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Research Based Passage Strategies: Informing Future Doctors MCAT Program

Link to the test taking strategy video:
https://www.youtube.com/watch?v=vX96HG9QNGA&t=18s

I'm going to show you the 4 ways that research methods are tested on the MCAT - and how you can never miss a question on them again.

The first way that research methods are tested is through study structure. Is this a case study, a longitudinal study, cross-sectional, experimental, observational, self-report? You need to know what all of those mean as far as study structure goes and also what that means for a study's validity. An experimental study where we are able to manipulate just the independent variable while keeping all other variables the same, then see how the dependent variable changes, is a strong study structure. It's the only type of study structure that can determine causation, rather than just correlation or other types of statistical relationships. But, for most social science research, experimental studies are either impossible or unethical to do. We can't put people who have panic disorder on a treadmill to get their heart rate up and see if they have a panic attack. That's an experimental design, but it's unethical to try and give someone a panic attack. Observational studies are more common, but you can only make so many conclusions from them. Things can only be relational, not causal, since you're not controlling for any other factors. Long story short, know your study structure types, and what that means for the study's validity.

The second way, and I would argue the most common way, that research methods are tested is through limitations. A limitation is a stinky part of the research design that's usually unavoidable. There are many types of limitations, but ones I've seen tested on the MCAT include small sample size, some kind of sampling bias, self-report, exclusion, and confounding variables. Again, these are usually unavoidable, how else are you going to assess someone's level of depression other than to survey them? It introduces the possibility of them having subjective or biased answers, but it's the only way to do it. So for these types of questions, be able to pick out a study's limitations. If there is a limitation specifically mentioned in the passage, there will likely be a question asking you what that limitation was(example). Here's another noteworthy example. (Pause, example) And another limitation question (pause, example). I got these all from the sample test. See how important these research methods questions are? So, limitations are a common question type.

Another aspect of research methods that the MCAT tests is correlation vs. causation. Not only is it important to know how correlation works, and what a negative and positive correlation

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means, (example) but also to catch when the MCAT is trying to sneak a causal relationship into a correlational design. Take this stand-alone question as an example. Remember how I said an experimental design is the only way to assess causal relationships? This is not an experimental design. We are asking participants to self-report how often they engage in altruistic behavior. There are so many variables that could confound this type of research. What if the younger generation is more apt to lie, therefore they report more altruistic behaviors even if they don't do them? Also, the way B is worded, makes it sound like our age controls our altruistic behaviors. What if it's actually a generational thing, and people born, I don't know, in the 90s are always more altruistic than boomers, no matter what age they are at the time. Regardless of the possible confounding variable, this is not an experimental set up and it cannot determine that age causes any certain level of altruism. Red flags should go off in your head when you see the word "cause" on the MCAT, and you better have strong passage evidence in order to determine a causal relationship.

The last way they test research methods is a miscellaneous pile. I know, this is a cop out. But really, I just wanted to make sure I mention some of these terms so you're not surprised if they pop up on your test, even though they are less commonly tested. Being able to control for variables is occasionally tested, what that means, and if that is good or bad. Being able to pick out confounding variables, like I did for the last question that was talking about altruism. And significance. Know what p values are, what error bars mean, and what a statistically significant result is. You may even see questions regarding significance in the BB or CP sections, so be aware of that language and what markers of significance look like on figures, which is usually asterisks or error bars.