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SHORT COMMUNICATION

Interdisciplinarity in the Effectiveness of Telehealth: Challenges, Opportunities, and Necessary Competencies

Interdisciplinariedad en la Eficacia de la Telesalud: Desafíos, Oportunidades y Competencias Necesarias

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ABSTRACT

Introduction: telehealth has become a key tool to improve access to healthcare, particularly in contexts with geographical barriers. Its effective implementation relies on integrating technology with clinical knowledge, which requires specific competencies and interdisciplinary collaboration to ensure equitable care.
Objective: to describe how interdisciplinarity influences the implementation and effectiveness of telehealth, identifying the challenges, opportunities, and necessary competencies from the perspective of healthcare professionals in the Biobío region, Chile.
Method: a qualitative study was conducted through a focus group with 14 healthcare professionals from various disciplines. Data were analyzed using thematic analysis and co-occurrence analysis to identify relationships among key competencies.
Results: the findings indicate that interdisciplinarity optimizes telehealth by combining clinical and technological knowledge, although it faces challenges such as the need for training in communication and adaptability competencies. The importance of skilled human resources and robust digital infrastructure is also highlighted.
Conclusions: interdisciplinary collaboration is essential for the success of telehealth, enabling patient-centered care and promoting health equity. Ongoing training in specific competencies and adequate technological support are necessary to ensure the sustainability and effectiveness of telehealth in the region.

Keywords: Healthcare Access; Healthcare Personnel Competency; Health Equity; Interdisciplinary Communication; Telemedicine.

RESUMEN

Introducción: la telesalud se ha convertido en una herramienta clave para mejorar el acceso a la atención médica, especialmente en contextos con barreras geográficas. Su implementación eficaz depende de la integración de tecnología y conocimientos clínicos, lo cual requiere competencias específicas y una colaboración interdisciplinaria para asegurar una atención equitativa.
Objetivo: describir cómo la interdisciplinariedad influye en la implementación y eficacia de la telesalud, identificando los desafíos, oportunidades y competencias necesarias desde la perspectiva de profesionales

de salud en la región del Biobío, Chile.

Método: se realizó un estudio cualitativo a través de un focus group con 14 profesionales de la salud de diferentes disciplinas. Los datos se analizaron mediante un enfoque temático y un análisis de co-ocurrencias para identificar relaciones entre competencias clave.

Resultados: los hallazgos muestran que la interdisciplinariedad optimiza la telesalud al combinar conocimientos clínicos y tecnológicos, aunque enfrenta desafíos como la necesidad de capacitación en competencias de comunicación y adaptabilidad. También se destaca la importancia de contar con recursos humanos capacitados y una infraestructura digital robusta.

Conclusiones: la colaboración interdisciplinaria es esencial para el éxito de la telesalud, facilitando una atención adaptada a las necesidades del paciente y promoviendo la equidad en salud. La capacitación continua en competencias específicas y un soporte tecnológico adecuado son necesarios para garantizar la sostenibilidad y eficacia de la telesalud en la región.

Palabras clave: Accesibilidad a los Servicios de Salud; Competencia del Personal de Salud; Comunicación Interdisciplinaria; Equidad en Salud; Telemedicina.

INTRODUCTION

Telehealth has become an essential tool in managing complex chronic conditions, facilitating interdisciplinary collaboration and improving patient outcomes.[1] Various studies have shown that multidisciplinary teams on telemedicine platforms optimize care, particularly in hard-to-control diseases. For example, collaboration between nephrologists and pharmacists in telemedicine clinics has significantly reduced blood pressure without compromising renal function, demonstrating the potential of telehealth to improve outcomes in complex clinical conditions.[2] Similarly, in managing cirrhosis, the integration of interdisciplinary teams has improved access to specialists and optimized care coordination, especially for patients requiring complex interventions.[3]

The positive impact of telehealth has underscored the need to develop specific competencies for effective collaboration in virtual environments, not only among healthcare professionals but also in other areas.[4,5] The skills, knowledge, and attitudes that make up these competencies include interprofessional communication and a patient- and community-centered approach, which are necessary to achieve effective telehealth care. However, conflict resolution remains an underdeveloped skill, which could limit the effectiveness of interdisciplinary collaboration and, consequently, the quality of care.[4] The creation of interdisciplinary digital resources is also crucial in preparing students to use digital health technologies and strengthen their competencies in clinical condition prevention and management, as demonstrated by an educational resource on delirium in Ireland.[6]

Integrated behavioral care training programs have shown that using telehealth increases professionals' confidence and autonomy, promoting team communication and adaptability skills, which are essential for effective collaborative work.[1] Furthermore, in a primary care program, the use of interdisciplinary simulations has proven effective in preparing residents to manage complex patients through telehealth, allowing them to gain competencies in using digital tools and coordinating care.[7]

During the COVID-19 pandemic, telehealth was essential to ensure continuity of oncology services, allowing interdisciplinary teams to provide remote care and reduce the risk of virus exposure.[8] This model also enabled virtual meetings of interdisciplinary teams that improved collaboration amid physical contact restrictions. In this context, the introduction of competency-based practices, such as the "Hallway Consult," has proven effective in developing diagnostic reasoning and decision-making skills in nursing students, who applied these skills in simulated clinical scenarios that reflect telemedicine dynamics.[9,10]

Additionally, the interdisciplinary perspective in telehealth facilitates the creation of personalized and adaptive care plans, leveraging the knowledge of multiple disciplines. This approach enables innovative solutions, such as combining artificial intelligence-driven therapies and digital tools that cater to the patient's specific needs, thereby optimizing the experience and outcomes of remote care.[11,12] In the field of telerehabilitation, this perspective focuses on improving the patient experience by integrating medicine, informatics, and social sciences, allowing for greater adaptability and better clinical outcomes in telehealth.[11]

The present study aims to describe how interdisciplinarity influences the implementation and effectiveness of telehealth from the perspective of healthcare professionals. Through a qualitative analysis based on a focus group with healthcare professionals from the Biobío region in Chile, this study investigates the challenges, opportunities, and necessary competencies to improve telehealth care and address its main barriers.

METHOD

This qualitative study was conducted using a focus group methodology to explore healthcare professionals' perceptions and experiences regarding interdisciplinarity in telehealth. The choice of a qualitative approach

reflects the need to delve into the dynamics, challenges, and necessary competencies from various disciplinary perspectives. Although numeric frequencies are presented to illustrate trends in the data, the study remains fundamentally qualitative, as the interpretation is grounded in thematic and co-occurrence analysis

A group of 14 healthcare professionals with experience in telehealth services was selected, chosen as key informants to collectively review a preliminary proposal developed by the team called "Framework of Specific Competencies for Telehealth." Participants represented various disciplines, including medicine, nursing, dentistry, kinesiology, biomedical informatics, and healthcare service administration, recruited through intentional sampling to ensure gender parity and diversity of experiences and roles in telehealth.

The focus group was conducted in a two-hour, in-person session at the Universidad Católica de la Santísima Concepción (UCSC) on October 5, 2023, moderated by an experienced qualitative research facilitator. The questions were designed to explore participants' understanding of telehealth, the benefits and challenges of interdisciplinarity, and the competencies needed for effective implementation. The conversation was recorded with participants' consent and transcribed for analysis.

Data analysis combined thematic analysis and co-occurrence analysis, using the Atlas Ti software, version 23.2.1.[13] Thematic analysis was developed through open, axial, and selective coding, allowing the identification of patterns and emerging themes, such as interdisciplinary collaboration, equity, continuous training, and resource management. Subsequently, a co-occurrence analysis was conducted to quantify relationships between codes, revealing the most frequent interdependencies between competencies and telehealth requirements.

The study was approved by the Ethics Committee of the Universidad Católica de la Santísima Concepción (No. 60/2022). Informed consent was obtained from all participants before their inclusion in the study.

RESULTS

The qualitative analysis of the focus group transcripts revealed two key areas for optimizing telehealth in professional practice: essential competencies and implementation requirements. Each of these categories encompasses fundamental elements that support the effectiveness and adaptability of the telehealth model in remote care. Figure 1 illustrates the frequency of the codes analyzed in this study.
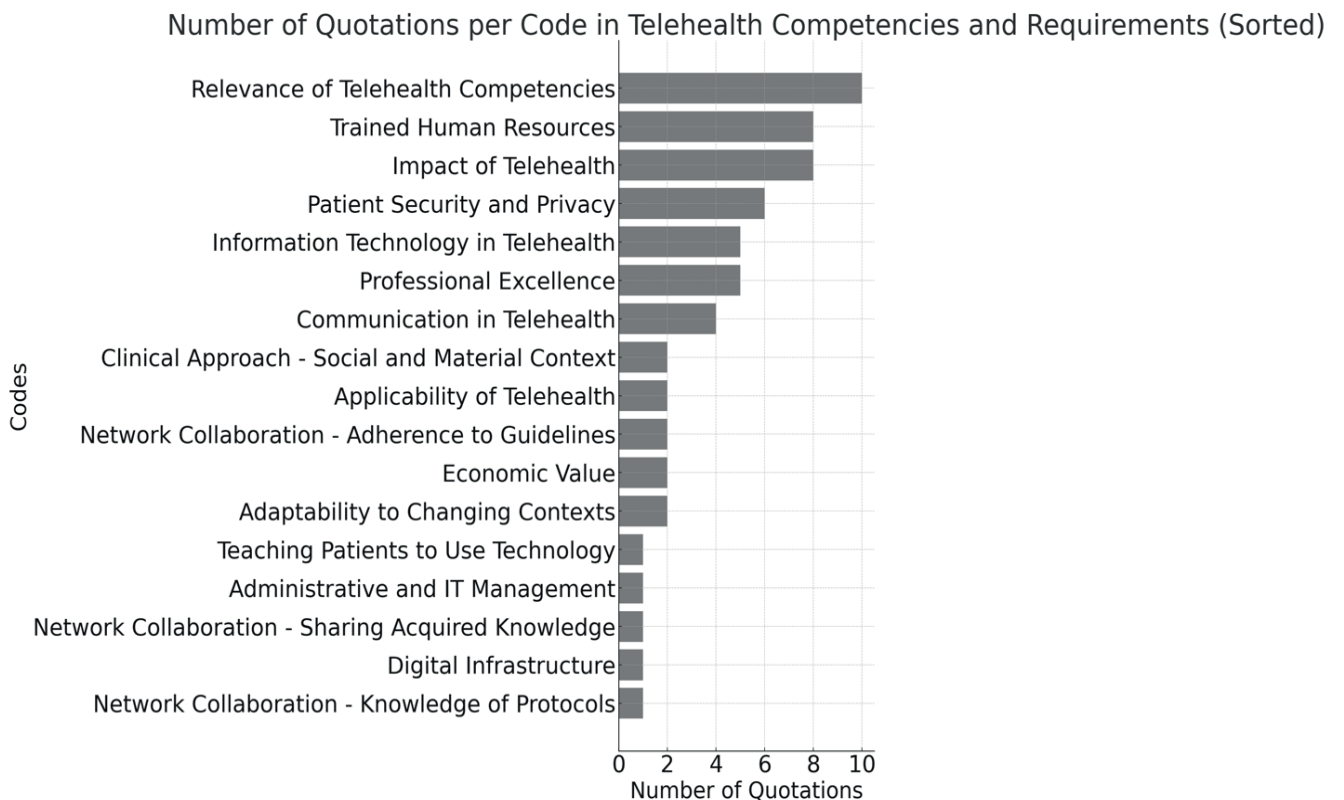

Number of Quotations per Code in Telehealth Competencies and Requirements (Sorted)

Figure 1. Frequency of codes analyzed in this study

Essential Competencies

Among the competencies identified, clinical approach was highlighted as a critical skill, where professionals must be able to recognize and respond to the patient's social and material context. One participant emphasized this need by stating:

"The success of telehealth lies in how clinicians absorb and interpret information, context, or social

determinants."

This statement highlights that knowledge about the patient's environment allows for more personalized interventions. This skill is particularly relevant in telehealth, where physical distance increases the complexity of capturing non-verbal cues or environmental factors.

Communication in telehealth was also repeatedly mentioned as a fundamental competency. The ability to convey trust and reassurance was emphasized as vital to reduce patient anxiety and ensure effective interaction in the digital environment. A participant noted:

"That's where the ability to convey trust and reassurance to the patient is important because, when connecting remotely, one must compensate for the lack of physical proximity with clear and empathetic communication."

This skill not only facilitates patient understanding and adherence but also helps to create a safe and welcoming environment, even through a screen.

Adaptability was another valued skill, allowing professionals to adjust to the various changes and challenges inherent in the digital environment. The need to quickly adapt to new protocols, technologies, or patient profiles was deemed critical, especially in a field where processes are constantly evolving. A professional highlighted the importance of flexibility by saying:

"Adaptability is also important because, for example, I'm a medical technologist, and in telehealth, you have to adapt to different situations that wouldn't occur face-to-face."

Moreover, professionalism in telehealth was identified as a central aspect, emphasizing the importance of continuous training and strict adherence to ethical and privacy standards. A professional attitude and specialization in digital tools not only contribute to service quality but are also seen as fundamental for patient trust.

Implementation Requirements

Regarding structural elements, the requirements for implementing telehealth include a solid digital infrastructure and trained human resources, which are essential to maintain high-quality service. Without adequate support in terms of technology and trained personnel, the telehealth model risks being ineffective or unsustainable. One participant illustrated this challenge by mentioning:

"Technological means are nothing if we don't have the trained clinical and administrative resources to manage the tools and guide patients."

This observation reflects the interdependence between technology and interdisciplinary competencies in telehealth, where both factors must be aligned to ensure effective care.

Additionally, the importance of efficient administrative management and information security and privacy was highlighted. For many professionals, meeting standards for patient information security is non-negotiable. A participant stressed this need, saying:

"When we talk about telehealth, patient privacy must be guaranteed through standards, and that is something one must convey with confidence to the patient."

Protecting sensitive patient information not only complies with ministerial regulations but is also crucial for building the trust necessary in remote care.

Finally, the analysis revealed that both groups of elements—competencies and requirements—are interdependent and essential for the success of telehealth. Proper implementation of professional competencies within a structured and secure environment allows the telehealth model to be not only functional but also equitable and tailored to each patient's needs.

Co-occurrence Analysis

The co-occurrence analysis shows key relationships in telehealth, listed here in order of frequency from highest to lowest. The connection between the relevance of telehealth competencies and telehealth applicability was the most frequently mentioned (n=10), underscoring the importance of developing practical competencies with a direct impact on remote care.

This is followed by the relationship between the impact of telehealth and trained human resources (n=8), indicating a perception that the success of telehealth depends on having properly trained and continuously

educated personnel from various disciplines. Communication in telehealth and patient security and privacy also show an interesting connection (n=6), suggesting that clear and reliable interaction is essential to ensure privacy in remote care.

Lastly, professional excellence and adaptability to changing contexts were related (n=5), indicating that flexibility in various settings and situations is considered essential for professionalism in telehealth.

DISCUSSION

Although interdisciplinarity was not explicitly mentioned by focus group participants, the analysis of the results allows us to infer its relevance in the implementation of telehealth. The findings highlight how collaboration among professionals from various disciplines can enhance the effectiveness of remote care by integrating clinical, technological, and communicational knowledge. This interdisciplinary approach is deduced from the identified competencies and skills, such as clear and empathetic communication, adaptability to diverse clinical contexts, and commitment to high standards of professionalism. These competencies and skills are critical for addressing the inherent challenges of remote care, aligning with previous studies that underscore the importance of inter professional communication in telehealth settings.[4]

The ability of professionals to adapt their interventions based on the patient's context and needs can be interpreted as a manifestation of interdisciplinarity. Studies like that of Dopp et al.[2] support this inference, showing that interdisciplinary teams that combine clinical and technological knowledge achieve significant improvements in the care of complex conditions. This suggests that telehealth benefits from integrating different areas of expertise to optimize care in virtual environments.

Similarly, professionals' adaptability is observed as an essential attribute for effective collaboration in telehealth. Participants highlighted the importance of quickly adjusting to new protocols and technologies, allowing each discipline to contribute its perspective to patient care. This skill is consistent with the work of McCord et al.,[5] which indicates the importance of adaptability in integrated telehealth environments, where inter professional collaboration is essential for comprehensive care.

Professionalism also emerges as a key component for telehealth, particularly in protecting patient privacy and data security. Participants emphasized the need for a robust digital infrastructure and an ethical commitment to build patient trust in a remote setting. This observation reinforces the inference of interdisciplinarity, as different areas of expertise must work together to maintain high-quality standards in care, aligning with the recommendations of Paterson et al. during the COVID-19 pandemic.[8]

CONCLUSIONS

The results of this study highlight the importance of interdisciplinarity in telehealth, manifested in competencies such as empathetic communication, adaptability, and professionalism, which are fundamental for addressing the challenges of remote care. Although interdisciplinarity was not explicitly mentioned by participants, the analysis of their responses indicates that integrating knowledge from various disciplines improves the effectiveness of telehealth.

Additionally, a robust digital infrastructure and support from trained personnel were identified as important for the sustainability of the telehealth model. These findings suggest that, to optimize telehealth, an interdisciplinary approach should be promoted, and specific virtual care competencies should be developed.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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