

1. When summarizing binary outcomes (a sample of 0 (Zeros) and 1 (Ones)), how is \hat{p} , the sample proportion, equivalent to a sample mean?
- ☒ It is the sum of all values divided by the sample size.
 - ☐ It informs you how skewed the dataset is.
 - ☐ 50% of observations fall below that value.
 - ☐ It measures the amount of variation in the data set.

2. If the sample proportion (\hat{p}) of a binary outcome is 0.35, which of the following is/are true: (check all responses that are true)

- ☐ The 75th percentile is 0
- ☒ 35% of all observations were 1s ("yes" outcomes)
- ☐ The sample size was 100
- ☒ The 50th percentile is 0

3. A study concludes that the estimate risk ratio of a new drug on cataract development compared to a placebo is 0.78. This means:

- ☐ The drug group has a 22% lower relative risk of developing cataracts compared to the placebo group.
- ☐ The risk of the developing cataracts in drug group is smaller than the risk of the placebo group.
- ☐ The absolute risk difference between the drug group compared to the placebo group is negative.
- ☒ All of the above.

4. A study concludes that the relative risk of a certain cancer for persons with a genetic mutation compared to persons without this mutation is 3. The appropriate interpretation of this relative risk is:
- ☐ There were 3 more cases of cancer in the group with the genetic mutation compared to the group without the mutation.
 - ☐ There were 3 percent more cases of cancer in the group with the genetic mutation compared to the group without the mutation.
 - ☐ There were 300 percent more cases of cancer in the group with the genetic mutation compared to the group without the mutation.
 - ☒ Subjects with the mutation had 3 times the risk of the cancer compared to subjects without the mutation.
5. The absolute risk difference of developing cancer between the group with genetic mutation and the group without the mutation was 0.002 (Assuming causality). How would you interpret the absolute risk difference?
- ☐ There were 20 more cancer cases amongst those in the sample with the genetic mutation (compared to those without).
 - ☐ Individuals with the mutation have .002 times the chance at getting cancer compared to individuals without the mutation.
 - ☐ In a population of 10,000 individuals, we'd expect to see 20 more cases of cancer if the individuals did not have the genetic mutation compared to if the 10,000 individuals had the mutation.
 - ☒ In a population of 10,000 individuals, we'd expect to see 20 fewer cases of cancer if the individuals did not have the genetic mutation compared to if the 10,000 individuals had the mutation.

6. If the odds of an outcome occurring for a single group is equal to 1, this means:

- ☒ The risk of the outcome within this group is 50%.
- ☐ The prevalence is the same between two comparison groups.
- ☐ The odds are the same between this group and another comparison group.
- ☐ The risk of the outcome within is 100%.

7. If the odds ratio comparing two groups is equal to 1, this means: (mark all that apply)

- ☒ The odds of the outcome is the same between two comparison groups.
- ☐ The odds of an outcome within at least one of the groups is 50%.
- ☐ The risk of the outcome is 100%.
- ☒ The risk of the outcome is the same between two comparison groups.

8. If the odds ratio between comparing two groups is less than 1, which of the following is true:

☐ The corresponding relative risk is greater than 1.

☐ The odds within each group is less than 1.

☐ The odds within each group is greater than 1.

☒ The corresponding relative risk is less than 1.

9. Why is the distribution of possible risk ratios (or odds ratios) not symmetric around 1?

- ☒ When the risk of the numerator is less than the risk of the denominator, possible values fall between 0 and <1 and when the risk of the numerator is greater than the risk of the denominator, possible values fall between >1 and infinity.
- ☐ Relative risks are always structured such that the risk of the numerator is always greater than the risk of the denominator meaning values are greater than 1.
- ☐ The potential range of values less than 1 is much greater than the potential range of values greater than 1.
- ☐ The distribution of possible risk ratios (or odds ratios) is symmetric around 0.

10. Why would one transform the risk ratio or (odds ratio) using the log scale?

- ☐ To find the absolute risk difference between two groups.
- ☐ To calculate the risk ratio of two groups using the opposite reference group.
- ☒ In order to have symmetric absolute differences between risk ratios of two groups on the log scale.
- ☐ No one would ever do that.