

Enhanced Data Visualization in Symptom Management

Melanie Bye, BSN Student¹, Chelsea Howland, PhD, RN¹, Stephanie Gilbertson White, PhD, ARPRN-BC, FAAN¹

¹College of Nursing, University of Iowa

Introduction

- This project aims to systematically develop and select graphic images for a study exploring preferences and understanding of graphically presented health self-management data
- Data visualization promotes data transparency, understanding, and trends evaluation
- Numeracy, graph, and digital literacy are crucial to a patient's ability to manage their health effectively (Figure 1)

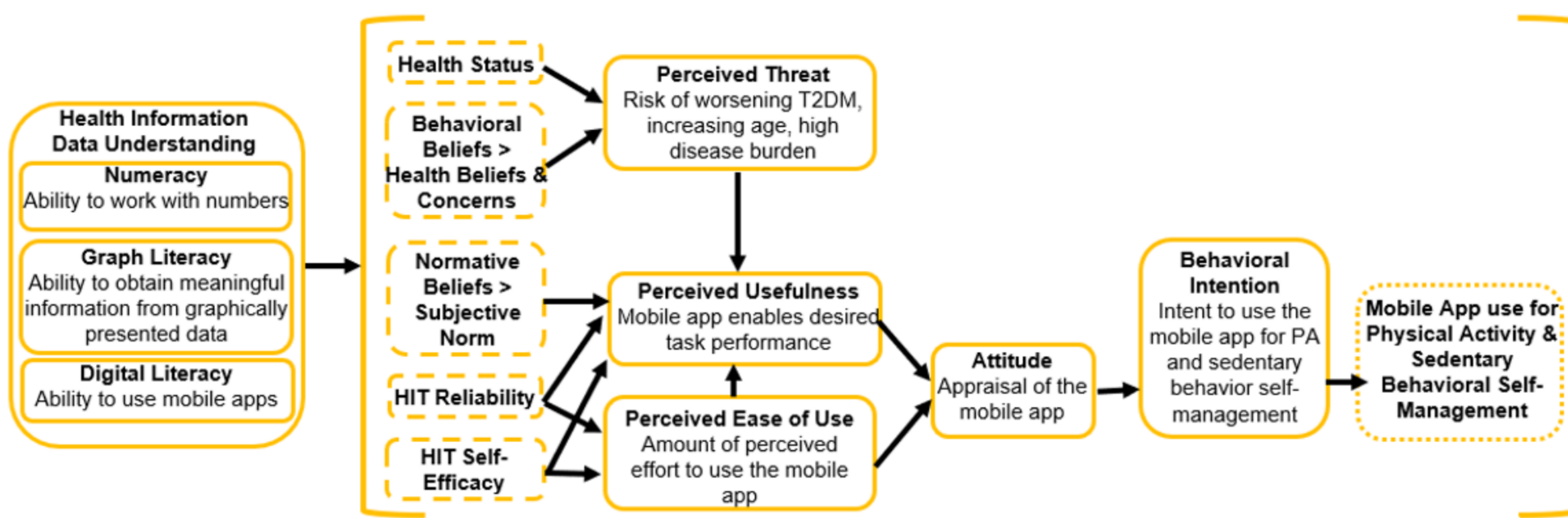
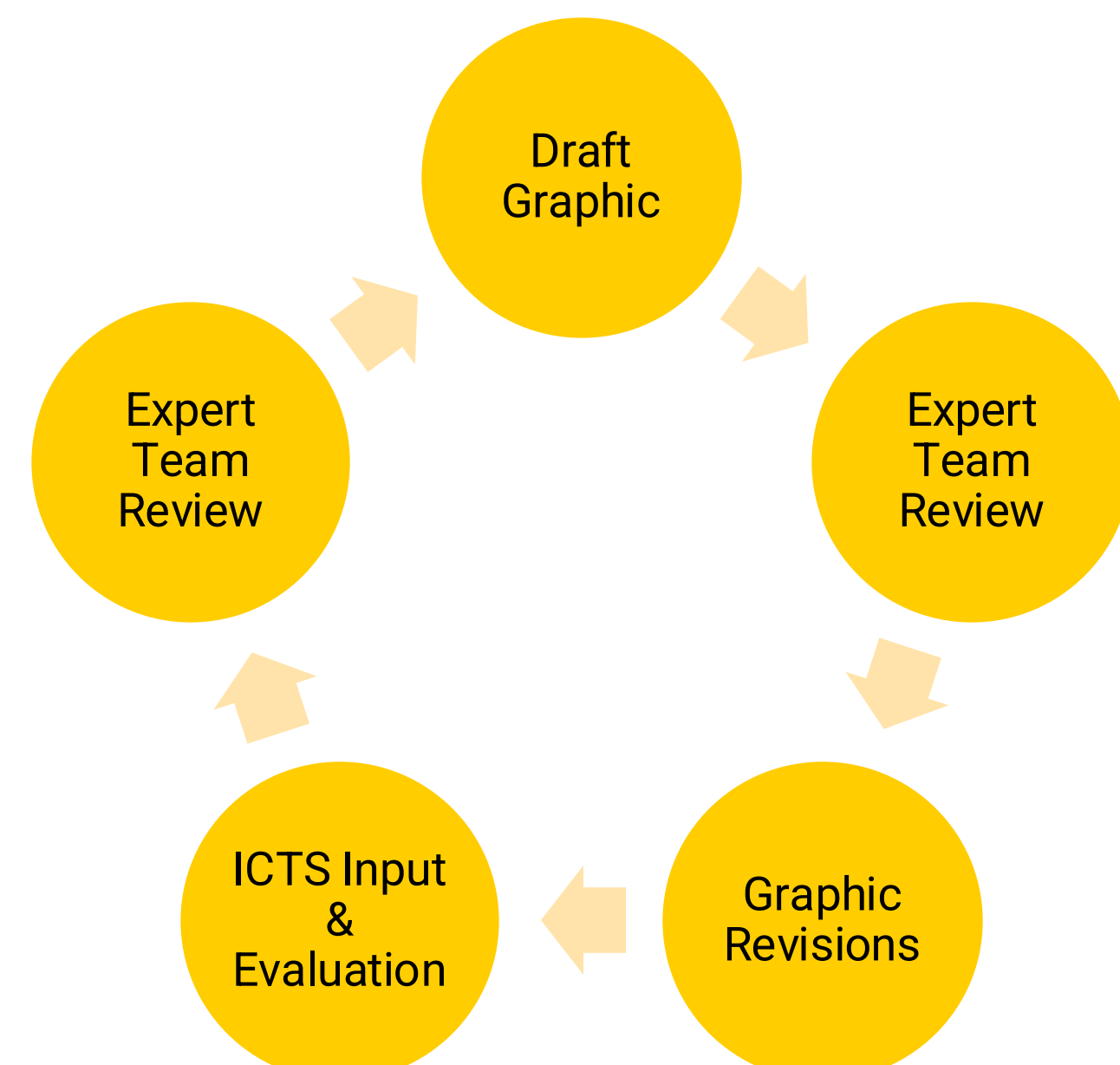


Figure 1. Conceptual Model of Impact of Health Information Data Understanding on Mobile App Acceptance

Methods

- Reviewed 20 references on data visualization
- Expert team & University of Iowa Institute for Clinical and Translational Science
- Existing symptom management app (OASIS) visual framework
- Real-world patient data used to generate graphics
- Tableau, Excel, R, and Apex platforms



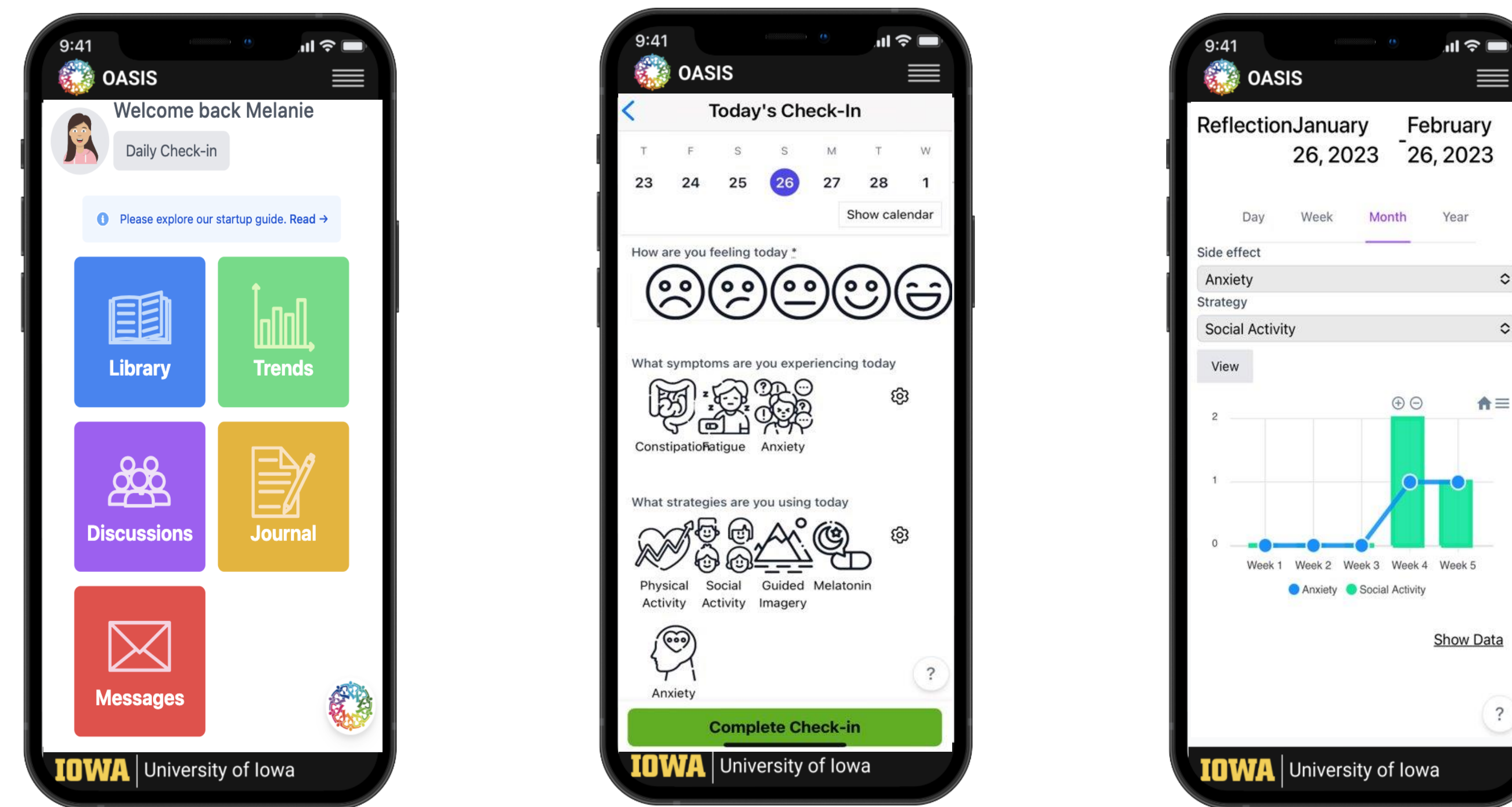
Survey Graphics

A group of participants will be sent a survey with a different scenario with multiple-choice and short answer questions for each data visualization.

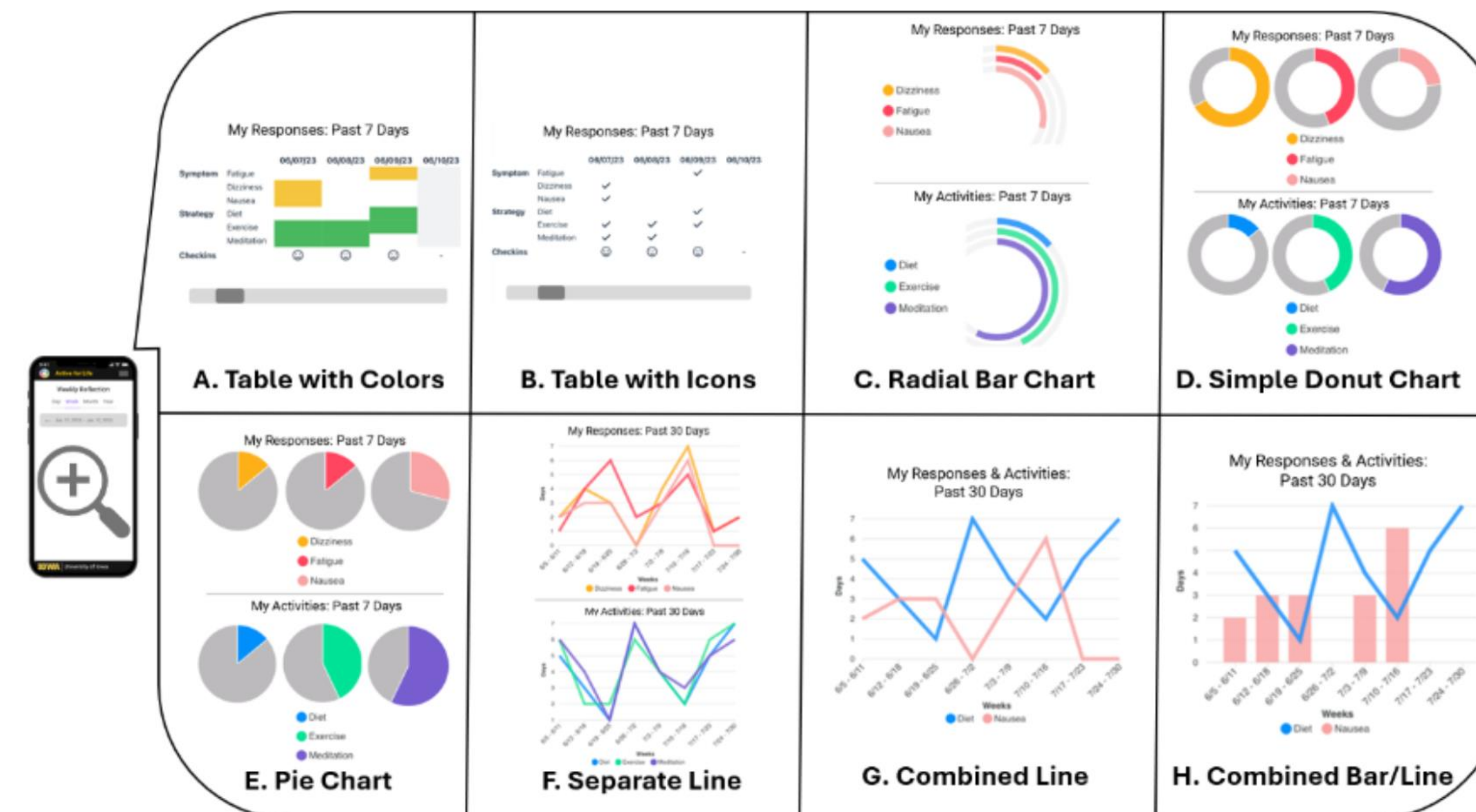
Goals of identifying user:

- Understanding of information in the graphics
- Preference between graphics

Introduction to the App and Its Features



The Graphics



Survey Questions

After each graphic's described scenario, a series of questions were asked. Below is an example of one graphic's questions.

- From 6/19 to 7/16, on how many days was *Nausea* tracked?
- From 6/19 to 7/16, on how many days was *Diet* tracked?
- From 6/5 to 7/30, on how many weeks was *Nausea* tracked?
- From 6/5 to 7/30, on how many weeks was *Diet* tracked?
- From 6/19 to 7/16, did you meet the goals of doing *Diet* two times per week?
- How would you rate your satisfaction with using the image to self-monitor your health information?



Scan the QR code to view the entire survey!

Results

- Visualizations were determined feasible using Apex software
- Eight visualizations were chosen to analyze in a mobile app user REDCap survey
- Criteria to analyze survey data was constructed

Conclusions

- Survey responses will be analyzed to decide which data visualization(s) are best for mobile application health symptom management
- Enhancing data visualization practices and increasing the use of tracked and visualized health symptom data in mobile applications are crucial for improving patient health outcomes

Acknowledgments

This research is funded by the Sigma Small Grant and the Barbara and Richard Csomay Gerontology Research Award for PhD Students and Postdoctoral Fellows. Dr. Howland received funding from the IOWA Postdoctoral Fellowship, University of Iowa College of Nursing.