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Mixed Methods Research Lab | Department of Family Medicine and Community Health

# The Use of Patients' Digital Data During Mental Health Therapy Sessions

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# Definitions

Terms	Definition
Digital data	Data from social media, online search histories, and sensor devices.
Mental health quality of life	The 4 measures taken into account are vitality, social functioning, role-emotional, and emotional well-being.
Short Form Health Survey (SF-36)	SF-36 is a survey that measures quality of life.
Patient Health Questionnaire Depression Scale (PHQ-8)	PHQ-8 is a diagnostic and severity measure for depressive disorders in large clinical studies.
Generalized Anxiety Disorder-7 (GAD-7)	A self-reported questionnaire for screening and severity measuring of generalized anxiety disorder.
Therapeutic Alliance Inventory	The alliance consists of three elements: agreement on goals of treatment, agreement on tasks, and development of personal bond made up of reciprocal feelings.

# Background and Significance

- ▶ From 2011 to 2021, there has been a 460% increase in mobile phone use and 25% increase in desktop use.
- ▶ Excessive smartphone associated with:
  - Mental health disorders (depression, anxiety, OCD, ADHD, and alcohol use disorder)
  - Difficulties in cognitive-emotion regulation, impulsivity, impaired cognitive function, addiction to social networking, and low self-esteem.
- ▶ Digital data can provide insights about an individuals' mood, behaviors, experiences, and psychiatric disorders.

Zenith via Recode, Wacks et al, Marsch et al.

# Objective

- ▶ **To test if providing regular summaries of patients' data from digital sources to patients and their therapists for use in mental health therapy sessions improves health-related quality of life.**

# Design, Setting, and Participants

- ▶ Randomized control trial of adult outpatient tele-mental health therapy
- ▶ Patient Groups
  - Intervention: using dashboard in tele-mental health therapy
  - Control: tele-mental health therapy without the dashboard
- ▶ With consent, summary of patients' digital data was used to populate a personalized dashboard.
- ▶ Timepoints surveyed: baseline before each session and after each session, 60 days, 90 days

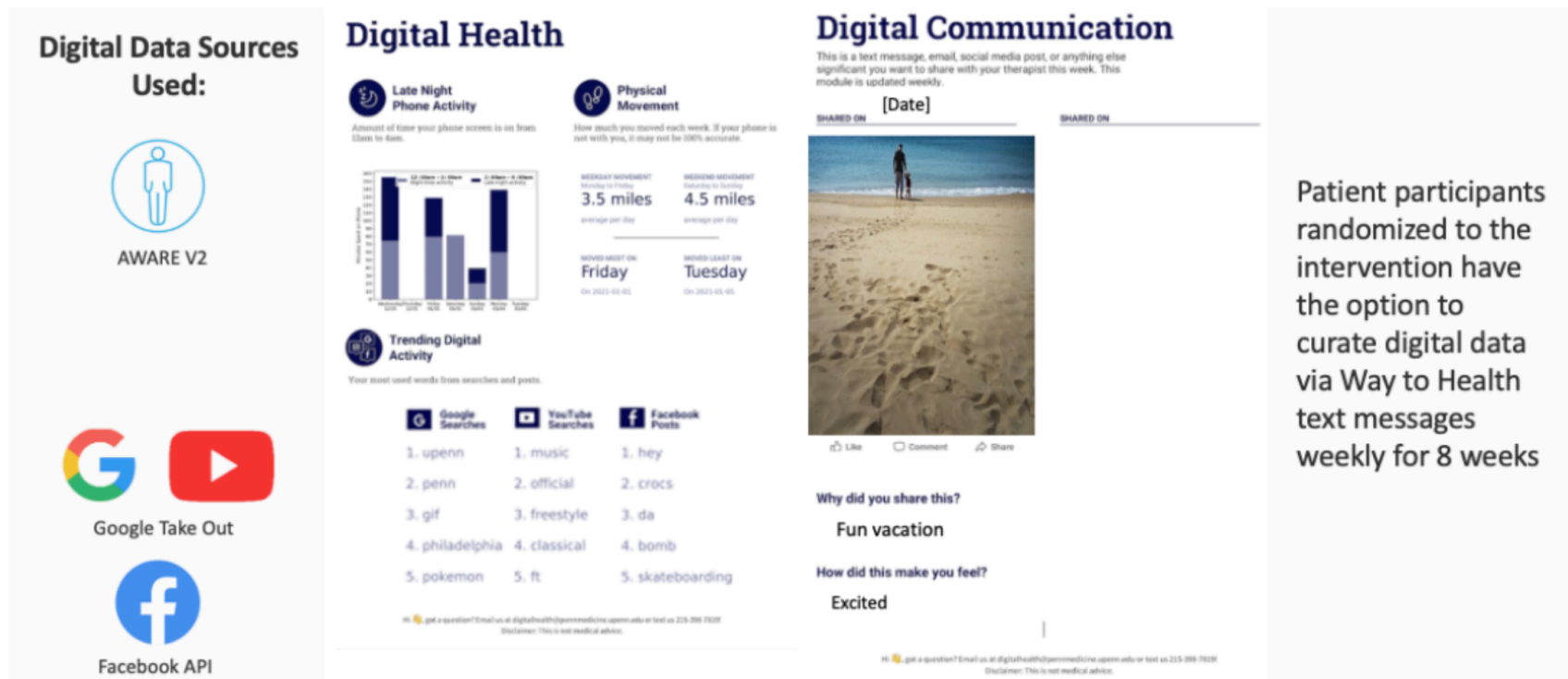


# Intervention

- ▶ Digital dashboard summarizes patient's digital activity
  - Delivered at least 24 hours prior to session
  - Suggestion to jointly review dashboard in session
- ▶ Weekly appointment reminder and request to share any additional data from digital sources 48 hours prior to their scheduled therapy appointment to include in the dashboard

# Dashboard

- Four sections: late night phone activity, physical movement, trending digital activity, and digital communication.



# Primary Aim and Hypothesis

## Primary Aim

- ▶ Evaluate changes in quality of life and mental health functioning using the Short Form Health Survey (SF-36)

## Hypothesis

- ▶ We hypothesized that patient participants in the intervention group would have an improved Short Form Health Survey score at day 60, compared to patient participants in the control group.



# Secondary Aim and Hypothesis

## Secondary Aim

- ▶ Evaluate changes in anxiety, depression symptoms, and therapeutic alliance.

## Hypothesis

- ▶ We hypothesized that participants in the intervention group would have improvements in the Patient Health Questionnaire (PHQ-8), generalized anxiety disorder scale (GAD-7), and working therapeutic alliance inventory (WAI) measures over the study period.

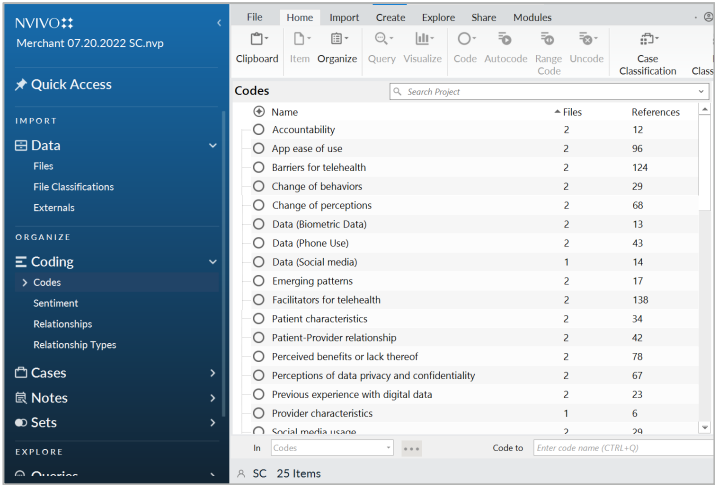
# Methods: Qualitative

**Data Collection:**  
intervention

**Coding:**  
codebook development, initial coding, inter-rater reliability meeting (IRR), final coding

**Analysis:**  
collect findings, manuscript development

**Sharing Findings:**  
share manuscript with Principal Investigator, make adjustments



Coding done on NVivo

Code	Definitions/Subcodes	Examples
Emerging patterns	any mention of behavioral patterns seen in dashboard.	
Study experiences	Positive experiences	
	Neutral experiences	
	Negative experiences	

Codebook

# Preliminary Qualitative Patient Findings

- ▶ Around 15% of the patients in the intervention group noted an increase in reflecting about their mental health
- ▶ Some patients in interventions noted improvement in mental health (anxiety)
- ▶ Over a third of patients in the intervention group reflected and re-examined extensive time on their phone, especially at “late times.” Multiple patients decreased phone use or social media usage and found an improvements in their mental health.
- ▶ The dashboard provided some patients with important talking points during sessions, kept some participants accountable, and allowed patients to communicate with therapist through other methods.

“It has been a very positive experience in the study. I have found myself trying to become more aware of my digital technology use and has been a theme that I've discussed quite a bit in therapy. I think that being a part of this study has helped me realize the impact of my phone use on my anxiety, and served as a starting block to discuss this in therapy”

"I liked using it as a way to improve what I do with my therapist. I found a TikTok that allowed me to express something I hadn't previously been able to express and that helped me move in a new direction with my therapists help."

# Future Directions

- ▶ Combining preliminary qualitative analysis from patient and therapist final surveys
- ▶ Cleaning up the manuscript and sending it to the Principal Investigator for approval or any adjustments
- ▶ Calculating the scores from the Short Form Health Survey, Patient Health Questionnaire, Generalized Anxiety Disorder scale, and the Working Alliance Inventory and running statistical analysis to compare the differences prior to the intervention and after the intervention
- ▶ Improve the intervention with findings and implement

# My Roles

## This Project

- ▶ Coded 99 patient final surveys and 20 provider final surveys
- ▶ Collaborated with Research Coordinator to reach high inter-rater reliability (IRR)
- ▶ Conducted preliminary analysis
- ▶ Worked on manuscript development

## Other Projects

- ▶ Cleaned transcripts, removed identifiable information
- ▶ Developed codebook based on emerging themes throughout transcripts

# Lessons Learned

- ▶ The benefits of sharing patients' digital data with therapist
- ▶ Qualitative analysis technical skills: conducting interviews, cleaning transcripts, coding through NVivo, IRR meetings, and developing manuscripts.
- ▶ The importance of mixed methods, specifically qualitative research



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- ▶ Penn LDI
- ▶ SUMR Cohort '22

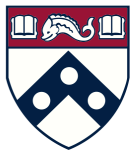


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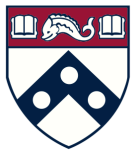
# Questions



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