The correct answer is \*\*(B) a population characteristic\*\*. Here's why, along with a deeper explanation suitable for a graduate-level statistics exam:

\* \*\*Parameter vs. Statistic:\*\* This question fundamentally tests your understanding of the distinction between a parameter and a statistic.

\* \*\*Parameter:\*\* A parameter is a numerical summary of a \*population\*. It describes a characteristic of the entire group we are interested in. Examples include the population mean (μ), the population standard deviation (σ), and the population proportion (π). Since we're usually interested in drawing conclusions about populations, knowing their parameters is key.

\* \*\*Statistic:\*\* A statistic is a numerical summary of a \*sample\*. It's calculated from the data we \*observe\*. We use statistics (e.g., sample mean, sample standard deviation, sample proportion) to estimate population parameters.

\* \*\*Why the other options are incorrect:\*\*

\* \*\*(A) a sample characteristic:\*\* This describes a statistic, not a parameter.

\* \*\*(C) unknown:\*\* While we often \*don't\* know the true value of a parameter (hence the need to estimate it using statistics), the parameter itself is a \*fixed\* value that describes the population. The unknown aspect refers to our ability to \*observe\* it directly, not its fundamental nature.

\* \*\*(D) normal normally distributed:\*\* This is incorrect for two reasons. First, it implies the parameter \*is\* a distribution, when it's a number. Second, parameters do not have distributions, only the \*estimates\* of them from repeated sampling of the population have distributions (e.g. sampling distribution of the mean).

\*\*In Conclusion:\*\*

A parameter \*defines\* a measurable property of a population. While we often use sample statistics to infer these population characteristics, the parameter \*itself\* is the descriptive measure of the population.