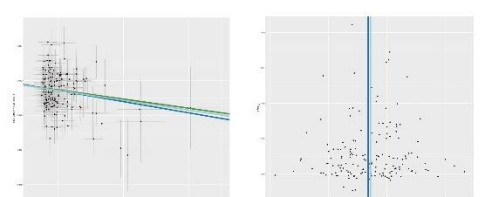
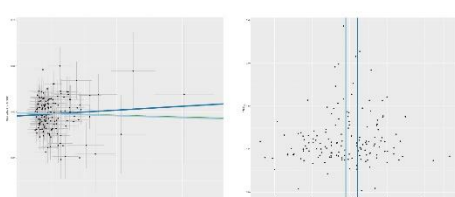
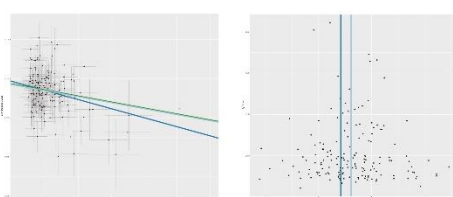
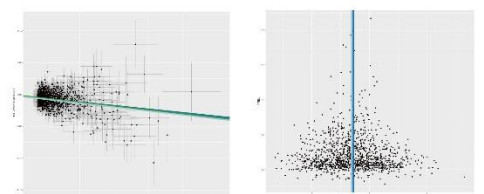
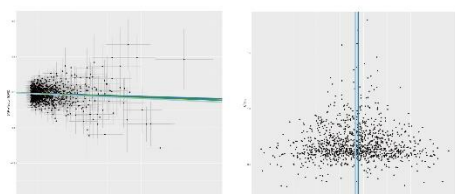
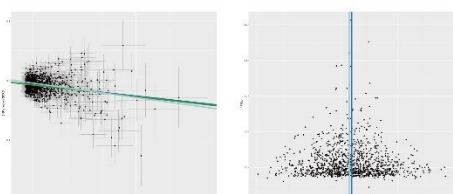
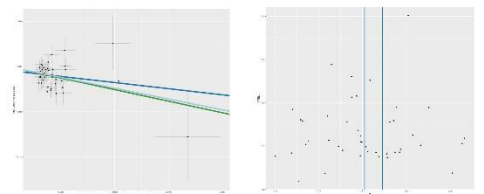
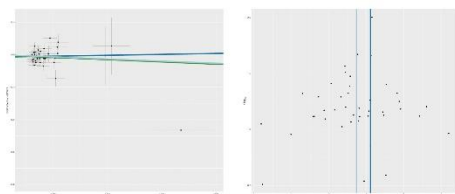
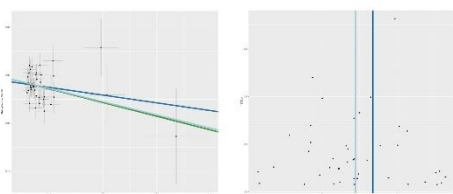
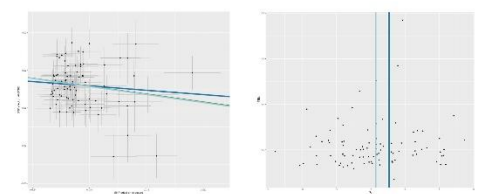
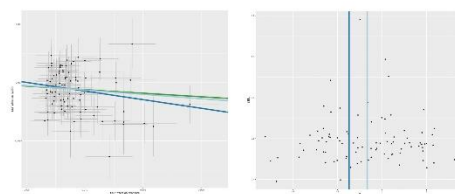
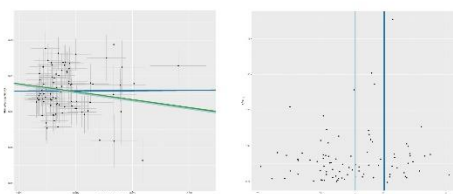
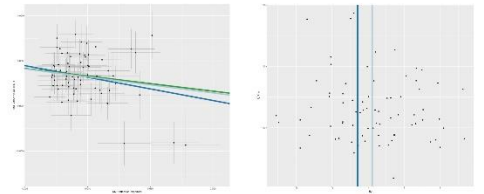
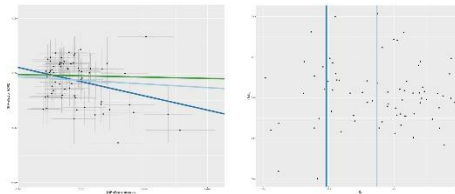
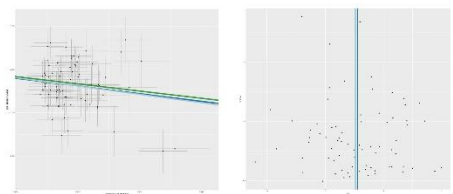
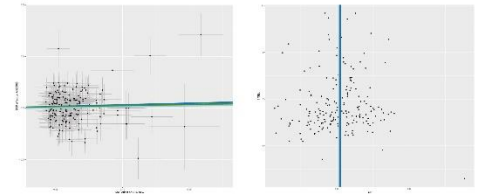
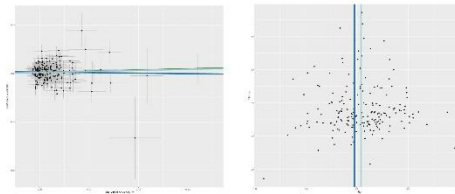
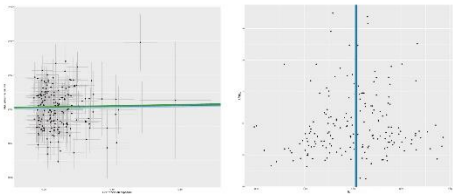
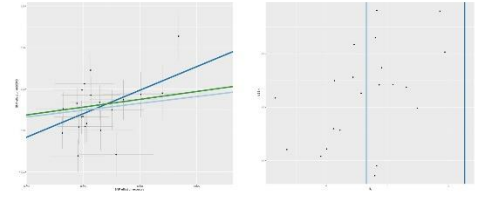
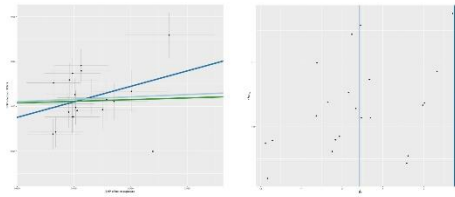
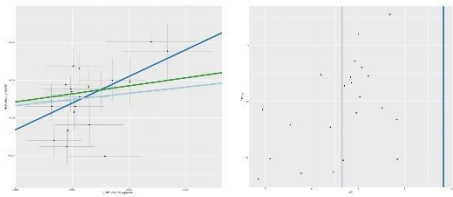
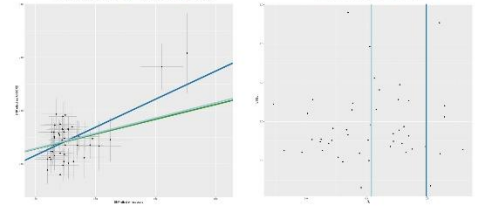
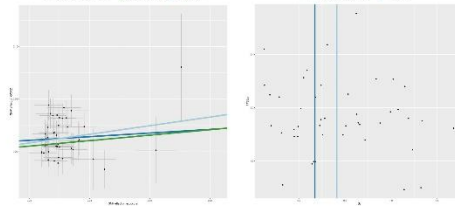
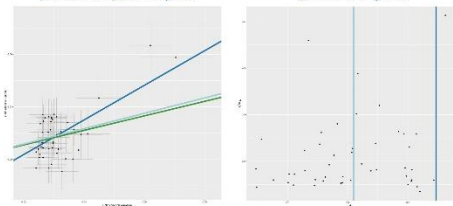


Figure S5. Scatter plots and funnel plots for exposures (major depressive disorder, anxious feeling, schizophrenia, life satisfaction, positive affect, income, educational attainment and intelligence) for $GORD_{Neale}$, $GORD_{Finn}$ and $GORD_{Meta}$

In scatter plot, X and Y axes respectively represented the genetic correlation of IVs (dots) on the exposures and outcomes, whose ratio was the slope of the slashes. The upward slashes represented the positive causal effects of exposures on the outcomes. On the contrary, the downward slashes represented the negative causal effects of exposures on the outcomes. In funnel plots, whether the distributions of IVs (dots) is symmetrical or not was used to judge the possible heterogeneity visually. MR-Egger regression was the main method to quantify the heterogeneity.