The correct answer is \*\*(D) neither type of inference\*\*. Here's a breakdown of why:

\* \*\*Observational Studies & Causation:\*\* Observational studies, by their very nature, \*\*cannot\*\* establish causal relationships. They merely observe and measure variables without any active manipulation or control by the researcher. While we can \*see\* associations, we can't confidently determine \*why\* those associations exist. Confounding variables (unmeasured factors that influence both the independent and dependent variables) are a huge problem. Because of this lack of control, attributing an observed effect to a specific cause in observational studies is highly susceptible to error.

\* \*\*Observational Studies & Population Inference:\*\* Observational studies can be used to make inferences about a population, but it's not a guarantee, especially without proper sampling methods. However, it is more difficult than with an experimental study. In an experimental study, random sampling can be used to choose which participants are in the study, which increases the chances that the sample is an accurate representation of the population. This ensures that the study can accurately represent the population's characteristics and provide reliable population estimates.

\* \*\*Population Inference and Causal Inference:\*\* Inference on either population parameters or causal relationships rely on the study design. Observational studies do not manipulate the exposure of interest which is the key to establishing causal relations.

\*\*Therefore, while observational studies are good for generating hypotheses and exploring relationships, they inherently lack the experimental control necessary for either rigorous causal inference or guaranteed population inference (though population inference can be attempted).\*\*