

The Effects of Judgment Scaling on Feeling-of-knowing Accuracy in Younger and Older Adults

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Introduction

Feelings-of-knowing (FOKs)

- FOK resolution, or the relationship between FOK ratings and future recognition outcomes, are potentially influenced by the type of scale used to derive the judgment (Higham et al., 2016).
- Differences in FOK resolution as a result of scaling differences have been demonstrated between young and older adults.
 - e.g., Better resolution for binary FOKs for young adults compared to older adults (Souhay et al., 2000).
- Other researchers have found no differences in FOK accuracy between age groups (e.g., MacLaverly & Hertzog, 2009).
- These differences could reflect age-related variance in mapping underlying memory states to actual FOK judgments.

Remember vs. Know Judgments

- Remember/Know* judgments can help determine the extent to which individuals base recognition judgments on explicit memory for an item (*R*) or familiarity (*K*).
- Older adults are more likely to base FOK judgments off of cue familiarity (Daniels et al., 2011).

General Question

- Does rating scale type affect the accuracy of FOK judgments in young and older adults?

Experimental Task

Hart's (1965) Recall-Judge-Recognize Task:

- Participants studied 60 unrelated word pairs derived from USF Free Association Norm database.
 - e.g., "CUE - TARGET"
- Immediately after study, participants were asked to recall the target word associated with the presented cue.
 - e.g., "CUE - ???"
- After each recall attempt, participants were prompted to give an FOK.
 - Between subjects manipulation:
 - Continuous FOK (0 - 100) vs. Binary FOK ("Yes" vs. "No").
- Finally, participants engaged in a 4AFC recognition task and asked to give a *Remember* (*R*) or *Know* (*K*) judgment after each trial.

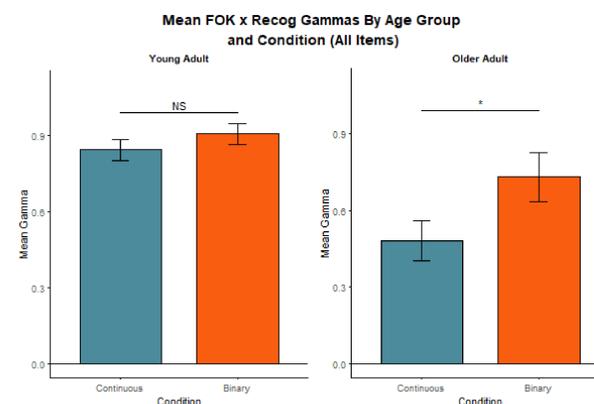


Results

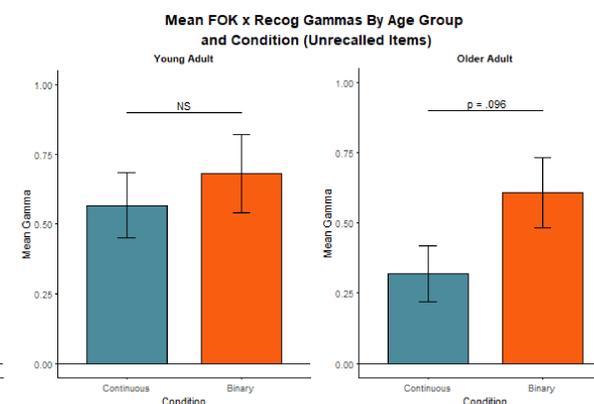
Summarized Results (Means + SEs)

| Age | Condition | <i>n</i> | Average Recall Performance | Average Recognition Performance | FOK-4AFC Resolution (All Items) | FOK-4AFC Resolution (Unrecalled) | FOK-R/K Resolution (All Items) | FOK-R/K Resolution (Unrecalled) |
|-----|------------|----------|----------------------------|---------------------------------|---------------------------------|----------------------------------|--------------------------------|---------------------------------|
| YAs | Continuous | 31 | 0.40 (0.05) | 0.80 (0.04) | 0.83 (0.07) | 0.59 (0.11) | 0.89 (0.09) | 0.55 (0.12) |
| | Binary | 31 | 0.39 (0.05) | 0.77 (0.04) | 0.84 (0.07) | 0.63 (0.13) | 0.89 (0.08) | 0.56 (0.15) |
| OAs | Continuous | 31 | 0.15 (0.04) | 0.63 (0.04) | 0.48 (0.07) | 0.30 (0.11) | 0.51 (0.08) | 0.25 (0.13) |
| | Binary | 30 | 0.20 (0.04) | 0.72 (0.04) | 0.74 (0.09) | 0.60 (0.14) | 0.72 (0.09) | 0.44 (0.17) |

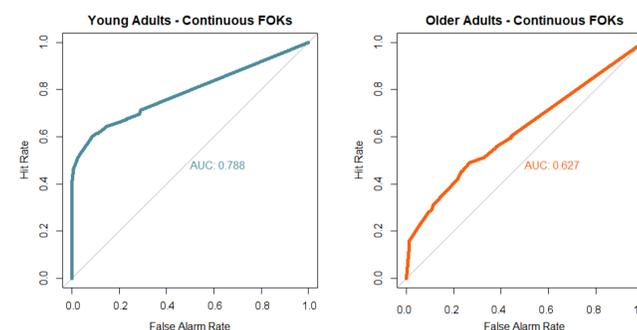
(a) Continuous FOKs result in lower resolution in older adults, but not younger adults, for all items.



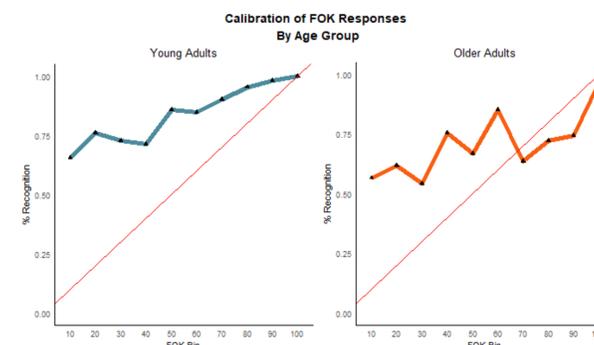
(b) Continuous FOKs result in lower resolution in older adults for unrecalled items.



(c) Younger adults show greater isosensitivity for continuous FOKs compared to older adults.



(d) Older adults show over-confidence with higher continuous FOKs.



Participants

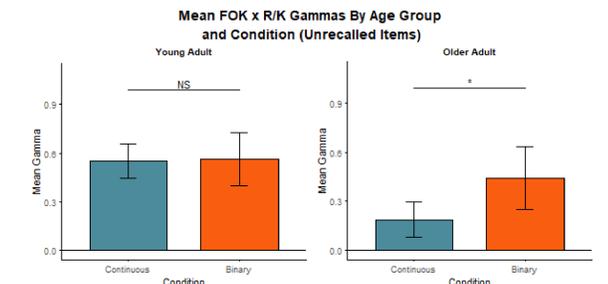
- Young adult ($N = 62$) volunteers from GT Psychology participant pools randomly assigned to FOK conditions.
- Healthy, non-demented older adult ($N = 61$) volunteers from Atlanta community recruited from Hertzog Lab Participant Database.

Materials

- 60 unrelated, concrete noun pairs from USF Free Association Norms.
- Chosen based on word length and concreteness.
- Screened based on forward- and backward-strength.
- Target used as both correct and incorrect foil during recognition.

Remember/Know Judgments

Older adults' continuous FOKs were less likely to be correlated with later recognition memory states.



Summary

FOK Accuracy

- Continuous FOKs were more accurate for young adults than older adults.
- Binary FOKs are equally accurate for both age groups.
- Both age groups exhibit somewhat conservative biases in ROC curves (Higham et al., 2016), but calibration curves suggest that older adults are overconfident with higher continuous FOK ratings.

R/K Judgments

- Older adults' FOKs during recall attempts are less likely to match memory states during recognition.
- Familiarity-based retrieval could negatively influence how memory beliefs are applied to continuous, but not binary, FOK judgment scales.

Acknowledgements

This project was funded in part by a Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (T32) from the National Institutes of Health (National Institute on Aging) Grant 5T32AG000175.

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