Managing AsThma AnD Obesity Related Symptoms (MATADORS) study: An mHealth intervention to facilitate symptom self-management among youth

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PURPOSE

- Background: Youth with multimorbidity are at the same increased risk of morbidity and early mortality as adults. There are 6.2 million U.S. children with asthma (8.4%) and 13.7 with obesity (18.5%), with higher rates among minorities. Asthma & obesity are inflammatory in nature and contribute to cardiovascular disease.
- The purpose of this study is to integrate nurse-guided, family-centered, self-management strategies with mHealth technology to improve symptom self-management for youth with asthma and obesity.
- We will develop and evaluate the feasibility of a low-cost, easy to use, readily available nurse-guided *MATADORS* mHealth intervention that leverages key motivational enhancement (ME) principles using a behavioral activation (BA) framework strategies to facilitate asthma and obesity symptom self-management among youth ages 10-17 years.
- Central hypothesis: integrating key evidence based behavioral change principles (ME & BA) within a family-centric model within this mHealth intervention will enhance self-management skills and capacity of youth with asthma & obesity to reduce symptoms of fatigue, pain, depression, and anxiety and improve health promoting behaviors and quality of life.

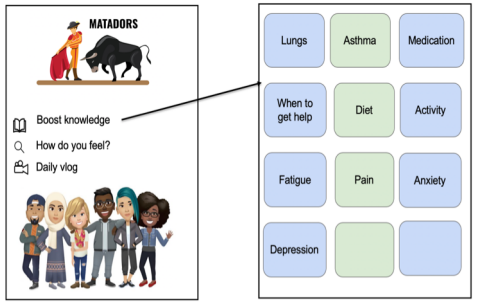
FRAMEWORK/SPECIFIC AIMS

Theoretical Frameworks: Pediatric Self-Management Model and RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance)

AIM 1: Identify the barriers, facilitators, needs, and preferences toward adopting health behaviors, medication adherence, disease awareness, symptom self-management behaviors, and utilization of a mobile platform, including content availability, delivery approaches, system needs, and functionality among youth with asthma & obesity, their primary caregivers, & clinical providers.

AIM 2: Investigate the feasibility of a 6-week evidence based, nurse-guided, mHealth self-management intervention for youth with asthma and obesity (ages 10-17).

Figure 1. Exemplar of Wireframe Layout



METHODS

Design: Multi-phase, multi-method study building off our existing Smartphone Asthma Monitoring System (SAMS) app

Aim 1:
- Wireframe development (iterative process for app design to conceptualize content, visualization for software developers, sequencing of functionality, & incorporation of user experience).
- Clinician Key Informant Interviews (n -10)
- Youth (ages 10-17) & caregiver dyadic KIIs (n =30)

Aim 2:
- Enroll youth (n =30) to intervention versus control (2:1)
- Intervention: 6 weeks SAMS + MATADORS with Fitbit and nurse guided support
- Control: 6 weeks SAMS
- Data collection: Baseline, daily, end of study, and post-intervention (week 12); end of study includes qualitative dyadic interviews

Table 1. Key Measurements/Instruments

PROMIS/Neuro-QOL measures:	Other Key Measurements:
Pediatric Fatigue	Short Assessment of Health Literacy
Pediatric Emotional Distress: Anxiety	Asthma Control Test
Neuro-QOL Pediatric Pain	Activity tracker step count
Neuro-QOL Pediatric Fatigue	Bluetooth inhaler count
Pediatric Pain Interference	Ecological Momentary Assessment-symptom report
Pediatric Anxiety	Medication adherence-self report
Pediatric Depression	Qualitative Interviews

PROGRESS TO DATE

- Preliminary development of educational content for app complete
- Designed wireframe for app development in collaboration with software development team
- Amended initial IRB approval following COVID-19
- Worked with Honest Broker to identify potential participants
- Initiated recruitment for Phase 1
- Aim 1 qualitative data collection underway
- Clinician Key Informant Interviews (KIIs) (n = 7)

NEXT STEPS

- Complete Phase 1 KIIs (Clinician and Youth-Caregiver Dyads)
- Complete Aim 1 qualitative data analysis
- Refine app content based on Phase 1 findings
- Initiate Aim 2 pilot
- Aim 2 data collection and analysis
- Further iterative refinement of app based on pilot intervention period

For more information and PI contact, scan QR code:

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