Hays, R. D. (2021). Problems with Turcotte et al. (2020, J of Orthopaedics) article. Preprint at https://labs.dgsom.ucla.edu/hays/pages/favorite_links

Turcotte, J., Callanan, M., Buckley, B., Zaidi, S., & Patton, C. (2020). Conversion of PROMIS global health to EQ-5D health state values in patients undergoing lumbar spine surgery: A psychometric evaluation. Journal of Orthopaedics, 23, 67-72.

- The authors note the issue of the problem with regression to the mean in the Revicki et al. (2009) equation (p. 71) and cite Thompson et al. (2017), but they don't apply this knowledge to adjust for this issue that lead to a 0.132 lower mean estimate compared to the observed EQ-5D-3L. They incorrectly stated that:
    - "This result deviates significantly from a subset of 4854 spine patients in the Thompson study. Using the initial Revicki conversion equation, a difference of zero points was found between the actual (0.61 +- 0.22) and calculated (0.61 +- 0.10) HUI values" (p. 71).

  Table 3 of the Thompsoni et al. article shows that the estimated mean from the Revicki et al. equation was 0.619 (SD = 0.110) but the actual mean was 0.634 (SD = 0.231). Linear equating lead to estimated EQ-5D-3L scores that had a mean (0.638) like the observed mean.

  The fact that ordinary least squares regression reduces "ceiling effects" is not a "potential benefit" (p. 71) because it is artificial.
- The authors report a product-moment correlation of 0.73 and intraclass correlation of 0.857 between the observed EQ-5D-3L and the predicted EQ-5D-3L (p. 70) based on Revicki et al. (2009). The intraclass correlation should be equal to or less than the product-moment correlation.
- Quantification of health status on a zero to one-hundred point scale, herein described as a health utility index" (p. 67). Preference-based "utility" scores have a maximum possible score of 1, not 100.
- "Considered the gold standard legacy measure of health status, the EQ-5D …" (p. 67). The EQ-5D is one of multiple preference measures (e.g., Health Utilities Index, Quality of Well-Being Scale, SF-6D), and not regarded as the gold standard. It is regarded as the crudest preference measure.
- Reenan & Oppe (2015) is cited as the source for "US based time trade off weightings" (p. 68), but that user guide does not have this information. It cites some relevant work that should have been cited such as:Shaw, Johnson, & Coons (2005).