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Mental Health Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

How to Co-Design Digital Peer Support Programs for Your Organization

Karen L. Fortuna, PhD, MSW
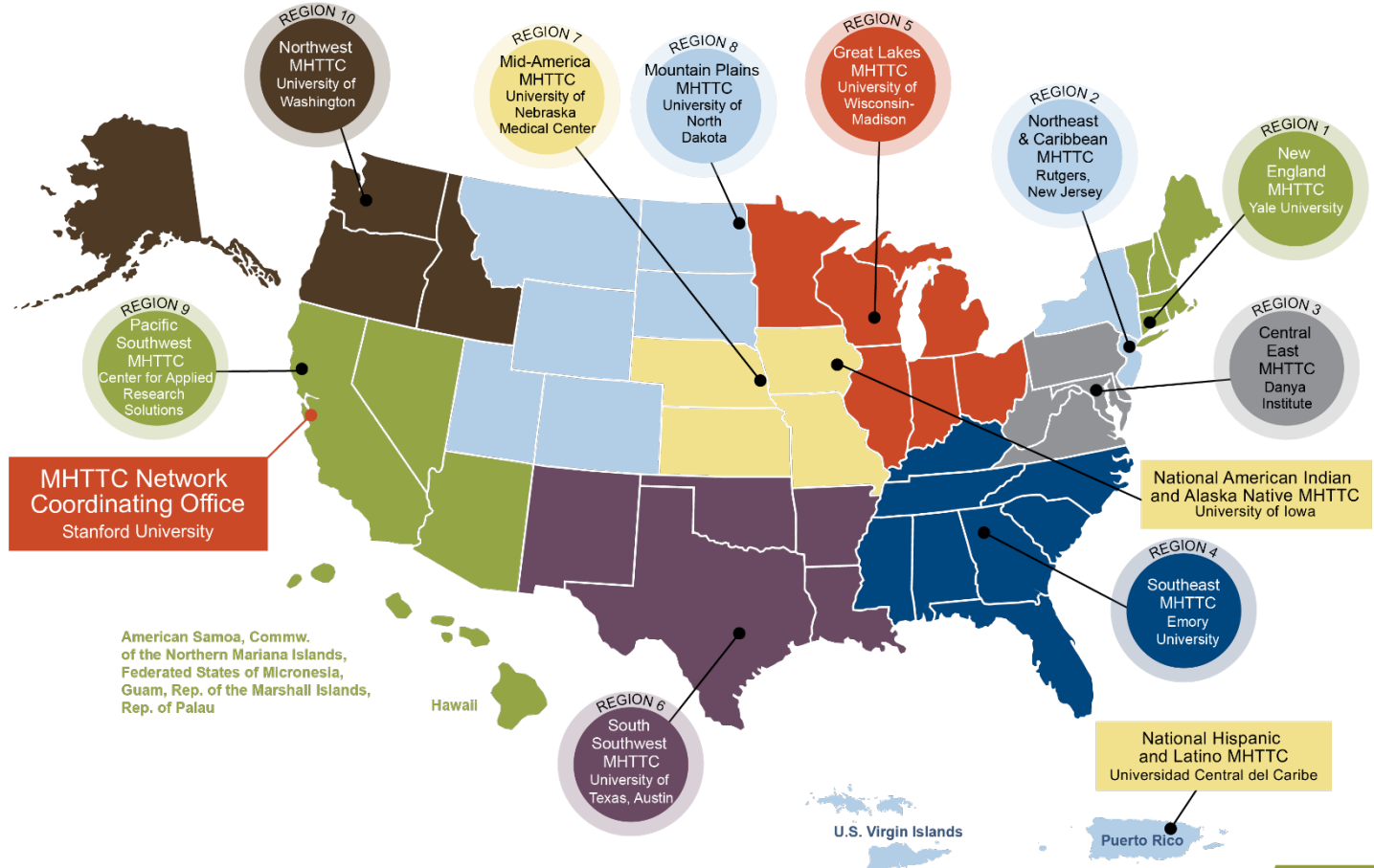**Assistant Professor of Psychiatry**
Dartmouth College

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Central East MHTTC Goals

Funded by SAMHSA to:

- Accelerate the adoption and implementation of mental health related evidence-based practices

- Heighten the awareness, knowledge, and skills of the behavioral health workforce

- Foster alliances among culturally diverse practitioners, researchers, policy makers, family members, and consumers

- Ensure the availability and delivery of publicly available, free of charge, training and technical assistance
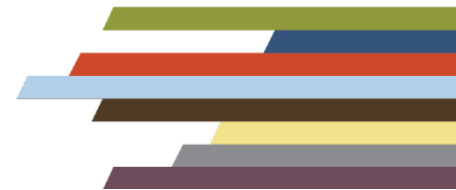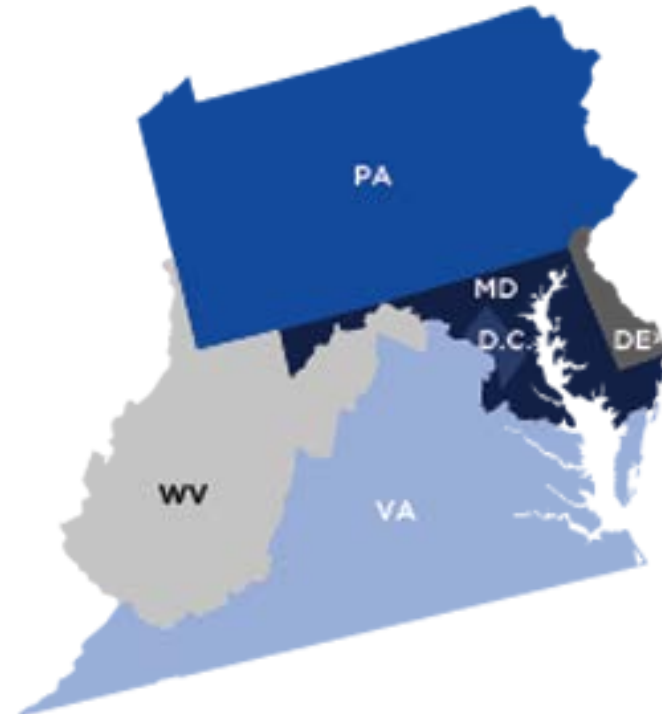
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Central East Region

HHS REGION 3

Delaware

District of Columbia

Maryland

Pennsylvania

Virginia

West Virginia

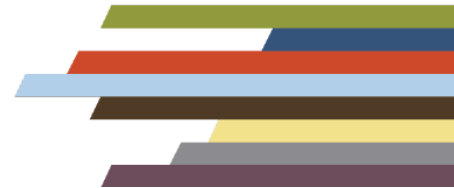
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Grant Support
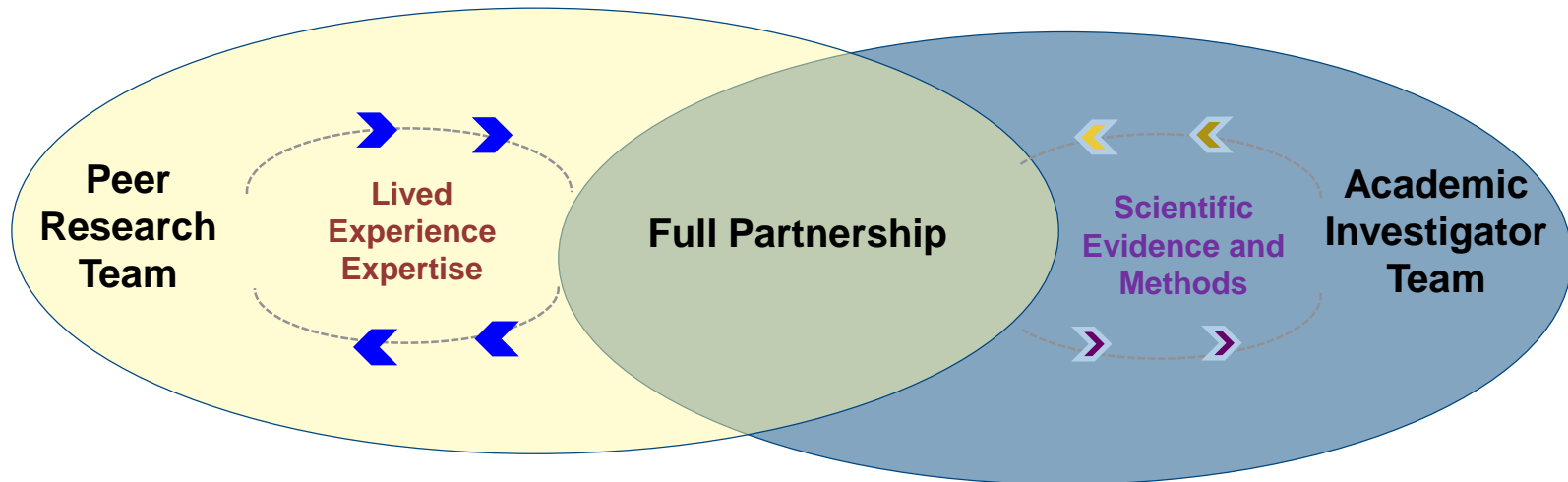
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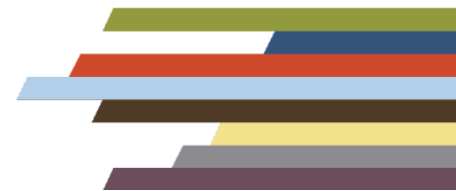
Agenda

- Law of Attrition

- User-Centered Design

- Community Engagement in Psychiatry Research

- Co-design of Digital Mental Health: Case Study

- Future Opportunities

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Peer-Academic Partnership

Peer Research Team — Lived Experience Expertise — **Full Partnership** — Scientific Evidence and Methods — **Academic Investigator Team**

Partnership is based on collaboration, engagement, shared decision-making, principles of reciprocal relationships, co-learning, partnership, trust, transparency, and honesty

Planning the Study	Conducting the Study	Disseminating Results
-Intervention development	-Recruitment	-Social media, blogs, newsletters
-Developing research question	-Retention	-Presentations at local and nationals organization, provider and academic conferences
-Determining outcomes	-Intervention delivery	
-Implementation considerations		

What We Know About Digital Peer Support

- No geographical or time limitations;

- Can support fidelity-adherent delivery of peer-supported evidence-based practices;

- Promising evidence of effectiveness;

- Engages service users in digital mental health outside of clinical environments;

- Expands the reach of peer support services;

- Increases the impact of peer support without additional in-person sessions; and

- Potentially, can access hard-to-reach groups—rural residents, home-bound adults, etc.

Fortuna, KL, et al. [in press]. Systematic Review of Peer-Supported Digital Mental Health Interventions for People with a Lived Experience of a Serious Mental Illness. *JMIR: Mental Health.*

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Ubiquity of Smartphone Ownership

- 80-95% of people with a lived experience of a serious mental illness own and use smartphones.

- 95% of peer support specialists own and use smartphones.

- Smartphone apps designed for this population provide information, self-management, and evidence-based therapies.

Colder Carras M, Mojtabai R, Furr-Holden CD, Eaton W, Cullen BAM. Use of mobile phones, computers and internet among clients of an inner-city community psychiatric clinic. J Psychiatr Pract 2014 Dec;20(2):94-103.

Ben-Zeev D, Davis KE, Kaiser S, Krzsos I, Drake RE. Mobile technologies among people with serious mental illness: opportunities for future services. Adm Policy Ment Health 2013 Jul;40(4):340-343

Fortuna, KL, Aschbrenner, KA, Lohman, MC, Brooks, J, Salzer, M, Walker, R, St George, L, & Bartels, SJ. (2018). Smartphone ownership, use, and willingness to use smartphones to provide peer-delivered services: Results from a national online survey. *Psychiatric Quarterly, 89*(4):947-956.
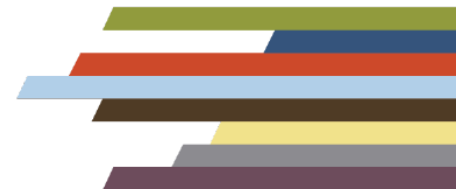
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Law of Attrition

- A fundamental challenge in conducting digital mental health research is disengagement (Eyesenback, 2005; Fortuna, under review).

  - Loss of intervention effect
 - Data integrity
  - Misinterpretations of findings

Eysenbach, G. The Law of Attrition. *J Med Internet Res* 2005;7(1):e11

Unintended Consequences of Promising Technological Advances

- Health informatics and digital health scientific communities to understand the challenges faced by disadvantaged groups, including racial and ethnic minorities and people with a lived experience of a mental health condition.

  — #mypokehood
 — Smartwatches and physical health trackers

Brewer, L, Fortuna, KL, Jones, et al. (2020).
Back to the Future: Achieving Health Equity through Health Informatics and Digital Health. *JMIR Mhealth Uhealth*;8(1):e14512

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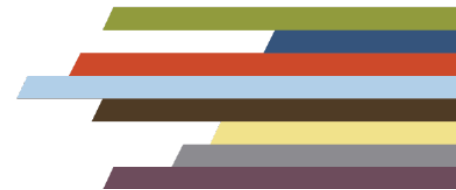
Need for Community Engagement in Psychiatry Research

- Fundamental mistrust in research
    - Reject medical model
    - Cohort effect
    - Passive monitoring and involuntary hospitalization

- Low research participation in the United States

- Insufficient uptake of research findings

Fortuna KL, Venegas M, Umucu E, Mois G, Walker R, MS, Brooks JM. Peer support specialists' ethical concerns in digital therapeutics. (under review).

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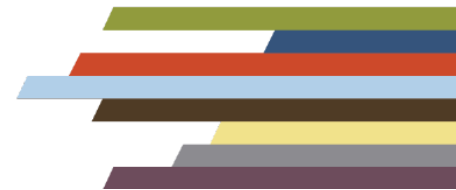
Systematic Review of Peer-Supported Digital Mental Health Interventions

- 24 digital peer support programs

- **Technology platforms**
  - Smartphone apps
 - Social media (i.e., Facebook)
  - Websites
  - Listserv

Fortuna, KL, et al. Systematic Review of Peer-Supported Digital Mental Health Interventions for People with a Lived Experience of a Serious Mental Illness. (in press).

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Systematic Review of Peer-Supported Digital Mental Health Interventions

- Most of the studies established support for the feasibility, acceptability, and preliminary effectiveness of the programs with regard to enhancing participants' functioning, reducing symptoms, and improving program utilization.

- Half of the studies (53%) included community engagement in intervention development.

- Studies with the highest level of digital health engagement employed active community engagement methods or a combination of active and consultative community engagement methods to develop digital peer support interventions.
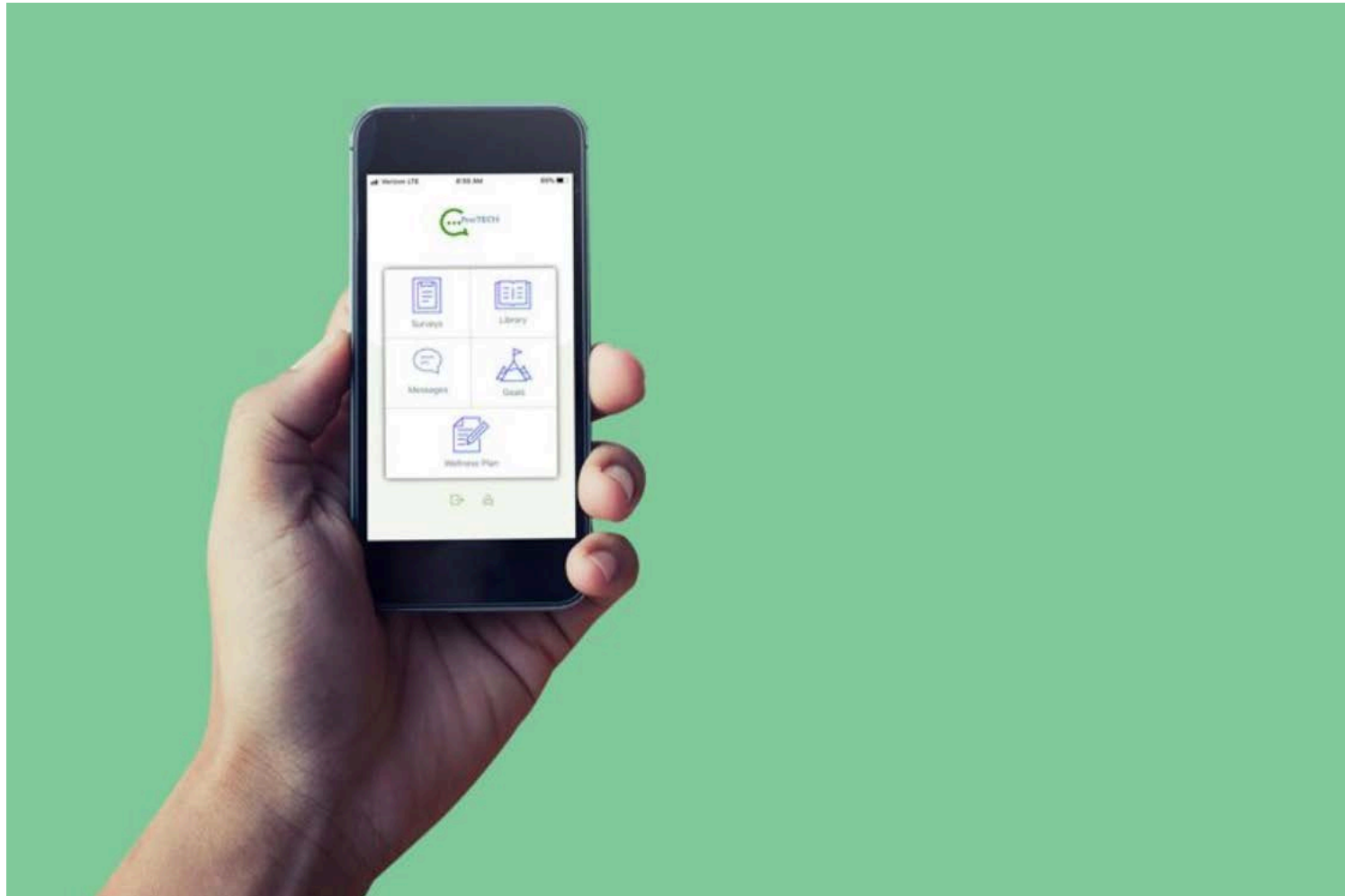
Fortuna, KL, et al. Systematic Review of Peer-Supported Digital Mental Health Interventions for People with a Lived Experience of a Serious Mental Illness. (in press).

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Case Study
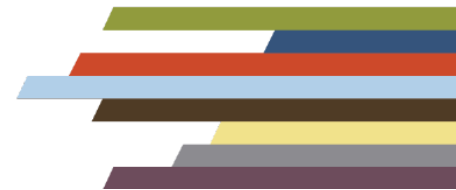
Early Mortality

- Adults with a lived experience of a mental health condition are disproportionately affected by medical comorbidity, earlier onset of disease, and have a shorten lifespan than people without a lived experience of a mental health condition.

- Age-related changes in metabolism, physiology, and activity that may contribute to the development of additional illnesses and worse health

DE Hert et al. (2011). Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 10(1):52-77.
Walker, E., McGee, R., & Druss, B. (2015). Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA Psychiatry*, 72: 334-341.

Systematic Review of Integrated General Medical and Psychiatric Self-Management Interventions for Adults With Serious Mental Illness

Karen L. Whiteman, Ph.D., John A. Naslund, M.P.H., Elizabeth A. DiNapoli, Ph.D., Martha L. Bruce, Ph.D., M.P.H., Stephen J. Bartels, M.D., M.S.

Objective: Adults with serious mental illness are disproportionately affected by general medical comorbidity, earlier onset of disease, and premature mortality. Integrated self-management interventions have been developed to address both general medical and psychiatric illnesses. This systematic review examined evidence about the effect of self-management interventions that target both general medical and psychiatric illnesses and evaluated the potential for implementation.
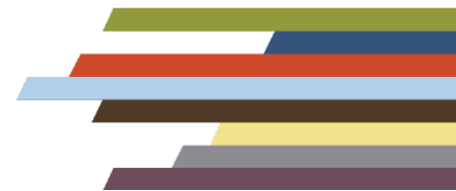
Methods: Databases, including CINAHL, Cochrane Central, Ovid MEDLINE, PsycINFO, and Web of Science, were searched for articles published between 1946 and July 2015. Studies evaluating integrated general medical and psychiatric self-management interventions for adults with schizophrenia spectrum or mood disorders and general medical comorbidity were included.

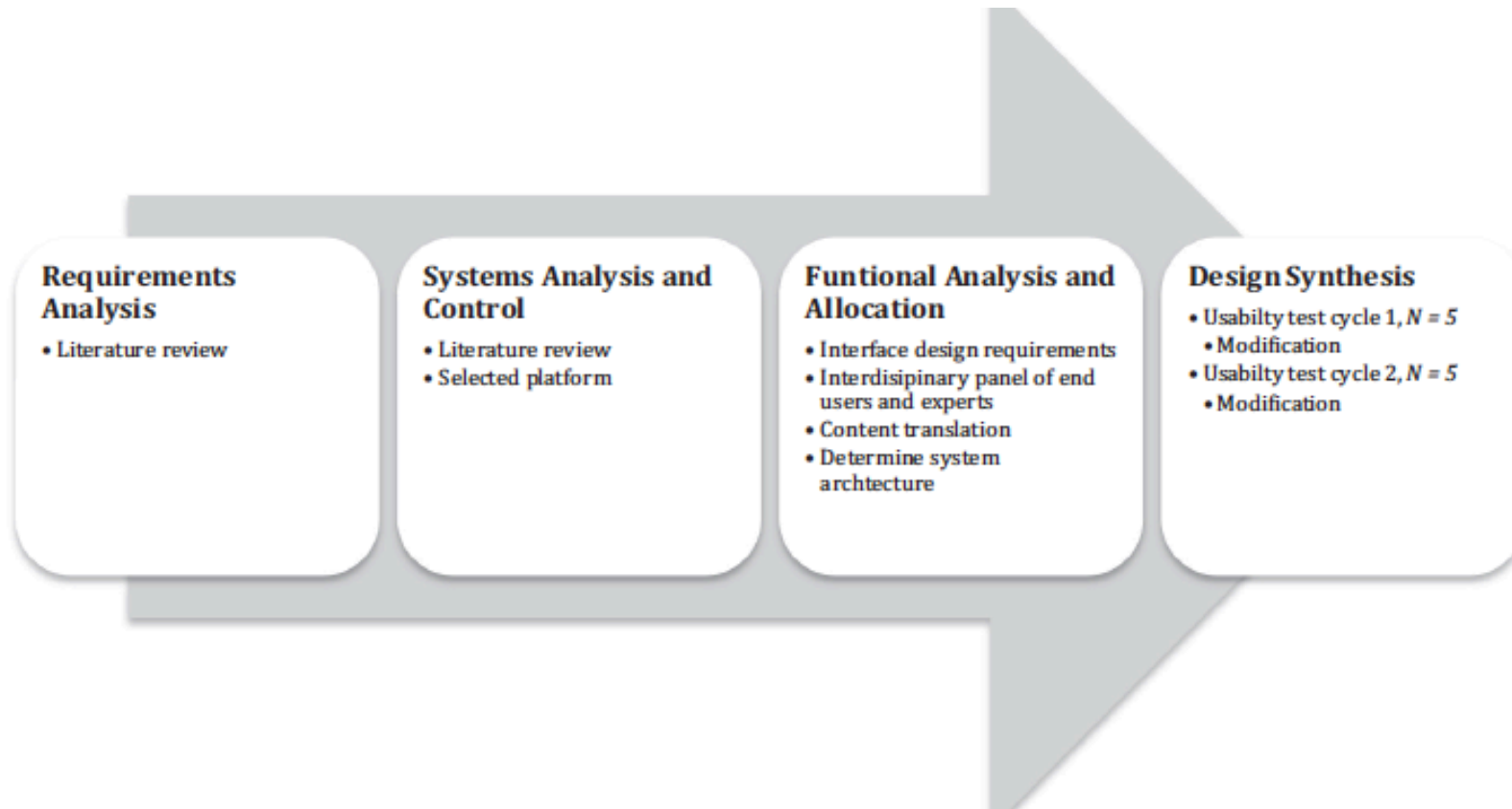**Results:** Fifteen studies (nine randomized controlled trials and six pre-post designs) reported on nine interventions: automated telehealth, Health and Recovery Peer program, Helping Older People Experience Success, Integrated Illness Management and Recovery, Life Goals Collaborative Care, Living Well, Norlunga Chronic Disease Self-Management program, Paxton House, and Targeted Training in Illness Management. Most studies demonstrated feasibility, acceptability, and preliminary effectiveness; however, clinical effectiveness could not be established in most studies because of methodological limitations. Factors identified that may deter implementation included operating costs, impractical length, and workforce requirements.

Conclusions: Integrated general medical and psychiatric illness self-management interventions appear feasible and acceptable, with high potential for clinical effectiveness. However, implementation factors were rarely considered in intervention development, which may contribute to limited uptake and reach in real-world settings.

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Adaptive Systems Engineering Approach

Requirements Analysis

- Literature review

Systems Analysis and Control

- Literature review
- Selected platform

Funtional Analysis and Allocation

- Interface design requierements
- Interdisipinary panel of end users and experts
- Content translation
- Determine system archtecture

Design Synthesis

- Usabilty test cycle 1, $N = 5$
  - Modification
- Usabilty test cycle 2, $N = 5$
  - Modification

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Designing Apps Based on Need

Identified Need	Design Feature
In real-world environments older adults commonly present with multimorbidity [29].	Capacity to address multimorbidity
Patients adopt and engage with health technology more if a human is part of an intervention [15].	Access to live and automated self-management support
Age-related memory loss and cognitive deficits results in poor medication adherence [30]. Notifications may help with medication management.	Behavioral tailoring for adherence
As the aging processes impacts recent memory of the formation of new memories [25]. Multimodal delivery of psychoeducation may decrease memory load.	Multimodal capacity
To facilitate adoption, on-demand features can be accessed at any time, in any place.	On-demand features
Adults with serious metal illness commonly experience depressive symptoms or anxiety [31] and difficulty in forming new memories [25] – both of which can inhibit working memory function [32] and motivation [33]. By contrast, game playing motivates engagement, learning, and behavioral change [34].	Game playing
Adults with serious mental illness commonly have limited health technology literacy and require specific design features [8].	(1) Simple user interface; (2) functional features that do not divide attention; (3) two-layer branching logic; (4) clear navigation; (5) contrasting screen layout

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Adaptive Systems Engineering Approach

Requirements Analysis
- Literature review

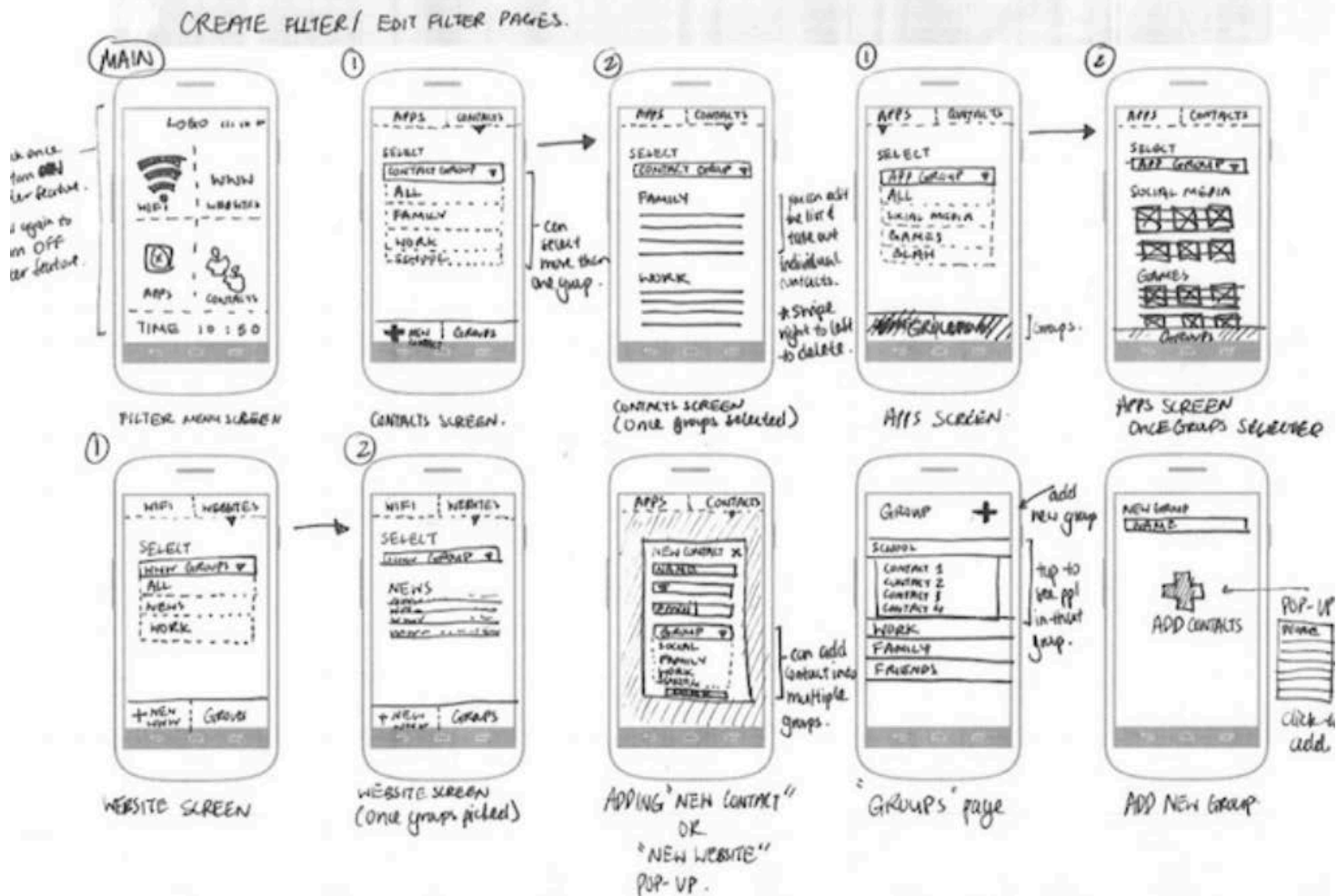**Systems Analysis and Control**
- Literature review
- Selected platform

Funtional Analysis and Allocation
- Interface design requirements
- Interdisipinary panel of end users and experts
- Content translation
- Determine system archtecture

Design Synthesis
- Usabilty test cycle 1, $N = 5$
  - Modification
- Usabilty test cycle 2, $N = 5$
  - Modification

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Developing App Pages (Wireframes)

Adaptive Systems Engineering Approach

Requirements Analysis
- Literature review

Systems Analysis and Control
- Literature review
- Selected platform

Funtional Analysis and Allocation
- Interface design requirements
- Interdisipinary panel of end users and experts
- Content translation
- Determine system archtecture

Design Synthesis
- Usabilty test cycle 1, $N = 5$
  - Modification
- Usabilty test cycle 2, $N = 5$
  - Modification

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PeerTECH Classes

- Introductions, Smartphone Orientation, and Recovery and Health
- The Body & The Brain
- Recovery and my Health
- *Practical Facts on Physical and Mental Health
- *Recovery and Wellness/Healthy Lifestyle
- Building Relationships
- Managing Stress
- How to Stay Well
- Getting What You Need from the Health Care System

Peer Support is embedded throughout the program.

PeerTECH App

Fortuna, KL. (2019). Community engagement—A Starter Pack for Scientists.
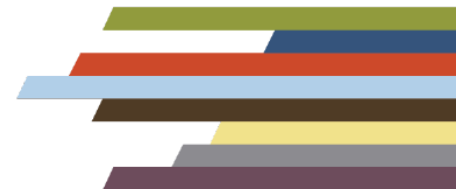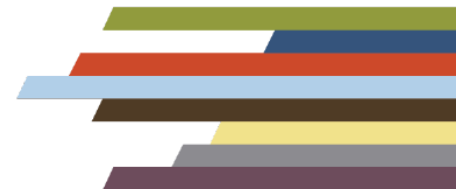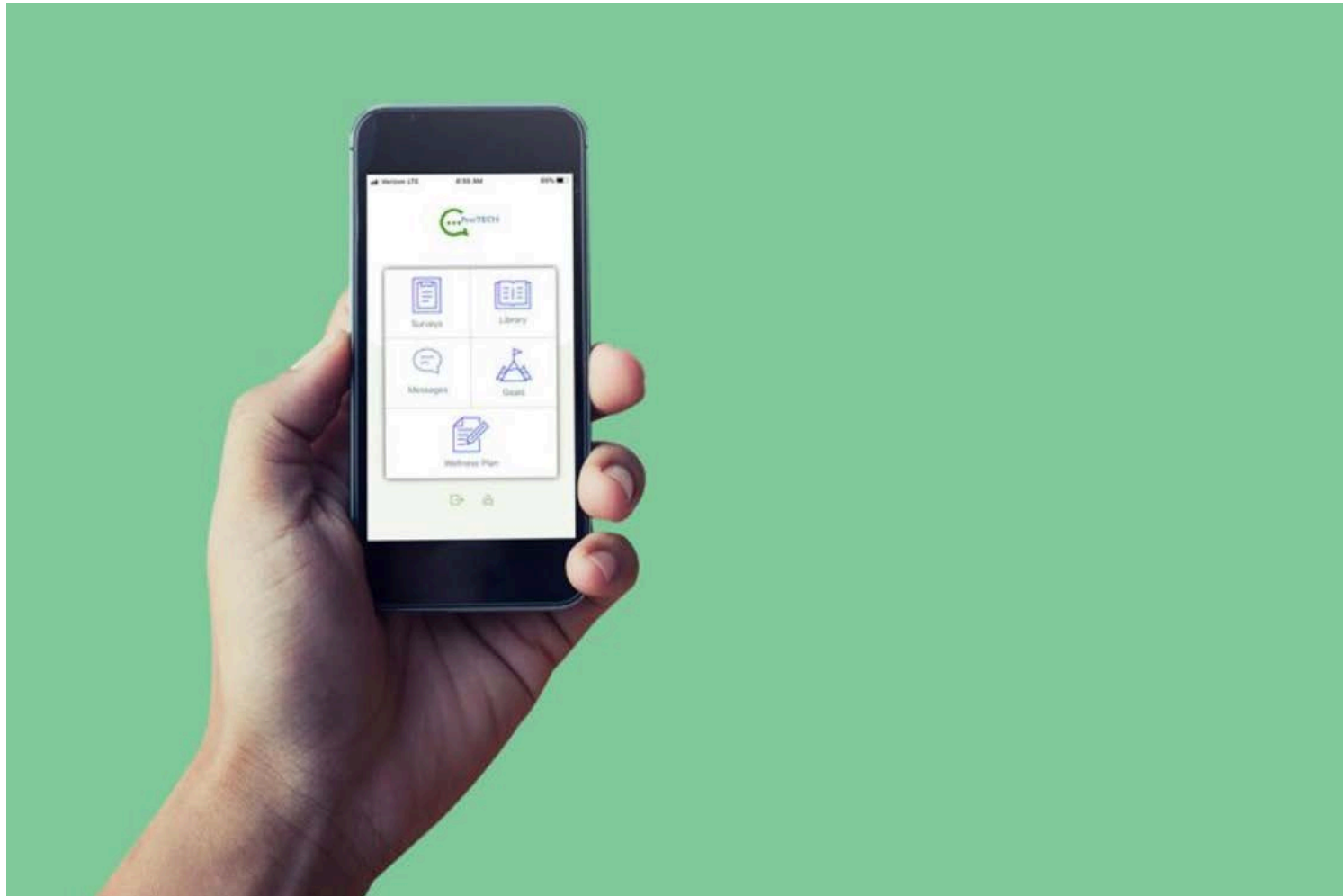
Sociodemographic Characteristics of Study Participants (N=8)

Characteristic	n (%) or mean (SD)
Age, years	
Mean (*SD*)	68.8 (4.9)
Range	62–77
Sex, n (%)	
Female	7 (87.5)
Male	1 (12.5)
Mental health disorder, n (%)	
Major depressive disorder	5 (62.5)
Schizophrenia	2 (25.0)
Bipolar disorder	1 (12.5)
Physical comorbidity, n (%)	
Obesity	6 (75.0)
Hypertension	6 (75.0)
Osteoarthritis	6 (75.0)
Diabetes	5 (62.5)
High cholesterol	4 (50.0)
Heart disease	2 (25.0)
Fibromyalgia	1 (12.5)
Chronic obstructive pulmonary disorder	1 (12.5)
Two or more chronic health conditions, n (%)	8 (100.0)

Iterative Intervention Co-Design

Feasibility, Acceptability, and Preliminary Effectiveness of a Peer-Delivered and Technology Supported Self-Management Intervention for Older Adults with Serious Mental Illness

Authors | Authors and affiliations

Karen L. Fortuna ✉ , Peter R. DiMilia, Matthew C. Lohman, Martha L. Bruce, Cynthia D. Zubritsky, Mitch R. Halaby,

Robert M. Walker, Jessica M. Brooks, Stephen J. Bartels

Smartphone app may help older adults manage serious mental illness and chronic health conditions

New study in The American Journal of Geriatric Psychiatry indicates that middle-aged and older adults have the potential to use tailored smartphone interventions to self-manage their illness

Share this: [f] [y] [8+] [in] [F] [e] [✉] [o]

Philadelphia, PA, August 15, 2017

The use of new technologies in geriatric psychiatry shows promise for advancing personalized medicine and improving patient care. A new study ↗ in *The American Journal of Geriatric Psychiatry* ↗ describes the successful adaptation of an integrated medical and psychiatric self-management intervention to a smartphone application for middle-aged and older adults with serious mental illness.

Innovative Apps Connect Elderly to Psychiatric Care

Smartphone technology offers wide-ranging opportunities for delivering essential interventions directly to patients, making treatment more efficient and, in some cases, more effective.

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Benefits of Peer-Academic Partnership

- Content is important to community
- Better engagement (human factors)
- More effective recruitment and enrollment
- More effective retention
- Higher potential for uptake in the real-world
- Empowerment of community partners
- Co-learning with partners
 - New ideas and insights
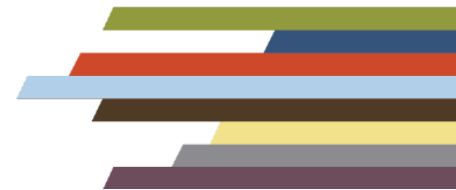
Peer Quote from the Co-Design Team

- *"Working as part of this project was a new experience for me. I never knew if I was being directed by the Dartmouth folks, or if I was directing them. This is the true definition of co-learning, trust, and partnership."*
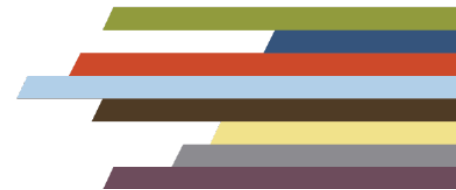
Research Ethics Training

Fortuna, KL., et al. [under review]. Peer Support Specialists' Reflections on Research Ethics Training.
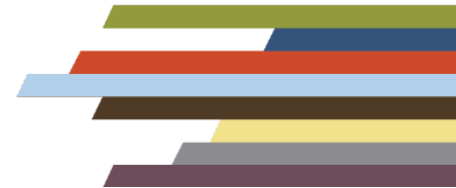
Recovery-Focused Standards

Enhancing Standards and Principles in Digital Mental Health With Recovery-Focused Guidelines for Mobile, Online, and Remote Monitoring Technologies

Karen L. Fortuna, Ph.D., M.S.W., Robert Walker, M.S., C.O.A.P.S., Daniel B. Fisher, M.D., Ph.D., George Mois, L.M.S.W., Stephanie Allan, M.A., Patricia E. Deegan, Ph.D.

Before the 1970s, the notion that people diagnosed as having a mental health condition could manage symptoms and return to work, school, and a full life in the community was not widespread. Through advocacy efforts by people with lived experience of a mental health condition, recovery-focused care has become a fundamental part of mental health service delivery across the globe (1) and is considered a complementary approach to traditional biomedical psychiatric care (2).

Digital mental health interventions should embrace multiple dimensions of health. People with lived experience of a mental health condition commonly present with other difficulties such as health conditions, substance use issues, and lack of social support—all of which affect overall health. Mental health recovery is not a singular task of monitoring and addressing psychiatric symptoms; rather, recovery involves addressing the complex interaction between an individual's biological, psychological, and sociocultural

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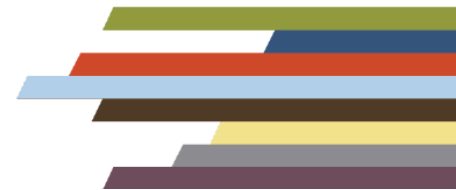
Evaluation

Evaluation Link

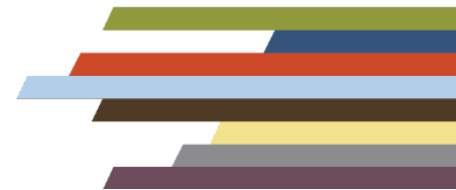Once you complete the evaluation, you will be directed to the resource page and certificate request form.
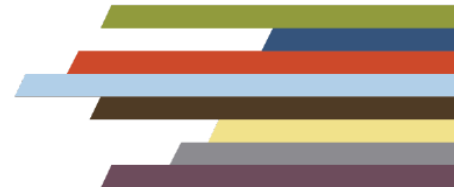
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Appreciation

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Central East MHTTC website

Oscar Morgan, Project Director

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Email
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