

Your Name: _____

Names of people you worked with: _____

Task: The following is taken from the article *Case-Control Study of Use of Personal Protective Measures and Risk for SARS-CoV 2 Infection, Thailand. Nov 2020* (https://wwwnc.cdc.gov/eid/article/26/11/20-3003_article):

...odds ratio (OR) for infection was 0.08 (95% CI 0.02-0.31) for those maintaining a distance of >1 m from a COVID-19 patient; 0.13 (95% CI 0.04-0.46) for those whose duration of contact was ≤15 minutes; 0.41 (95% CI 0.18-0.91) for those who performed handwashing sometimes; 0.19 (95% CI 0.08-0.46) for those who washed hands often; and 0.16 (95% CI 0.07-0.36) for those wearing a mask all the time during contact with a COVID-19 patient.

1. What is your favorite dining hall at the 5Cs?
2. Where are the solutions to the clicker questions, warm-ups, and HW?
3. For one of the comparisons, write down in words an interpretation of the numerical values (include an explanation of the odds ratio as well as the confidence interval).¹

Solution:

Consider the group who washed hands sometimes (as compared with the group who didn't wash hands):

- OR = 0.41: the odds of getting Covid-19 if you washed hands sometimes is 0.41 times (in a multiplicative sense) the odds of getting Covid-19 if you don't wash your hands.
- The 95% CI of (0.18, 0.91) tells us that we are 95% confident that the true ratio of odds is somewhere between 0.04 and 0.46.

Some things to note:

- Because the interval is completely less than 1, we feel confident claiming that handwashing is associated with lower rates (note I said rate and not odds!!) of Covid-19 (see the first problem on HW3).
- HOWEVER, we don't necessarily believe that the lower rates of infection are **due** to handwashing. That's because the study was observational.
- Indeed, the researchers made note of the high association between mask wearing, social distancing, and handwashing (the explanatory variables themselves are associated). There might be other related confounding variables. It is very difficult to break apart the effects of the measured explanatory variables and/or any unmeasured explanatory variables.
- Therefore, our conclusions are about associations and not causes.
- Additionally, the study took place in Thailand, and we probably want to be careful to not generalize the results outside of that area (or outside of similar areas), keeping in mind that the results might be different in regions with different social customs, health care systems, etc.

¹n.b., the information in Table 1 provides counts, but the OR are all computed using logistic regression with random effects.
<https://wwwnc.cdc.gov/eid/article/26/11/20-3003-t1>