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Examining Faith Community Nurses' Perception and Utilization of Electronic Health Records

Introduction

Faith Community Nursing is a specialty nursing practice area recognized by the American Nurses Association (ANA) that focuses on integrating spirituality and health, promotion of holistic care, and prevention or minimization of illness through care delivered in a faith community setting (ANA, 2012). Despite current trends toward community-based care and the presence of faith community nurses (FCNs) as the predominant provider of faith community based healthcare; limited research addressing faith community nurse (FCN) impact on health outcomes or the scope and value of FCN intervention is available (Dandridge, 2014). The lack of retrievable data and standardized cost valuation of FCN activities is a significant barrier to FCN practice data collection (Dyess, Chase, & Newlin, 2010).

The potential of improved outcomes, accessibility of client information, enhanced coordination of care, and increased efficiency are among the driving forces for comprehensive use of health information technology (HIT) such as electronic health records (EHR) across the healthcare delivery continuum. Passage of the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH) provided both financial incentives and regulatory mandates supporting implementation of electronic healthcare documentation technology across all facets of healthcare receiving government payments (DesRoches, Miralles, Buerhaus, Hess, & Donelan, 2011; Mihalko, 2011). The Institute of Medicine (IOM) proposes the use of information technology to support documentation and clinical practice is a key practice element in the transformation of nursing (2010).

A review of 154 studies reported 62% of studies identified HIT implementation positively impacted care, further evaluation found HIT adopters are primarily health systems and providers positioned to benefit from government-funded incentive programs (Buntin, Burke, Hoaglin, & Blumenthal, 2011; Kellerman & Jones, 2013). Limited diffusion of HIT across the healthcare delivery continuum remains a concern as exemplified by EHR adoption rates of 18-57% among long term care facilities and office-based physicians healthcare sectors (Kellerman & Jones, 2013; Kramer, Kaehny, Richard, & May, 2010; Robert Wood Johnson Foundation, 2012). As independent practitioners, FCN adoption practices may be impacted by lack of access to governmental fiscal support and exemption from regulatory mandates supporting EHR adoption.

Despite significant fiscal investment in EHR use, implementation failure rates have been reported as high as 50% (Mihalko, 2011). Understanding factors

that positively influence intention to adopt is a fundamental aspect of EHR implementation and acceptance. Research of HIT adoption and acceptance of HIT is well represented in the literature across multiple disciplines and practice settings with an emphasis on perceived usefulness (PU) and perceived ease of use (PEOU) as primary predictors of technology adoption with the Technology Acceptance Model (TAM) serving as the theoretical basis in the majority of studies (Holden & Karsh, 2010; Ketikidis, Dimitrovski, Lazarus, & Bath, 2012; Kuo, Liu, & Ma, 2013; Yarbrough & Smith, 2007).

Association between PU and PEOU and intention to adopt technology is the foundation of Davis' Technology Acceptance Model (Davis, 1989). The model proposes user attitude toward the technology of interest informed behavioral intention to act (acceptance) directly impacting adoption or rejection of the technology. TAM further delineates user attitude is derived from two primary factors represented as PEOU and PU of selected technology (Davis, 1989).

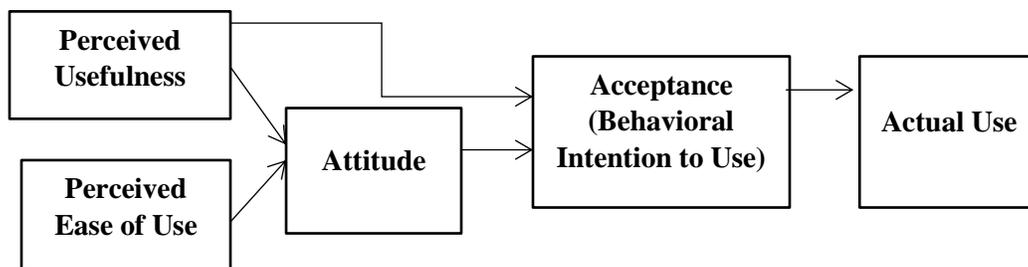


Figure 1. The Technology Acceptance Model (Davis, 1989).

While there are identified benefits of electronic documentation systems, time and task requirements associated with electronic documentation create additional demands on nurses and may impact adoption and acceptance (Mihalko, 2011). As primary users of EHRs, attention to nurse perception of barriers and benefits will directly impact the extent to which the technology will be effectively integrated into practice (Dillon, Blankenship, & Crews, 2005). Studies addressing barriers and benefits to EHR adoption and use have primarily focused on physicians and healthcare administrators with nurse data aggregated with physician response or referenced as a subset (Filipova, 2013; Hatton, Schmidt, & Jelen, 2012; Kramer et al., 2010).

Research addressing FCN practice documentation patterns is limited. A review of 25 articles focused on FCN practice concluded FCN documentation and evaluation practices are fragmented and lack key elements to demonstrate the impact of faith community nursing on healthcare outcomes or healthcare delivery costs (Dyess et al., 2010). Three studies of FCN documentation focused on method of documentation and identification of FCN activities (Brown, Coppola,

Giacona, Petriches, & Stockwell, 2009; Miller & Carson, 2010; Rydholm et al., 2008). While two studies discussed use of computer-based entry of FCN activity in combination with paper charting, only one study utilized a formal EHR as the sole form of documentation (Brown et al., 2009; Miller & Carson, 2010; Rydholm et al., 2008).

Problem Statement

The IOM (2010) calls for transformation of practice to support a future healthcare system focused on accessibility to quality healthcare with an emphasis on promotion of wellness, disease prevention, and improved health outcomes. While increased importance is being placed on capturing healthcare delivery practices and effectiveness across the continuum of settings through the use of electronic documentation, FCN documentation practices are inadequate to capture FCN practice, impact, and effectiveness (DesRoches et al., 2011; Dyess et al., 2010). It is imperative FCNs utilize documentation methods compatible with other segments of the healthcare delivery system to coordinate client care, improve collaborative practice, and capture effectiveness and impact of faith community nursing as a practice specialty. There is a lack of research examining the use and adoption of EHR in FCN practice. This study's research focus is needed to inform FCNs and community stakeholders in the development of programming to expand FCN adoption of EHR.

Purpose

The purpose of this study is to identify current FCN documentation practices, explore factors impacting intention to adopt EHR in FCN practice, and identify factors perceived as barriers and benefits to EHR use. This study examines the correlation between FCN perceptions of EHR usefulness and EHR ease of use as factors related to intention to adopt. Benefits and barriers to EHR use are identified and ranked according to degree of impact.

Methods

The study is a quantitative exploratory research study designed to gather data on EHR adoption practices, barriers, and facilitators among FCNs. The study was conducted in collaboration with a large community-based not-for-profit healthcare entity in the Midwest focused on improving community health, wellbeing, and quality of life in their service area.

Design

A cross-sectional 39-item questionnaire was distributed to 310 FCNs identified as currently practicing in South-Central Indiana and Western Kentucky. FCN names and contact information were obtained from databases provided by area community foundations and institutions of higher education. Questionnaires were distributed by mail and electronic mail to maximize population penetration. Mailed questionnaires included a self-addressed stamped envelope for return of the survey. Reminder postcards were distributed two and four weeks after the initial survey to all participants.

Approval of the study was obtained from Western Kentucky University's (WKU) Institutional Review Board (IRB). A copy of IRB approval was included with all surveys summarizing study purpose, potential benefits, potential risks, explanation of procedures, assurance of anonymity, voluntary participation statement, and identifying completion of the survey implying consent. Questionnaire participants were given the opportunity to be entered via e-mail into a drawing for one of three \$35 gift cards.

Sample

The study's target population was FCNs currently practicing in South-Central Indiana and Western Kentucky. Inclusion criteria included adults who are registered nurses or advance practice registered nurses, living in a defined geographic area who self-identify as practicing FCNs. Exclusion criteria included nurses not actively practicing in the field of faith community nursing and FCNs practicing outside of the defined geographic area.

Survey Tool

The survey tool is a researcher-developed questionnaire, Measurement of Perceptual Impact on Faith Community Nurse Technology Adoption (MPI-FCNTA), divided into three sections totaling 39 items. Section one gathered data on FCN perceptions on PU and PEOU and intention to adopt an EHR for FCN practice. A 7-point Likert scale was used to measure FCN perception of PU, PEOU, and intention to adopt (1= strongly disagree through 7= strongly agree). Items were grouped into subsets measuring PU, PEOU, and intention to adopt. Part two gathered categorical data on FCN identification of barriers and benefits of EHR. Part three consisted of demographic information.

Content validity was tested by an expert panel of FCN educators from the International Parish Nurse Resource Center and regional universities. Post review,

minor wording changes were made to demographic items and one additional question was added to demographic data.

Tool reliability was evaluated using a test-retest methodology among 32 practicing FCNs outside of the research study's geographical area. The test-retest tool consisting of section one and section two was delivered by e-mail to participating FCNs with one week separating the test and retest e-mails. Demographic data in section three was not collected. Reliability was measured by Kappa Statistic Agreement values. Kappa Statistic Agreement values are segmented in categories of slight, fair, moderate, substantial, and almost perfect with moderate or above considered statistically valid (Cohen, 1960). The test-retest survey measurement resulted in a mean Kappa Statistic Agreement value of 0.60 falling at the upper limit of moderate agreement (0.41-0.60).

Questions in section one utilized a 7-point Likert Scale and were adapted and modified from a TAM-based questionnaire developed by Ketikidis et al. (2012) addressing HIT adoption. Modifications included application to current technology and population of interest. The lead researcher, Dr. Panayiotis Ketikidis, granted permission for use and adaption of questions for the purpose of this study.

Questions in section two provided descriptive categorical data based on FCN ratings of identified barriers and benefits of EHR. Participants were asked to quantify nine pre-defined barriers and benefits as minor, major, or not a barrier benefit. Barriers included issues related to cost, technology support, training, and confidentiality concerns. Benefits addressed areas related to access, improved care and coordination, role satisfaction, and FCN value to decision makers within faith communities. In addition to ranking each barrier/benefit, participants were asked to identify the most significant benefit and barrier to EHR adoption and use.

Questions in section two were drawn from the U.S. Health and Human Service (HHS) commissioned survey developed by Kramer et al. (2010) examining EHR adoption and use in long term care facilities. Modifications were made to reflect current technology and population of interest. The survey document, *Survey Questions for EHR Adoption and Use in Nursing Homes: Final Report*, is a public access document published by HSS. HSS granted permission to re-use (with adaption) survey questions that appear in the report. HSS response noted the report is public use and data collection questions may be used and adapted for future research.

Questions in section three gathered demographic data. In addition to age, educational level, licensure, and practice location this section included items related to participants' practice as a FCN. This section also asked participants to identify their current method of nursing documentation between the options of paper, electronic, and no documentation.

Data Analysis

Data was analyzed using Statistical Analysis System (SAS) version 9.3. Descriptive statistics were used analyze demographic and practice characteristics, identification of barriers and benefits, and FCN perceptions of PU, PEOU and intention to adopt. Pearson correlation coefficients were calculated to evaluate the relationship between FCN perceptions of PU and PEOU to intention to adopt. Correlations between TAM-related variables were statistically significant ($p \leq 0.001$) and followed the expected direction based on the TAM.

Questions in part one were grouped into subsets to determine PU (4 items), PEOU (7 items) and intention to adopt (2 items). Cronbach's alpha (α) was calculated for TAM-related question subsets used in the study. The tool exhibited high internal consistency ($\alpha > .90$) among all subsets.

Results

Of the original 310 surveys distributed, 36 respondents indicated they were not a practicing FCN and 25 surveys were returned as undeliverable mail and/or e-mail. The remaining 249 met inclusion criteria. Sample return rate was 46% with 114 completed surveys returned. Participant ages ranged 28 to 80 years. Nursing educational levels ranged from diploma to doctorally prepared. Years of FCN practice varied from less than a year to 27 years.

Table 1

Sample Demographics

<u>Age (n=109)</u>	<u>n (%)</u>
28-50	25 (23%)
51-58	21 (19%)
59-65	34 (31%)
66+	29 (27%)
Educational Preparation (n=112)	
Diploma	19 (17%)
AND	24 (21%)
BSN	43 (38%)
MSN	24 (21%)
DNP/PhD	2 (2%)
Years of FCN Practice (n=114)	
>1-3 years	29 (25%)
4-6 years	26 (23%)
7-9 years	18 (16%)
10+ years	41 (36%)

The volunteer model (95%) was the prevalent FCN practice model among the sample with hours of FCN practice ranging from less than 1 to 40 hours per week. Eighty percent of participants practiced in South-Central Indiana with the remaining 20% practicing in Western Kentucky. Respondents overwhelmingly (83%) reported completion of the Foundations of Faith Community Nursing course (see Table 1).

Participants exhibited variation in current documentation practices with the majority (47%) reporting use of paper documentation with electronic documentation representing 20% of the sample. Nearly one-third (32%) reported they did not document in their FCN practice (see Table 2).

Table 2

FCN documentation practices by nursing education

	Unspecified	Diploma	ADNs	BSN	MSN	DPN	PhD	Total
Electronic	0	5	6	8	3	0	1	23
Paper	1	10	9	22	12	0	0	54
Do Not Document	1	4	9	13	9	1	0	37
Total	2	19	24	43	24	1	1	114

Table 3

Intention to Adopt by Educational Level and Years of FCN Practice

Nursing Education	Mean Intention To Adopt
Unspecified	4.00
Diploma	4.45
ADNs	4.77
BSN	5.12
MSN	4.67
DNP	3.00
PhD	6.50
All	4.81
FCN Practice Years	
0-3	5.41
4-6	4.60
7-9	5.14
10+	4.38
All	4.81

Mean values of PU (4.02), PEOU (4.27) and intention to adopt (4.81) were clustered in a positive direction. Correlation between PU (.7349) and PEOU (.6916) and intention to adopt were both significant ($p < 0.0001$) with PU exhibiting a slightly stronger correlation. Correlations to intention to adopt ran in the anticipated direction for both PU and PEOU (see Table 3).

When asked to identify the most significant benefit to use of EHR responses clustered between anywhere/anytime access to clinical documentation (27%) and improved ability to document and communicate FCN activities to church leaders (29%). At 9%, enhanced efficiency was the least selected option. Factors related to finance, cost of an EHR (27%) and cost of a computer/tablet (22%) were consistently identified as the most significant barriers to EHRs adoption (see Table 4). Percentages represented in Table 4 reflect rounding to the nearest whole number.

Table 4

Perceived Barriers and Benefits to FCN EHR Use

Barrier	Major Barrier	Minor Barrier	Not a Barrier
Cost of an EHR	57%	19%	24%
Lack of access to training	25%	50%	26%
Client confidentiality	20%	20%	60%
Lack of support from church decision makers	32%	28%	40%
Inability to find EHRs to meet FCN needs	34%	39%	27%
Lack of technology support from church	31%	33%	36%
Expense of computer/tablet	46%	32%	22%
Benefit	Major Benefit	Minor Benefit	Not a Benefit
Anywhere/anytime access	69%	24%	6%
Ability to share data	55%	27%	18%
Enhanced efficiency	52%	34%	14%
Increased satisfaction in FCN role	28%	36%	36%
Improved care coordination	55%	35%	10%
Improved management of care	51%	38%	11%
Improved ability to document/communicate FCN activities to church decision makers	64%	30%	6%

Discussion

This study focused on current FCN documentation practices, identified key barriers and benefits to EHR, and evaluated the impact of PU and PEOU on FCN intention to adopt an EHR. Key findings included limited diffusion of EHR use among FCNs, and validation of significant correlation between perception of PU and PEOU to intention to adopt EHR. Financial barriers to EHR adoption were

reported as most significant when asked to identify which factor presented the most significant barrier, while benefits related to clinical data access and communication of care to decision makers within faith communities were most highly rated. The ability to capture and retrieve data on the practice and impact of faith community nursing is a foundational step toward advancing the specialty and gaining credibility as a valued member of the healthcare delivery system.

Results indicated documentation practices widely varied with 20% of the surveyed FCNS using EHR while the remaining FCNs either document on paper or do not document in their FCN practice. While studies addressing EHR adoption in hospital settings are well represented in the literature, study of EHR adoption in individual practice, non-acute and community-based settings is limited (Filapova, 2013; Kramer et al., 2010; Whittaker, Aufdenkamp, & Tinley, 2009). The 2011 National Ambulatory Medical Care Survey (NAMCS) Survey reported 57% of office-based physicians responded they use either an EHR or a combination of paper-based and electronic documentation in their practice (RWJF, 2012).

In many settings, while nurses may be the primary users of the EHR and provide input into nursing-centric aspects of EHR application and implementation, nurses are often omitted from the adoption decision-making process (Robles, 2009). By contrast, the FCN practicing in a faith community setting serves as both advocate and decision maker in design of the faith community's health and wellness structure, programing, and documentation. In physician practices that most closely correlate with FCN practice dynamics (1-2 provider practices), EHR use dropped to 39% (RWJF, 2012). While small or solo physician practice EHR adoption rates remained higher than FCN use, adoption rates in this physician practice subset were more aligned with FCN EHR adoption rates reported in this study.

This study confirmed previous research findings indicating PU and PEOU of EHR significantly correlated with intention to adopt EHR (Holden & Karsh, 2009; Ketikidis et al., 2012; Yarbrough & Smith, 2007). Mean intention to adopt was similar across all educational levels and years of FCN practice with an overall mean of 4.81. PU exhibited a stronger correlation to intention to adopt than PEOU. Strength of PU and PEOU to intention to adopt was aligned with previous research using Likert scale measurement consistently reporting mean PU and PEOU at or moderately above scale neutral value (Chow, Chin, Lee, Leung, & Tang, 2001; Ketikidis et al., 2012; Heselmans et al., 2012). While previous studies consistently reported positive correlation between PU and PEOU and EHR use, results varied on relative strength of PU and PEOU to EHR use (Chow et al., 2001; Holden & Karsh, 2009; Ketikidis et al., 2012).

While FCN practice models include both volunteer and salaried models, study participants primarily (95%) practiced in the volunteer model. The major

barriers participants identified to the use of EHR were cost of EHR, cost of computer/tablet, and inability to find an EHR to meet needs. These factors may be impacted by the practice model of the FCN population as independent practitioners functioning in a volunteer role. These findings are consistent with prior research identifying the majority of EHR adopters as hospital systems or other providers with access to government incentives (Buntin et al., 2011; Kellerman & Jones, 2013).

The top three major benefits identified by study participants were the use of EHR were anywhere/anytime access, improved care coordination, and ability to share data with decision makers. Benefits identified in this study were consistent with findings from the 2011 Physician Workflow Study which targets office-based physicians with remote access to patient data ranked highest (81%) followed by overall enhancement of patient care reported as a benefit by 78% of respondents (King, Patel, Jamoom, & Furukawa, 2014). FCN identification EHR major benefits focused on collaboration and care coordination indicated recognition among the participants EHR use has the potential to impact quality of care in FCN practice.

Implications for Practice

A changing healthcare system is placing increased emphasis on coordination of care across the healthcare continuum with a focus on achieving gains through the use of interoperable HIT (DesRoches et al., 2011; IOM, 2010). As faith community nursing strives to gain credibility as a nursing specialty, FCN documentation practices and adoption of EHR lag behind other health professionals and fields of nursing. The role of the FCN as a community-based practitioner in a non-regulated faith community environment accentuates the need to identify factors impacting documentation method, modality and practice.

Transition to EHR-based documentation will require a commitment of both time and fiscal resources for the FCN and faith community. FCN educators and FCN community leaders must move beyond the theoretical value of EHR use to specific practical benefit to move the FCN population toward adoption of EHR-based documentation. Opportunities exist in core FCN preparatory education and practice-based educational offerings to address this issue within the context of the FCN's standards and scope of practice.

Study results support FCN recognition of the value of EHR-based documentation brings to the quality and coordination of care in their practice. However, participants also clearly define significant fiscal and availability barriers to EHR adoption. Cooperative models of care linking FCNs or partnerships with health-oriented foundations may serve as a foundation in the

development and funding of EHR FCNs find compatible to their practice and fiscally attainable.

Faith community nursing's scope of practice, including health promotion, health education, and health advocacy aligns well with management of chronic illnesses, supports aging in place, and promotion of wellness. However, faith community nursing remains a largely untapped resource within the continuum of healthcare delivery. Increased diffusion of EHR use among the FCN practice population will advance the ability to quantify and define FCN impact and service value at both a congregational and community level.

As faith community nursing seeks to gain credibility and inclusion as a defined element of the healthcare delivery system, efforts must be made to gather data supporting a clear definition of FCN scope of practice and impact of the FCN on health outcomes. The ability to tie FCN practice interventions to positive outcomes and faith community wellness will open dialog with other healthcare providers and foster development of collaborative relationships and initiatives. Findings from this study and similar studies across the FCN community serve as foundational work to support the transition of FCN practice toward adoption of EHR as the primary method of FCN documentation. Transitioning the FCN practice community to EHR-based documentation will provide the infrastructure required for the data collection and analysis needed to effectively overcome these barriers.

Limitations

This study has several limitations. The study used a convenience sample of FCNs from the Midwest who chose to respond to the survey, which may have resulted in response bias. The study is limited to a specific geographic region representing a combination of rural and moderate-sized urban areas. FCNs practicing in other geographic locations or in large urban areas might perceive differing barriers or benefits to EHR use. Finally, the sample was heavily weighted (95%) toward the volunteer model of practice. FCNs practicing in a healthcare system or in a paid model may experience different benefits and barriers.

Conclusion

In summary, the premise intention to adopt EHR is influenced by PU and PEOU in FCNs was validated. FCNs placed value in EHRs as a tool to positively impact client care coordination with a high value on the attribute of anywhere/anytime access to client records, and ability to identify and communicate FCN practice specifics to decision makers. However, significant fiscal barriers exist to adoption, likely impacted by the prevalence of the volunteer model of practice

represented in the study sample. Current FCN documentation practices lack quantifiable data supporting FCN role delineation, outcomes, community impact, and cost effectiveness. Until this challenge is met, FCN practice faces significant barriers to gaining credibility and collaborative partnerships with healthcare delivery decision makers.

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