Some words on Quiz 2, Lab 2, and Mid-term Feedback

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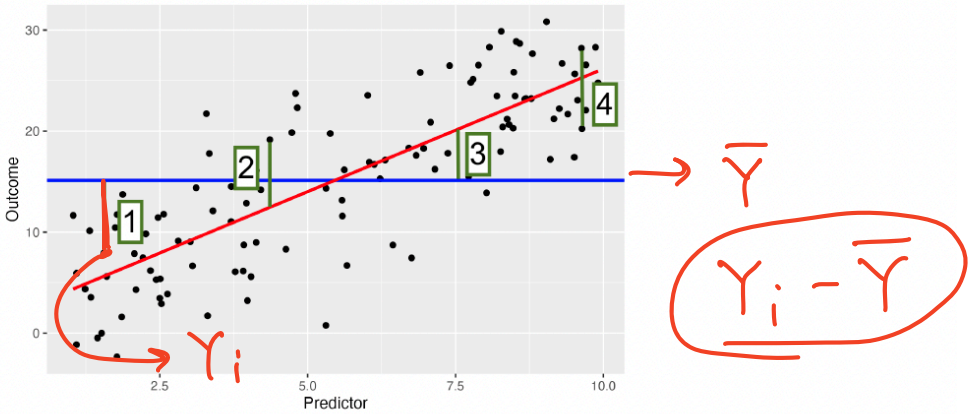
Quiz 2

Overall

- Great job!
- Just a few things to review

Question 2

2. In the following picture, which number corresponds to the deviation that is part of the total sum of squares (SSY or SST)? Note that the red and blue lines correspond to the fitted line and the mean outcome, respectively.



a. 1

b. 2

c. 3

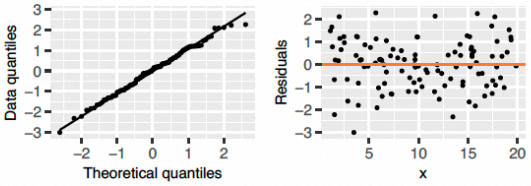
d. 4

$$SSY = SST = \sum_{i=1}^{n} (Y_i - \bar{Y})^2$$

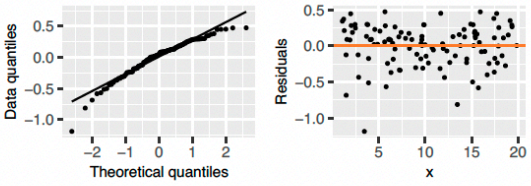
Question 9

9. Below are QQ plots and residual plots for different transformations of X and Y in SLR. Which of the following models is the most appropriate for our analysis?

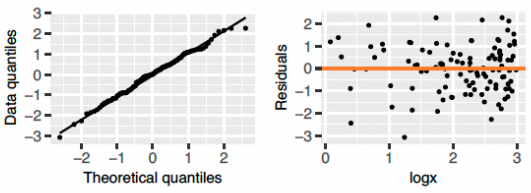
a. No transformation: $Y = \beta_0 + \beta_1 X + \epsilon$



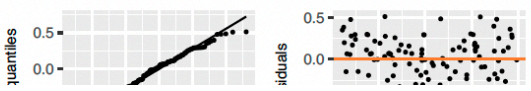
b. Log-transformation of Y: $log(Y) = \beta_0 + \beta_1 X + \epsilon$



c. Log-transformation of X: $Y = \beta_0 + \beta_1 log(X) + \epsilon$



d. Square root of Y: $\sqrt{Y} = \beta_0 + \beta_1 X + \epsilon$



Question 11

11. (3 points)From the above regression table, please write out the fitted regression equation. Please include the numeric values for each estimated coefficient and keep round them to the 2nd decimal place.

$\widehat{SBP} = 53.45 + 0.13\,BWT + 5.89\,Age$

OR

$SBP = 53.45 + 0.13\,BWT + 5.89\,Age + \hat{\varepsilon}$

0.5 pt: BWT/Age have NO hat

0.5 pt: correct values

0.5 pt: (Y has hat + no ε) OR (Y no hat + $\hat{\varepsilon}$)

1 pt: includes all vars in correct spots

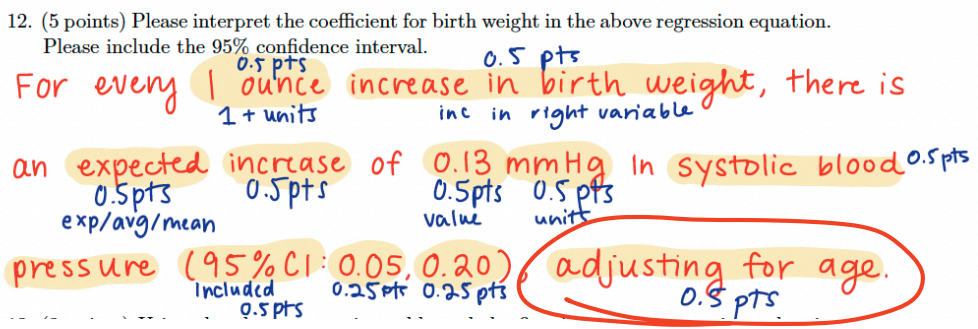
$\widehat{SBP}$ can be:
- $\hat{Y}$
- $\hat{E}(Y \mid Age, BWT)$
- $\widehat{E(Y \mid Age, BWT)}$

$\hat{\varepsilon} = SBP - \widehat{SBP}$

observed fitted

- Biggest mistake: not including the hat on SBP!

Question 12



- Biggest mistakes
  - Not adjusting for age
  - Forgetting units

Lab 2

Overall

- Overall, good job! I feel like we're making progress towards our analysis with thoughtful considerations for the data
- I definitely steered us towards thinking about the defined population
  - Make sure you also think about over-representation
  - Over-representation does NOT mean we cannot make claims about the under-represented, but present, groups
- When visualizing, making tables, displaying information from the data: always keep in the back of your mind:
  - What can a reader get from this if they have never seen the data?
  - Is it easy for the reader to understand the plot?
  - Does everything in the plot have a purpose?
  - Is the main thing I'm trying to communicate also the thing that stands out?
- Bivariate visualization was supposed to visualize our research question

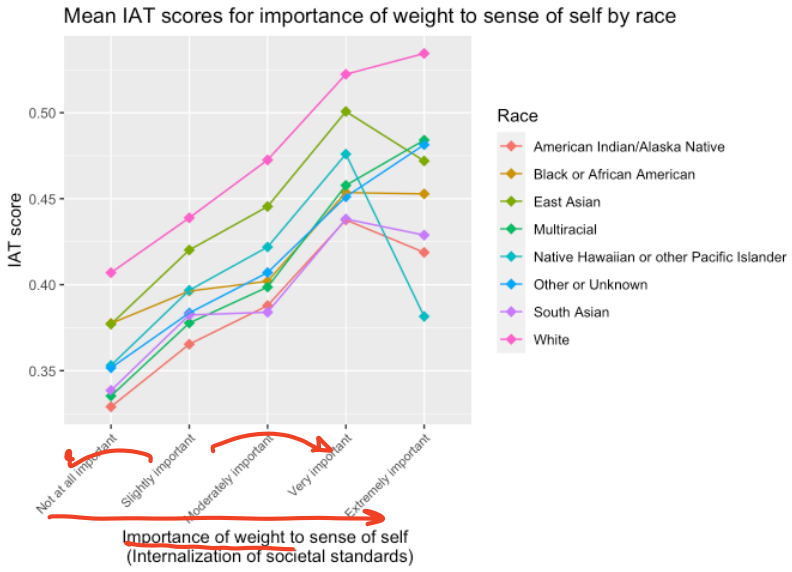
Notes on coding

- `#| message: false` Please use after troubleshooting your code
  - Especially when loading libraries! Makes everything neater
- When assigning category names, capitalization of the first word in each category is customary

Notes on coding/visualization

- Did not take off, but ordering any categorical variables with inherent order is really helpful in our visualizations
  - Also, tilting category names is helpful!

```
ggplot(iat_prep2, aes(x = important_001, y=IAT_score, color = as.factor(raceomb_002_f))) +
  # geom_jitter(size = 2, alpha = .6, width = 0.2) +
  stat_summary(fun = mean, geom = "point", size = 3, shape = 18) +
  stat_summary(fun = mean, geom="line") +
  scale_x_discrete(limits = levels(iat_prep2$important_001_f)) +
  labs(x = "Importance of weight to sense of self \n (Internalization of societal standards)",
       y = "IAT score",
       title = "Mean IAT scores for importance of weight to sense of self by race",
       color = "Race") +
  theme(axis.text.x = element_text(angle = 45, size = 8, hjust = 1))
```



Notes on interpretations/considerations

- Remember that multiple linear regression will adjust for variables outside of our research question!
  - So we either adjust with a main effect or an interaction!

How should a plot look?

How should a table look?

Mid-term feedback

Overall

- Only 29 names recorded: should be in gradebook now
- Appreciate your feedback
- I will try to address some of these
  - Balancing bandwidth, equity, different opinions, and things that are just a consequence of me teaching the course for the first time
- Still seeing what I can change ASAP

In-class (1/2)

- Sometimes my own explanations get confusing - would prefer if I revisited topics later rather than going through bad explanation
  - Fair enough: a few things over the quarter that I have taken for granted that I can riff a solid explanation, but I cannot
- Lecture notes in PDF: go to github, and I will have a PDF version there by the start of class
- Pace of class: **mixture of opinions**
- Exit tickets: **some people don't like them, some do, repetitive**
  - I made all the questions optional now - so fill it out or not, but this is my way of keeping a pulse on how effective lecture was
    - And this will still be my way of making sure we are staying with the course materials
    - I view this as an easy way to earn points that take weight away from higher stakes assignments
- Datasets: **some like that we have one dataset, and some want more**
  - Next quarter: have ~2 quarter long datasets (highly dependent on my course load next quarter)
- R code: **mixture of opinions**
  - Less/more, too much time explaining/too little time explaining

In-class (2/2)

- Poll everywheres: **mixture of opinions**
  - My main goal: give you all a “productive” break from me lecturing you
- More real world examples to demonstrate concepts
- More structure to lectures - wrapping up concepts, learning objectives
- Lectures: scrollable html option?
- Towards beginning of course: mistakes in slides and due dates

Homework

- Feedback on HW would be great
- Posting earlier: for this quarter - I just don't have time :(
- **Referencing a TB in homework and in class: some confusion if you need to read it on your own**
  - You don't!
  - I am mostly referencing these things for copyright issues because I am publicly publishing our slides, homeworks, labs, etc.

Quizzes

- **Some like the format, some don't**
- We like the open note
- Some: more of a test if you can search through the slides
- **Options for quizzes: we can brainstorm for next quarter**
  - Ultimately, I have to balance time, cheating, equity of take-home

Labs / Project

- Would be nice to have a lab section
- Labs divided into smaller chunks
  - Balancing with homework assignments

Things we like

- Notes with annotations and recording
  - Option for asynchronous viewing, in-person attendance not required
- Engaging lectures (for some)
  - "…slides are my best friend."
- Descriptions in multiple ways, learning types
- Concepts then code
- Flexibility
- Easy to understand terms when explaining
- Judgement free zone

Final words

- Saw a few students discuss how the volume of work this quarter is giving them anxiety, making them feel inadequate, etc.
  - I understand and have experienced the same feeling - not saying any of us should experience it
  - Keep going! Your grades are not your worth! You belong here! I want you to succeed!
  - Finally, you are LEARNING!
    - You will get things wrong. Hopefully you and your professors are giving you some grace.
    - I am still learning! I still reference things from my old classes
      - It's all about setting a foundation so that you know some things and know how to reference materials/internet/books to fill in gaps
- If I missed anything important to you in your feedback, please share in the anonymous on-going feedback