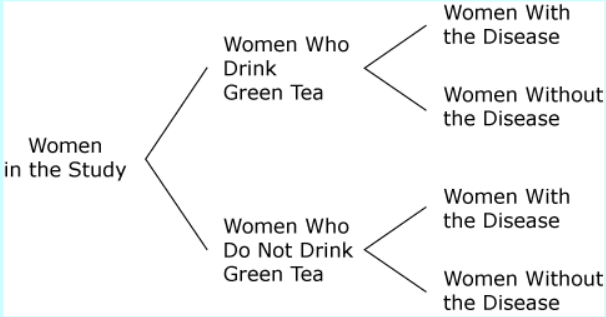
In an observational study, a researcher collected data from 70,000 non-smoking women aged 40-years or older in China who volunteered for the study. The researcher made a sketch to represent the study as shown.



Which statement about the treatment groups in the study is true?

- There were two treatment groups: drinking green tea and not drinking green tea.
- There were two treatment groups: having the disease and not having the disease.
- There were four treatment groups: drinking green tea, not drinking green tea, having the disease, and not having the disease.
- There were no treatment groups because it was an observational study.

Women in the study who drank green tea had a statistically significant lower rate of a certain disease than women who did not drink green tea.

Use the drop-downs to complete a valid statement about the conclusions that can be made on the basis of the result of the study.

From this study, it can be concluded that drinking green [causes / is associated with] a difference in the rates of the disease and this result of the study can be generalized to [the women in the study only / non-smoking women in China aged 40-years and older only / all non-smoking women in China].

Algebra 2	Green Tea Observational Study
Item Type	Type I – 2 point
Evidence Statement	**S-IC.3-1:** Recognize the purposes of and differences among sample surveys, experiments, and observational studies. Clarifications for S-IC.3-1: i) The "explain" part of standard S-IC.3 is not assessed here; See Sub-claim D for this aspect of the standard.

	ii) See GAISE report, Guidelines for Assessment and Instruction in Statistics Education (GAISE) Report.
Most Relevant Standards for Mathematical Content	**S-IC.3:** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. This standard is major content in the course based on the PARCC Model Content Frameworks.
Most Relevant Standards for Mathematical Practice	This is a MP.4 task assessing S-IC.3 which is a modeling standard as indicated by the star symbol (*).
Item Description and Assessment Qualities	This task requires students to analyze the methods of an observational study and relate the methods to the possible uses of the resulting data. The Standards and the GAISE Report require statistics education so that students can be prepared for colleges and careers that increasingly interact with situations like the one described here. Informed consumers of information need to know the limitations of a study based on methodology so that incorrect assumptions are not made simply based on the size of the sample or prestige of the researchers.
Scoring Information	1 point: Student chooses “There were no treatment groups because it was an observational study.” 1 point: Student chooses “is associated with” and “the women in the study only”.