

# Clinical Reading Questions #7

## HST 190: Introduction to Biostatistics

These discussion questions are based on Avadhanula et al. (2020).

1. Identify the main research question of the study.
2. Who are the “subjects” in this study, and how many are included?
3. How were these subjects sampled? What effect does this have on the study findings? (e.g., bias, etc.)
4. One goal of this study is to assess whether hypothyroidism is more prevalent among patients with Alkaptonuria than in the general population. How do they assess this question? (Hint: “Fisher’s exact test for 1-sample proportion” refers to the type of exact test discussed in Section 8.1.2 of Vu and Harrington (2020).)
5. Table 2 reports the result of a logistic regression. How do you interpret the estimated coefficient for “Female vs. male” in context?
6. The paper states the reference “general” population used to compare prevalence of hypothyroidism had more women than the sample under study. Based on the results of the logistic regression, does this difference concern you about the validity of the conclusions made in the paper?
7. When reporting the prevalence of various outcomes, why does this paper use exact tests, and Clopper-Pearson confidence intervals (an ‘exact’ form of CI) rather than testing and intervals based on a normal approximation?

### References

- Avadhanula, Shirisha, Wendy J Introne, Sungyoung Auh, Steven J Soldin, Brian Stolze, Debra Regier, Carla Ciccone, et al. 2020. “Assessment of Thyroid Function in Patients with Alkaptonuria.” *JAMA Network Open* 3 (3): e201357. <https://doi.org/10.1001/jamanetworkopen.2020.1357>.
- Vu, Julie, and David Harrington. 2020. *Introductory Statistics for the Life and Biomedical Sciences*. OpenIntro. <https://openintro.org/book/biostat>.