Visualizations to Communicate Risk in Patient Reported Outcomes

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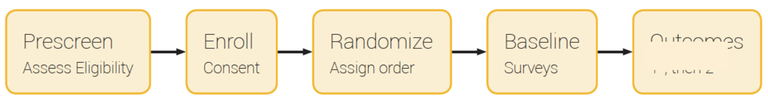
Introduction

- Patient-reported outcomes (PROs) are used for patient monitoring outside of clinical settings.
- Patients need to recognize *clinically meaningful changes* in PROs so they can respond.
- Patients have different levels of health literacy, graph literacy, and numeracy, and may struggle to interpret their health data.
- *Visualizations conveying risk* have been tested with health data with well-established boundaries for action (lab values) but not PROs.

Objective

- To assess patients' risk perception and behavioral intention in response to visualizations that display clinically meaningful changes in PRO scores over time.

Methods



- Cross-sectional study with 40 hospitalized heart failure patients comparing 4 visualizations.
- Each participant viewed all 4 visualizations, and we used *counterbalancing* to control for order effects.
- Participants picked their favorite visualization of the 4, and we evaluated *subjective and objective risk perception.*
- Additional outcomes included *comprehension* and *behavioral intention (i.e., likelihood to act).*

Results

Objective Risk Perception

67% accurately recall the gist of the visualization

10% accurately recalled the information in the visualization verbatim

Subjective Risk Perception

70% reported very/extremely likely…

54% reported very/extremely serious…

46% reported very/extremely concerned…

…that illness was worsening based on the visualization

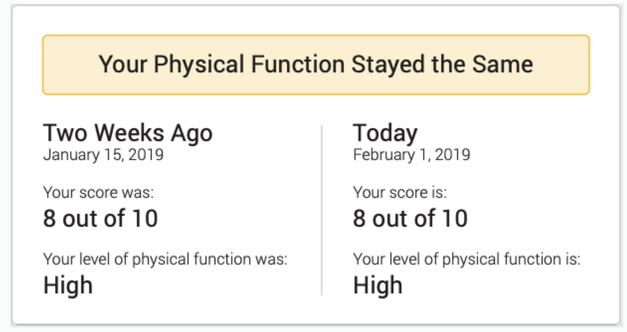
Other Results

- Participants were 61.3 years of age on average (±12.5) and were 22% female, 52% White, and 38% Latino.
- Participants' favorite visualizations were icons (31%) and number lines (41%).
- Most (82%) were very/extremely likely to act based on the visualization; most (84%) said their next step would be to contact a clinician.
- Interested in outcomes related to *comprehension*? Visit Lisa Grossman's poster in today's session (#128).

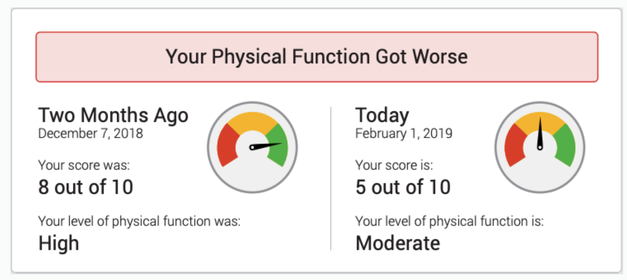
Discussion

- Results suggest visualizations communicated risk to the majority of patients, who in turn reported being more likely to act.
- Future work should focus on bolstering patient skills and efficacy to self-manage, and minimizing burden on healthcare providers, when patients perceive risk from PRO scores.

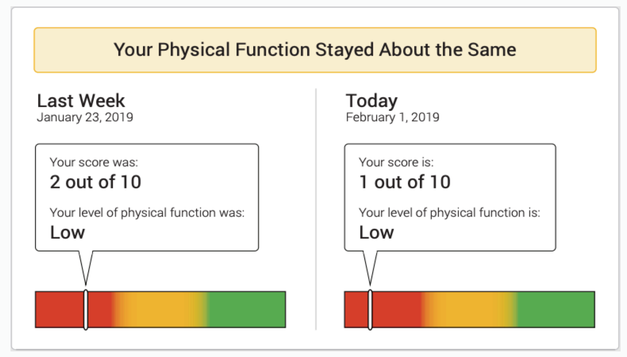
Text-Only



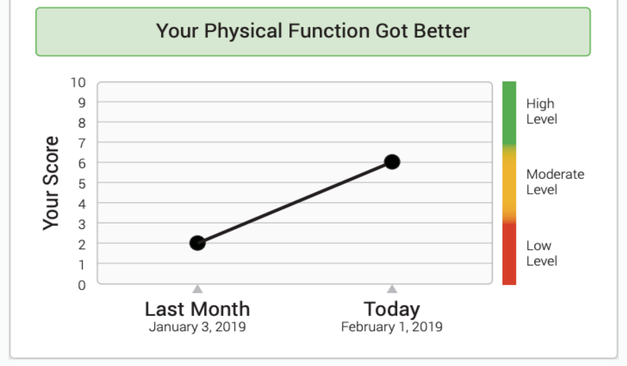
Text + Visual Analogy



Text + Number Line



Text + Line Graph



Questions

Email Meghan:
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