The correct answer is \*\*(D) We conclude that there is an effect in the population when in fact there is not.\*\*

Here's a breakdown of why:

\* \*\*Type I Error (α, False Positive):\*\* A Type I error is the incorrect rejection of a true null hypothesis. In simpler terms, it means we conclude there's a real effect (the alternative hypothesis is true) when, in reality, the null hypothesis (no effect) is actually true in the population. We've found a "false positive."

Let's look at why the other options are incorrect:

\* \*\*(A) We conclude that there is not an effect in the population when in fact there is.\*\* This describes a \*\*Type II error (β, False Negative)\*\*. We fail to reject the null hypothesis (concluding no effect) when there \*is\* a real effect in the population.

\* \*\*(B) We conclude that the test statistic is significant when in fact it is not.\*\* This is a rephrasing of the definition of a Type I error, but not as direct as (D). This option could also be misinterpreted. The significance of a test statistic can be impacted by statistical power.

\* \*\*(C) The data we have typed into SAS is different from the data collected.\*\* This describes a data entry error, which is a data quality issue but \*not\* a statistical error directly related to hypothesis testing. It can lead to all sorts of issues, but it's distinct from the concepts of Type I or Type II errors.