Causal Inference Review Quiz

1. What is selection bias, and how does it affect causal inference?

2. In an intent-to-treat analysis, what is the key variable being compared and why?

3. What is the difference between ITT (Intent-to-Treat) and TOT (Treatment-on-the-Treated)?

4. What does the Local Average Treatment Effect (LATE) estimate, and in what situations is it most appropriate to use?

5. What are the two key assumptions that must hold for a variable to be a valid instrument in instrumental variable analysis?

6. What is omitted variable bias, and how does it distort regression results?

7. Name and describe the four types of compliance behaviors considered in instrumental variable analysis.

8. What is the monotonicity assumption in causal inference, and why is it important?

9. How does including control variables in a regression help improve causal inference?

10. What is the key difference between an instrumental variable and a control variable?

11. Why are randomized controlled experiments considered the gold standard in causal inference?

12. What is a confounding variable, and how can it affect the estimation of a treatment effect?

13. In a multiple regression model, how can you interpret the coefficient on the treatment variable when control variables are included?

14. In a causal DAG, what would a backdoor path indicate, and how might you block it?

15. What is the purpose of Two-Stage Least Squares (2SLS) in instrumental variable regression?