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## Research Note

## Pharmacy students' perceptions of the usefulness of motivational interviewing and the use of mobile health applications on patient counseling in the future

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## ABSTRACT

**Introduction:** To explore student pharmacists' perceptions of 1) future patient counseling, 2) use of mobile health applications (mHealth apps), and 3) usefulness of motivational interviewing (MI) in patient encounters and potential app messaging.

**Methods:** A cross-sectional design with first and second year pharmacy students (n=315) at a multi-campus university after exposure to mHealth app and MI curricular content. A questionnaire assessed perceptions of 1) future patient counseling, 2) using apps for personal use and professional encounters, and 3) potential practicality and usefulness of MI principles/skills in apps messaging.

**Results:** Over 70% of students perceived they will be counseling future patients for medication therapy/comprehensive disease management; 91% believed it is an important role as a future pharmacist. A majority own a smartphone (98%), have used an mHealth app to monitor/change a health behavior (73%), and are likely to recommend an mHealth app in future patient encounters (90%). Perceptions of counseling importance and likelihood to recommend an mHealth app varied by gender (women higher than men,  $p < 0.01$ ,  $p < 0.01$ ) and previous mHealth app use (yes higher than no,  $p < 0.05$ ,  $p < 0.001$ ). Most students reported a high likelihood of incorporating MI into current (88%) and future (91%) patient encounters and particularly noted 'supporting self-efficacy' as a useful MI principle to incorporate into mHealth app messaging.

**Discussion and conclusions:** Those using apps for personal health behavior change(s) perceived future patient counseling as important and were more likely to recommend mHealth apps during those future encounters. Results may inform curricular development to prepare future pharmacists for the high-tech, patient-centered practice that is inevitable.

## Introduction

The current trend of integrating technology into everyday life seems to be increasing faster than it can be tracked. Adoption of mobile technology (i.e., portable devices used for cellular communication) has recently expanded substantially and those who do adopt have near-instantaneous access to a surplus of information via convenient handheld devices. In a national 2013 Pew Research

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Center survey, over half of American adults owned a smartphone, defined as a handheld mobile telephone with computer-like capabilities such as accessing the internet and operating native or web-based applications (“apps”).<sup>1</sup> In 2015, the Pew Research Center survey<sup>2</sup> reported that smartphone ownership has risen to nearly two-thirds (64%) of American adults and is even higher in young adults aged 18–29 (85%). That study and others further report that nearly 90% of users are employing their mobile devices to connect to the internet, send/receive emails, and use apps, and over half of smartphone owners have used their phone to gather health information.<sup>2,3</sup> The perpetual acceptance and advancement of mobile technology has the potential to transform the way health care support, monitoring, and education are delivered by providers.

A leading approach, aptly known as mobile health (mHealth), has been shifting the focus of health care delivery from a provider-centered model to a more patient-centered one.<sup>4,5</sup> Mobile computing and communication technologies (e.g., smartphones, tablets) are increasingly being incorporated into health care systems. The field of mHealth is steadily growing, reaching a wide range of target users like health care providers, patients, social workers, or students for educational purposes, among others. Mobile technologies also offer a wide range of functionality to a user since they are portable and can quickly access and disperse information from one device to another.

Smartphones can play an important role in potentiating the significance of utilizing mHealth in health care. According to the Pew Research Center data, 62% of smartphone owners have used their phone in the last year to look up information about a health condition, over 20% have reported actively downloading one or more health-related apps.<sup>2,3</sup> Thus, smartphones and recent mHealth apps have been used to supplement a diverse range of self-management and monitoring behaviors, such as medication adherence, smoking cessation, healthy eating, exercise, and other disease management behaviors.<sup>6</sup> Interest in using mHealth tools as quality resources for supplementing advanced patient-centered care has been stimulated for health care providers and academics alike.<sup>7</sup> One approach for delivering patient-centered care that may add to the language used in mHealth tools involves motivational interviewing (MI).

Motivational interviewing is a patient-centered, evidence-based communication skills set that aims to facilitate one's intrinsic motivation for making a specific behavior change.<sup>8</sup> MI has emerged with positive impact on behavior change across a diverse range of patient populations and target health behaviors.<sup>9,10</sup> MI includes a set of communication principles and skills, often referred to as major principles and micro skills, that are applied in a nonjudgmental and collaborative way. The major principles include expressing empathy, developing discrepancy, rolling with resistance/avoiding argumentation, and supporting self-efficacy. The micro skills include asking open-ended questions, supporting autonomy by asking permission to give advice and agenda setting to give choices in conversation direction, and setting incremental goals for building confidence. Some of these major principles and micro skills may be adaptable to a digital mHealth platform to help reinforce user thoughts towards behavior change. For instance, supporting patient autonomy could be incorporated into mHealth app messaging by offering choices for a given behavior or goal to address while a patient uses the app. Other major principles or micro skills may be tailored into language as responses that express emotions the user may be feeling.

These MI strategies and others are paramount to establishing the trust needed to truly address self-reflection and behavioral transformation. In fact, these communication strategies are recognized as a core competence in pharmacy education and have been directly named as an example “communication (communicator)” competence, in the guidelines for implementing the most recent Center for the Advancement of Pharmacy Education (CAPE) standards.<sup>11</sup> If mHealth apps are to be used in patient encounters, taking these factors into account in designing the digital apps and devices should be considered.

Little research has been conducted on the use of mHealth tools (e.g., smartphones) as applied to the delivery of health care or support for the delivery of health care. Additionally, there is an absence of mHealth adoption research in the context of emerging health care professionals and their perceptions and attitudes for utilizing mHealth tools to facilitate advanced care interventions during current or future patient encounters.<sup>12,13</sup> This is also despite the fact that young adults aged 18–29 are typically the first to adopt such technologies in general.<sup>3,12</sup> Most mHealth studies have involved chronic disease management and preventative measures that include lifestyle changes.<sup>14</sup> Studies examining factors that influence the adoption of such technologies document that numerous positive outcomes have resulted from mHealth interventions, but these studies have not been conducted among future health care providers for whom mHealth tools may become a prevalent part of future practice.<sup>5,6,14</sup>

The substantial increase in accessibility and utilization of mHealth tools presents an opportunity for personal and professional use in monitoring and managing health behaviors. It is unclear to what extent current use of mHealth tools impacts perceptions of future use for patient encounters. As the education and practice of pharmacy evolves to communication-facilitated advanced care services such as medication therapy management (MTM) and comprehensive disease management, it would be useful to know what future pharmacists think about using mHealth tools, MI communication skills, and/or a combination of these in helping to support or facilitate such encounters. Therefore, exploring student experiences and perceptions pertaining to these concepts may help inform development and tailoring of curricular content for these topics and their integration into clinical content.

The objectives of this study were to explore first and second year student pharmacists' perceptions of the following: 1) future patient counseling, 2) the use of mHealth apps on patient counseling in the future, and 3) the usefulness of MI in these encounters and potentially in mHealth app messaging language.

## Methods

A cross-sectional study design was implemented among a convenience sample of first and second year pharmacy students at Auburn University Harrison School of Pharmacy. A questionnaire was developed, implemented, and analyzed using the methods described in this section. Expedited review and approval were obtained from the Auburn University Institutional Review Board (IRB).

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