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Teaching Statistical Literacy: Choice of Topics

Birds of a Feather
Milo Schield

Which of these options or choices are relevant for students in "non-quantitative majors"? Non-quantitative majors: majors such as Art, English, etc. that do not require a particular math course.

- 1. Able to read and interpret:
 - a. Stories involving quantitative evidence in the everyday media
 - b. Press releases on major studies and experiments
 - c. Journal articles

Conclusion: Certainly A; maybe B if there is time.

- 2. Able to read and interpret phrases such as:
 - a. 95% confidence interval
 - b. Statistically significant (statistical significance)
 - c. P-value

Conclusion: Certainly A and B. Never C.

- 3. Able to read and interpret phrases such as:
 - a. After "taking into account" (after controlling/adjusting for)
 - b. Statistically significant (statistical significance)
 - c. P-value

Conclusion: Certainly A and B. Never C.

- 4. Able to "take into account" (control for) the influence of a measured confounder:
 - a. Using multivariate software
 - b. Without using any software

Conclusion: Doing A takes too much time. Prefer B using weighted averages (Standardizing).

- 5. Which is more relevant to students in non-quantitative majors?
 - a. Experimental studies
 - b. Observational studies

Conclusion: Definitely B: they are quicker, cheaper and they give "journalistically-significant" results.

REFERENCES:

- Schield, M. (2021a). Teaching Confounding. USCOTS 6/26/2021. Invited workshop (2 hours). Copy at http://statlit.org/pdf/2021-Schield-USCOTS.pdf
- Schield, M. (2021b). Statistical Literacy: The Diabolical Denominator. MAA Mathfest (8/4/2021). Copy at http://statlit.org/pdf/2021-Schield-MathFest.pdf
- Schield, M. (2021c). Simpson's Paradox and Covid Deaths. ASA Birds of a Feather (8/12/2021). Copy at http://statlit.org/pdf/2021-Schield-ASA-BOF.pdf One page handout: http://statlit.org/pdf/2021-Schield-ASA-BOF.pdf One page handout: http://statlit.org/pdf/2021-Schield-Simpsons-Paradox-Covid-UK.pdf
- Schield, M. (2021d). Teaching Statistical Literacy: A Lesson Plan. (5/24/2022) ECOTS Proposed activity. Copy at http://statlit.org/pdf/2022-Schield-ECOTS-Lesson-Plan.pdf