

Technology as a Health Intervention and the Self-Efficacy of Men

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Abstract

Mortality rates are higher for men than women. Limited knowledge exists regarding the specific components needed to design technology health tools to appeal to men. This study examined the relationship between the use of technology health tools and the role of self-efficacy in men and participation in healthy lifestyle behaviors.

Problem

Treatment of chronic diseases are projected to cost the U.S. healthcare system approximately \$4.2 trillion per year by 2023 (Anderko et al., 2012).

Men have been diagnosed with a higher percentage of chronic diseases than women (Duncan et al., 2012).

Few health interventions are designed exclusively for men (George et al., 2012).

Health interventions used by women do not appeal to men (Duncan et al., 2012).

Limited knowledge exists regarding the specific components needed to design technology health tools to appeal to men (Taylor et al., 2013; Vandelanotte et al., 2013) and sustain usage (Kelders et al., 2012).

Debate exists on the significance of theory-based technology health tool to increase and sustain participation in healthy lifestyle behavior (Webb et al., 2010).

Purpose

- Examine the relationship between the use of technology health tools and the role of self-efficacy in men and the influence on participation in healthy lifestyle behavior.

Healthy Lifestyle Behavior was measured by the 2010 Dietary Guidelines for Americans and Physical Activity Guidelines outlined by the U.S. Department of Health and Human Services (U.S. Dept. of Health and Human Service, 2014).

- Identify specific components that can be used to design technology health tools to increase the participation of men in healthy lifestyle behavior.

Relevant Literature

Self-efficacy a component of the **social cognitive theory**, was the theoretical framework for this study.

Self-efficacy has been effective in increasing participation in healthy lifestyle behavior (Kreausukon, Gellert, Lippke, & Schwarzer, 2012).

Technology Health Tools which monitor and manage diet and physical activity by use of the Internet (Lee, Park, Ho Yun & Chang, 2013) improved self-efficacy and increased participation in healthy lifestyle behavior (Kazer, Bailey, Sanda, Colberg, & Kelly (2011).

Technology health tools can be used to change health behavior (McCully, Don, & Updegraff, 2013).

According to Bao, Xiong, Hu, & Kibelloh (2013) computer self-efficacy in relationship to usefulness and intention to use is more significant for men than women.

The use of technology health tools to change physical activity and nutrition health behaviors of men is primarily untested (Duncan et al., 2012).

Technology health tools that successfully prevent and manage chronic diseases are limited (Chaney et al., 2013).

Research Questions

Research Question 1

Is there a quantitative effect of the use of technology health tools on participation in healthy lifestyle behavior?

Research Question 2

Is there a quantitative effect of self-efficacy on participation in healthy lifestyle behavior?

Research Question 3

What is the role of self-efficacy in mediating the relationship between the use of technology health tools and participation in healthy lifestyle behavior?

Procedures

Design

- Quasi-experimental nonequivalent control group design

Sample

- N = 990 men
- Two stage stratification sampling design
 - Addresses were selected from a database of residential addresses in the United States.
 - Adults in the household were selected by the "All Adult" or "Next Birthday" method.

Instrumentation

- Diet, physical activity and self-efficacy were measured by the **Health Information National Trends Survey (HINTS)** (National Cancer Institute, 2014).

Procedure

- Surveys were delivered via the U.S. Postal services.
- The overall response rate was 36.67%.

Data Analysis

| Research Question | IV Variable | Mediating Variable | Dependent Variable | Statistical Analysis |
|---------------------|--------------|--------------------|----------------------------|--|
| Research Question 1 | Health Tools | | Healthy Lifestyle Behavior | Descriptive Statistics Linear Multiple Regression t test |
| Research Question 2 | | Self-Efficacy | Healthy Lifestyle Behavior | Descriptive Statistics Linear Multiple Regression |
| Research Question 3 | Health Tools | Self-Efficacy | Healthy Lifestyle Behavior | Descriptive Statistics Linear Multiple Regression |

Findings

The effect of the use of technology health tools on participation in healthy lifestyle behavior of men was significant ($p = .026$, $p = .006$).

The effect of self-efficacy upon participation in healthy lifestyle behavior of men using technology health tools was significant ($p = .023$)

Results demonstrated self-efficacy mediated the relationship between the use of technology health tools and participation in healthy lifestyle behavior of men using technology health tools ($p = .018$)

Limitations

Data were collected for men and women; however, this study only focused upon men.

Questions could not be geared only to men.

Data were self-reported by participants.

Random assignment of participants was not possible due to the use of secondary data collected from the Health National Trends Survey (HINTS).

Conclusions

The inclusion of self-efficacy in the design of technology health tools increase the probability of men participating in physical activity and eating fruits and vegetables.

Results of this study confirmed a significant relationship between technology health tools used for self-management of diet and physical activity.

Self-efficacy is a theoretical component that should be used to increase the effectiveness of technology health tools.

Results are generalizable to 111,372,696 men in the United States (Westat, 2012).

Social Change Implications

Knowledge for the development of technology health tools that will increase participation of men in healthy lifestyle behavior because they appeal to men.

Reduce the number of men with chronic diseases.

Improve chronic disease management.

Support the U.S. federal government's Healthy People 2020 objective to increase Internet health management tool use.

Reduce healthcare costs in the United States.

Committee

Chair: **Diane Cortner**, Second Member: **Shirley Gerrior**, URR Member: **Rodney Bowden**