

1 Figure 1

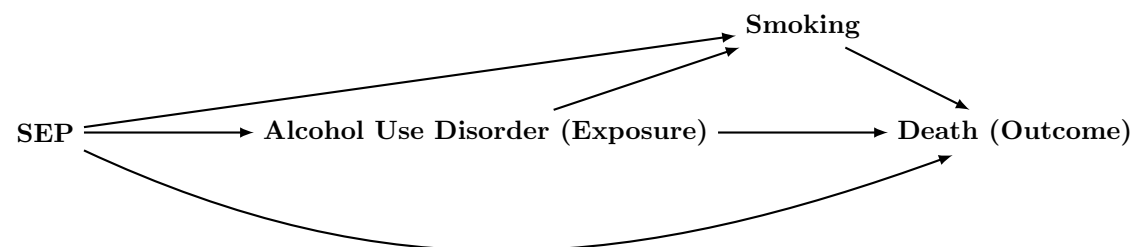


Figure 1: An example of a DAG with exposure to alcohol abuse, Outcome death, confounder socioeconomic position, and mediator smoking.

2 Figure 2

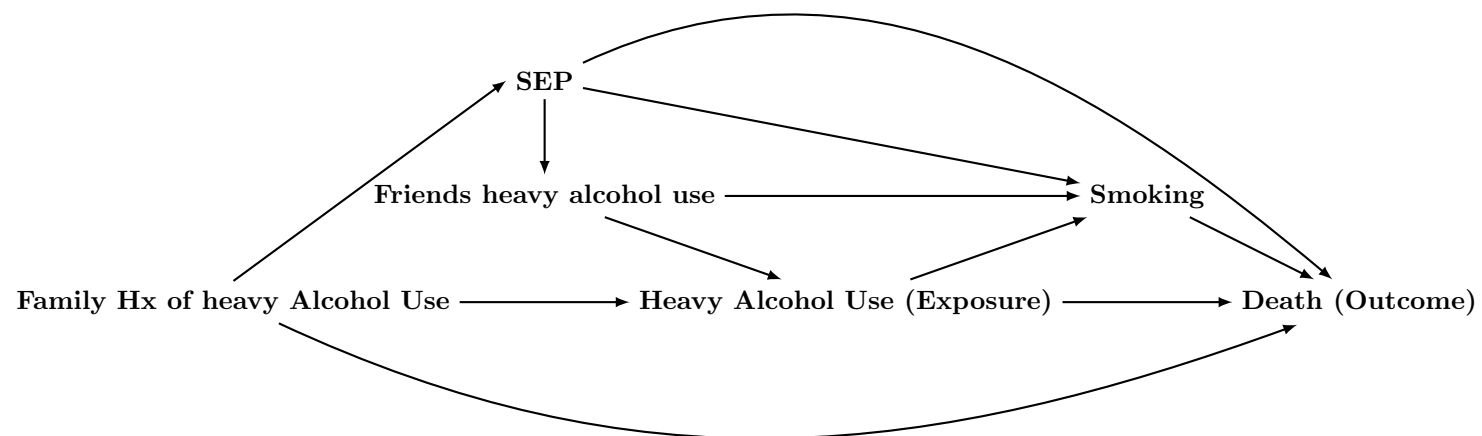


Figure 2: Family history of alcohol abuse, socioeconomic position, and friends' alcohol abuse are confounders; smoking is a mediator, alcohol abuse is the exposure of interest, and mortality is the outcome of interest.

3 Figure 3

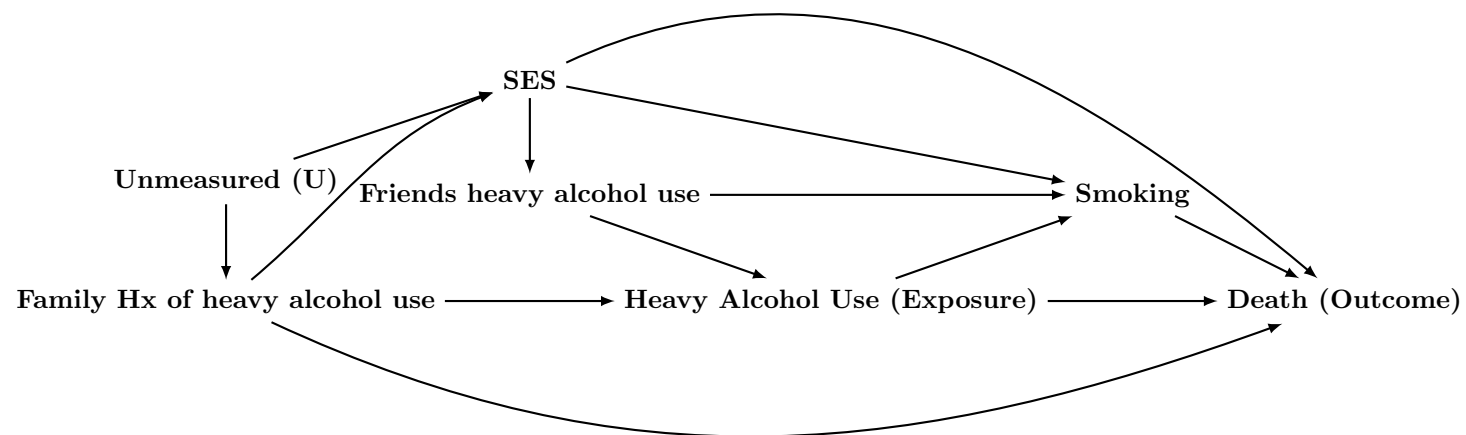


Figure 3: The DAG from Figure 2 with an unmeasured confounder. In this case, U is either unknown or unmeasured but is a common cause of a family history of alcohol abuse and smoking.

4 Figure 4

Figure 4a

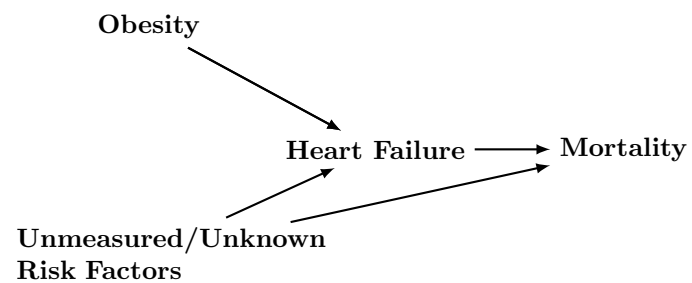


Figure 4b

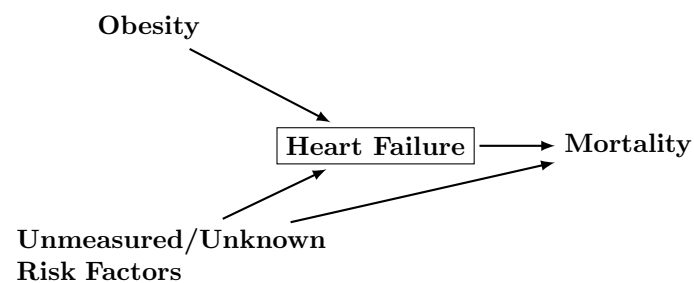
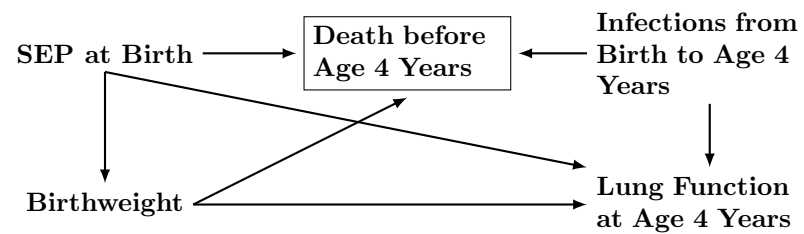


Figure 4: A) Obesity and other risk factors are both believed to cause heart failure. Only other unmeasured or unknown risk factors also cause an increased risk of mortality. B) When conditioning on only those with or without heart failure there is a spurious association induced between obesity and mortality.

5 Figure 5

A



B

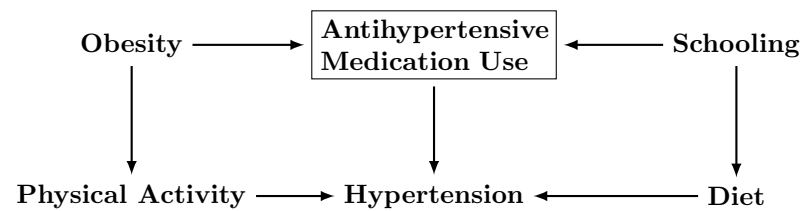


Figure 5: Selection Bias

6 Figure 6

A

Alcohol Use Disorder(Exposure) —————> 5-Year Mortality(Outcome)

B

SEP

Care Access

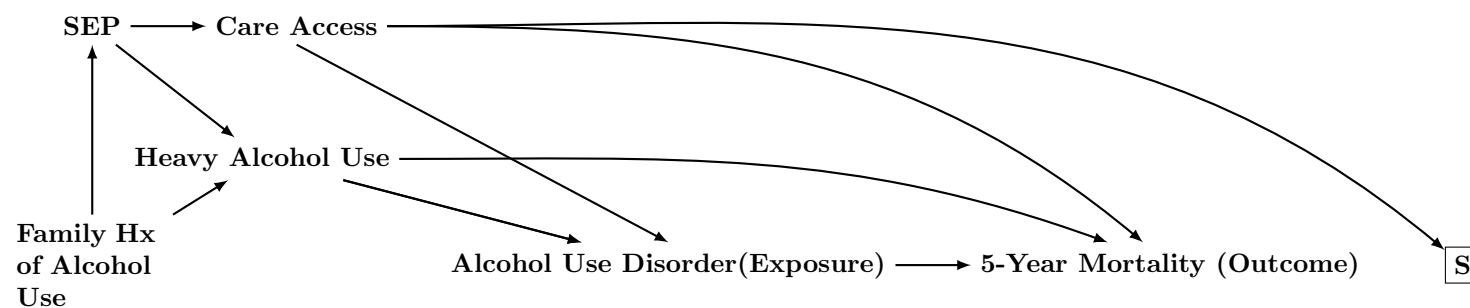
Heavy Alcohol Use

Family Hx
of Alcohol
Use

Alcohol Use Disorder(Exposure) —————> 5-Year Mortality (Outcome)

S

C



D

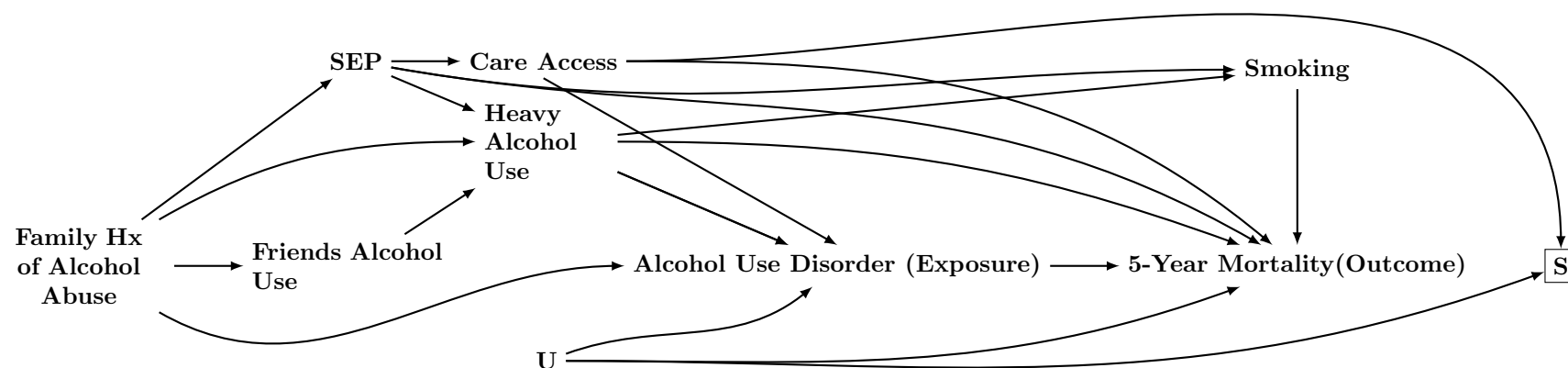
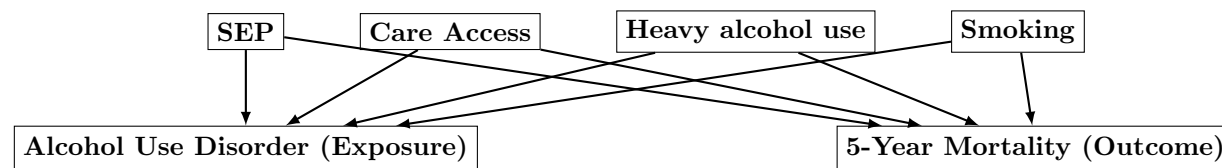


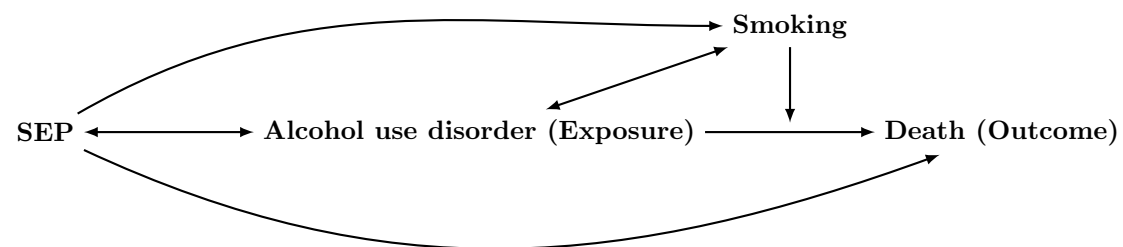
Figure 6: Process of constructing a DAG. A) The process starts with defining the exposure and outcome of interest. B) Initial DAGs can be constructed using expert knowledge and previous studies to inform variables that are related to both the exposure and outcome, but also other variables. C) Refinement and consensus help complete the DAG including all relationships between variables and the exposure and outcome. Exp=exposure, SEP=Socioeconomic Position, Hx=history, U=unmeasured and possibly unknown.

Figure 7

A



B



Supplemental Figure 1

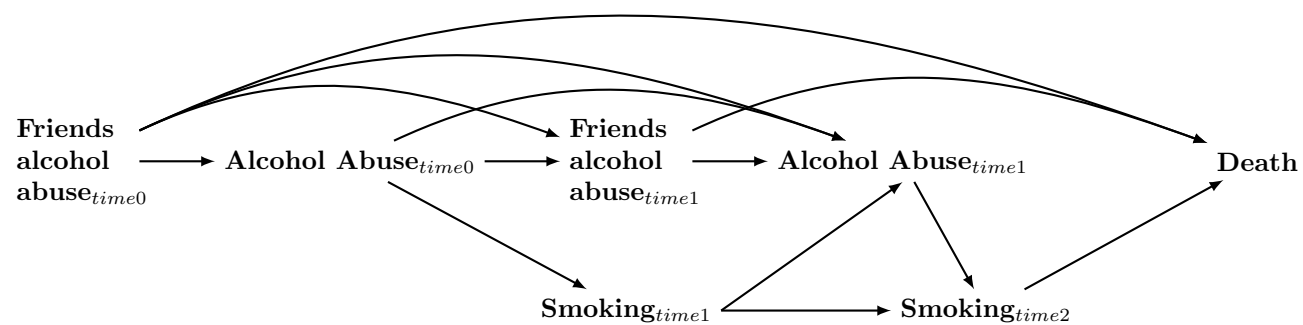


Figure 7: Time Variant DAG with the exposure to alcohol abuse was measured at baseline, and a later follow-up (Alcohol abuse_{time1}, and smoking and friends who abuse alcohol were also measured at baseline and follow-up. The outcome is unchanged and is 5-year mortality (Death).