To answer this multiple choice question as a graduate statistics student, I need to evaluate whether the conclusion about the new formula providing relief about 20 minutes sooner is valid based on the data presented.

Looking at the dot plots provided, I can observe the following:

- The new formula (top) appears to have a distribution centered around 40-50 minutes

- The old formula (bottom) appears to have a distribution centered around 60-70 minutes

- Both distributions show some variability and overlap

While the visual evidence suggests the new formula has a lower average time to relief, determining whether the difference is specifically "about 20 minutes" requires careful analysis.

From the visualization:

1. The centers of the distributions do appear to be separated by approximately 20 minutes

2. However, to make a precise claim about the magnitude of the difference, we would need:

- Exact means for both groups (not just visual approximation)

- Statistical tests to determine if the observed difference is statistically significant

- Confidence intervals to quantify the uncertainty around the estimated difference

The student's conclusion that "people taking the new formula will tend to feel relief about 20 minutes sooner" is making a causal claim about the treatment effect, which appears to be reasonably supported by the experimental design (randomized assignment) and the visual evidence.

The answer is: (A) Valid.