Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Instructions:** Below are the descriptions (and references) for three studies. For each, you’ll need to answer the same set of questions.

**Questions:**

1. What is the observational unit?
2. Identify the treatment (explanatory) variable, the outcome (response) variable, and their types (numerical or categorical).
3. Is this an observational study or an experiment?
4. Was randomization used?
5. What is the population of interest? If it’s not clear, tell me what population you *think* the researchers are interested in
6. **If an experiment**, answer the following questions:   
   a) Is a placebo or other control used?   
   b) Are subject or researchers (or both) blinded?   
   c) Was blocking used?  
   d) Are there ethical or practical considerations that might prohibit the use of random assignment, placebo, or blinding?

**If an observational study**, answer the following questions:   
a) Is the article making a claim of cause-and-effect? If so, do you think this claim is justified?   
b) List one possible confounding variable, and explain why it would be confounding.   
c) Are there ethical or practical considerations that might prohibit the use of a controlled experiment in this situation?

1. Are there any obvious improvements you might make to the study?

*Article 1* **Harakeh, Z., & Vollebergh, W. A. (2011). Actions Speak Louder than Words: An Experiment on the Impact of Peers Discouraging Young Adult Smoking. *European Addiction Research*, *17*(6), 316-320.**

This study investigates whether antismoking peer pressure and/or nonsmoking peers are protective factors and decrease young adults' likelihood to smoke. An **experiment** was conducted among 59 daily-smoking young adults aged 16-24 years. The **experiment** consisted of four conditions. During the session, the confederate\* and participant sat in a camper van and had to do a 30-min joint music task. The participants' smoking behavior was observed during this task. [The analysis showed] that young adults smoked fewer cigarettes in the presence of a nonsmoking model pressuring the young adult not to smoke compared to a heavy-smoking model not using any pressure. At the same time, the results indicated that the total number of cigarettes smoked did not differ significantly for nonsmoking peers verbally pressuring the young adult not to smoke compared to nonsmoking peers not verbally pressuring the young adult. Our findings indicate that the protective effect of peer influence merely lies in that the peer does not smoke. Therefore, antismoking programs and policy should focus specifically on reducing exposure to smoking peers.

\**a “confederate” is a person who is cooperating with the researchers unbeknownst to the participant.*

*Article 2* **abcnews.com (June 30, 2015). “Study Investigates Possible Link Between Citrus and Skin Cancer”. (http://abcnews.go.com/Health/study-investigates-link-citrus-skin-cancer/story?id=32133539)**

Cancer researchers are examining if eating citrus might put people more at risk for developing melanoma since researchers have long known that certain citrus juices on the surface of the skin can make skin so sensitive to light that people can end up with serious burns.

Dr. Abar Qureshi, director of dermatology at Brown University and Rhode Island Hospital, and his team wanted to know if simply eating citrus could also lead to a higher risk of sensitivity to light and as a result developing skin cancer.

To do this, researchers, in collaboration with Rhode Island Hospital and Brigham and Women’s Hospital in Boston, examined health and diet data from more than 100,000 participants for up to 26 years. All of those involved were health professionals -- participants of the ongoing Nurses' Health Study and Health Professionals Follow-Up Study.

The researchers found that those who ate the most citrus fruits or juices (about 1.6 servings of citrus per day) had a higher incidence of melanoma, up to 36 percent higher than their peers, according to the study published this week in the Journal of Clinical Oncology.

*Article 3*  **Maglia, M. et al., (2019). Combining group psychotherapy and yoga exercises improves quality of life in mental health professionals: a controlled randomized clinical trial. *Mental Illness,* 11(2).**

Graphical user interface, text, application

Description automatically generated