



# Examining Implicit and Explicit Attitudes Towards Stuttering in Undergraduate CSD Students

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## Purpose and Background

- About 3% - 5% of school aged children and 1% of the general population stutters.
- Children and adults who stutter experience negative attitudes and responses from communication partners that may affect opportunities such as academics and employment.
- Previous research (Walden and Lesner, 2018) has shown that college students have negative implicit and explicit attitudes toward stuttering.
- **Implicit attitudes** refer to unconscious and automatic thoughts and attitudes.
- **Explicit attitudes** refer to conscious and intentionally created thoughts and attitudes.
- Students majoring in communication sciences and disorders (CSD) have the potential to work with people who stutter and help change the stigma.
- **The goal of this study was to explore the implicit and explicit attitudes students majoring in CSD.**

## Research Questions

1. What are CSD undergraduate implicit and explicit attitudes towards stuttered vs. fluent speech/speakers?
2. Do CSD undergraduates associate certain personality traits to fluent vs. disfluent speakers?

## Method

- All students at GVSU majoring in CSD were informed about the study for recruitment purposes. Consent for all participants was obtained via REDCap.
- **Demographics.** Participant 1s were sent the demographic survey to complete on their own time via REDCap. The survey included questions related to their exposure to stuttering, the amount of coursework they've received on stuttering, and how effective the coursework was.
- **Implicit Attitudes.** To measure implicit attitude we replicated the methodology used in Walden and Lesner (2018) and used a computerized Implicit Association test (IAT) using Inquist Lab 5 software. The IAT was administered virtually through Zoom.
- **Explicit Attitudes.** After completing the IAT, participants completed an explicit attitude questionnaire via REDCap. Participants were asked to think of a person who stutters and a person who is typically fluent and rate each person on 14 characteristic trait pairs using a five-point rating scale (e.g., very unfocused, somewhat unfocused, neither focused or unfocused, somewhat focused, very focused).

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## References

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## Participants

### 35 Female Undergrad CSD students

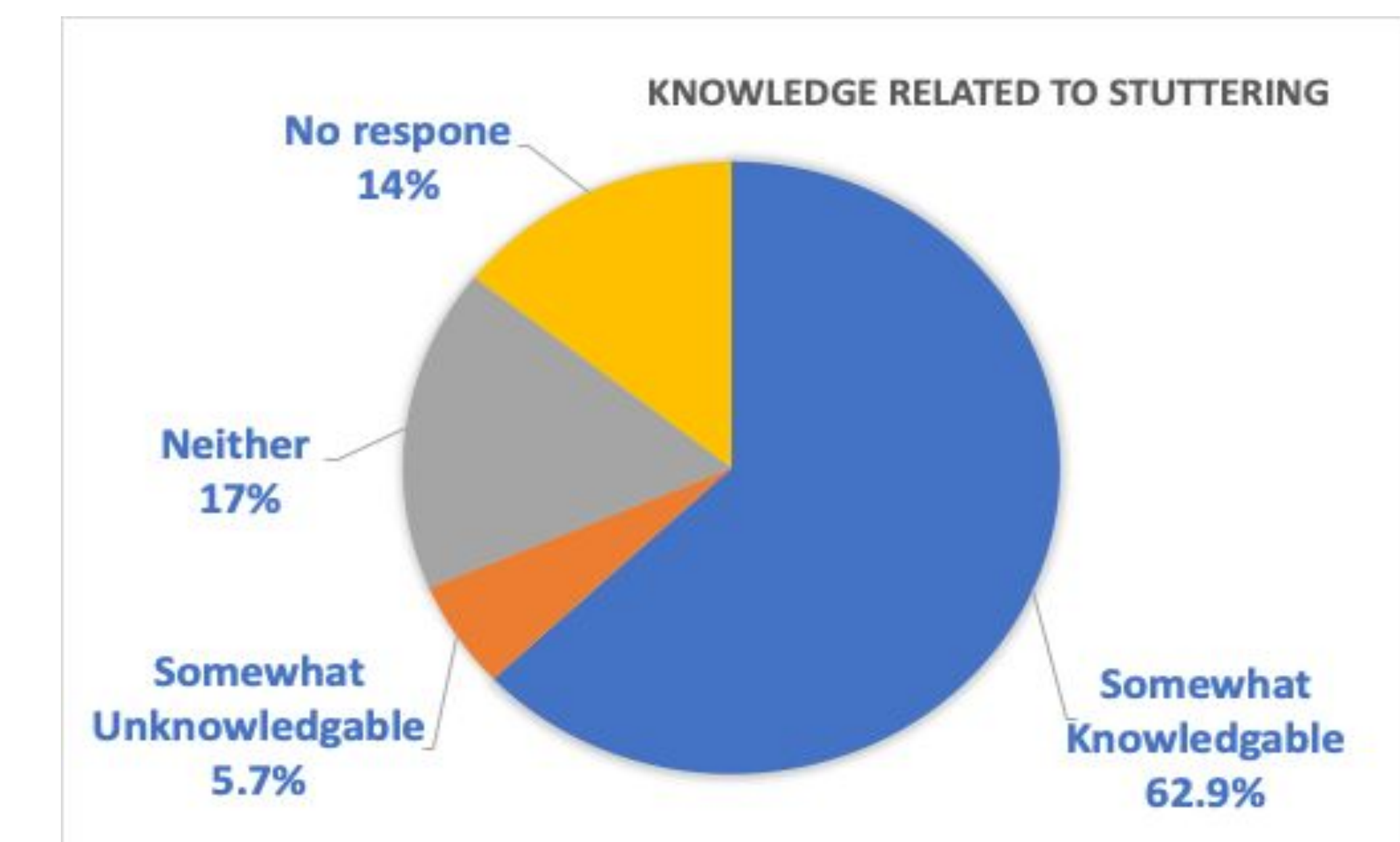
- 16 first-years in the program
- 19 second-years in the program

### Ages

Mean: 20.74 years  
 Standard Deviation: .915

### Exposure to Stuttering

- 45.7% of participants reported knowing a PWS
- 68.7% of participants have had a lecture or more on stuttering

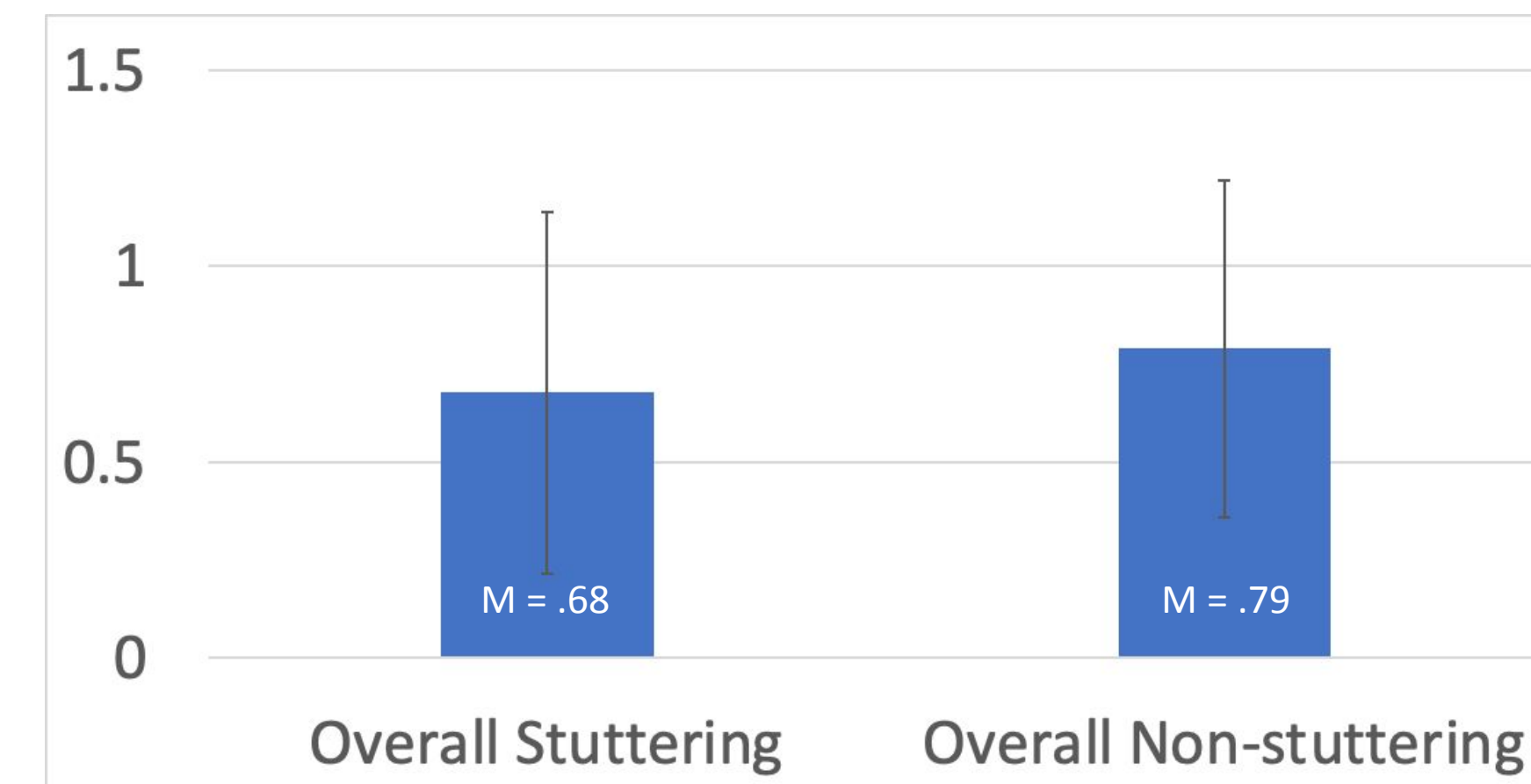


## Results

### Implicit Attitudes

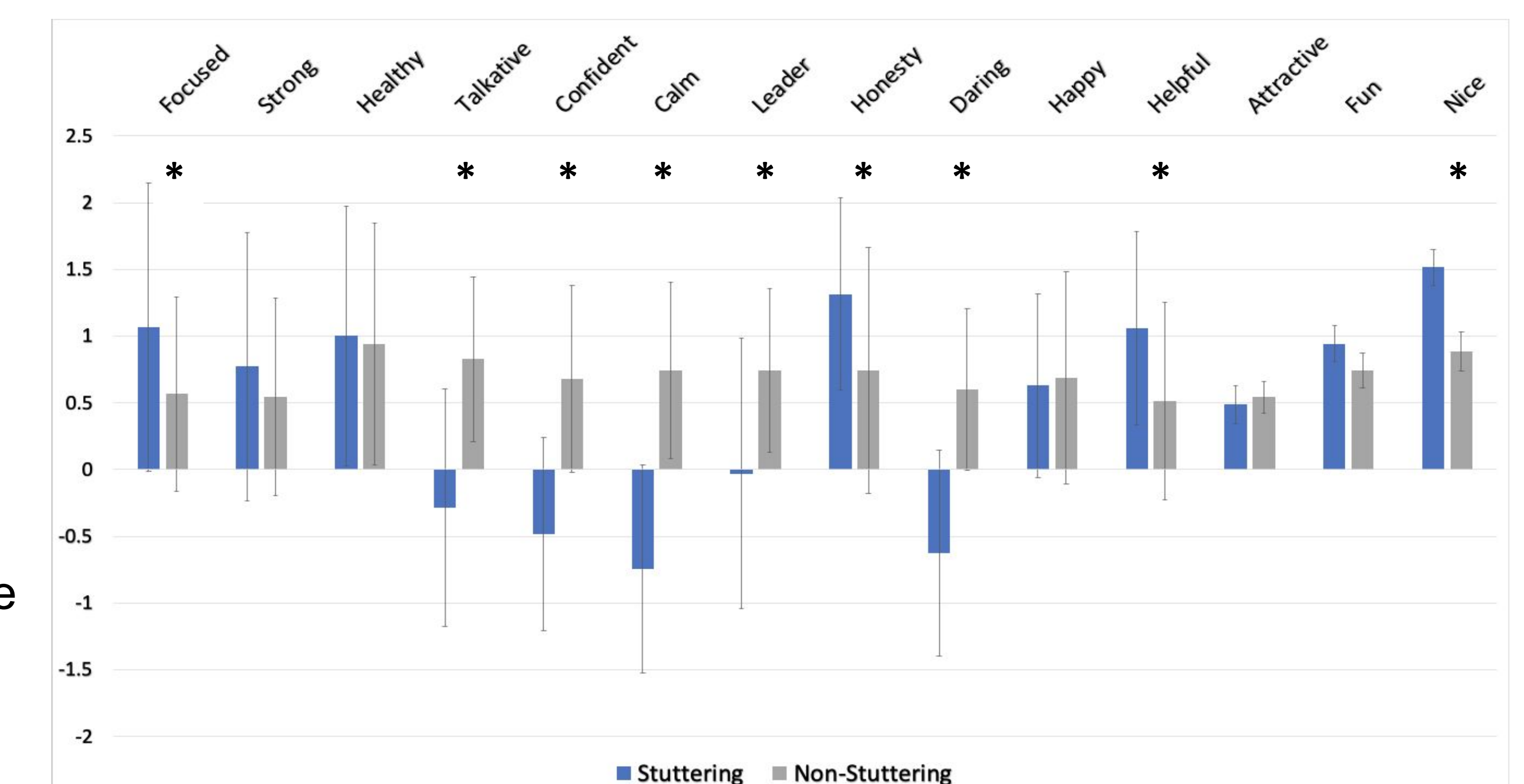
Mean	.068
Standard Deviation	.392

### Overall Explicit Attitudes



Note: For the implicit and explicit attitude scores, positive numbers indicate more positive attitudes toward fluent speech/speakers; negative values indicate more negative attitudes toward disfluent speech/speakers. None of the above values were significantly different from zero.

### Explicit Attitudes: Specific Traits



## Conclusions

- Findings indicate that CSD student do not exhibit overall implicit or explicit biases towards disfluent speech or speakers, but they do associate specific personality traits with people who stutter.
- Participants rated fluent speakers as more calm, more confident, more talkative, more daring, and more of a leader than people who stutter. However, they rated people who stutter as nicer, and more helpful, more honest, and more focused than fluent speakers.
- Comparison of our results to those of Walden and Lesner (2018), indicate that CSD undergraduate students exhibit less negative implicit biases towards stuttered speech than general undergraduate students ( $d = -0.37$ ).
- Additional aims of this study are to (a) compare the attitudes of CSD students to those majoring in Education and (b) explore how attitudes change over time as a result of exposure to stuttering. We are currently collecting these data.
- Findings from this study are expected to inform educators on how they might address and improve student attitudes towards stuttering. Presently, the association of personality traits to the fluency of the speaker appears to be the most pressing issue to address.



# Purpose and Background

- About 1% of the population stutters and 3% - 5% of school-aged children stutter. Communication Sciences and Disorders (CSD) college students have the potential to work in an environment with people who stutter and change the stigma surrounding stuttering.
- People who stutter experience negative attitudes and responses from listeners that may affect opportunities such as academics, social relationships, and employment.
- Boyle (2017) research found that 86% of participants believed PWS (person who stutter) were treated differently in ways such as receiving negative attitudes, emotions, and behaviors. Also, 68% of participants believed that PWS should not be employed at jobs that require a lot of talking (e.g., lawyer, teacher) when compared to jobs that do not have a high speaking demand (e.g., janitor, factory worker).
- In previous studies such as Walden and Lesner (2018), explicit attitudes toward stuttering were more negative for people who stuttering. Also, research has shown that there was an implicit bias towards stuttered speech.
- Implicit attitudes refer to unconscious and automatic thoughts and attitudes.
- Explicit attitudes refer to conscious and intentionally created thoughts and attitudes.
- Further research conducted by Walden & Lesner (2020) showed that practicing speech language pathologists had negative implicit attitudes towards stuttered speech which meant they held a preference for fluent speech.

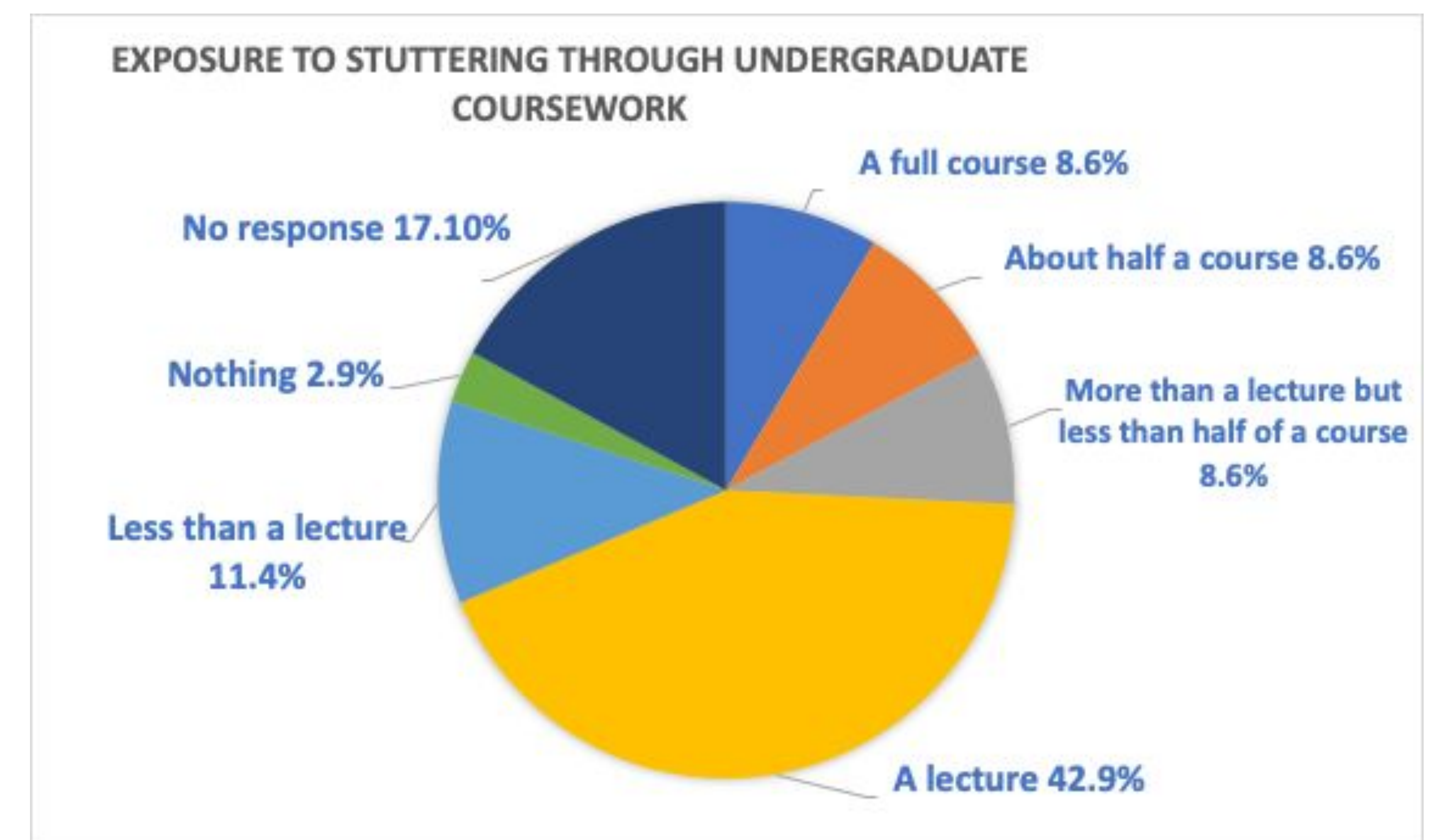
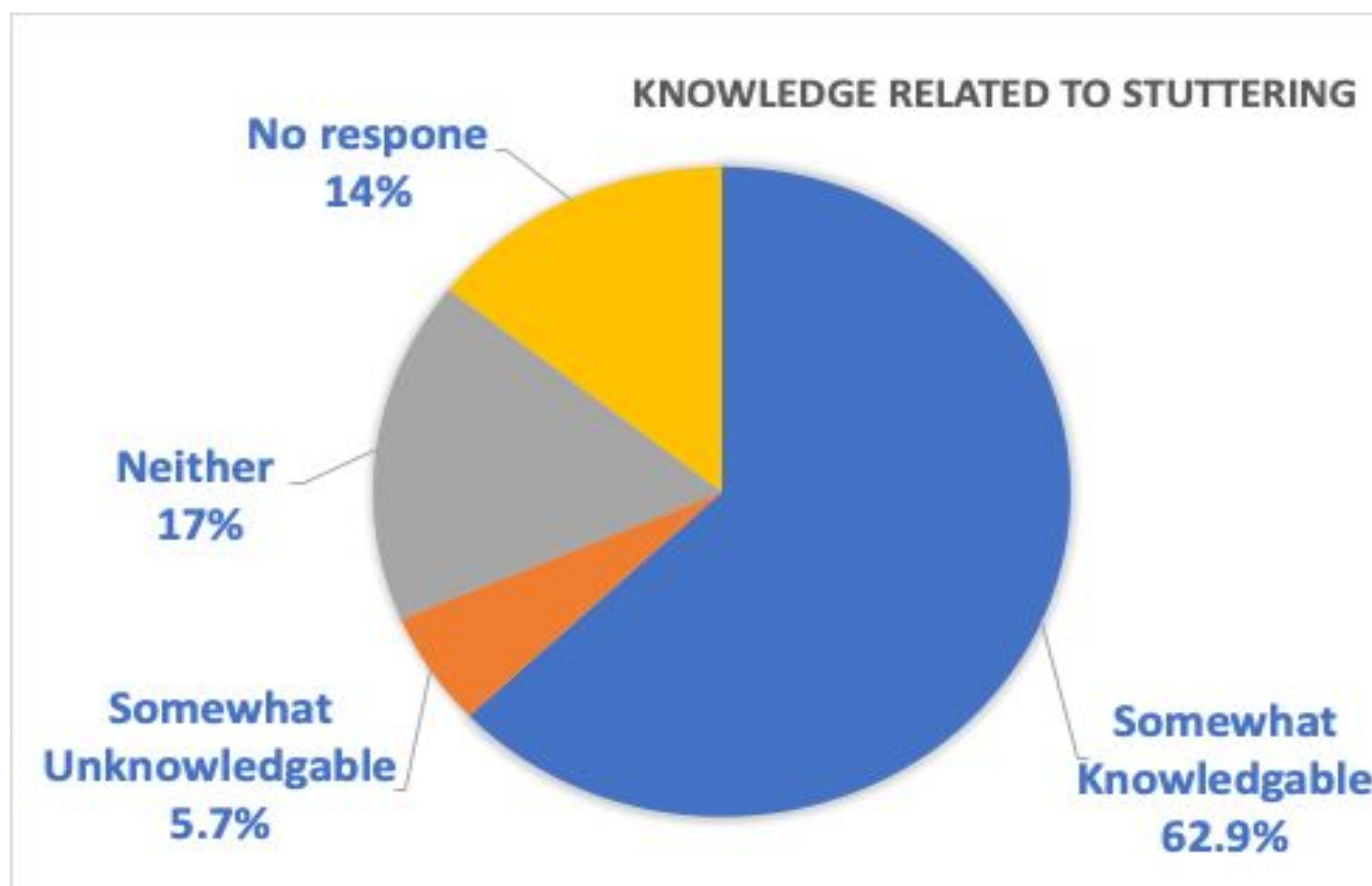
## **PRESENT STUDY**

- We decided to research implicit and explicit attitudes further by looking at attitudes among undergraduate CSD students. The goal of this study is to identify the implicit and explicit attitudes in CSD college students may have to stuttered speech. Our primary questions included:
1. What are CSD undergraduate implicit and explicit attitudes towards stuttered vs. fluent speech/speakers?
  2. Do CSD undergraduates associate certain personality traits to fluent vs. disfluent speakers?



# Participants

- Through the Office of Institutional Analysis, Dr. Rankinen, who is the undergraduate program director, and outreach through social media platforms such as Groupme and Snapchat, we recruited the participants.
- 44 GVSU CSD Undergraduates completed the study, but 9 were excluded due to Wifi issues
- Results are based on 35 CSD Undergraduates
  - 16 first years in the program
  - 19 second years in the program
- The mean age was 20.74 years with standard deviation of .915
- 53% of participants said they did not know a PWS
  - 45.7% reported knowing a PWS.
- 97.1 % of participants identify as White/Caucasian.
  - 2.9% identified as other.



- Majority of participants reported receiving a lecture or more on stuttering.
- Majority of participants considered themselves as somewhat knowledgeable on stuttering.

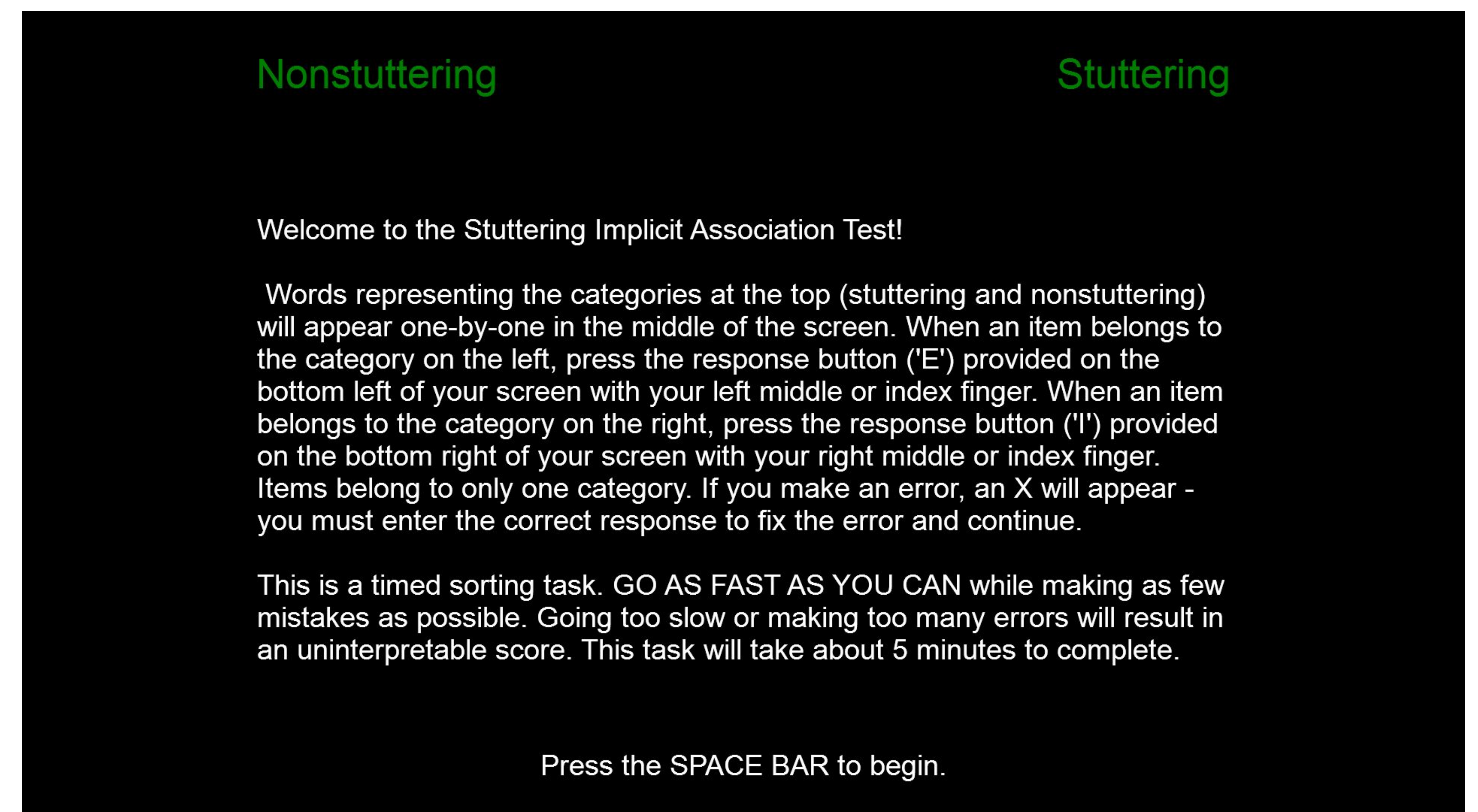


# Method: Consent and Demographic Survey

- Participants complete informed consent forms prior to the zoom meeting.
- Prior to the zoom meeting, participants completed a demographic survey. Participants self-reported their exposure to stuttering, the amount of coursework they have received on stuttering, and how effective the coursework was.
- All surveys were administered through REDcap.

# Method: Implicit Association Test (IAT)

- We measure implicit attitudes by the Implicit Association test (IAT), created by Walden and Lesner in 2018.
  - This uses Inquist 5 software.
  - It was administered via Zoom
- The IAT measured participants' implicit attitudes towards fluent speech, stuttered speech, positive words, and negative words.
  - Participants responded to the prompts using their keyboards (E and I keys).



- This is the first slide of the IAT where participants read the directions.



# Method: Implicit Association Test (IAT)

Nonstuttering

Stuttering

Good

Bad

Joy

- After the participants read the directions, they were given remote control through Zoom.
  - Remote control allowed them to control the research assistant's screen and complete the IAT.
- After pressing the spacebar, participants were given the first prompt of stuttered speech or fluent speech.
  - The speaker, who was male, said a word with either stuttered speech or fluent speech.
    - The words were neutral (e.g. circle, building, etc.)
  - As soon as participants were able to determine what type of speech it was (either stuttering or nonstuttering), they pressed the key that correlated with it.
- After this, participants were prompted with good or bad words.
  - Good words included words such as laughing and happy.
  - Bad words included words such as angry or sad.
  - Participants had to read the words off the screen, there was not a speaker.
- If participants believed the word belonged to the category on the right, they would press the E key.
- If they believed the word belonged to the category on the left, they would press the I key.



# Method: Implicit Association Test (IAT)

Nonstuttering

or

Good

In this set, the four categories you've already seen are put together, with two categories sharing each response key.

When an item belongs to either of the categories on the left, press the E response button. When an item belongs to either of the categories on the right, press the I response button. Correct errors by hitting the other response button.

Press the SPACE BAR to begin.

Stuttering

or

Bad

Stuttering

Notice above, there are only two categories and they have switched positions. The category that was previously on the left is now on the right, and vice versa. Practice this new configuration.

Press the SPACE BAR to begin.

Nonstuttering

Stuttering

or

Good

In this set, the four categories are paired in a different way. Notice which categories are paired together.

Remember to go as fast as you can while making as few mistakes as possible.

Press the SPACE BAR to begin.

Nonstuttering

or

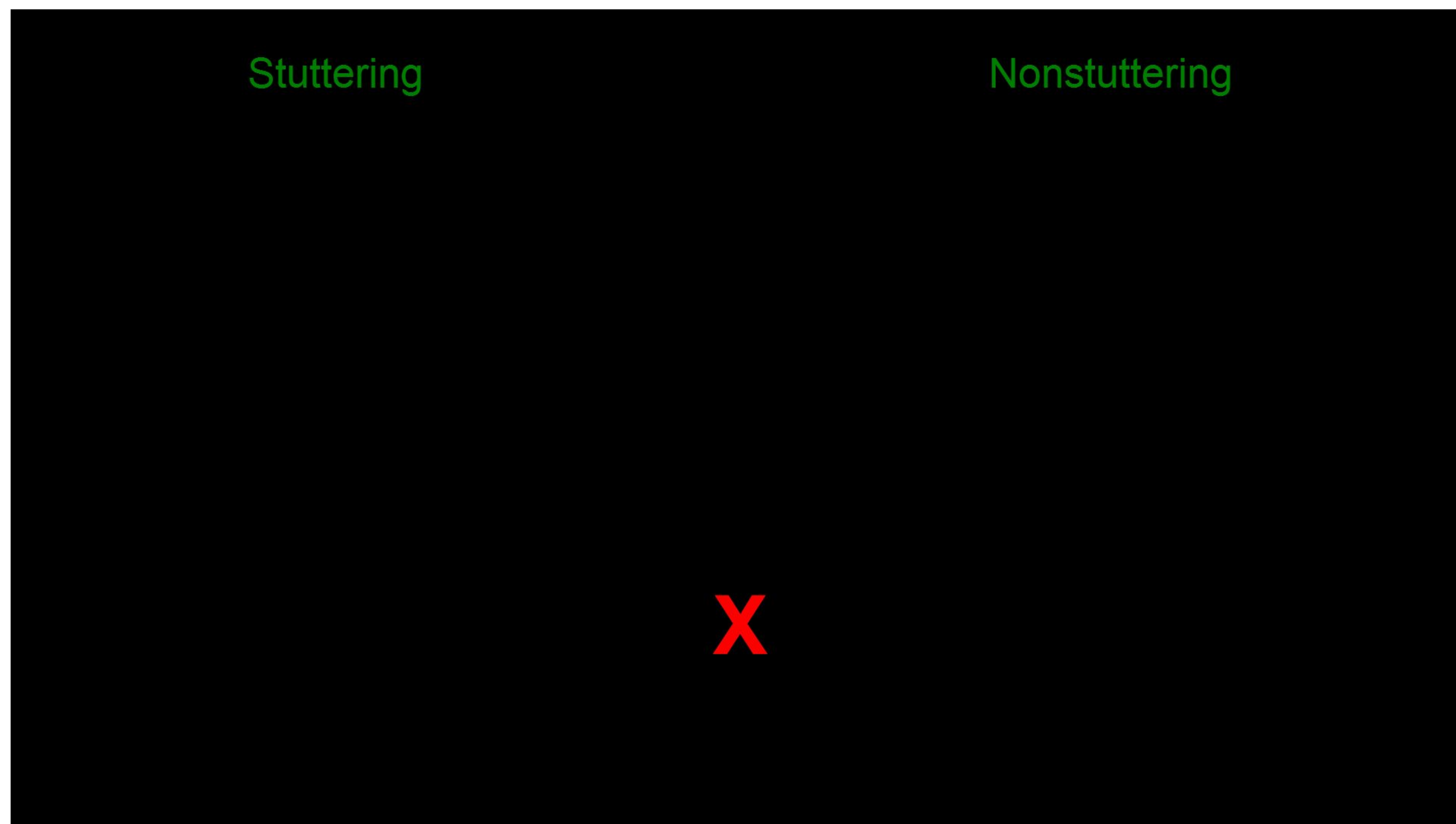
Bad

- Then, both categories were combined into one, as seen in the photo to the left.
- After completing this category twice, participants were given a new prompts where stuttered speech and fluent speech switched sides
  - Participants were given a chance to practice this new configuration
- After this, neutral words, bad words, and good words were combined again with the new configuration.
- We only used the third and sixth round to collect our IAT data.
  - The other rounds were used as practice for participants and to account for errors.



# Method: Implicit Association Test (IAT)

- If participants made a mistake, a red “X” appeared on the screen.
  - In order to fix the mistake, participants must select the correct response and continue
- Following completion of the IAT, research assistants recorded the d-score and completion data through REDcap.





# Method: Explicit Attitude Questionnaire

- Following completion of the IAT, while on Zoom, participants completed a self-reporting survey on their explicit attitudes for PWS and PWNS. Participants were asked to rate their perceptions for 14 characteristics traits on a 5-point scale for PWS and PWNS

Please think of a typical person who stutters and rate them on the following characteristics:

**Friendly/Unfriendly**

\* must provide value

- Very friendly
- Somewhat friendly
- Neither friendly or unfriendly
- Somewhat unfriendly
- Very unfriendly

**Honest/Dishonest**

\* must provide value

- Very honest
- Somewhat honest
- Neither honest or dishonest
- Somewhat dishonest
- Very dishonest

**Daring/Hesitant**

\* must provide value

- Very daring
- Somewhat daring
- Neither daring or hesitant
- Somewhat hesitant
- Very hesitant

**Happy/Unhappy**

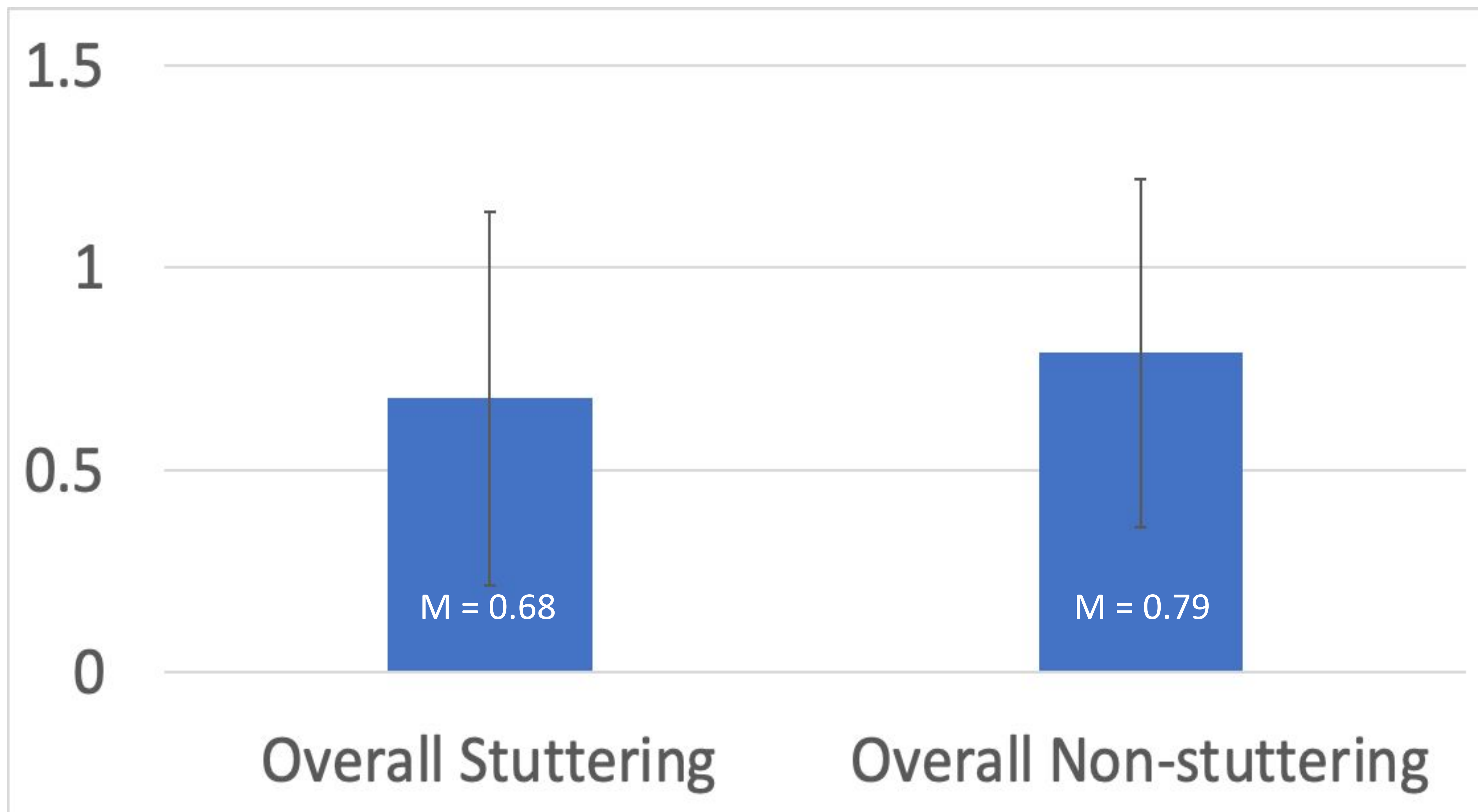
\* must provide value

- Very happy
- Somewhat happy
- Neither happy or unhappy
- Somewhat unhappy
- Very unhappy



# Results

## Overall Explicit Attitudes



## Overall Implicit Attitudes

**Mean: 0.068**

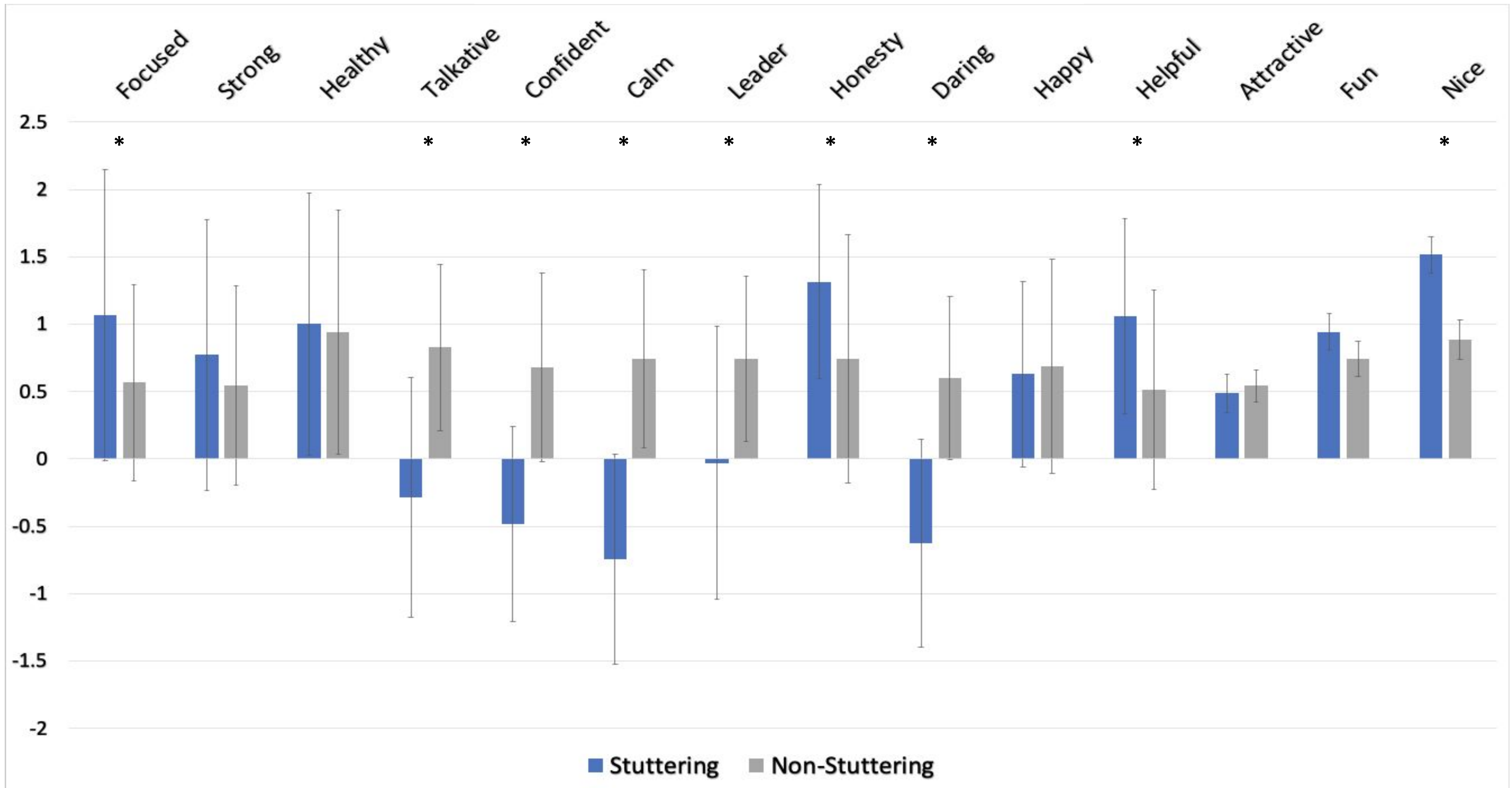
**Standard Deviation: 0.392**

*Note:* For the implicit and explicit attitude scores, positive numbers indicate more positive attitudes toward fluent speech/speakers; negative values indicate more negative attitudes toward disfluent speech/speakers. None of the above values were significantly different from zero.



# Results

## Explicit Attitudes - Specific Traits





# Caveats and Limitations

- All participants were female, which could impact finding generalizability to male CSD majors. However, the field of speech-language pathology is predominantly female.
- Our IAT uses a male speaker to produce the fluent and stuttered words. A future direction would be use female and children speakers as well.
- Unlike Walden and Lesner (2018), we did not measure social desirability, which may indicate how honest participants' responses on the explicit attitudes questionnaire may have been.
- The final limitation of this study was that the IAT was done over Zoom and we have not finished comparing the IAT results conducted via Zoom vs in-person.



# Conclusions

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