Family Nurse Practitioners' Use of mHealth Apps for Health Promotion with their Patients

VILLANOVA UNIVERSITY
M. Louise Fitzpatrick College of Nursing

Becky Coyle Mueller, PhD, RN, FNP-BC
Doctoral Dissertation, Villanova University

Introduction

- mHealth apps that are targeted for patients can complement nursing care
- Functions of mHealth apps:
  - Health data tracking
  - Health information and instruction
  - Communication
  - Guidance
  - Reminders
- 318,000 mHealth apps currently available, and 58% of smartphone users download mHealth apps
- It is not clear if family nurse practitioners (FNPs) recommend or intend to recommend these apps to patients to promote health

Objectives

- To describe FNPs' intent to use and use of mHealth apps for health promotion with their patients
- To determine the types and the levels of frequency of mHealth apps recommended to patients by FNPs

Framework

The Unified Theory for Acceptance and Use of Technology (UTAUT)

- Utilized to determine the strength of predictors for FNPs' intent to use and use of mHealth apps for health promotion with patients

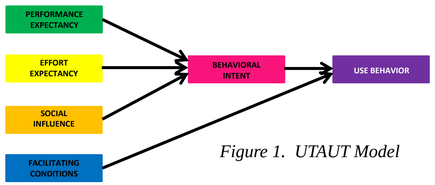


Figure 1. UTAUT Model

Framework

The Unified Theory for Acceptance and Use of Technology (UTAUT)

Defining The UTAUT Terms:

Performance expectancy: The degree to which the FNP believes that mHealth apps are useful and improve their quality of work

Effort expectancy: The FNP's degree of ease associated with recommending mHealth apps to patients

Social Influence: The degree to which the FNP perceives peer and colleague support to recommend mHealth apps to patients

Facilitating conditions: The degree to which the FNP believes that an organizational infrastructure exists to support mHealth app use with patients

Behavioral intent: The degree to which the FNP has formulated conscious plans to recommend mHealth apps to patients in the next six months

Use behavior: The performance of recommending mHealth apps to patients, which is assessed by asking FNPs to rank the frequencies with which they currently recommend different types of mHealth apps to patients

Methods & Materials

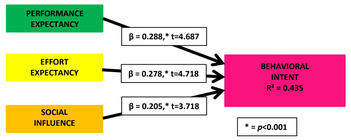
- Customized a 41-question UTAUT Likert-scale research instrument
- Convenience and snowball sampling
  - Survey was posted on a FNP Facebook networking group, and survey invitations were emailed to members of NP state organizations in NJ, OH, MD, LA, DE, AZ, CO, OR, VA & WA
- N = 303 respondents
- Descriptive statistics and multiple regression analyses were performed using SPSS and Survey Monkey

Results

BEHAVIORAL INTENT TO RECOMMEND mHEALTH APPS TO PATIENTS

- Performance expectancy (β=0.288, p<0.001) was most significant in predicting FNPs' Behavioral Intent
- Effort Expectancy (β=0.278, p<0.001) and Social Influence (β=0.205, p<0.001) were slightly less predictive of Behavioral Intent

Figure 2. Behavioral Intent: Beta Weights of Independent Variables



Results (Continued)

USE BEHAVIOR: RECOMMENDING mHEALTH APPs TO PATIENTS

- Behavioral Intent (Wald χ^2 = 24.88, p<0.001) was the most significant predictor [OR=2.36] of use of mHealth apps for health promotion.
- Facilitating conditions (Wald χ^2 = 12.16, p<0.001) was the slightly lesser significant predictor [OR=2.25] in determining use behavior.

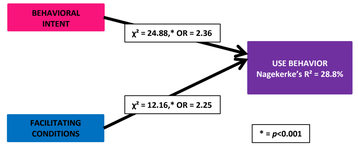


Figure 3. Use Behavior: Odds Ratios of Independent Variables

TYPES AND FREQUENCIES OF mHEALTH APPS RECOMMENDED TO PATIENTS

Descriptive Data Regarding Frequencies of mHealth Apps Recommended by Family Nurse Practitioners

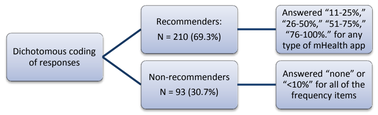
	N	Mean	Standard Deviation
Patient portal apps	301	2.83	1.92
Diet and Nutrition apps	302	2.74	1.51
Fitness apps	299	2.49	1.37
Diabetes apps	303	2.07	1.42
Lifestyle and stress management apps	302	2.06	1.32
Tobacco cessation apps	302	2.03	1.40
Medication reminder apps	301	2.00	1.35
Health care provider-specific apps	303	1.93	1.47
Sleep tracking apps	303	1.89	1.25
Cardiovascular disease apps	301	1.82	1.29
Pregnancy and women's health apps	303	1.82	1.28
Mental health disease apps	302	1.51	0.97
Musculoskeletal disease apps	302	1.48	0.99
Neurological disease apps	303	1.34	0.79

FNPs were asked, "In a typical week, to what percentage of your patients do you recommend mHealth apps?"

M=3 represents recommending apps to 11-25% of patients in a typical week; M=2 represents <10%.

Most Recommended mHealth Apps	Least Recommended mHealth Apps
Patient portal apps • 17% (n = 50) recommended these apps to 76-100% of their patients in a typical week Diet and nutrition apps • 16% recommended these to more than half of their patients in a typical week Fitness apps Diabetes apps	Neurological disease apps • Were not recommended by 78% of FNP respondents (n = 235) Musculoskeletal disease apps • Were not recommended by 74% of subjects (n = 224)

69% of FNPs recommended some type of mHealth app to patients for health promotion M=3.689; FNPs, recommended 3 to 4 types of mHealth apps to patients



Discussion & Conclusions

- The UTAUT framework was validated, as each variable was predictive of FNP behavioral intention and usage of recommending mHealth apps to patients for health promotion.
- FNPs intended to recommend mHealth apps if it furthered their efforts, improved health outcomes, if they were easy to use and were stressed by influential people.
- FNPs recommended mHealth apps to patients for health promotion when they possessed behavioral intent and the resources to do so.
- A free text item at end of the survey yielded information on FNPs' hesitancies to recommend apps.
  - This included patient population-specific limitations, FNPs' lack of knowledge about mHealth apps, concerns regarding app reliability, accuracy and privacy, and effects of time management.
  - In addition to the UTAUT constructs, these other variables likely influence and inhibit FNP use of apps in practice. This leaves opportunities for future research as well as implications for apps' utility in practice.
- The majority of FNPs surveyed intended to recommend mHealth apps within the next 6 months, which demonstrates a continued growth of this practice.
- Based on the types of apps currently recommended by FNPs, HIPAA-compliant, trustworthy, compatible apps were preferred.
- The researcher recommends that nurse practitioners become mHealth app champions by facilitating the use of apps in practice, as this will help build the evidence base and engage patients.
- mHealth apps require robust evaluation measures to ensure reliability and safety of content.
- Education on using and recommending mHealth apps to patients is recommended in baccalaureate and graduate nursing programs, and at health care institutions.
- FNPs should assume that patients are using or interested in using mHealth apps to support their health, and FNP-suggested mHealth apps should be offered regularly at office visits.

Acknowledgements

Special thanks to Nancy Sharts-Hopko, PhD, RN, FAAN, Elizabeth Blunt , PhD, RN, APN, BC, John L. Batchelor, Ed.D., and Mary Ann Heverly, Ph.D.