

Evaluating VA Nurse Acceptance of Virtual Healthcare Technology During the Coronavirus Outbreak

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Abstract

At a regional Veterans Administration (VA) hospital, nurses performing case management were unable to perform face-to-face visits with patients due to the coronavirus. Care coordination and discharge planning efforts occurred through telephonic case management to preserve personal protective equipment (PPE) and reduce transmission rates through social distancing.

Trust and rapport between patients and nurses were reduced without personal contact. Peplau's theory of interpersonal relations described six nurse roles and three phases of relationship development required to create therapeutic nurse-patient relationships. Connectedness was a key concept considered to be the path to a successful, meaningful, therapeutic nurse-patient relationship (Hrabe, 2005).

To evaluate current perceptions about virtual healthcare technology and determine if the nurse perception changes through a clinical practice change, a group of VA registered nurses participated in a computer-based educational intervention.

The clinical practice change examined the nurses' perceptions of the nurse-patient relationship while using virtual health care technology. The clinical practice change project included completion of pre- and post-education intervention questionnaires adapted from the Myers (2014) measurement tool containing demographic, Likert-type scales, and free text items.

The project also included completion of a 30-minute recorded education intervention explaining the virtual healthcare technology available at the VA and instructions on how to use the technology.

Success of the project was determined by the ability to translate evidence into a post-education intervention that resulted in measurable changes in nurse perception about the impact of the virtual healthcare technology on the nurse-patient relationship.

Key Words:
*virtual
*healthcare
*technology
*Peplau
*Interrelations Theory

Problem Statement & Significance

In VA nurses, how does a virtual health care technology education intervention, compared to current knowledge about virtual health care technology, impact nurse perception of the nurse-patient relationship?

Nursing practice traditionally involves visualization of the patient at the bedside when performing physical, psychological, and spiritual assessments. Holistic nursing assessments are most effective when the nurse and the patient have regular face to face (FtF) interactions (Harrison et al., 2019).

Due to the need for the preservation of PPE and promote social distancing during the COVID-19 crisis, the ability for many nurses to see the patients face to face was prohibited.

VA nurses voiced concern about the quality of care provided to veterans due to lack of FtF contact. Key areas of concern were patient safety and appropriate disease management services in the absence of FtF communication.

The nurse-patient relationship and meaningful communication were vital components of the nursing role (Fronczek, 2019).

Subsequent discussions between nursing leadership and nurses from various areas of the hospital confirmed concerns with alternatives to FtF bedside communication with patients.

Table 1. Project Participant Demographics Post Education Intervention

Age	Gender	Years of Nursing Experience	Level of Nursing Education	Years of Experience with Technology
21-30 years (1)	Female (14)	0-2 years (1)	BSN (5)	0 years (7)
41-50 years (2)	Male (2)	6-10 years (3)	MSN (10)	1-5 years (8)
51-60 years (12)		11-15 years (2)	DNP (1)	6-10 years (1)
> 60 years (1)		16-25 years (3)		
		>25 years (7)		
75% of participants were 51-60 years of age	88% of participants were female	44% of participants had over 25 years of nursing experience	63% of participants had achieved a Master's Degree in Nursing	44% of participants had little to no experience with virtual technology 50% of participants had 1-5 years of experience with virtual technology

Introduction

Since the time of Florence Nightingale, nurses have provided bedside care for patients using holistic physical, psychological, and spiritual assessments. Face to face contact between nurses and patients was the traditional method to provide healthcare services (Hrabe, 2005).

Three main concepts were repeated throughout the literature review. The concepts were central to the discussion regarding the impact of virtual nursing care to the nurse-patient relationship; interpersonal relationships between nurses and patients can occur in a technological environment; application of nurse theory in the virtual setting; and challenges with communication between the nurse and the patient.

A concern of the virtual or internet-based platforms was related to the ability for humans to find a connection or create meaningful relationships without the FtF contact.

A thorough theoretical analysis by Hrabe (2005) determined that Peplau's Interpersonal Theory was applicable and appropriate in the computer mediated platform.

Hrabe (2005) also found that communication between the nurse and the patient could flourish in the technologic environment.

Project Description and Design

There were three main objectives for this clinical practice change project; describe the group of registered nurses at this VA hospital who may use virtual healthcare technology (VHT) during the coronavirus pandemic; determine the current nurse perception of the benefits of VHT for communication and relationship building; and determine if an educational intervention will change nurse perception of using VHT to provide patient care.

Total time required to participate in the clinical practice change project was 50 minutes. The pre-education intervention questionnaire required ten minutes to complete.

The education intervention video required 30 minutes to view. The post-education intervention questionnaire required ten minutes to complete.

All three items were available at any time of day to participants through web-based platforms.

The clinical practice change project included five demographic items: age, gender, years of nursing experience, level of nursing education, and perceived level of expertise in technology.

The questionnaire contained the same Myers (2014) attitude and belief questions, but the questions were modified to specifically evaluate nurse perception of virtual healthcare technology.

On February 12, 2021, a letter was sent via email to 267 VA nurses as an invitation to participate in the project. A research information sheet was attached to the email to ensure that the participants were aware that the project was deemed to be a Category 3 Exempt project and that written consent was not required. Forty-two nurses responded with interest to participate in the project and the instructions on how to complete the three required project elements were sent as an additional email.

The project was open for participation for two weeks, between February 15, 2021 and March 1, 2021. At the end of the two week period, a total of sixteen VA nurses completed all three project requirements.

The clinical practice change project used a pre-test/post-test design borrowing data collection and analysis techniques from both the quantitative and qualitative paradigms. The project measurement tool was adapted from Myers (2014) to collect demographic information, and evaluate nurse perceptions using a 5-option Likert-type scale.

Attitudes and beliefs of nurses about technology changes in nursing practice had been successfully evaluated by Myers (2014) using mixed methods.

Figure 1. Post Education Intervention Findings $p < 0.05$

VHT is challenging but manageable	Values	Updates were informative	Values	VHT is user friendly	Values
p (T<1) one-tail	0.000217432	p (T<1) one-tail	0.010821228	p (T<1) on tail	0.021551466
t Critical one-tail	1.6923600309	t Critical one-tail	1.693888748	t Critical one-tail	1.692360309
p (T<1) two-tail	0.000434864	p (T<1) two-tail	0.021643456	p (T<1) two-tail	0.043102932
t Critical two-tail	2.034515297	t Critical two-tail	2.036933343	t Critical two-tail	2.034515297

Attempts to reach the authors of the original study were unsuccessful.

The clinical practice change project questionnaire was administered through Qualtrics, an Otterbein University electronic survey platform. Qualtrics is provided to Otterbein students at no cost..

The project was reviewed and approved by the Otterbein University Institutional Review Board and the Southern Arizona VA Health Care System Institutional Review Board. Once the VA approval was received, additional approvals were obtained by the VA Facility Nurse Executive and the American Federation of Government Employees' union president.

Outcomes

Data from Qualtrics was imported to Excel for ease of data manipulation and calculation of descriptive statistics. The responses to the initial questions collecting demographic information were reviewed and collated, and descriptive statistics (mean, median, mode, range) were calculated for each of the five demographic variables.

The data from the remaining 14 questions was analyzed using pre-intervention (mean, median, mode range) and post-intervention (mean, median, mode, range) data points.

The differences in scores were calculated for each subject (post minus pre) and then descriptive statistics were calculated. The relationship between demographic variables and changes in beliefs about virtual healthcare technology in this setting were explored.

The t-test data indicated that the education intervention impacted participant responses in statistically significant ways. The $p < 0.05$ was unexpected and indicates that replication of the education intervention could positively impact the use of VHT in other VA facilities.

Evaluation

Besides the nursing education which helps nurses to see the benefits of VHT, VA facilities need to perform the cost/benefit analysis of a transition to virtual patient visits.

The financial impact of using VHT for patient care directly relates to the cost of a virtual nursing visit by case managers versus the cost to care for patients through FtF visits.

The average cost for a FtF primary care visit is \$103 in the United States (Health Care Cost Institute, 2020).

The Centers for Medicare and Medicaid released the new list of reimbursable telehealth service when COVID-19 became a pandemic (Centers for Medicare and Medicaid, 2020).

Since telehealth services are now available in the inpatient and outpatient setting, case managers are able to provide the same level of service, at a lower cost to the patient, which is an additional positive financial impact.

Conclusions

Based on the outcomes that were measured and analyzed, the findings from this project are consistent with prior studies. Nurses who were included in the planning and implementation of virtual healthcare technology had a greater understanding of the benefit and challenges of using VHT to provide nursing services to patients.

Nurses who received continuous education and support through the transition to VHT believed that VHT was user friendly, promoted communication between the nurse and patients, and promoted the nurse-patient relationship.

The education intervention provided nurses with the theory behind interpersonal relationships, the instructions on how to use VHT, and provided guidance on how to perform effective patient visits with additional communication skills.

The education intervention positively impacted the nurse perceptions about the benefits of using VHT to provide nursing care to patients. The data analysis concludes that VA facilities should ensure that nurses are involved in the planning and education of VHT prior to implementing the new method of patient care.

Recommendations

Based on the review and analysis of all the data, the main recommendations from the project are that all VA hospitals:

- *provide hospital nurses formal education about how to use VHT
- *create VHT champions to each work area for trouble shooting any difficulties or challenges nurses may experience when using VHT
- *provide ongoing support to reduce real or perceived barriers in communication or the ability to create a meaningful nurse-patient relationship when using VHT to provide patient care.

Limitations

Limitations in the project were the number of nurse participants available to complete all three required elements and the length of time available for participation.

The low number of participants was expected due to extemporaneous staffing issues as a result of the current coronavirus crisis and the availability of nursing staff to take time away from their normal scheduled work day to participate in the project.

References

