Limited English Proficiency and aphasia have compounded impact on clinical care of stroke patients

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Introduction

- Stroke is one of the leading causes of death and disability around the world[1]
- Patient-clinician communication facilitates successful stroke care[2]
- One in three stroke patients have aphasia, a disability that interferes with speech/language production and reception[3]
- Many stroke patients have diverse linguistic backgrounds and Limited English Proficiency (LEP)
- LEP and aphasia can both hinder communication, yet their compounded impact remains unknown
- We aim to examine **how LEP influences (1) functional independence, (2) improvement of functional independence, and (3) length of stay in hospital**

Methods

- **Participants –** EMR from 22,756 patients (17 facilities)
- **Predictors**
  - NIH Stroke Scale (NIHSS) measures aphasia severity
  - LEP status (preferred language)
- **Outcomes**
  - functional independence (mRS) at admission
  - improvement in mRS at discharge
  - length of stay at hospital

ANALYSIS

- **three linear mixed effects model**
  - covariates: age, race, sex, and stroke severity
  - random effects: facility

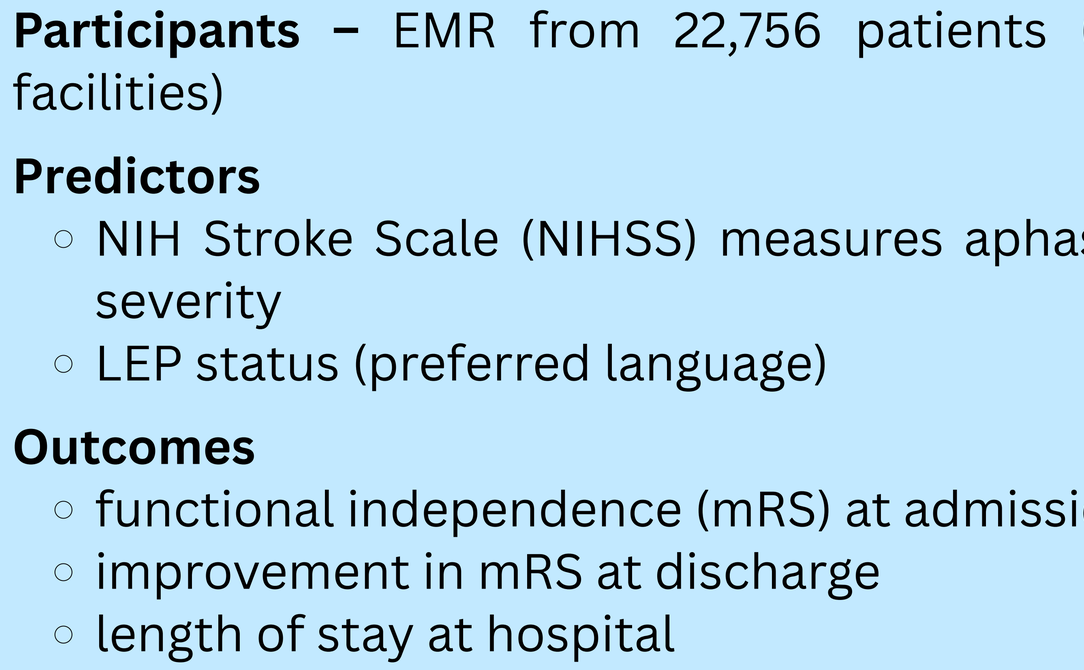

Figure 1. Schematic of data acquisition/processing workflow

Results

- 26.2% of participants had just aphasia, 1.1% had just LEP, 0.5% had both
- **Initial mRS (functional independence)**
  - aphasia severity: B = 0.378, t(12,632) = 3.83, p < .001
  - LEP: not significant
  - Interaction: not significant
- **Improvement in mRS**
  - aphasia severity: not significant
  - LEP: B = 0.415, t(6,241) = -2.63, p <.001
  - interaction: not significant
- **Length of Stay**
  - aphasia severity: B = 1.75, t(22,744) = 3.38, p < 0.001
  - LEP: B = 2.72, t(22,744) = 3.96, p < 0.001
  - Interaction: B = 1.03, t(22,744) = 1.97, p = 0.0489

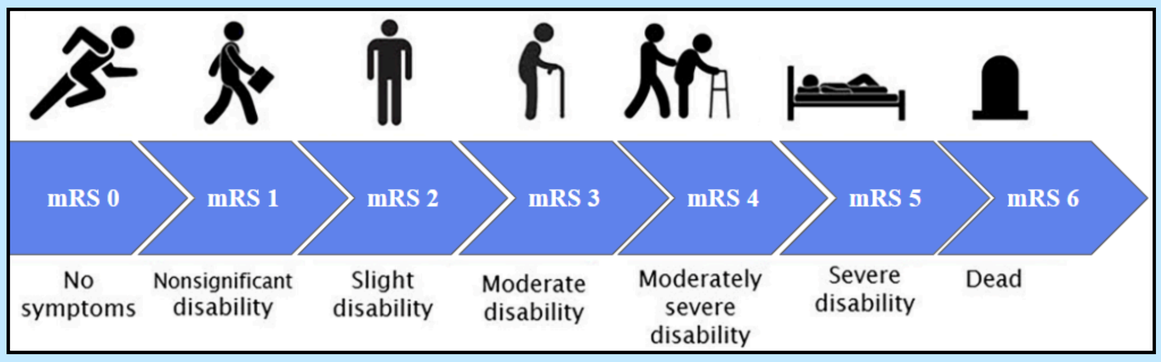

Figure 2. A diagram of what each score on the mRS scale indicates.

Discussion & Conclusions

- mRS assessment may be biased against individuals with communication barriers, i.e., interobserver variability[4]
- The observed delays in length of stay may be due to the communication delays caused by LEP and/or aphasia, i.e., delays in acquiring an interpreter
- LEP and aphasia has a compounded influence on certain measures of clinical care and outcome, but more research is needed to identify specific drivers of disparities

Selected References

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