

Nursing care by telehealth: what is the influence of distance on communication?

Cuidado de enfermagem por telessaúde: qual a influência da distância na comunicação?
Atención de enfermería por telesalud: ¿cuál es la influencia de la distancia en la comunicación?

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ABSTRACT

Objective: Evaluate the perception of nurses regarding interpersonal communication while providing care via telehealth. **Method:** Qualitative research realized with seven nurses working in telehealth in Brazil, the sample was determined by data saturation. A questionnaire with open questions was applied and then content analysis of the dialogues was conducted, focusing on thematic analysis. **Results:** Four categories emerged from the dialogues: Understanding the importance of communication; the interpersonal relationship interfering with communication; Communicating via technology; and Learning the communication process. **Final considerations:** The perception of nurses working in telehealth in Brazil is that technology has facilitated their professional practice; however, in relation to the communication process, they believe it is harder to communicate by telehealth, mainly due to difficulty in perceiving nonverbal signals. To overcome these difficulties, they agreed that interpersonal communication is a skill that must be acquired during their professional training.

Descriptors: Telemedicine; Telenursing; Health Communication; Distance consultation; Nurse-Patient Relations.

RESUMO

Objetivo: Avaliar a percepção do enfermeiro referente à Comunicação interpessoal no cuidado por telessaúde. **Método:** Pesquisa qualitativa, realizada com sete enfermeiros que atuam em telessaúde no Brasil, com amostra determinada pela saturação de dados. Aplicou-se um questionário com perguntas abertas e foi realizada análise de conteúdo dos discursos, com enfoque na análise temática. **Resultados:** Dos discursos emergiram quatro categorias: Entendendo a importância da comunicação; O relacionamento interpessoal interferindo na comunicação; Comunicando-se por meio da tecnologia; e Aprendendo o processo de comunicação. **Considerações finais:** A percepção dos enfermeiros que atuam em telessaúde no Brasil é de que a tecnologia tem facilitado sua prática profissional; porém, em relação ao processo de comunicação, creem que seja mais difícil se comunicar pela telessaúde, principalmente devido à dificuldade de percepção de sinais não verbais. Para superar essas dificuldades, concordam que comunicação interpessoal é uma competência que deve ser adquirida em sua formação profissional.

Descritores: Telemedicina; Telenfermagem; Comunicação em Saúde; Consulta Remota; Relações Enfermeiro-Paciente.

RESUMEN

Objetivo: Evaluar la percepción del enfermero respecto de la Comunicación interpersonal en la atención por telesalud. **Método:** Investigación cualitativa, realizada con siete enfermeros que actúan en telesalud en Brasil, con muestra determinada por saturación de datos. Se aplicó cuestionario con preguntas abiertas, se realizó análisis de contenido de los discursos, con enfoque en análisis temático. **Resultados:** De los discursos surgieron cuatro categorías: Entendiendo la importancia de la comunicación; Relación interpersonal interfiriendo en la comunicación; Comunicándose mediante la tecnología; y Aprendiendo el proceso de comunicación. **Consideraciones finales:** La percepción de los enfermeros actuantes en telesalud en Brasil es que la tecnología facilitó su práctica profesional; aunque en relación al proceso de comunicación, creen que es más difícil comunicarse

pro telesalud, particularmente debido a la dificultad de percepción de señales no verbales. Para superar tales dificultades, concordaron en que comunicación interpersonal es una competencia que debe adquirirse durante su formación profesional.

Descritores: Telemedicina; Telegenfermería; Comunicación en Salud; Consulta Remota; Relaciones Enfermero-Paciente.

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INTRODUCTION

Understanding the terms “science” and “art” as knowledge and skill respectively, we comprehend the two concepts put into practice in relation to nursing care by combining “technical competence with dignity, compassion, ethics and individualization of care”⁽¹⁾. Care involves harmonizing interpersonal relationships, transforming environments and respecting the socio-economic and cultural differences of people. Furthermore, care involves the presence of feelings of compassion, empathy, protection and love, both with respect to those being cared for and in relation to ourselves⁽¹⁾.

However, the way care is currently provided has been modified by the incorporation of Information and Communication Technologies (ICTs) in healthcare. The technology, in various forms, has been incorporated into the management, care, teaching and research in nursing in order to meet the contemporary emerging care needs. Nursing has used ICT in various ways in the current scenario: portable systems that allow access to information from any remote location, electronic medical record systems for patient care management and even providing the care itself through the phone or video camera.

The use of ICT in health care is not a new theme. The first reference to telehealth in the literature occurred in 1950, with radiological images being transmitted by telephone in the United States. The exact date when the first technologies were used is unknown and the concept may have originated many centuries ago if we consider minor activities of distance medicine to be “telemedicine”, for example, information about the bubonic plague was transmitted across Europe through heliograph, or smoke signals representing information about war and hunger. It is safe to assume that use of the telegraph at the beginning of the last century involved medical consultations. In World War I, radio communication was developed and in 1930 it was used in remote areas such as Alaska and Australia to transmit important medical information. In the 1980s, the telephone was used for medical communication. Nonetheless, one of the first major efforts to overcome the barriers of time and distance involved the research and development of telemetry, i.e. remote data collection, conducted by the National Aeronautics and Space Administration (NASA) for its manned spaceflight program to assess physiological functions of astronauts in space. Sophisticated biomedical telecommunications systems for medical applications were developed from these projects⁽²⁾.

Distance caregiving is expanding in many Western countries, mainly due to factors concerning reduction in healthcare expenses and current epidemiological factors such as the aging population and increasing prevalence of chronic diseases and aggravation of infectious diseases⁽³⁻⁴⁾.

However, with the advent of new ICTs in health, the skills to communicate properly have become even more challenging.

Communication can be defined as the process of understanding and sharing both sent and received messages, since the content of these messages as well as the way in which they are received, influences the present and future behavior of the people involved. Communication is a complex process that has to be learned. The elements of this process are: the emitter or sender, receptor or receiver and message. Messages, or communicated content can be transmitted verbally or nonverbally. Moreover, the context in which communicational interactions occur is critical to their understanding⁽⁵⁾.

The influence of technology on the nature and content of the communications originates both from their technique and by modifying the in-person context to the virtual environment, as well as their interpersonal aspects. This gives rise to the possibility of depersonalization of interpersonal relationships, together with sensory and nonverbal limitations. For example, in telehealth the physical separation between the health professional and the patient in the consultations can compromise the richness and complexity of eye contact, look, posture, facial expressions, body positioning, i.e. “clues” that could change the meaning of verbal expressions⁽⁶⁾.

A systematic review that evaluated articles on communication for telehealth considered that distance communication can influence the consultation itself, but not only that: it can change the short, medium and long term outcomes in relation to various factors such as the patient’s understanding of the issues discussed during the consultation and compliance to the proposed therapy. Furthermore, it revealed that the evidence found is more positive than negative towards communication via telehealth, but there is still a need for better understanding of this process by encouraging the development of behavioral norms for interaction at a distance and creating other strategies to reduce any reservations associated with this medium⁽⁷⁾.

Due to the diversity of ICTs used in telehealth, many researchers have dedicated themselves to assess the impact of these technologies on the providing of health services and to describe the experience of healthcare professionals that use them⁽⁸⁻⁹⁾. Additionally when considering the ever increasing incorporation of these new technologies, an understanding of the communication process in this context can provide evidence to optimize this form of health care⁽¹⁰⁾.

Taking into account the considerations that current studies have raised, telehealth has been described as an important tool for nurses; in terms of communication, it can influence factors such as: time of interaction, satisfaction of the subjects involved in this interaction and limitations related to nonverbal communication. Few studies in Brazil have evaluated the communication process in this context. In addition, nursing as a science and art, on incorporating new technologies into

providing care, demands that healthcare professionals are aware of the impact of this technology on their daily lives, so that they can combine technology with the core of their existence – caring. Thus, the aim of this study was to evaluate the perception of nurses regarding the elements of human interpersonal communication in caring via telehealth.

METHOD

Ethical aspects

This study was approved by the Research Ethics Committee of the Nursing School of the University of São Paulo (EEUSP), through *Plataforma Brasil*. The realization of the study met national and international standards of ethics in research involving human subjects.

Theoretical framework and study design

This is a descriptive and qualitative approach, carried out with doctors and nurses working in telehealth in Brazil. For this article, we used data gathered from interviews with nurses.

Methodological procedures

Study scenario

Data collection was performed according to the participants' availability, in the following order: in person, Adobe Connect system, Skype®, FaceTime® and by telephone. Following the interviews, only the audio material was analyzed, i.e. the video image of the professional was not recorded even when it was available in the interviews using Adobe Connect, Skype® or FaceTime®.

Data Source

Research subjects were doctors and nurses working in the telehealth field in Brazil for at least six months, who accepted and consented to participate. These healthcare professionals were located by two searches: 1) in São Paulo: hospitals providing telehealth services were located in the available media. Once listed, these hospitals were contacted and we requested the electronic contact of professionals working in the telehealth area; 2) In Brazil: through the national program *Telessaúde Brasil Redes* [Telehealth Networks Brazil].

Data Collection and organization

We contacted all institutions and centers listed through the above search strategies. After asking for the contacts of the doctors and nurses working in telehealth we received a list totaling eighty healthcare professionals. Invitations were sent to all these and after three attempts to contact them, we obtained 24 acceptances, 6 rejections and 50 who failed to respond. Although we enrolled 24, data saturation was reached by the twentieth interview, at which point the researcher suspended interviews and the remainder were thanked, according to the methodology of the study. Of the 20 who were interviewed, 13 were doctors and seven nurses.

Data analysis

"Dialogue Analysis" was used to provide an overview of the conditions of production and understanding the meaning of texts

produced. Completing the data analysis, the results were treated in a manner to make them significant, so that we could propose inferences and interpretations of the objectives set or other unexpected findings⁽¹¹⁾. Analysis of the contents focused on thematic analysis and was performed in three steps: "Pre-analysis", which consisted of selecting the documents to be analyzed and the resumption of initial hypotheses and research objectives; "Exploration of the material", which comprised a coding operation; and finally, "Treatment of Obtained Results and Interpretation", with submission of raw data to statistical operations that allowed the information obtained to be put into perspective⁽¹¹⁾.

RESULTS

Of the nurses interviewed, all were female and the mean age was 33.4 years. On average they had an academic background of ten years and had been working in telemedicine for approximately 22.4 months.

Data analysis revealed four categories: Understanding the importance of communication; The interpersonal relationship interfering with communication; Communicating through technology; and Learning the communication process.

The first category that emerged from the dialogues, "Understanding the importance of communication", comprised two subcategories. Firstly, "Proper communication is fundamental, because it affects the way in which people conduct themselves". The nurses associated the importance of the communication process mainly with proper conduct to the patient and also to the team. In addition, nurses understand that proper communication is the basis for quality in health care, particularly in order to avoid errors of conduct and it is therefore critical for patient safety:

Proper communication is very important because all the information that we provide to a patient about any procedure or process in the institution, is done through communication. So if the person is not clear, that information is truncated. (I4- nurse, SP)

I believe that effective communication leads to greater resoluteness in health actions; when we can exchange ideas, we have a meeting point. (I18-nurse, MS)

The second subcategory, "Identifying communication barriers", here nurses spoke about factors that hinder the communication process. In this sense, the talks involved issues related to the environment and dynamics of work, as well as a shortage of time:

The person who is at a distance, it's happening all there on site as well. It is not an inert place, as in our case, it's a room where someone is gravely ill. So it's the noise of monitoring, people talking. (I19- nurse, SP)

In the category "Interpersonal relationship interfering with communication", nurses cited relationship issues involving: interpersonal affinities, prior knowledge about the person to whom the professional is talking to, understanding the importance of teamwork, willingness to communicate, confidence in other healthcare professionals, among other interpersonal features:

Meet the professional, work with him. Trust the professional. These are the main factors that help to communicate better. (I19- nurse, SP)

The exchange of experience is central, you can have access to another point of view, not only ours, of our practice or what we think is correct, and I think there is resoluteness in communicating well. (I18- nurse MS)

Difficulties may occur particularly in regard to the relationship; if you do not establish a prior relationship, or the relationship is not very strong, you may have some difficulty realizing the procedure because there was not a proper communication. (I17- nurse PE)

The third category, "Communicating through technology", comprised three subcategories. Firstly "Technology makes it easy to practice," the nurses commented on the ease that technology has brought to their daily practice:

It facilitates because we manage to shorten distances; that is we can talk to people that are many kilometers away from where I am. And the very issue of exchanging experiences, it happens more in telehealth. (I18- nurse, MS)

You break barriers of distance, because you can communicate with people [...] in other countries. (I17- nurse, PE)

In the second subcategory, "Understanding the factors that hinder distance communication", nurses spoke about factors that limit communication through telehealth such as slow Internet, lack of knowledge regarding this technology among patients, difficult to convey confidence or even safety at a distance, and belief that the distance itself hinders interactions:

Telehealth, no matter how real, it is a virtual environment. So you do not have the person to person interaction, you cannot feel how much the person is understanding what you want to say, if they are finding it valid or not. Because, like it or not, people are different in front of a camera, you end up playing a role. So you have no way to be sure how much what you're saying is real and effective, what the person really understands. Besides this, as it is a technology, any outside interference disrupts it; Such as noise, delay in data transmission, equipment not being very good, the time of the answer is different. So I speak to you now, you answer me right away. In the case of equipment, no; you have to wait a while to hear the entire message and sometimes you do not have time for this. This is the hardest part. (I4-nurse, SP)

In addition to the technical questions of the Internet itself, one thing that I see as a difficulty is the professional distance even between one and another, different experiences, the difficulty in understanding what is the practice of that team, what is the reality of that team. Sometimes this hinders a little our work process, as teleconsultants. At least I feel some of that difficulty, because I work in telehealth in another state, but I am not from the state, so perhaps this is more present in my work. There is a greater need for me to question how does the team work, what is the community like that they care for, so I can understand it better, but I think that the difficulty of a

team is to work one way and the other another; this dialog to get closer to them is a bit difficult. (I16- nurse, RS)

The third subcategory "Identifying nonverbal signs by telehealth is harder" was cited emphatically by nurses:

It is very difficult to perceive gestures by telemedicine. (I20- nurse, SP)

Face to face communication is easier because you use nonverbal elements; so you look in their eyes, you see a person's posture; you see the faces they make. So much of message becomes explicit by nonverbal communication, and this is the most important. In addition to the speech, which is also important, the body also shows everything a person wants to say. (I4- nurse, SP)

You're not close to personal contact to realize these expressions and nonverbal communication becomes more limited. Sometimes there are connectivity issues that hinder clear communication; then you have cuts and losses. Close presence contributes greatly to allowing the communication to flow better. (I12- nurse, RS)

The fourth and final category, "Learning the communication process", nurses discussed themes that comprised two sub-categories. The first, "The importance of learning verbal and nonverbal communication", refers to the learning needs for the communication process. Nurses believe communication training is needed to work in their profession:

We see that there are people who are more connected in nonverbal, so they become more convenient. I think that a person not closely connected in nonverbal can end up getting a bit inconvenient in some situations; so I think that training in nonverbal is very important. (I19- nurse, SP)

We think just talking is to communicate, and it is not. Sometimes we're not clear about what we say; we do not have the habit of asking for feedback about what we said, if the other understood, that would achieve basic elements of communication. An update in this would be cool. (I18- nurse, MS)

We need to learn communication. Without communication it is impossible to be a nurse, and that's what I say in class. You must be able to communicate. Sometimes, for the minimum of treatment, if you do not know how to communicate even your posture can reduce adherence to the treatment, for example ...The question of the tone of voice, of using simple language, all this has to be taught to nurses. (I17- nurse, PE)

In the second subcategory, "learning the importance of telehealth", nurses raised the need for training in distance communication:

There is a need for training! For example, what I have noticed is the issue of voice tone. Some people think that because they're far they have to shout [...]. People are not prepared, they come close to the camera and are static, think they cannot move to talk [...]. I myself feel in need of training! (I19- nurse, SP)

DISCUSSION

Nurses in this sample considered proper communication to be primordial, above all due to the importance they attach to patient safety. The first category, "Understanding the importance of communication", covered this approach. In this sense, the dialogues emphasized the necessity to communicate well in order to avoid errors related to the care. This finding corroborates the opinion of those who study communication in health care: proper communication helps to avoid errors of conduct, caused by "misunderstandings" in the exchange of information between healthcare professionals and also between patients and care providers⁽⁵⁾.

A major category elaborated by the dialogues of this research was based on interpersonal relationships, "The interpersonal relationship interfering with communication". The healthcare professionals cited factors that together are essential for good communication, such as: personal affinities; understanding the importance of teamwork; willingness to communicate; trust; and prior acquaintance with other healthcare professionals.

In a qualitative study of nursing from the perspective of nurses who are experts in communication regarding the effectiveness of communication, one of the categories found was that "competent communication is an interpersonal process" in the sense that when nurses communicate, they should be interested and concerned about their interlocutor, or how that person receives the message and whether it was fully understood⁽¹²⁾. Therefore, the interpersonal relationship is also essential for nurses who want to communicate properly, since "authentic interpersonal relationships promote the ability to understand one and another's feelings and thoughts". Thus, "in the training of these students, such interactions should be educational goals to be achieved because the skills are built on daily interactions"⁽¹²⁾. Considering the importance of interpersonal relationships for more effective communication, we understand that "relationships" are a skill that should be taught in nursing schools.

The third category brings to question the specific issue regarding how technology has affected the communication process, "communicating through technology". Distance communication is seen as both assisting the professional as well as hampering their daily practice. One of the helpful aspects listed was decreasing the distance between people, in the sense that we can access others quickly and simply, most of the time. This issue is seen as advantageous by all healthcare professionals, since telehealth ensures patients access to care, which previously was not possible by other means. This finding corroborates previous studies showing that technology in healthcare has enabled specialized treatments for patients without quick and easy access to hospitals or when treatment of a disease demands immediate action⁽¹³⁻¹⁴⁾.

Listing the reasons why distance communication may be more difficult, healthcare professionals declared that distance complicates the communication process because it is more difficult to convey confidence when using technology due to the absence of physical contact, differences in interpersonal interaction and even the difficulty in validating what is being said; which is a key element in the communication process. These

findings contradict a study in communication which suggested that despite the physical separation, professional-patient communication in telehealth was not inferior to the communication achieved during in person consultations⁽¹⁵⁾. On the other hand, it corroborates another study that evaluated the time factor in distance communication, concluding that doctors were dissatisfied and felt impediments from what they referred to as "communication barriers" in distance consultations⁽¹⁶⁾.

One of the most important issues arising from the findings with these healthcare professionals related to nonverbal communication. Nurses affirmed that identifying the nonverbal signals by telehealth is more difficult. This confirms that the physical separation between the health professional and patient in remote consultations may jeopardize the richness and complexity of eye contact, looks, posture, facial expressions, and body positioning, i.e. "clues" that could change the meaning of verbal expressions⁽¹⁷⁾.

Nonverbal communication refers to all messages sent without words. Only 7% of all human communication is through words and the rest by paralinguistic signs (38%) and body signals (55%)⁽¹⁸⁾. Nonverbal communication has four main functions:

- Complementing: a nonverbal signal supplement is one that reinforces or reiterates what was said, such as a positive nod of the head along with saying "yes".
- Substitution: the use of a particular signal to replace a word. The substitution takes place, for example, when, instead of saying "yes", the caller uses a "hum, hum" to express acceptance after a question.
- Contradiction: any signal that contradicts what was said verbally, for example, a nod of the head when expressing "no".
- Demonstration of feelings: this function is performed primarily through facial expressions. Blushing demonstrates embarrassment or opening your eyes wide in surprise are classic examples^(5,12).

Therefore, it is essential that the technology is used in such a way as to promote awareness and understanding of nonverbal signals. It was highlighted that to correctly understand nonverbal signals in telehealth, the care provider should also know how to perceive them properly when in person.

The healthcare professionals cited nonverbal cues a total of 16 times during the interviews, or on average 3.4 mentions per interviewee. Of these, only 33% were mentioned while the interview was considering in person care. From this we can infer a greater difficulty in understanding nonverbal signals at a distance, which is consistent with the dialogues. None of the healthcare professionals cited the role of nonverbal communication in the sense of why it is so important to understand. However, we infer that by nonverbal communication, they are implicitly referring to the importance of complementing verbal communication, which defines one of the functions of nonverbal communication.

The last category found addressed the issue of learning: "Learning the communication process". Here, the nurses emphasized the importance of learning distance communication. They agreed that as a specific field of health work, learning becomes essential. The dialogues reinforced the idea that there is a

greater difficulty in understanding nonverbal signals when providing telehealth care and corroborate the findings of an earlier study that suggested that training programs are needed to help healthcare professionals develop better communication skills and ability to express empathy during distance consultations⁽¹⁹⁾.

Bearing in mind that the environment in which the interaction takes place influences the communication, one must create strategies to overcome communication barriers encountered in this "at a distance" environment, thus providing the most effective and appropriate care from the communication point of view.

Limitations of the study

In this study, the main limitation involved difficulties in the use of data collection devices at a distance from the subjects of the research. This going against the very object of study, which presupposes that technology has been extensively used by these nurses. The healthcare professionals had difficulties in conducting the interview via technological devices, preferring in their entirety to respond to the researcher by telephone or in person. From this we can infer that, even though the use of technology in the network is well structured from a technological point of view, the healthcare professionals who work with it may not have the resources to use it effectively, such as frequent training, for example. This fact may have interfered in the interpretation of the data, due to the absence of visual interaction.

Contributions to the area of nursing, health or public policy

The results of this study have contributed to the understanding that the modality of distance care requires training, principally because of issues concerning interpersonal communication. In this sense, it has strengthened the concept that since this technology has been incorporated in a substantial manner to caregiving, there is a need to create strategies in both the public and private sectors to focus attention on its usage.

FINAL CONSIDERATIONS

The perception of nurses working in Telehealth in Brazil is that the technology has facilitated their professional practice. However, in relation to the interpersonal communication process, they believe that it is harder to communicate in Telemedicine, principally due to the difficulty in perceiving nonverbal signals in distance care. To overcome these difficulties they agreed that this form of communication is a skill which should be taught to the telehealth workers. This study has contributed to understanding the necessity to train healthcare professionals as to an effective interpersonal communication process within this ever growing scenario; however, the research was limited to a sample of healthcare professionals working in Brazil. Further studies should be conducted to elaborate a greater understanding of the theme and to propose training programs for these workers.

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