

# Exploring the effects of face coverings on the perception of female speech: Insights from an audio-visual and exposure experiment

## BACKGROUND



Previous work has focused on the auditory impact of face coverings



Masks reduce speech intelligibility, especially in noisy conditions [1, 4]



**1** Is the visual obstruction caused by a face covering more detrimental to speech perception than the auditory impact?

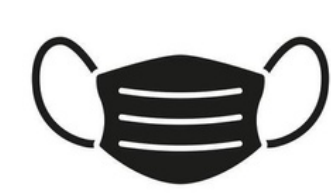


**2** Does regular exposure to face coverings effect listener's ability to perceive the signal?

## METHOD



9 SSBE female speakers



3 conditions (cotton mask, niqāb and no mask)



Video and audio recordings [3]

### Participants:

40 Daily Exposure  
40 No Mask Exposure



	Control	Mismatched
Audio		
Visual		

120 sentences with an utterance-final minimal pair word...[2]

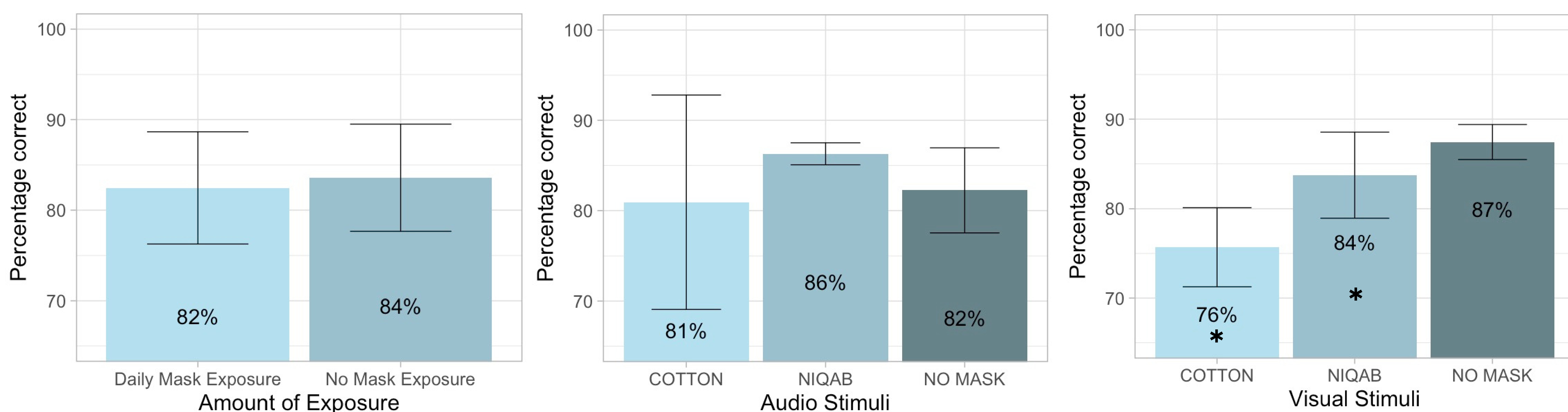
*Molly talked about the PEAS/KEYS*

Participants had to pick the image indicated in the stimulus sentence...



Increased exposure to face coverings had no effect on performance accuracy

The visual face mask (cotton mask and niqāb) had a greater impact on performance accuracy than the auditory face mask (cotton mask and niqāb)



**Figure 1.** The average percentage correct according to exposure (left), audio stimuli (middle) and visual stimuli (right).

## DISCUSSION

Visual access to the lips and mouth = essential for comprehension. Suggestions for transparent face coverings

Auditory impact = less detrimental. Analysis implications in Forensic Phonetics

No benefits of regular exposure. Knowledge that access to the lips and mouth is essential

## REFERENCES

- [1] Bottalico, P., Murgia, S., Puglisi, G. E., Astolfi, A., & Kirk, K. I. (2020). JASA.
- [2] Kalikow, D. N., Stevens, K. N., & Elliott, L. L. (1977). JASA.
- [3] Schwarz, J., Li, K. K., Sim, J. H., Zhang, Y., Buchanan-Worster, E., Post, B., Gibson, J. L., & McDougall, K. (2022). Frontiers in Psychology.
- [4] Wittum, K., Feth, L., & Hoglund, E. (2013). JASA.