To access the relationship between depression and multiple influencing factors, we used data from the DEMO, DPQ, ALQ, SMQ, PAD, DIQ, and MCQ modules in NHANES, covering the survey years 2015–2018 and 2021–2023. We excluded the pandemic period, as mental health outcomes during that time may have been substantially affected by external policies and social disruptions.

The data files from each year were merged into a single dataset (combined\_data), retaining only variables consistently available across all selected years. A summary of the common variables is provided in the following paragraph, while more detailed descriptions can be found in ‘data/variable\_intro’.

After basic tandard preprocessing ( cleaning, recoding, and grouping operations), we selected a subset of variables for analysis according to their relevance, type, value distributions, and proportion of missing data.

**DEMO**

SDDSRVYR - Data release cycle

RIDSTATR - Interview vs. MEC examined status

RIAGENDR – Gender

RIDAGEYR - Age in years at screening

RIDAGEMN - Age in months at screening - 0 to 24 mos

RIDRETH1 - Race/Hispanic origin

RIDRETH3 - Race/Hispanic origin w/ NH Asian

RIDEXMON - Six month time period (when the examination was performed )

RIDEXAGM - Age in months at exam - 0 to 19 years

DMQMILIZ - Served active duty in US Armed Forces

DMDBORN4 - Country of birth

DMDEDUC2 - Education level - Adults 20+

RIDEXPRG - Pregnancy status at exam

DMDHHSIZ - Total number of people in the Family

DMDHRGND - HH ref person's gender

WTINT2YR - Full sample 2 year interview weight

WTMEC2YR - Full sample 2 year MEC exam weight

SDMVPSU - Masked variance pseudo-PSU

SDMVSTRA - Masked variance pseudo-stratum

INDFMPIR - Ratio of family income to poverty

**DPQ**

DPQ010 - Have little interest in doing things

DPQ020 - Feeling down, depressed, or hopeless

DPQ030 - Trouble sleeping or sleeping too much

DPQ040 - Feeling tired or having little energy

DPQ050 - Poor appetite or overeating

DPQ060 - Feeling bad about yourself

DPQ070 - Trouble concentrating on things

DPQ080 - Moving or speaking slowly or too fast

DPQ090 - Thought you would be better off dead

DPQ100 - Difficulty these problems have caused

**ALQ**

ALQ130 - Avg # alcoholic drinks/day - past 12 mos

ALQ151 - Ever have 4/5 or more drinks every day?

**SMQ**

SMQ020 - Smoked at least 100 cigarettes in life

SMQ040 - Do you now smoke cigarettes?

SMD641 - # days smoked cigs during past 30 days

SMD650 - Avg # cigarettes/day during past 30 days

SMD100MN - Cigarette Menthol indicator

SMQ621 - Cigarettes smoked in entire life

SMD630 - Age first smoked whole cigarette

SMAQUEX2 - Questionnaire Mode Flag

**PAD**

PAD680 - Minutes sedentary activity

**DIQ**

DIQ010 - Doctor told you have diabetes

DID040 - Age when first told you had diabetes

DIQ160 - Ever told you have prediabetes

DIQ180 - Had blood tested past three years

DIQ050 - Taking insulin now

DID060 - How long taking insulin

DIQ060U - Unit of measure (month/year)

DIQ070 - Take diabetic pills to lower blood sugar

**MCQ**

MCQ010 - Ever been told you have asthma

MCQ035 - Still have asthma

MCQ040 - Had asthma attack in past year

MCQ050 - Emergency care visit for asthma/past yr

AGQ030 - Did SP have episode of hay fever/past yr

MCQ053 - Taking treatment for anemia/past 3 mos

MCQ149 - Menstrual periods started yet?

MCQ160a - Doctor ever said you had arthritis

MCQ195 - Which type of arthritis was it?

MCQ160b - Ever told had congestive heart failure

MCQ160c - Ever told you had coronary heart disease

MCQ160d - Ever told you had angina/angina pectoris

MCQ160e - Ever told you had heart attack

MCQ160f - Ever told you had a stroke

MCQ160m - Ever told you had thyroid problem

MCQ170m - Do you still have thyroid problem

MCQ160l - Ever told you had any liver condition

MCQ170l - Do you still have a liver condition

MCQ220 - Ever told you had cancer or malignancy

MCQ230a - What kind of cancer\*

MCQ230b - What kind of cancer

MCQ230c - What kind of cancer

MCQ230d - What kind of cancer

OSQ230 - Any metal objects inside your body?