Leveraging Technology Use in Small Scale Pilot Work to Obtain Extramural Funding

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Acceptability of mHealth Technology for Self-Monitoring Eating & Activity in Rural Men

- AIM: Examine feasibility and acceptability of health-related text messages and use of the FitBit One w/companion app to self-monitor eating and activity as perceived by rural men.
  - Internally funded: $5000 comprised from 4 UNMC sources

- 12 men (40-69) isolated rural, agricultural-based county
  - Inclusion/Exclusion Criteria
  - Recruited via community leaders

- March-Mid-April: Off-Peak season
Baseline

- Convened at local community center. After obtaining informed consent, men rotated individually through stations: Demographics/Surveys (Comfort w/Technology), Fit Bit One Training, Health Status (health history, BMI, resting HR, B/P), & Text Messaging

- Each man was given pseudonym identifier/PW, instructional manual, and troubleshooting contact number/email

- Instructed to wear FitBit on waist band for next 3 weeks during wake hours, input dietary intake on companion app, synchronize activity monitor daily, respond to text messages when prompted
Days 1-21

- Received 1-3 text messages daily over 21 days pushed via Microsoft Outlook through 3rd party mobile serve
  - Content framed around healthy eating, PA, & self-monitoring

- Men could track physical activity of other participants on companion app seeing only pseudonym identifiers

- Researchers were able to objectively measure/monitor men’s technology use through the companion app
Follow-Up

• 3 weeks post-baseline:
  • Completed 2 investigator-developed acceptability and feasibility surveys to evaluate satisfaction and device usage
  • Participated in a 90-minute focus group with 11 other participants
    • Important in obtaining contextual / cultural specifics

• 9 weeks post-baseline
  • Mailed a repeat survey measuring their continued use of the activity monitor
Participant Characteristics

- 12 men, ages 40-66, from 7 communities across the county
- 100% identified as being in ag related work field
- All high school graduates with 25% achieving 4-year degree or higher
- Ranged from overweight to obese III
- Average BMI 34.8 kg/m2 and percent body fat of 31.8
- 83% pre-hypertensive, with only 33% prescribed treatment
- All reported regular alcohol use, 17% consuming 8-14 drinks weekly
Self-Monitoring

75% of men wore the monitor all 21 days, 25% at least 9/12 days. 92% of men logged food intake, 75% on 15 or more days

Reported improved self-awareness of activity and food intake quality:

“They (Dashboard’s food log options) don’t have a section where it says T-bone the size of a dinner plate.”
Fitbit One®

• Reported improved mindfulness about their activity level when wearing the Fitbit with over half of men checking their activity level more than 5 times daily.

• Two devices lost by 6-weeks. Stooing, squatting, carrying items at waist level precipitated loss.

• Yet 7 men continued using Fitbit at least weekly through 6-week post-study.
Text Messages

• 58%- smart phone users, 100% response rate

• Men highly agreed the content of text messages promoted self-evaluation of eating and activity
  • How many glasses of water did you drink yesterday?

• Preferred 8am receipt:
  • “When I get up in the mornings- it reminds me for the day… to plan ahead to eat healthy.”

• Masculine tone and humor in the text message was desired. Feminine perceptions prompted negative reactions:
  • “I don’t do aerobics”
Poor Technology Infrastructure

• Old systems, slow dial-up, single computer homes
• Poor cell phone signals
• Used workplace and family as resources for access/navigation
• Disclaimer messages / split messages disliked
• Manual push process cumbersome
Fitbit One w/Companion App

Important Considerations:

• Subject’s app literacy/comfort level-training needs
  • Toggles, adapters, updated computers/phones,
  • Simple picture/video instructions
  • Smart phones encouraged real-time dietary logging

• Cultural relevance of app for dietary norms and occupational demands

• Automated app messaging

• Technology troubleshooting plan
Engaging Rural Men with Mobile Technologies for Weight Loss: A Randomized Controlled Trial
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Rural and technology both priorities

• Clearly explain why technology is innovative for rural
• Apps available in multiple languages
• Cultural tailoring of technology is key
  • Community-engagement
  • Pilot work
• Use of validated instruments
  • Mobile application rating scale (Tsai, 2007)
mHealth Implications for Self-Management

• Real-time monitoring offers a means to promote self-care awareness of daily activities, measurements, recordings, or observations to inform independent action.

• Maximize resource support/ access to community social networks and healthcare providers.

• Tracking of self-care goals, including goal attainment

• Log data analysis can reveal real-time insights into the user’s response to specific persuasive triggers in different situations (in terms of location, status of the user) providing new possibilities for the timing of persuasion.
Reference: