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Build a Causal Diagram to Compare Calculus Outcomes Across CSU Campuses

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1. At least 20% of students at 21 of the CSU's 23 campuses received a failing grade (DFW) in Calculus 1 between 2019 and 2021. 10 CSU campuses had failure rates above 30%.¹

2. As a required course for many science, engineering and medicine related majors, Calculus 1 outcomes have an impact on the progression of many CSU students.

3. When teachers and administrators discuss different teaching strategies and ways to use resources, it's natural to compare failure rates between campuses.

4. Different CSU campuses have different student populations, so a direct comparison of calculus outcomes may not be fair and could lead to inefficient allocation of resources.

5. Statistical methods can be used to create standardized failure rates; these statistical methods require a set of variables be collected for students at each campus.

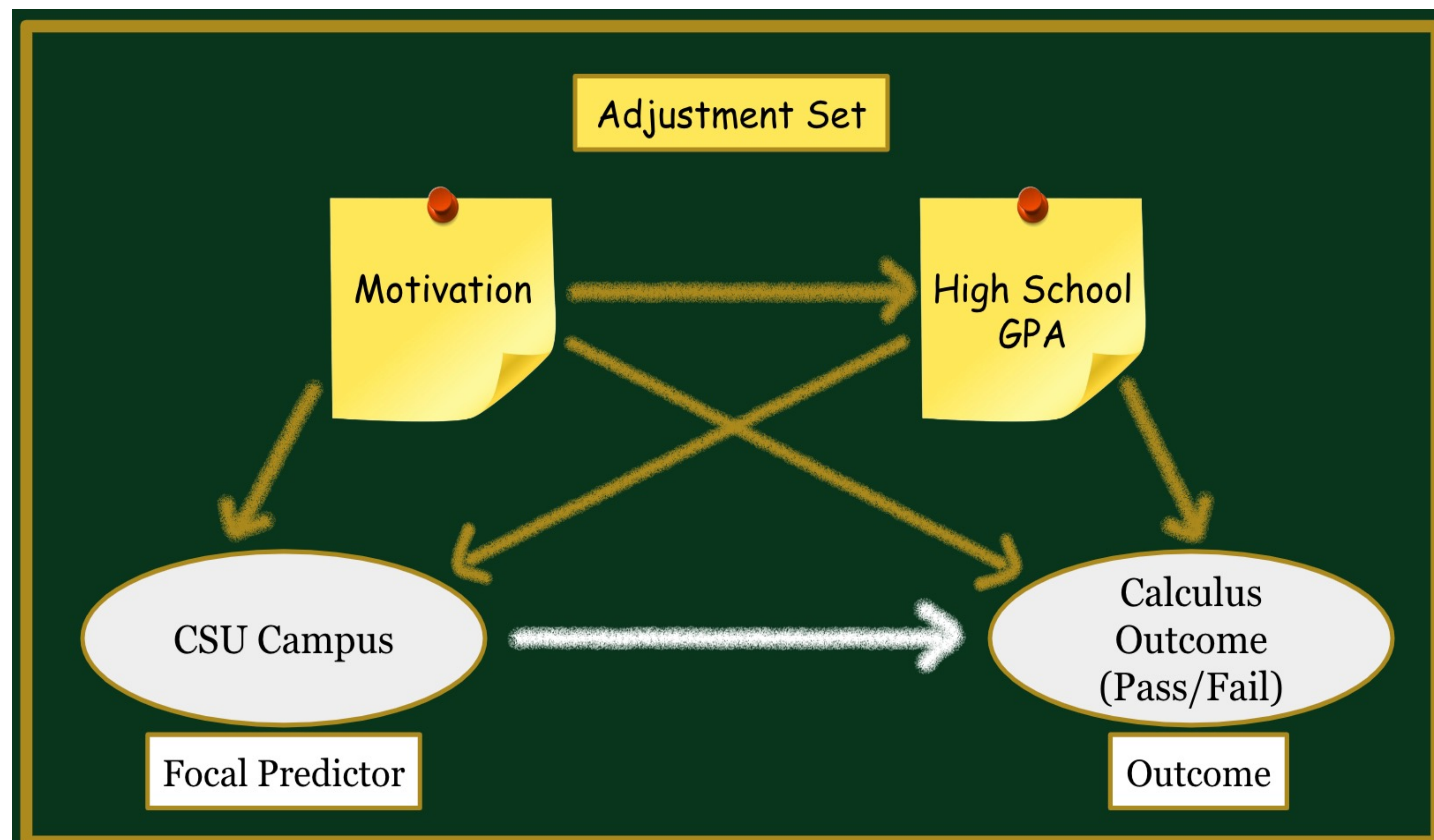
6. Causal diagrams are a tool for discussing and deciding which variables should be used to make a fair and transparent comparison (the adjustment set).

7. Causal diagrams should include the focal predictor and the outcome; additional variables (observed or not) are then added if in theory they influence any two variables already in the diagram.

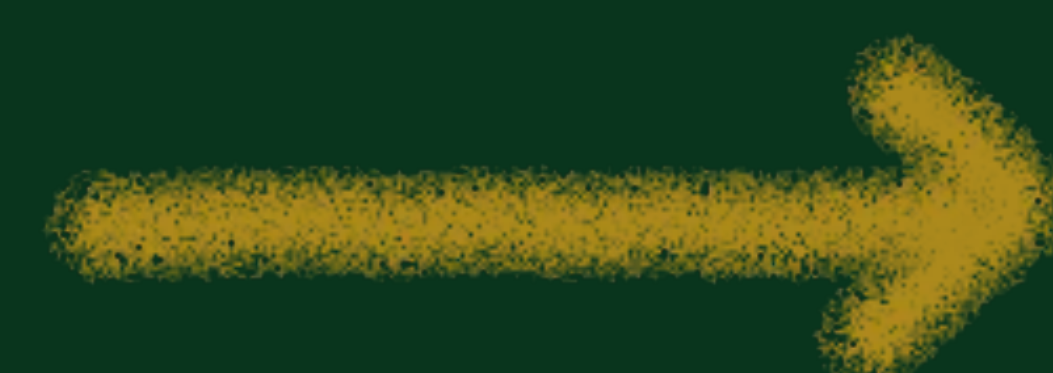
8. Once a causal diagram is specified, a mathematical algorithm can be used to find adjustment sets if they exist.

9. Help us build a causal diagram!

Build a Causal Diagram to Compare Calculus Outcomes Across CSU Campuses



What other variables are related to both campus choice and calculus outcome?



How are the variables related?