

Chapter 7 - Practice Questions

1. Children with persistent asthma should take daily preventive anti-inflammatory medication. Unfortunately, this recommendation is not always followed. A study compared the effect of the usual at-home asthma care and a school-based asthma care program (in which school nurses administer treatment) on the asthma symptoms of elementary school children. Environmental tobacco smoke can trigger and worsen asthma symptoms, so the experiment used home exposure to tobacco smoke as a blocking variable. Two separate randomizations were done: One assigned the children exposed to smoke to the two treatments, and the other assigned children not exposed to smoke to the two treatments.

- a. What are the factors and treatments in this experiment?

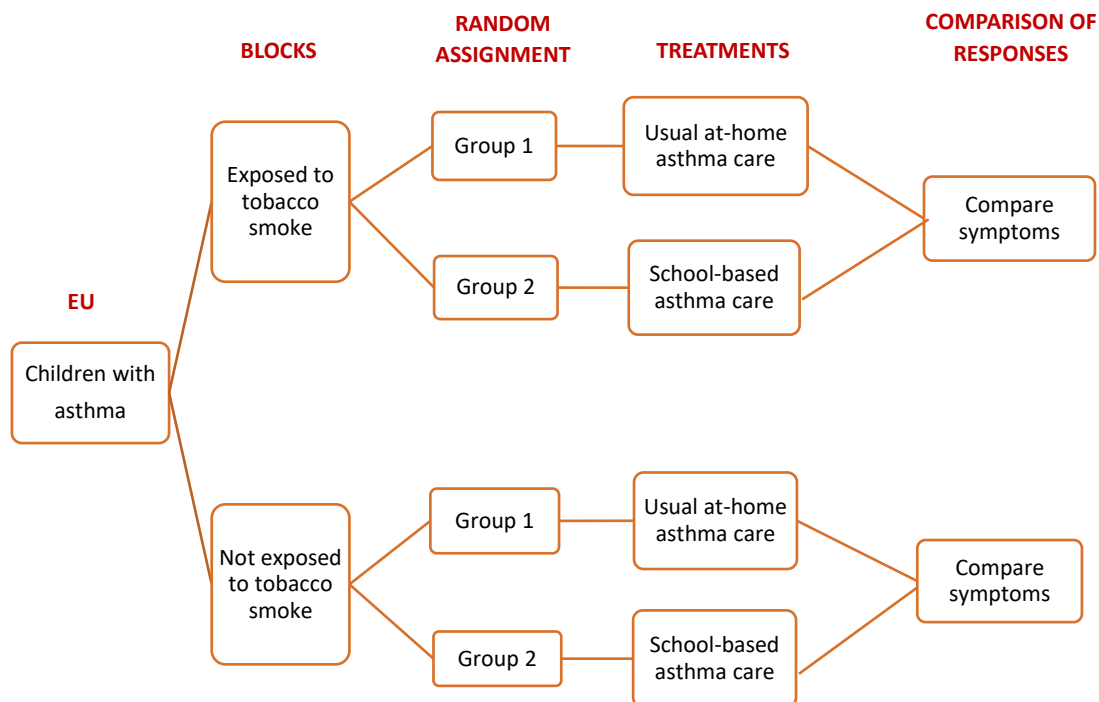
Factor: Asthma care

Treatments:

- Usual at-home asthma care
- School-based asthma care

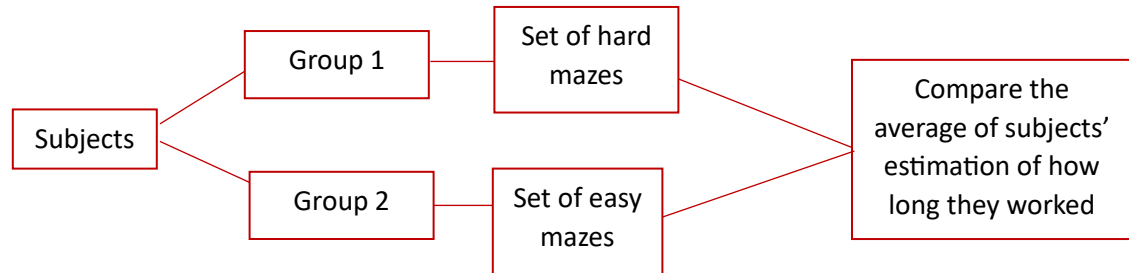
- b. What is the design of this experiment? Outline the design of the experiment.

This is a block design.



2. A psychologist wants to know if the difficulty of a task influences our estimate of how long we spend working at it. She designs two sets of mazes that subjects can work through on a computer. One set has easy mazes and the other has hard mazes. Subjects work until told to stop (after six minutes, but subjects do not know this). They are then asked to estimate how long they worked. The psychologist has 30 students available to serve as subjects.

- a. Describe the design of a completely randomized experiment to learn the effect of task difficulty on estimated time spent on the task.



- b. Describe the design of a matched pairs experiment using the same 30 subjects.

Subject	1 st set of mazes	Estimation of time (in minutes)	2 nd set of mazes	Estimation of time (in minutes)
1	Hard	10	Easy	2
2	Easy	3	Hard	10
3	Easy	5	Hard	12
⋮	⋮	⋮	⋮	⋮
28	Hard	15	Easy	10
29	Easy	10	Hard	8
30	Hard	7	Easy	4

c. Describe the design of a block experiment considering men and women separately.

