

Quick Review of Model System Research

Pilot Feasibility of an mHealth System for Conducting Ecological Momentary Assessment of Mood-related Symptoms Following Traumatic Brain Injury¹

What is the study about?

This study tested a mobile app as a way to measure depression and anxiety for people with TBI. This could allow new ways to measure mood with smartphones for people with TBI. The app was designed to repeatedly ask questions about emotional and physical health to make a better assessment of emotional and physical health in real-time. This method of frequently asking questions in real-time to track symptoms is called ecological momentary assessment (EMA).

Who participated in the study?

This study had 21 participants. Participants had mild-to-severe TBI, were more than 18 years old, and could provide informed consent. Participants had to have access to and the ability to independently use an Android or iPhone smartphone or tablet with a data package. Individuals were excluded if they had lasting suicidal thoughts within the past 3 months. Participants were excluded if they were not available for communication, could not download the application, did not complete the daily assessments, or were in a nursing facility.

How was the study conducted?

Researchers took an intake about participants' mood and asked participants to use the app for 8 weeks. Participants were interviewed by phone twice a week. Participants completed multiple validated assessments about mood daily to gain scores for depressed mood, lack of interest, general anxiety, fatigue, and emotional state. Investigators documented completion rates for participants (compliance), how likeable participants thought the application was (satisfaction), and how usable the application was in terms of design and layout (usability). The investigators also developed a mechanism to identify participants who indicated suicidal thoughts.

What did the study find?

The data suggest that individuals with TBI can adhere to daily assessments and were satisfied with using a smartphone application to track mood-related symptoms. The assessments took <2 minutes daily. Information obtained from the smartphone correlated well with the phone call information, establishing its validity. Participants were highly satisfied, completed assessments frequently, and found the app easy to use. However, participants did report some technical problems using the application. This study supports using technology as a means to administer previously validated biweekly screening tools for depression and anxiety that may be used for long term monitoring.

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¹ Juengst, S.B., Graham, K.M., Pulantara, I.W., McCue, M., Whyte, E.M., Dicianno, B.E... Amy K. Wagner (2015) Pilot feasibility of an mHealth system for conducting ecological momentary assessment of mood-related symptoms following traumatic brain injury. *Brain Injury*, 29, DOI: 10.3109/02699052.2015.1045031