Understanding Enablers and Barriers to Using Technology with People with Aphasia

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The Learning Corp
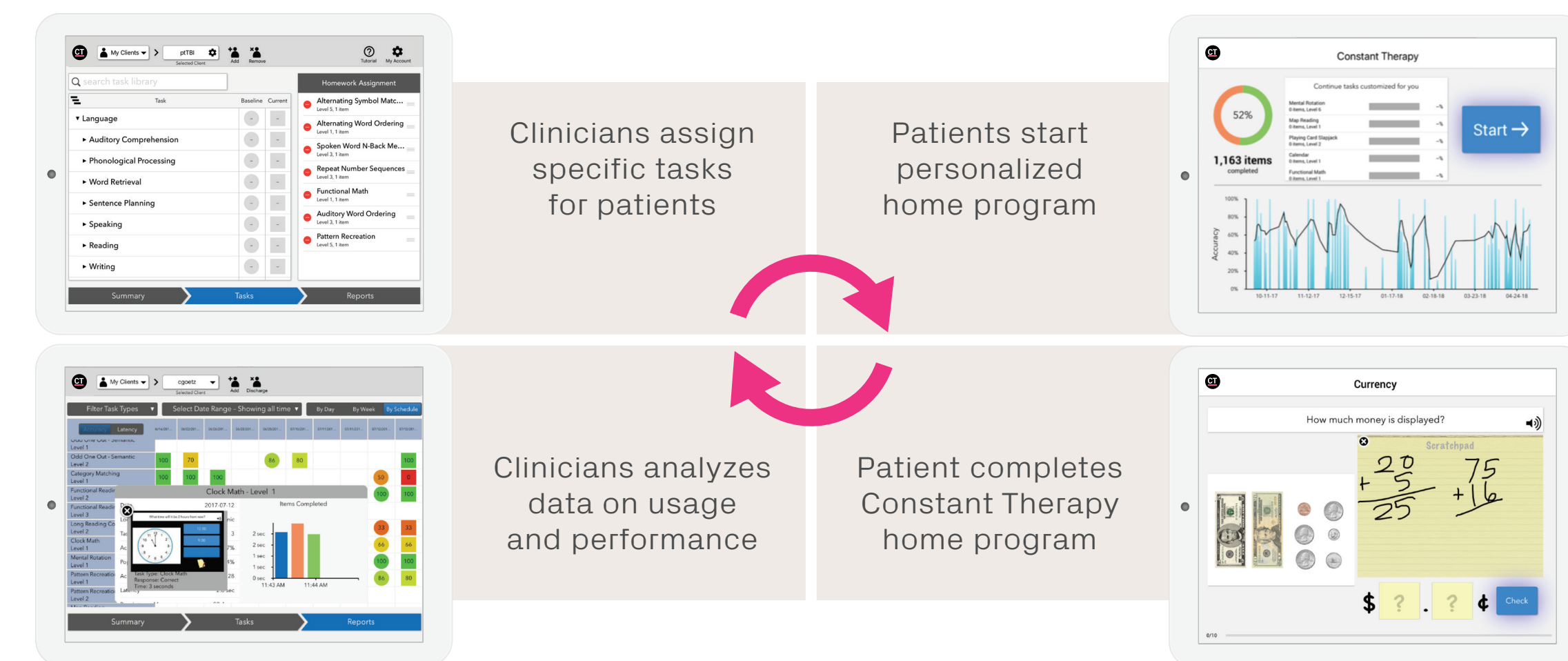
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BACKGROUND

The use of technology continues to grow in prevalence. When considering the LPAA framework, technology can fall into several categories including participating in life situations (e.g. emailing), communication environment (e.g. FaceTime), and targeting impairments (e.g. therapy apps).
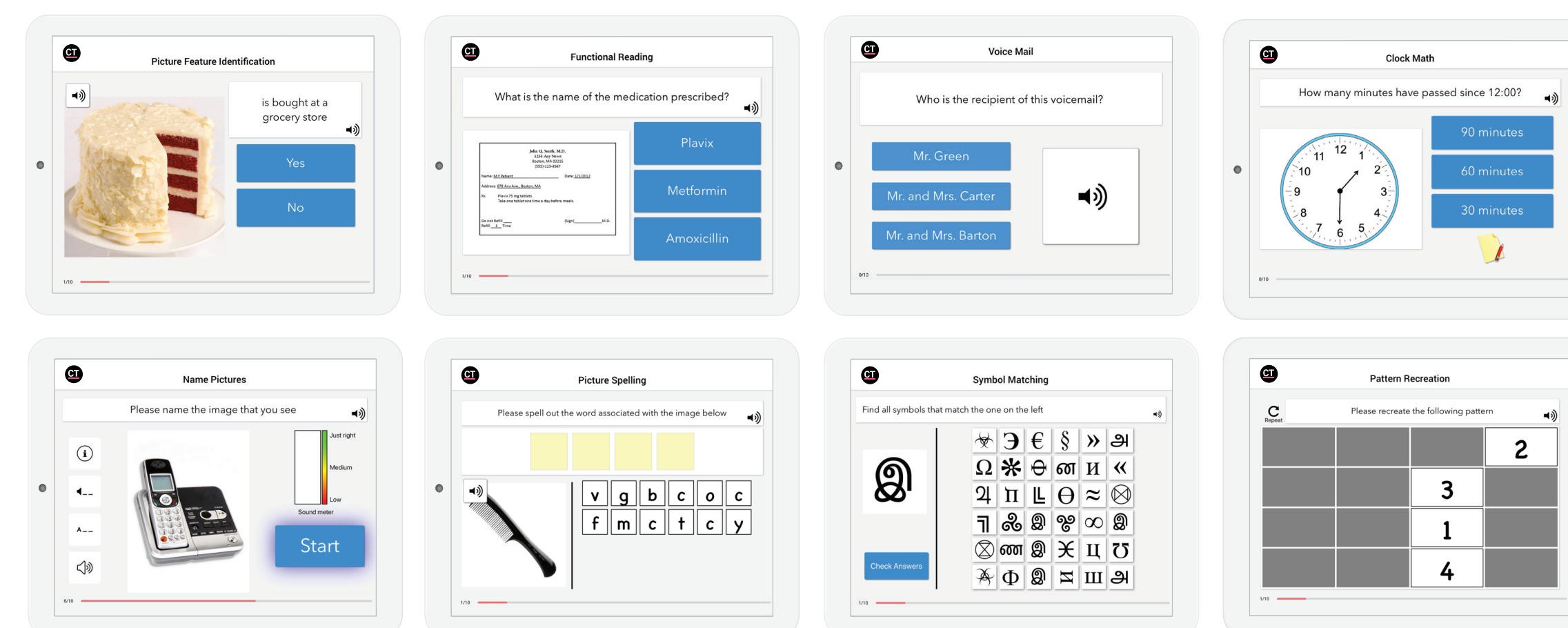
Research suggests some groups tend to have lower adoption of technology, including the elderly and those with lower education, income or live in rural areas[1,2]. Despite this, overall use of technology is trending upwards. For example, four-in-ten seniors now own smartphones, which is more than double compared to 2013[1]. Therefore, many clinicians and researchers are investigating technology-based aphasia rehabilitation[3,4,5,6,7]. While findings show promise, the feasibility of PWA successfully using technology outside of the laboratory or clinical location is not well understood.

Constant Therapy (CT) is an example of a technology-based program that is used by PWA in the clinic and at home. CT has 80+ speech, language, and cognitive therapy tasks, and each user's program is personalized to the skills they want to work on. In a retrospective analysis where participants consented to their anonymized data being analyzed, we examined user demographics to understand if there are any characteristics that result in more successful use of the program at home.

HOW DOES CONSTANT THERAPY WORK?

Clinicians assign specific tasks for patients

Patients start personalized home program

Clinicians analyzes data on usage and performance

Patient completes Constant Therapy home program

EXAMPLES OF CONSTANT THERAPY TASKS

METHODS

- 3367 users endorsing aphasia or language deficits due to a stroke or TBI
- User demographics analyzed were: age, gender, time post-onset, education level, geographic location (i.e. U.S. state), and urban vs. rural location
- Activity metrics examined were: 1) Number of completed sessions in the first 20 weeks of using CT; 2) Average number of active days per week

## Descriptive Statistics of Users
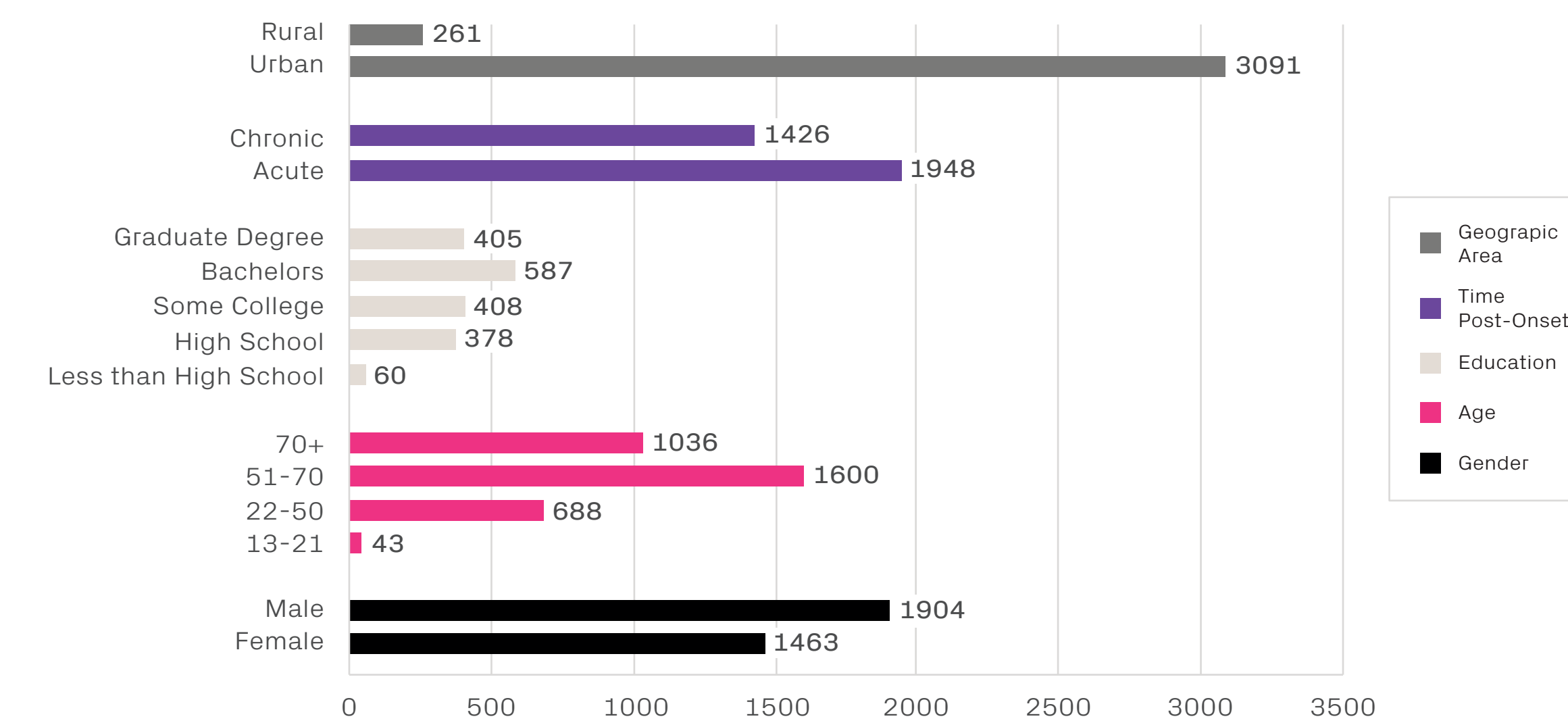
Demographics by Geography

Number of Users by State

Percent of Users in Rural Areas
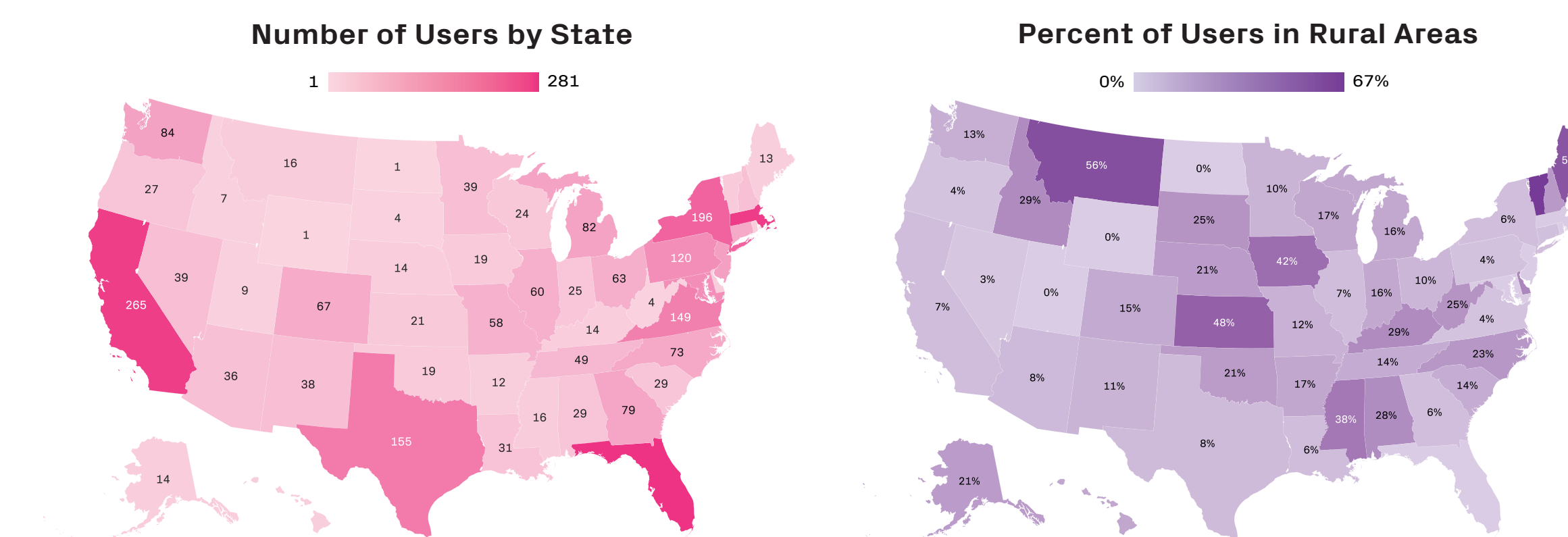
RESULTS

Activity Metric 1: Number of Completed Sessions in First 20 Weeks of Using CT

Results suggest a significant effect for living in a rural location (F(1,3350)=9.57, p<0.01), time post-onset (F(1, 3365)=8.73, p<0.01), and age group (F(4,3362)=2.50, p<0.05) on total number of sessions completed.

- Rural populations (M=46.3) completed **more** sessions compared to individuals in the urban areas (M=36.8)
- Individuals in the chronic stage (M=40.4) completed **more** sessions compared to individuals in the acute stage (M=35.5)
- >70 year old individuals complete **fewer** sessions (M=35.7) compared to individuals 51-70 (M=40.3)
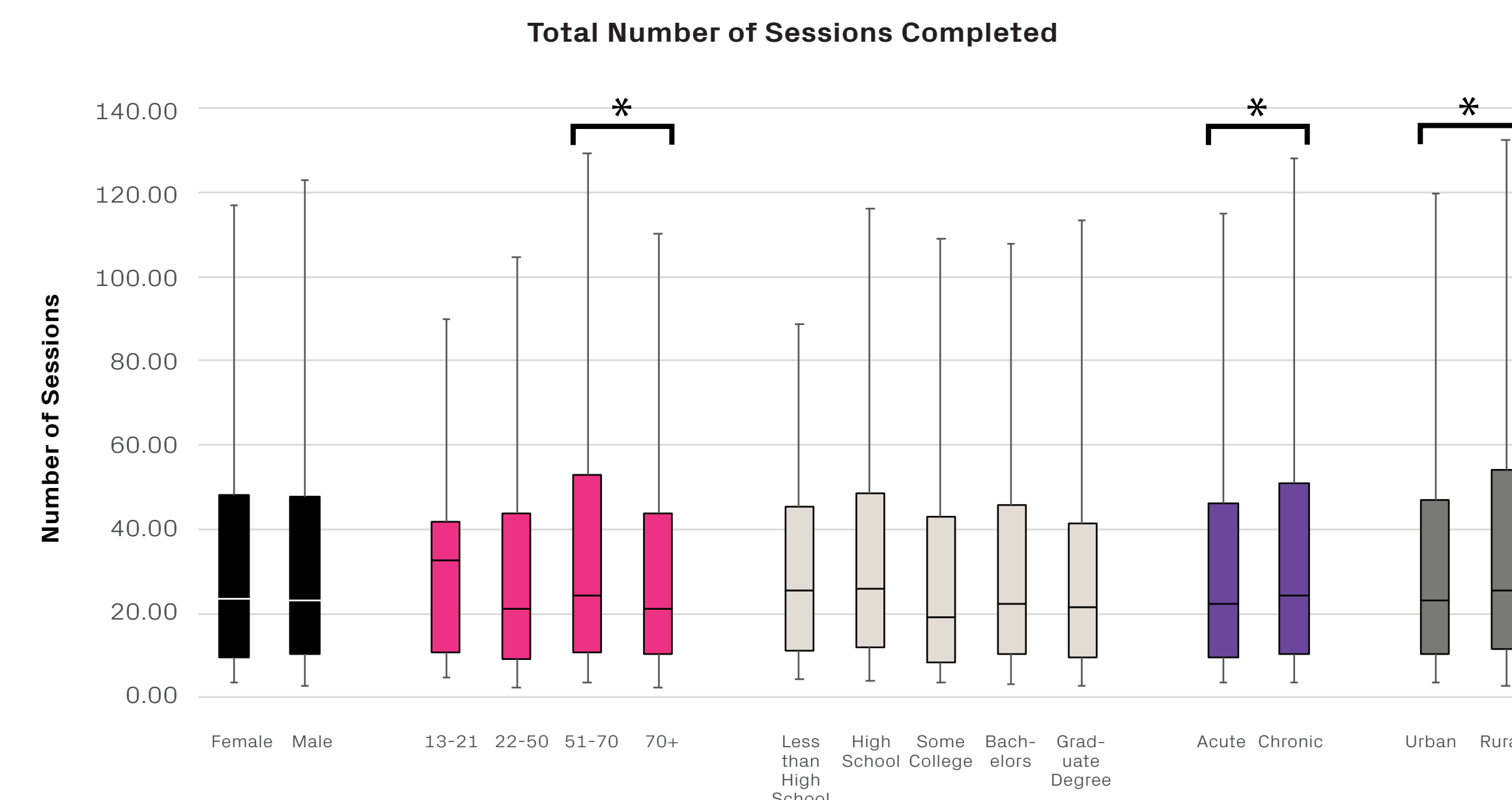
Activity Metric 2: Average Active Days per Week

Results showed that average active days per week was significantly different for living in a rural location (F(1,3350)=10.45, p<0.01) and different age groups (F(4,3362)=2.76, p<0.05).

- Rural populations had **more** active days per week (M=3.70) compared to individuals in the urban areas (M=3.16)
- >70 year old individuals had **fewer** active days per week (M=3.02) compared to individuals 51-70 (M=3.33)
- We did not observe a significant difference by time post-onset on average active days per week
- Gender and education was not significantly associated with differences on any activity metric
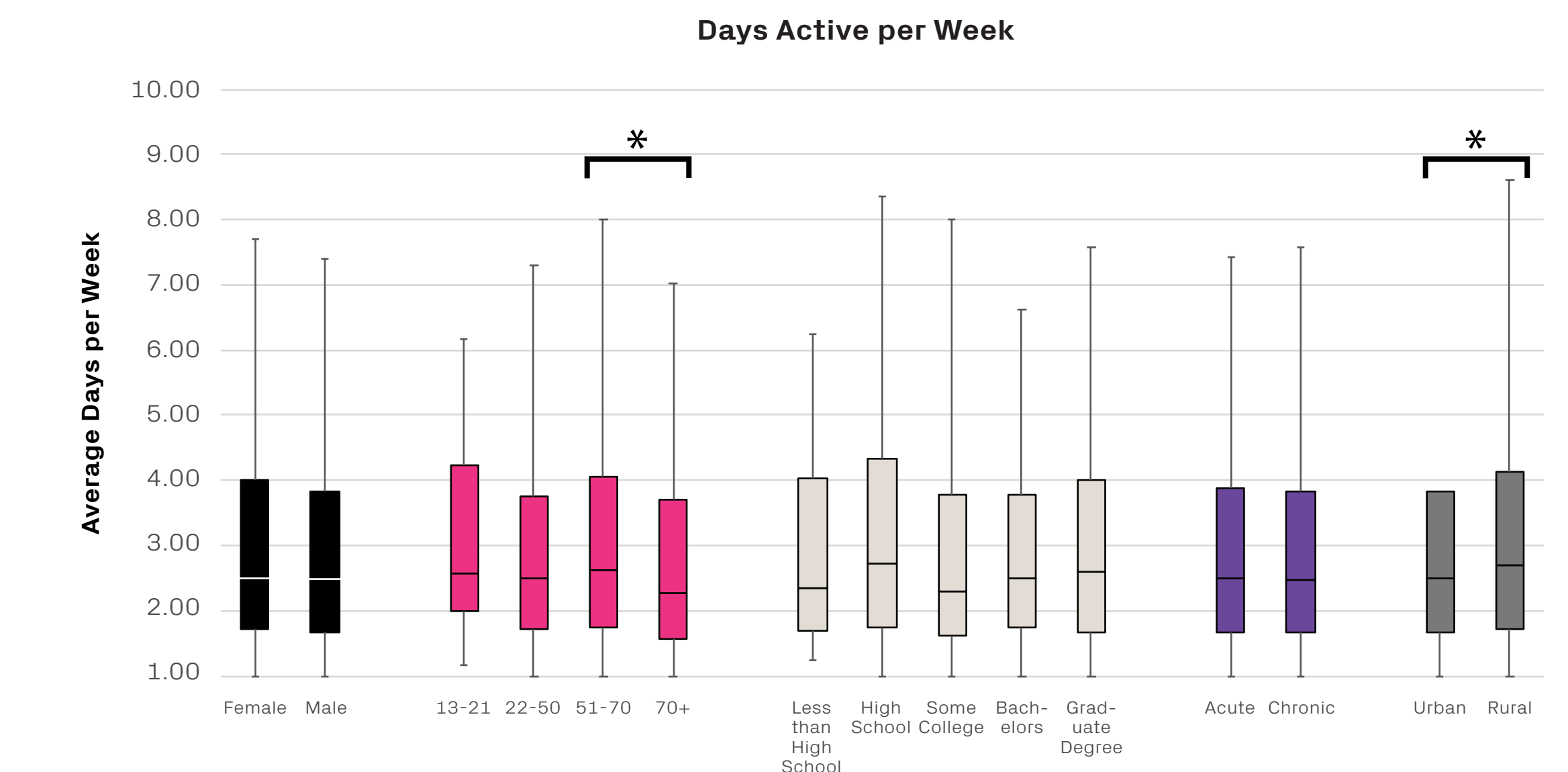
SUMMARY

- Results suggest gender, time post-onset, education, and U.S. state do not pose a significant barrier to engagement.
- Although older PWA (>70) were observed to be less active compared to 51-70 group, they still showed a considerable activity, suggesting that adults at any age can benefit from accessing digital therapies.
- Although there were more urban users (N= 3,091) than rural users (N=261), the rural users who did access CT completed more sessions and had more active days per week. This suggests that while there might be some barriers for individuals in rural areas to access technology-based healthcare solutions, those that do are actively engaged and can benefit from the digital therapies.

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