Supplementary Materials

Table S1. Comorbidities' categories and the respective diseases within each category

Category **n= 92,426 (100%)**	**Diseases**
Neurological diseases n= 320 (0.35%)	Epilepsy, Dementia, Seizure, Autism, Migraine, Sciatica, Anorexia, Facial palsy, Meningo-encephalitis, Cerebrovascular accident and stroke, Superior sagittal and transverse sinuses thrombosis, Benign paroxysmal positional vertigo, Schizophrenia, Myasthenia gravis, Bell's palsy, Cerebral palsy, Peripheral neuropathy, Alzheimer disease, MS, Parkinson's, Mental retardation, Trigeminal neuralgia, Porencephalic cyst, Muscular dystrophy, Meningitis, Cerebral Toxoplasmosis, Rickets, Cerebral cavernous malformation, Hydrocephalus, Rett syndrome.
Respiratory diseases n= 1450 (1.57%)	Asthma, Respiratory tumors, Respiratory cysts, Sarcoidosis, Pulmonary embolism, Pulmonary hypertension, Respiratory fibrosis, TB, AATD deficiency, Respiratory coagulation, Respiratory allergy, Obstructive sleep apnea, Breathing difficulty.
Gastrointestinal diseases n= 280 (0.30%)	Gastrointestinal disease, Acute cholecystitis, Peptic ulcer, Acute appendicitis, GERD, Abdominoplasty, IBS, IBD (Chron's disease and Ulcerative colitis), Stomach ulcer, Cholestasis, Esophageal reflux, Colitis, Diverticular bleeding, Gall bladder stones, Fatty liver, Prostatomegaly, Gout, Obstructive jaundice, Immune cryptogenic liver Cirrhosis, Pancreatitis, Hemorrhoid, Inguinal hernia, Maldigestion, Hiatal hernia, Liver cirrhosis, CLD, Achalasia.
Diabetes n= 6414 (6.94%)	Diabetes Mellitus type 1, Diabetes Mellitus type 2, Gestational Diabetes, Borderline Diabetes, Hyperglycemia, Diabetic Ketoacidosis, Diabetic Retinopathy, Diabetic Neuropathy, Metabolic syndrome.
Cancer n= 148 (0.16%)	Colon cancer, Liver cancer, Leukemia, Heart tumor, Respiratory tumor, Hepatocellular carcinoma, adenocarcinoma of the stomach, Muscles cancer, Breast carcinoma, Thyroid cancer, Breast benign tumor, Lymphoma, cervix cancer, Oral squamous cell carcinoma, Prostate cancer, endometrial cancer stage 3C1, Renal cancer, Ovarian cancer, Urinary Bladder cancer, multiple myeloma, Chronic Myelogenous leukemia, Chronic lymphocytic leukemia, Vocal cord cancer, Brain cancer, Burkitt Lymphoma, Synovial Sarcoma.
Thyroid diseases n= 767 (0.83%)	Thyroid dysfunction, Hypothyroidism, Hyperthyroidism.
Renal diseases n= 97 (0.10%)	CKD, Renal calculi, Renal transplant, Renal failure, Renal agenesis, Renal colic, Uterine stones, ESRD, Nephrectomy, anyone who underwent dialysis.
Cardiovascular diseases n= 6714 (7.26%)	Hypertension, Ischemic heart diseases (IHD): MI, NSTEMI, Cardiac arrest, Previous angioplasty, Cardiac catheterization, Coronary artery diseases, Heart failure, Pulmonary hypertension, Pulmonary embolism, Heart valve diseases, Rheumatic heart diseases, Congenital heart diseases, Cardiac arrhythmias: Atrial fibrillation, Ventricular tachycardia, Stroke, CVA, DVT, PAD, Heart bypass surgery, Open heart surgery, Pacemaker, Stent placed, Cardiovascular defibrillator, Pericarditis history, Cardiomyopathy, Valve replacement.
Dyslipidemia n= 913 (0.99%)	Dyslipidemia, Hypercholesterolemia, Hyperlipidemia, Hypertriglyceridemia

Supplementary Document 1- *STROBE Checklist*

Table S2. STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Title page
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Abstract
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Page 1, 2
Objectives	3	State specific objectives, including any prespecified hypotheses	Page 1, 2
Methods			
Study design	4	Present key elements of study design early in the paper	Pages 2, 3
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Pages 2, 3
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	Pages 2, 3
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	Pages 2, 3
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Pages 2, 3
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Pages 2, 3
Bias	9	Describe any efforts to address potential sources of bias	Page 7
Study size	10	Explain how the study size was arrived at	Page 2, Figure 1

Continued on next page

Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Pages 3
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Pages 3
		(*b*) Describe any methods used to examine subgroups and interactions	Page 3
		(*c*) Explain how missing data were addressed	NA
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	Page 2
		(*e*) Describe any sensitivity analyses	NA
Results			
Participants	13 *	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Page 2
		(b) Give reasons for non-participation at each stage	Pages 2, 3
		(c) Consider use of a flow diagram	Figure 1
Descriptive data	14 *	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Table 1
		(b) Indicate number of participants with missing data for each variable of interest	NA
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	NA
Outcome data	15 *	*Cohort study*—Report numbers of outcome events or summary measures over time	NA
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	NA
		Cross-sectional study—Report numbers of outcome events or summary measures	Table 2
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Pages 5, 6, Table 2, Table 3
		(*b*) Report category boundaries when continuous variables were categorized	NA
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA

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Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	Page 7
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Page 7
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Pages 7
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page 7
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Page 8

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.