ORIGINAL RESEARCH

Telephone Nursing Practice: How Do Telenurses Perceive Their Role?

Uloma D. Onubogu[1], PhD, MSN, MSED, ARNP; Jaibun K. Earp[1], PhD, ARNP, CNE

Author Affiliations: [1]School of Nursing, Florida A&M University, Tallahassee, Florida

Corresponding Author: Uloma D. Onubogu, School of Nursing, 332 W. Palmer Avenue, 103 Ware/Rhaney Building, Florida A&M University, Tallahassee, FL 32307 *(uloma.onubogu@famu.edu)*

ABSTRACT

In telephone nursing (TN), nurse-patient encounters are handled via telecommunications, reflecting new complexities and challenges in healthcare. Telenurses must demonstrate the ability to make critical decisions that are accurate, safe, supported by good policy administration, and capable of producing good patient and healthcare outcomes without the benefit of seeing the patient. This study aimed to describe telenurses' perceptions of four role variables—safe assessment, decision-making, practice standard, and satisfaction—and to analyze the relationships among them, nursing education, and TN experience. A descriptive correlational study was conducted with a convenience sample of 70 nurses (mean age = 43years; SD =11.7) and data from Telephone Nursing Perception and Demographic Questionnaires. Results revealed that most telenurses were comfortable with telephone assessments and practice standard. Their confidence in making decisions was lower, but overall, they were highly satisfied with TN. Moderately to strongly positive correlations among the four role variables were also found. Results underscore the importance of understanding the role demands inherent in TN and providing appropriate planning and leadership interventions.

Keywords: telephone nursing ▪ telenursing ▪ telephone triage ▪ telehealth ▪ telemedicine

Authors' Note: The authors acknowledge the administrators of the various agencies in Florida who made data collection possible by granting access to telenurses.

JBPHPD: Res, Educ and Policy. 2013;6(1):891-902.
ISBN 987-0-9794409-0-8 / ISBN 0-9794409-0-4
© 2007-2013 Winston-Salem State University

INTRODUCTION

In telephone nursing (TN), nurse and patient interact over the telephone. This approach plays a vital role in contemporary healthcare delivery, relieving the workload for short-staffed practitioners and institutions (Sabin, 1998). Reid and Porter (2011) reported that nurse-led telephone-based service facilitated access to specialist advice and support for patients, their families, and healthcare professionals. Several studies have noticed its rapid expansion over the last decade in response to increased demand from the healthcare industry (Bunn, Byrne, & Kendall, 2005; Ernesater, Holmstrom, & Engstrom, 2009; Leibowitz, Day, & Dunt, 2003; Roing, Rosenqvist, & Holmstrom., 2013). Over time, TN has proved an efficient, cost-effective substitute for in-person home or office visits in many primary care or institutional settings.

Telephone nursing practice

The TN process is dynamic and goal-oriented, and three phases can be identified: gathering information (getting started, seeking information, and secondary gathering); cognitive processing (determining, decision-making, and planning); and output (disposing, supporting, collaborating, and closing the call) (Greenberg, 2009). Kaminsky, Rosenqvist, and Holmstrom (2009) identified five categories: 1) "assess, refer, and give advice" to callers, which they identified as the core of the role; 2) support callers through a follow-up call to check on their wellbeing; 3) strengthen callers by encouraging them and recognizing their role in initiating self-care; 4) teach callers through explicit instruction and listening; and 5) "facilitate learning" by leveraging their individual capacity. These categories illustrate the scope of TN services.

Triage is a core element. The nurse applies a deliberate system to organize and to deliver efficient healthcare by prioritizing the type and complexity of the patient's data/complaints and determining the proper disposition. During this process, calls are initiated; patient information is assessed and analyzed; and appropriate advice or referral is provided. Calls may be initiated by either patient, family, or nurse.

TN encounters must be handled without the benefit of data from physical and visual assessments. A three-stage model of telephone triage described by Purc-Stephenson and Thrasher (2010) shows that assessment depends on the nurse's ability to build a picture of the patient and the presenting health concern. Patients will be diverse in age, geographic location, and ethnic demographics with health conditions ranging from simple to complex. Throughout the telephone encounter, nurses interpret and validate patient data to determine the appropriate priority of complaints, their level of complexity, and the resources available, which are communicated to the patient (Greenberg, 2009).

Benefits and demands of telephone nursing

Several benefits can be attributed to the practice of TN. It is an effective, time-efficient alternative to home or office visits, so patients do not have to leave home to get needed medical attention after regular clinic hours. Several authors report that the quality of life of patients with chronic diseases, such as chronic obstructive pulmonary disease (COPD), improved as a result of TN (Cicolini, Palma, Tafuri, Sansoni, & Giamberardino, 2011; Cook, Emiliozzi, El-Hajj, & McCabe, 2010; Cook, Emiliozzi, Waters, & El-Hajj, 2008; Cook, McCabe, Emiliozzi, & Pointer, 2009; McClean, Nurmatov, Liu, Pagliari, Car, & Sheikh, 2011). Evidence of improvement includes fewer emergency department and hospital visits, improved compliance with the therapeutic plan, and psychological wellbeing.

TN has also improved follow-up care in such areas as safe and effective monitoring of the recovery process; information exchange, including health education and advice; symptom management, early recognition of complications, reassurance, and quality aftercare service (Braun, Baidusi, Alroy, & Azzam, 2009; Martin, French, & Janos, 2010). As these reports indicate, follow-up by telephone is feasible and appreciated by patients.

TN routinely uses standards and protocols to ensure safe, high-quality intervention. Evidence suggests that innovations in technology and informatics have improved the quality and safety of the practice.

Despite reports of telenurses' effectiveness, concerns about the accuracy of decisions have arisen (Giesen et al., 2007). Nurses who practice TN must demonstrate the ability to make critical decisions that are accurate, safe, supported by good policy administration, and capable of producing good patient and healthcare outcomes. Holmstrom and Hoglund (2007) documented some challenges, including talking to a third party rather than the patient, discussing sensitive personal problems over the phone, insufficient resources, balancing callers' information needs with professional responsibility, and differences in judging the caller's credibility. These challenges were associated with ethical dilemmas for the nurse.

Patient safety and high-quality decision-making in TN are considered paramount. Recent studies in which chemotherapy patients reported multifaceted symptoms revealed potential gaps in the skills and training of telenurses (Reid & Porter, 2011; Roing, Rosenqvist, & Holmstrom, 2013). The authors concluded that the quality of the exchange between the nurse and patient determines the safe provision of care.

Good communication skills are the cornerstone of effective exchange and positive outcomes in TN. Sheldon and Ellington (2008) associated nurses' communication skills with such patient outcomes as anxiety, adherence to treatment, and satisfaction with care. In the study "Your ears become your eyes," Pettinari and Jessop (2001) recognized that the complex interactions of TN and the need to make decisions without seeing the patient require nursing experience, education, and confidence. As healthcare trends shift toward more diverse disease demographics, increasingly complex diagnoses and etiologies, and increasing acuity

among community-dwelling and primary-care patients, telenurse/patient encounters become even more challenging.

The cited reviews indicate that telenurses' roles demand accurate clinical decision-making reflecting adequate knowledge, preparation, and expertise. In the surveys conducted by Grady and Schlacta-Fairchild (2007), telenurses reported a high level of satisfaction with their role. As telehealthcare and nurses' roles evolve, closely following their perceptions of TN demands is crucial for optimal performance.

METHODS

Rationale

This study was designed to evaluate telenurses' perceptions of their practice by achieving three specific aims:

1. describing telenurses' perceptions of four role variables: safe assessment, decision-making, practice standard, and satisfaction;
2. analyzing the interrelationships among identified TN role variables; and
3. determining the relationships between TN role variables and nursing background (nursing education and telenursing experience).

Design and sample

A preliminary cross-sectional, descriptive, correlational study was conducted following Institutional Review Board approval. A convenience sample of 70 telenurses (female = 69, male =1; mean age = 43years [SD =11.7]) was used for the study.

Measures and data collection

For this preliminary study, the authors designed a Telephone Nursing Perception Questionnaire (TNPQ). Four items evaluated nurses' perceptions of four core variables identified with the TN role: 1) safe assessment (degree of perceived comfort in assessing the telephone patient's condition); 2) decision-making (degree of perceived confidence in making decisions about care over the phone); 3) practice standard (degree of perceived comfort in using their TN protocol); and 4) satisfaction (degree of perceived enjoyment of TN practice).

In TNPQ development, eight questions related to the four defined TN role variables—two questions for each—were constructed with apriori validation based on the literature (see Appendix A). In the next phase, these eight questions were presented to a panel of five expert telenurses, and following their recommendation, four questions were selected (see Appendix B).

Each TNPQ item was measured by a Likert-type ordinal scale, with five choices ranging from strongly disagree (score = 1) to strongly agree (score = 5). An accompanying demographic questionnaire (DQ) gathered information on level of nursing education achieved, years of telenursing experience, and when the TN takes place—during or after regular office hours. The questionnaires were administered in-person or via mail to 150 actively practicing telenurses in various settings located in north, central, and south Florida, including large Health Maintenance Organizations (HMOs), hospital-managed rural outreach triage services, and nurse-managed telephone triage groups. Return-addressed and stamped envelopes were included with mailed questionnaires for participant convenience. A final questionnaire return rate of 46.6% (n= 70) was recorded.

Data analysis

The SPSS 19 statistical program (IBM SPSS, Chicago) was used for all data analysis. Sample and variable characteristics were analyzed using descriptive statistics. Bivariate analyses of the relationships among scores representing perceived TN role variables (safe assessment, decision-making, practice standard, and satisfaction) and nursing background (level of nursing education and years of telenursing experience) were conducted using Spearman correlation coefficient.

RESULTS

Discriptive findings

As shown in Table 1, most of the participants are Caucasian (64.3%, n = 45) with a 4-year college degree (35.7%, n = 25) who have practiced TN for more than 5 years (47.1%, n = 33). Their telenursing practice was conducted mostly after-hours (42.9%, n = 30).

Table 1. Description of Sample Characteristics (Ethnicity, Nursing Education, Telenursing Experience, and Time of Telenursing Practice)

Variables		Percent n = 70
Ethnicity		
	Native American	12.9
	African American	8.6
	Caucasian American	64.3
	Other	12.9

(continued)

Table 1. (continued)

Variables	Percent n = 70
Level of nursing education	
Diploma	11.4
One-year nursing school	18.6
Two-year college	11.4
Four-year college	35.7
Graduate degrees	22.9
Years of Teleursing experience	
Less than one year	10
One to five years	42.9
More than 5 years	47.1
Time of Telenursing Practice	
Regular hours	20
After hours	42.9
Both regular & after hours	37.1

Perceptions of telephone nursing role variables

1. **Perception of Safe Assessment.** Most participants (60%; n = 42) moderately and strongly disagreed that caring for patients without seeing them was uncomfortable. Almost 23% (n = 16) moderately and strongly agreed that telephone assessment was uncomfortable (see Table 2).
2. **Perception of Decision-making.** Most participants (52.8%; n = 37) moderately and strongly disagreed that they make telephone nursing decisions with confidence. Others (44.3%; n = 31) moderately and strongly agreed that they make telephone nursing decisions with confidence (see Table 2).
3. **Perception of Practice Standard.** Most participants (65.8%; n = 46) moderately and strongly agreed that using protocol makes telephone nursing comfortable, while 21.4% (n = 15) moderately and strongly disagreed (see Table 2).
4. **Perception of Satisfaction.** Nearly 46% (n = 32) moderately and strongly agreed that telephone nursing is an enjoyable job (satisfaction), while about 37% (n = 26) moderately and strongly disagreed (see Table 2).

Table 2. Description of Four Telephone Nursing Role Variables

	Percent N=70				
Variables and Questions	SA	MA	U	MD	SD
1. Safe Assessment I feel uncomfortable caring for patients over the telephone without seeing them.	5.7	17.1	17.1	40	20
2. Decision-making I make telephone nursing decisions with confidence.	34.3	10	2.9	21.4	31.4
3. Practice Standard Use of protocol makes telephone nursing comfortable.	22.9	42.9	12.9	17.1	4.3
4. Satisfaction Telephone nursing is an enjoyable job.	12.9	32.9	15.7	21.4	15.7

SA= strongly agree; MA = moderately agree; MD = moderately disagree; SD = strongly disagree; U = uncertain

Intercorrelation of the four TN role variables

Analyses indicated that perceptions of safe assessment correlated positively and significantly with decision-making (r =.42, p =.0001), practice standards (r =.41, p =.0001), and satisfaction (r =.45, p =.0001). Decision-making showed a moderately strong correlation with practice standard (r =.54, p =.0001) and a strong and positive correlation with satisfaction (r =.63, p =.0001). Practice standard had a moderately strong, positive correlation with satisfaction (r =.52, p =.0001). These findings were statistically significant at the .01 level.

Relationships among TN role variables, nursing education, and telenursing experience

Participants' TN role variables, level of nursing education, and years of telenursing experience were not significantly correlated (see Table 3).

DISCUSSION

The participants' knowledge base in nursing practice is fundamentally strong; most have a 4-year college education and above in nursing. TN practice mostly occurs after-hours, reflecting the pattern of patients' needs and ensuring that care is available when they need it.

Table 3. Correlations among Four Telephone Nursing Role Variables, Level of Nursing Education, and Length of Telenursing Experience

	Nursing Background N=70	
TN Role Variables	Education	Experience
Safe Assessment	r = .15	r = -.08
	p = .23ns	p = .52ns
Decision-making	r = -.04	r = .06
	p = .78ns	p = .64ns
Practice Standard	r = -.13	r = -.06
	p = .30ns	p = .64ns
Satisfaction	r = .12	r = -.15
	p = .34ns	p = .21ns

Note: $p < .05$ is statistically significant; ns = not statistically significant

Overall analysis of nurses' perceptions of TN role variables indicated that safe assessment, decision-making, practice standards, and satisfaction with role performance are important in their practice. Most participants felt very comfortable assessing patients over the phone without seeing them and using TN protocol. They felt less confident in making TN decisions, which is relevant to concerns about TN safety for high-risk patients. A phenomenological study conducted to ascertain nurses' perceptions about providing advice over the telephone found that they felt exposed because it requires such extensive knowledge (Strom, Marklund, & Hildingh, 2006). Although one study found that telephone triage was safe in 97% of after-hours encounters with high-urgency patients (Huibers, Smits, Renaud, Giesen, & Wensing, 2011), a simulated triage of high-risk patients showed only a 46% safety rate, and outcomes included patient death. This sharp contrast reveals a significant safety gap in TN practice.

Positive intercorrelations among the four TN role variables suggest that: 1) telephone healthcare draws strength from confidence in the ability to make critical decisions without seeing the patients; 2) both safe patient assessment and confident decision-making are associated with confidence in using protocol to standardize practice; and 3) overall satisfaction with the TN role correlates with more confident decision-making, safe patient assessment, and comfort in using protocol. Grady & Schlacta-Fair (2007) also found a high level of satisfaction among telenurses, who reported that using electronic decision support (a protocol) simplified their work, complemented their knowledge, and gave them a sense of security and credibility. In another study, even though telenurses felt the decision-making support system inhibited their spontaneous, intuitive impressions of the patient's problem, they still preferred working with it and felt it improved practice (Ernesater, Holmstrom, & Engstrom, 2009).

TN role variables did not correlate with level of nursing education and TN experience. This finding is interesting, given the critical challenge of TN decision-making and the importance of having highly knowledgeable and competent practitioners to reduce error and assure quality and safety. Braun and colleagues (2009) confirmed that the rate of error in estimating TN problems was not related to the nurses' educational background, but did correlate with specific training in TN guidelines. Grady & Schlacta-Fairchild (2007) found that nurses' acquisition of TN skills and training occurred mostly on the job rather than in a formal nursing program curriculum, possibly explaining why their educational background does not correlate with TN performance.

Implications for nursing practice

The growing complexity of healthcare demographics should draw attention to needs that go beyond hospitals and clinics. Agencies and institutions that provide TN service should be aware that the increasing number of complex, high-risk chronic diseases increases the difficulty of telenurse decision-making despite protocols and other support guidelines. Most interactions occur after-hours, when telenurses are most likely to be working alone, possibly from remote locations. Ensuring safety and quality in these situations calls for organizational support through improved practice guidelines and collaboration with such advanced practice providers as nurse practitioners and physicians.

In addition, healthcare providers and nurse educators must keep up with information technologies beyond the telephone. As more nurses choose to become TN professionals, the curriculum must be expanded and standardized, so telenurses do not have to learn on the job.

Study limitations

The sample's severely skewed gender distribution—69 women and one man—limits the generalizability of findings, which do not represent the perceptions of male telenurses. Also, most participants were Caucasian (about 64%), again limiting generalizability. The study tool was new and validated only a priori for fitness of content and representation of literature sources by expert panel opinion. True reliability and validity remain to be determined. Data collection through mail-in is known to hamper survey return; only 46% of the total surveys distributed were returned.

Conclusion

In the changing and more complex healthcare environment, the skills and competence of telenurses are increasingly relied on and challenged to assure quality and safety. This study

examined the role demands inherent in TN and elucidated how appropriate planning and leadership interventions, curricular modifications, and education could support and improve performance. Strategies to ensure safe practice, confident decision-making, use of practice standards, and nurses' satisfaction should be priorities when planning, staffing, and evaluating TN outcomes. Future studies should develop a full-scale TNPQ with four fully developed subscales, one for each variable evaluated in the current study, to provide stronger evidence of the validity and reliability of the TN perception measure. Further research should also identify appropriate interventions to improve telenurses' confidence in the safety and quality of their decisions.

REFERENCES

Braun, E., Baidusi, A., Alroy, G., & Azzam, Z. (2009). Telephone follow-up improves patients satisfaction following hospital discharge. *European Journal of Internal Medicine, 20*(2), 221-225. doi: 10.1016/j.ejim.2008.07.021.

Bunn, F., Byrne, G., & Kendall, S. (2005). The effects of telephone consultation and triage on health care use and patient satisfaction. *British Journal of General Practice, 55*(521), 956-961.

Cicolini, G., Palma, E., Tafuri, E., Sansoni , J., & Giamberardino, M. (2011). Effectiveness of the telephonic-case-management for treatment of headache. A pilot study. *Professioni Infermieristiche, 64*(3), 173-178.

Cook, P., Emiliozzi, S., El-Hajj, D., & McCabe, M. (2010). Telephone nurse counseling for medication adherence in ulcerative colitis: A preliminary study. *Patient Education and Counseling, 81*(2), 182-186. doi: 10.1016/j.pec.2009.12.010. doi: 10.1016/j.pec.2009.12.010.

Cook, P., Emiliozzi, S., Waters, C., & El-Hajj, D. (2008). Effects of telephone counseling on antipsychotic adherence and emergency department utilization. *American Journal of Managed Care, 14*(12), 841-846.

Cook, P., McCabe, M., Emiliozzi, S., & Pointer, L. (2009). Telephone nurse counseling improves HIV medication adherence: An effectiveness study. *Journal of the Association of Nurses in AIDS Care, 20*(4), 316-325. doi: 10.1016/j.jana.2009.02.008.

Ernesater, A., Holmstrom, I., & Engstrom, M. (2009). Telenurses' experiences of working with computerized decision support: Supporting, inhibiting and quality improving. *Journal of Advanced Nursing, 65*(5), 1074-1083. doi: 10.1111/j.1365-2648.2009.04966.x.

Giesen, P., Ferwerda, R., Tijssen, R., Mokkink, H., Drijver, R., Bosch, W., & Grol, R. (2007). Safety of telephone triage in general practitioner cooperatives: Do triage nurses correctly estimate urgency? *Quality and Safety in Health Care, 16*(3), 181-184.

Grady, J. & Schlacta-Fairchild, L. (2007). Report of the 2004-2005 International Telenursing Survey. *Computer, Informatics, Nursing, 25*(5), 266-272.

Greenberg, M. (2009). A comprehensive model of the process of telephone nursing. *Journal of Advanced Nursing, 65*(12), 2621-2629. doi: 10.1111/j.1365-2648.2009.05132.x.

Holmstrom, I., & Hoglund, A. (2007). The faceless encounter: Ethical dilemmas in telephone nursing. *Journal of Clinical Nursing, 16*(10), 1865-1871.

Huibers, L., Smits, M., Renaud, V., Giesen, P., & Wensing, M. (2011). Safety of telephone triage in out-of-hours care: A systematic review. *Scandinavian Journal of Primary Health Care, 29*(4), 198-209. doi: 10.3109/02813432.2011.629150.

Kaminsky, E., Rosenqvist, U., & Holmstrom, I. (2009). Telenurses' understanding of work: Detective or educator? *Journal of Advanced Nursing, 65*(2), 382-390. doi: 10.1111/j.136 52648.2008.04877.x.

Leibowitz, R., Day, S., & Dunt, D. (2003). A systematic review of the effect of different models of after-hours primary medical care services on clinical outcome, medical workload, and patient and GP satisfaction. *Family Practice, 20*(3), 311-317.

Martin, E., French, L., & Janos, A. (2010). Home/community monitoring using telephonic follow-up. *NeuroRehabilitation, 26*(3), 279-283. doi: 10.3233/NRE-2010-0563.

McClean, S., Nurmatov U., Liu J., Pagliari C., Car, J., & Sheikh, A. (2011). Telehealthcare for chronic obstructive pulmonary disease. *Cochrane Library, 7*(8). doi: 10.1002/14651858.CD007718.pub2.

Pettinari, C., & Jessop, L. (2001). "Your ears become your eyes": Managing the absence of visibility in NHS Direct. *Journal of Advanced Nursing, 36*(5), 668-675.

Purc-Stephenson, R., & Thrasher, C. (2010). Nurses' experiences with telephone triage and advice: A meta-ethnography. *Journal of Advanced Nursing, 66*(3), 482-494. doi: 10.1111/j.1 3652648.2010.05275.x.

Reid, J., & Porter, S. (2011). Utility, caller, and patient profile of a novel Chemotherapy Telephone Helpline service within a regional cancer centre in Northern Ireland. *Cancer Nursing, 34*(3), E27-32. doi: 10.1097/NCC.0b013e318204c53c.

Roing, M., Rosenqvist, U., & Holmstrom, I. (2013). Threats to patient safety in telenursing as revealed in Swedish telenurses' reflections on their dialogues. *Scandinavian Journal of Caring Sciences,* (Epub ahead of print). doi: 10.1111/scs.12016.

Sabin, M. (1998). Telephone triage improves demand management effectiveness. *Healthcare Financial Management, 52*(8), 49-51.

Sheldon, L., & Ellington, L. (2008). Application of a model of social information processing to nursing theory: How nurses respond to patients. *Journal of Advanced Nursing, 64*(4), 388-398. doi: 10.1111/j.1365-2648.2008.04795.x.

Strom, M., Marklund, B., & Hildingh, C. (2006). Nurses' perceptions of providing advice via a telephone care line. *British Journal of Nursing, 15*(20), 1119-1125.

APPENDICES

Appendix A. Eight Questions about Telephone Nursing Role Selected for Evaluation and Validation

Variables and Questions	SA	MA	U	MD	SD
1. Safe Assessment					
a. I feel uncomfortable caring for patients over the telephone without seeing them.					
b. I feel safe with my present job.					
2. Decision-making					
a. I make telephone nursing decisions with confidence.					
b. I am often concerned about making the right triage decision.					
3. Practice Standard					
a. Use of protocol makes telephone nursing comfortable.					
b. I feel that my nursing skills are suppressed by the use of triage protocols.					
4. Satisfaction					
a. Telephone nursing is an enjoyable job.					
b. I feel that my present job is rewarding in many ways.					

SA= strongly agree; MA = moderately agree; MD = moderately disagree; SD = strongly disagree; U = uncertain

Appendix B. Four Final Questions Selected Following Telephone Nursing Expert Panel Validation

Variables and Questions	SA	MA	U	MD	SD
1. Safe Assessment I feel uncomfortable caring for patients over the telephone without seeing them.					
2. Decision-making I make telephone nursing decisions with confidence.					
3. Practice Standard Use of protocol makes telephone nursing comfortable.					
4. Satisfaction Telephone nursing is an enjoyable job.					

SA= strongly agree; MA = moderately agree; MD = moderately disagree; SD = strongly disagree; U = uncertain