

Navigating the barriers: an in-depth exploration of how personal protective equipment influences the relational dynamics between healthcare workers and patients

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Abstract. *Background and aim of the work:* The Covid-19 pandemic has necessitated widespread adoption of personal protective equipment (PPE) in healthcare settings, introducing novel challenges to communication between healthcare professionals and patients. Understanding the dynamics of communication amidst PPE usage is crucial for maintaining quality care and patient satisfaction. It is noteworthy that using PPE is still relevant for many clinical settings to protect patients and providers. This study explores the communication dynamics between healthcare professionals and patients amidst the mandatory use of personal protective equipment (PPE) during the Covid-19 pandemic. It specifically examines the strategies employed by healthcare professionals to address communication barriers posed by these protective instruments. *Research design and Methods:* A qualitative phenomenological approach was taken using semi-structured interviews. With participants' consent, interviews were recorded, transcribed verbatim, and analyzed thematically. *Results:* Thirteen qualitative semi-structured interviews were conducted with a diverse group of professionals in medical and critical care settings in northern Italy. Thematic analysis unveiled three key themes: (1) The influence of Personal Protective Equipment (PPE) on the healthcare worker-patient relationship, (2) Strategies and tools for improving patient communication, and (3) Key takeaways and lessons learned. *Conclusions:* The COVID-19 pandemic catalyzed a transformation in global healthcare communication dynamics. Despite the challenges posed by PPE usage, healthcare professionals displayed remarkable resilience, creativity, and unwavering dedication to patient care. The unique circumstances of the COVID-19 pandemic make it a valuable observatory for drawing lessons applicable to contexts where PPE remains a necessity. The challenges faced during this period provide insights into how healthcare professionals adapted their communication methods to ensure effective and empathetic patient interaction despite the physical barriers introduced by PPE. By scrutinizing the experiences and strategies employed in this extraordinary context, this study seeks to contribute to a broader understanding of effective communication in healthcare settings that require ongoing PPE usage. (www.actabiomedica.it)

Key words: communication, quality improvement, public health, patient-doctor relation

Introduction

Healthcare professionals face inherent daily challenges related to patient interaction and communication. The quality of the relationship between healthcare providers and patients, as exemplified by the nurse-patient dynamic, is crucial for delivering high-quality care (1). Effective communication also plays a significant role in the success of rehabilitation efforts (2). Numerous scientific studies underscore the paramount importance of effective communication at the heart of the caregiving process, proposing diverse methodologies aimed at its development (3,4,5,6).

In 1971, Paul Watzlawick defined communication as an interactive exchange between two or more participants, involving mutual intentionality and a certain level of awareness. However, in the context of the therapeutic relationship, communication goes beyond mere information transmission. It encompasses the conveyance of emotions, the ability to recognize patients' feelings, and the assurance that they are understood (7).

Communication serves as a crucial and fundamental factor in the practice of healthcare professions, enabling individuals to transmit and comprehend each other's thoughts and emotions. However, the Covid-19 pandemic has significantly disrupted communication (8), and in some healthcare facilities, these changes persist due to the introduction of Personal Protective Equipment (PPE). PPE refers to any equipment intended to be worn and held by healthcare workers to safeguard them from potential risks to their safety or health during their work.

The adoption of PPE has led to alterations in common communication practices and actions, thereby impacting the relationship between healthcare personnel and their patients at various levels, as reported in existing literature (9,10,11,12). For instance, face shields and visors act as barriers that reduce the volume of transmitted speech (13). Similarly, the hood of protective suits and surgical caps can impede sound transmission. Moreover, the use of masks obscures the lower part of the face, making it challenging to recognize the expressions of the interlocutor and hindering the establishment of a trusting relationship (14).

To address these challenges, various strategies have been implemented to enhance the therapeutic relationship (10,12). These strategies aim to overcome the communication barriers posed by PPE. However, some approaches, such as reducing social distancing or even removing protective gear to improve understanding, have proven to be particularly risky (15,16). Despite the extensive research on communication dynamics in healthcare settings, there remains a notable gap in understanding how the mandatory use of PPE during the Covid-19 pandemic affects healthcare professional-patient communication. While existing literature acknowledges the challenges posed by PPE and suggests strategies to overcome them, there is limited empirical evidence on how these strategies are implemented and their effectiveness, especially within specific healthcare systems like the Italian context. This study seeks to address this gap by providing insights into the nuanced communication strategies adopted by healthcare professionals amidst PPE usage, contributing to a deeper understanding of effective communication practices during extraordinary circumstances.

To address this literature gap, this study aimed to delve deeper into the dynamics of healthcare professional-patient communication amidst the mandatory use of PPE during the Covid-19 pandemic. Specifically focusing on the strategies adopted by healthcare operators within the Italian healthcare system, the study sought to illuminate how healthcare professionals have adjusted their communication approaches to maintain effective patient care despite the challenges posed by PPE usage during the pandemic.

Participants and methods

Study design

This study employed a qualitative phenomenological research design (18) to explore the lived experiences and perceptions of healthcare professionals regarding communication dynamics amidst the mandatory use of personal protective equipment (PPE) during the Covid-19 pandemic. Phenomenology seeks to understand the essence of human experiences within a particular phenomenon, focusing on the subjective

perspectives of individuals involved. Semi-structured interviews were conducted with healthcare professionals working within the Italian healthcare system, allowing participants to articulate their experiences, challenges, and strategies related to communication while wearing PPE. The use of semi-structured interviews provided flexibility for participants to express their thoughts and feelings in-depth, allowing for rich data collection. Through a phenomenological lens, this approach aimed to uncover the underlying meanings and interpretations of communication practices within the context of PPE usage, providing valuable insights into how healthcare professionals navigate and adapt their communication strategies during unprecedented times.

Participant and settings

A convenience sampling method was used to recruit participants who were accessible and met the inclusion criteria for the study. The inclusion criterion was being a healthcare professional who worked in hospital settings and had direct contact with patients diagnosed as Covid-19 positive. To obtain data from different experiential settings, healthcare professionals from medical, critical care, and surgical departments in various hospitals located in the central and northern regions of Italy were interviewed.

Data collection

In this research, the authors employed a qualitative approach, which is a method commonly used to explore and understand complex phenomena in-depth. The chosen method of data collection was semi-structured interviews. Unlike structured interviews that rely on a fixed set of predetermined questions, semi-structured interviews provide a flexible framework that allows the interviewer to explore various aspects related to the research topic. This flexibility permits a more in-depth exploration of the interviewees' perspectives and experiences, providing valuable insights into the underlying reasons and phenomena associated with the subject of study (17).

To ensure that the interviews were well-structured and targeted the relevant aspects of the research topic,

the researchers carefully designed the semi-structured interview guide. The guide was constructed based on existing literature related to the subject matter (19). This ensured that the questions asked during the interviews were informed by prior research and covered essential aspects of the topic under investigation. By employing a non-standardized approach to questioning, the researchers allowed for organic and in-depth conversations with the interviewees, which can yield more valuable and authentic insights.

Furthermore, the researchers decided to conduct individual interviews rather than group interviews. This choice was driven by the desire to facilitate open and intimate discussions with the participants. In group settings, individuals may be less likely to share personal or sensitive information due to the presence of others, especially if the topic involves social or personal issues. By conducting one-on-one interviews, the researchers created a comfortable and confidential space, encouraging the interviewees to freely share their thoughts and emotions related to the research subject (19).

The data collection phase took place over a period of four months, from October 2021 to January 2022. During this time, the researchers engaged with the participants through semi-structured interviews, capturing the unique perspectives and experiences of each individual (see Table 1 for the interview guide).

Data analysis

With the participants' prior consent, each interview was recorded, transcribed verbatim, and then analyzed based on thematic content. Two independent researchers conducted thematic analysis of the narrative interviews following Braun & Clarke's approach (20, 21). The two researchers regularly compared their findings, seeking agreement. In case of disagreements, a third researcher's input was sought. All interviews were analyzed to identify units of meaning generated from the participants' verbatim responses. These units of meaning were then aggregated into sub-themes, which formed the main themes of the study. To rigorously describe the participants' experiences, open-ended questions were posed during the interviews to encourage free expression. The research team consisted of a multidisciplinary group that collectively followed

Table 1. Interview guide.

Topic	Question
Perceived Changes in Communication with Patients	<ul style="list-style-type: none"> • Can you share how you perceived the changes in communication with patients while using Personal Protective Equipment (PPE) during the challenging period of the Covid-19 pandemic? • In which areas did you find the changes particularly impactful? Could you provide an example?
Experiences of Effective and Ineffective Communication	<ul style="list-style-type: none"> • Would you like to share an experience where effective communication with a patient proved to be useful and productive? • Can you share an experience, if any, where communication was deficient and ineffective? • According to your observations, how has the relationship with patients and caregivers changed while using PPE? • How did professionals establish their recognition and identity while using PPE? • In your opinion, has there been any change in the dynamics of the therapeutic relationship that might have affected the trust between the patient and the healthcare provider? Could you give an example?
Enhancing Communication and Lessons Learned	<ul style="list-style-type: none"> • What tools or support would you have needed to enhance communication, making it more productive and effective? • From a communication perspective, what lessons have we learned from the pandemic

the data analysis process, sharing personal reflections and discussing the study's findings. Once the analysis was completed, the results were qualitatively matched and compared by the entire team of researchers.

Ethical consideration

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki (<http://www.wma.net/e/policy/b3.htm>). The study was approved by the Ethical Commission of the Catholic University of Milan (IRB1121). The participants were extensively informed by the experimenter about the purposes and objectives of the study and provided specific informed consent for their participation and the processing of personal data, which was stored along with the study documentation. The comprehensive informed consent, along with an informational note, clarified that participation in the study was voluntary, with the right to withdraw at any time. The informational note provided complete details about the study that was conducted. The document also stated that the interview was audio-recorded, and the data collected and analyzed would be disclosed in strictly anonymous form.

Results

Thirteen semi-structured interviews were administered to a diverse sample of professionals, with a majority from the nursing profession, working in medical and critical care settings in northern Italy. Table 2 presents details about the research participants.

Thematic analysis of the interviews revealed three primary themes: (1) The impact of Personal Protective Equipment (PPE) on healthcare workers-patient relationship, (2) Strategies and tools to enhance communication with patients, (3) Key takeaways and lessons learned.

In Table 3 it's possible to appreciate some extracts from the interviews relating to the identified themes and sub-themes.

Theme 1. The impact of Personal Protective Equipment (PPE) on healthcare workers-patient relationship

The first theme highlights how the communication between healthcare professionals and patients changed during the COVID-19 era. The use of Personal Protective Equipment (PPE) significantly impacted the professional-patient relationship. Both

Table 2. Participants description.

	Profession	Gender	Age	Year of Experience	Working Context
1	Nurse	F	33	33	Intensive Care
2	Doctor	M	5	5	Intensive Care
3	Nurse	F	6	6	Oncology
4	Nurse	F	30	30	Intensive Care
5	Doctor	M	18	18	Medicine
6	Doctor	M	2	2	Medicine
7	Psychologist	F	15	15	Palliative Care
8	Nurse	F	8	8	Oncology
9	Nurse	F	6	6	Oncology
10	Nurse	F	4	4	Emergency Medicine
11	Nurse	M	20	20	Surgery
12	Nurse	F	9	9	Coronary Care Unit
13	Nurse	F	2	2	Coronary Care Unit

parties exhibited an evolution in adapting their communication style to cope with complex and unexpected situation. Initially caught off guard, professionals sought to adopt strategies to make communication less distant despite the presence of PPE. They used methods such as non-verbal communication and attempted to display empathy and closeness to patients during moments of distress, thereby fostering a sense of trust. Maintaining an open channel of communication and relational approach through these new strategies allowed patients, often fearful, to place their trust in the care provided by the healthcare team.

In the context of this theme, three sub-themes are notable.

Deferred alliance

COVID-19 has made the relationship between healthcare professionals and patients extremely challenging, prompting the development of new strategies to set up a connection with patients. From the interviews, it becomes clear that aspects such as patients' trust in healthcare professionals were earned through *"lengthy timing even if there was an increase in requests for help (participant 7.9)"*.

In many cases, the mere presence and physical proximity of the nurse next to the patient's bedside *"were immensely helpful (participant 1.5)"*.

The presence of the healthcare professional *"in close contact with the patients (participant 1.15)"* made the patient feel cared for and supported *"like a mother holding her child in her arms (participant 1.15)"*.

Non-verbal communication at the forefront

Non-verbal communication proved to be fundamental during the pandemic. Through proxemics, tone of voice, gestures, and facial expressions, healthcare professionals were able to discern the emotional and distressing state of patients. The interviewees reported that *"sometimes a simple gesture was enough to reassure them (participant 1.15)"*. Even a small gesture, like holding the patient's hand, could be helpful in promoting treatment compliance and alleviating the patient's sense of isolation. Professionals recounted instances where they *held a patient's hand for hours to facilitate ventilatory therapy (participant 4.4)*. It is evident that, even with the use of unconventional strategies, the therapeutic relationship and the caregiving process were preserved, as stated by several participants.

Interruption of communication bridges

The study results confirmed the difficulty of approaching patients while wearing Personal Protective

Table 3. Excerpt from participants' interviews.

Theme	Sub-theme	Excerpt
1. The impact of Personal Protective Equipment (PPE) on healthcare workers-patient relationship	1.1 Deferred alliance	<i>"You won't believe it, but even with all that 'armor' on, our eyes still managed to speak volumes. It's kind of funny, but in a way, there were moments when we felt even closer to the patients, and they felt closer to us too. It's like our eyes did all the talking, and that connection made the whole experience feel more personal and meaningful. (participant 4.3)"</i>
		<i>"Our communication, both spoken and unspoken, was a game-changer. Being close to our patients, there for them, and offering comfort made a world of difference. It was incredibly helpful and meaningful for both us and our patients. Sometimes, words aren't even necessary; just being there and lending a caring hand can work wonders in tough times. (participant 1.5)"</i>
	1.2 Non-verbal communication at the forefront	<i>"Eye contact became my secret weapon, especially when patients were scared and anxious. A reassuring look from me was like a magic touch that could lift their spirits and bring them some comfort. Sometimes, words can't do justice to what the eyes can convey. It's incredible how something as simple as eye contact can make such a big difference in their emotional state. It was like giving them a little boost of strength and support during those tough time" (participant 1.14);</i>
		<i>"Communication with all five senses becomes even more crucial, especially with all this PPE on. It's not just about what we say; it's about what we see, touch, and hear too. We can sense their anxiety, their fear, and their need for comfort without them even saying a word. It takes extra effort, but being tuned in to these subtle cues helps us provide the care and support they truly need. It's like we become more attuned to their emotions and can respond in the most comforting way possible, even amidst all the challenges we face." (participant 1.16).</i>
	1.3 Interruption of communication bridges	<i>"Absolutely, PPE can be a bit of a barrier, but we find ways to work around it. When we can't express ourselves as freely through non-verbal cues, language becomes even more important. It's like we have to make up for what we can't show physically by using our words to convey empathy, care, and understanding. Sometimes, a simple phrase or a kind tone can speak volumes and fill in the gaps left by the masks and protective gear. It's all about finding creative ways to connect with our patients and make sure they feel supported and cared for, despite the challenges." (participant 2.16).</i>
	<i>"PPE really put a damper on our non-verbal communication, especially those warm smiles and expressions that we, as nurses, rely on so much. It's a fundamental part of how we connect with our patients and make them feel at ease. But even with our faces covered, we tried to find other ways to show our care and compassion – through our eyes, our tone of voice, and the little gestures we could still manage. It was definitely a challenge, but we refused to let it stop us from being there for our patients in the best way we could." (participant 11.1).</i>	
2. Tools and strategies to improve communication with patients.	2.1 The enabling value of technology	<i>"You know what? Technology really came to the rescue in our everyday lives! We could keep in touch through video calls and even have family conferences on platforms like Zoom instead of meeting face-to-face. It kept us connected when physical gatherings weren't an option." (participant 7.3).</i>
		<i>"Letting emotions and feelings be part of our communication toolkit and finding ways to make it happen. Take, for instance, simple video calls with family members – they're like a lifeline! They create this strong bond between healthcare professionals and patients and give a whole new experience to the patient-doctor relationship. It's amazing how staying in constant contact can work wonders in shaping these connections." (participant 6.13).</i>

Theme	Sub-theme	Excerpt
		<i>“Phone communication has its drawbacks. It’s tough not being able to see someone’s expressions when delivering important news, like deaths or worsening clinical conditions. And it’s even harder not being able to offer physical closeness or hold the hands of family members during those difficult moments. It’s like sending a fax with the same empathy – you know the message gets across, but the human touch and connection are missing.” (participant 8.12).</i>
	2.2 Rediscovering paper and pencil	<i>“It’s fascinating how the tools we used to take for granted, like phones and even simple writing, have become so crucial in connecting with others. These seemingly ordinary tools now play a significant role in our communication and interactions, especially during challenging times. Who would have thought that something as basic as writing or making a phone call could become such powerful means of staying connected and expressing emotions? It goes to show that sometimes, the simplest things can make the most significant impact” (participant 11.3).</i>
	2.3 Rediscovering each other	<i>“You know, even for us healthcare workers, it was tough to recognize each other with all that protective gear on. So, we came up with a smart idea – we wrote our names on our scrubs with a pen! It helped us quickly know who we were working with, which was super important in such a busy environment. It made things easier and gave us a sense of connection and familiarity with our team. Working together like this, we faced the challenges head-on and supported each other through those demanding times.” (participant 8.13).</i>
	2.4 Words matter	<i>“Clarity in how we spoke was vital – we made sure to raise our voices and pronounce our words clearly. Patience was our secret weapon, and we used it every step of the way. The key to success was patient communication. Even with the challenges of PPE, we found a way to make it work by having longer, more precise, and empathetic conversations with our patients. Taking that extra time and care made a huge difference in building trust and connection, and it truly paid off” (participant 5.7).</i>
		<i>“Communication is not just a part of the therapy; it can be therapeutic in itself, especially when dealing with our oncology patients. Words have this incredible power to heal and uplift, and empathetic and effective communication is key, even with all the protective gear on. Despite the barriers, we prioritize connecting with our patients on a deeper level, showing them compassion and understanding. It’s not just about the medical treatment; it’s about making them feel heard and cared for...” (participant 9.7).</i>
3: Key takeaways and lessons learned	3.1 Rediscovering the value of empathy	<i>“I experience emotions much more intensely... the patient relationship now that we have more or less returned to normality, even while still wearing the protective devices, has acquired a particular significance, very different.” (participant 3.17)</i>
		<i>“When we realized that we could work differently, interacting and relating with them... we opened up, spent more time in the room, trying to understand the patient. We learned to read their movements, and they learned to read our eyes... I know that, unlike before, I sought much more eye contact that I didn’t seek before, and I communicated differently, but here I sought it, approached them, communicating with the only thing they could see, the eyes.” (participant 10.8)</i>
	3.2 Personal and Professional Growth	<i>“The pandemic tested us, but it also helped me discover an inner strength I didn’t know I had” (participant 4.7).</i>
		<i>“We were forced to learn how to manage stress and anxiety differently, and I believe this made us stronger as professionals” (participant 6.12).</i>
		<i>“The pandemic experience taught us to be more flexible and adaptable to new situations that arise” (participant 3.5).</i>
		<i>“Despite all the difficulties, I felt that I grew as a person and as a nurse during this period” (participant 8.9).</i>

Equipment (PPE), which “*creates not only a physical barrier but also real barriers* (participant 8.2)”, making patient care complex. The interviewees reported that every single action had to be mediated using PPE, and “*even just wearing PPE was a source of discomfort for the healthcare providers*” (participant 8.2). From all the interviews, it is evident that reconciling rigid PPE usage procedures with maintaining proximity to the patient was challenging.

3.2 Theme 2. Tools and strategies to improve communication with patients.

The data analysis reveals how healthcare providers had to reinvent themselves to create new channels that preserved communication with patients. Simultaneously, professionals made efforts to enable patients to communicate with their families, alleviating their sense of loneliness caused by isolation. These methods proved effective for communication within the healthcare team and between professionals and caregivers, facilitating the exchange of information regarding the patient’s health status.

There are four sub-themes that characterize the main theme:

The enabling value of technology

Technology, particularly tools such as smartphones or tablets that support video calls, allowed patients to maintain a minimal connection with caregivers and preserve “*communication with relatives... and this was very beneficial* (participant 1.6)”.

In some cases, healthcare workers assisted patients in making video calls, providing an opportunity to also meet the patient’s family. Participants reported that it was a touching moment as they got to know the patient’s family, saying, “*...it was a very profound experience. (voice choked)* (participant 3.1)”.

Phone calls were the only means available to healthcare providers to communicate the patient’s health status. However, the interviewees mentioned that this communication method was not always effective, especially when conveying serious clinical conditions. They reported that, despite adapting and being present, communication remained challenging.

Rediscovering paper and pencil

Writing emerges as an explanatory and reinforcing tool for verbal communication, as participants report that using “*pen and paper, drawing what I couldn’t make explicit* (participant 2.18)” helped patients better understand the situation. This method, already used before COVID, became a frequent and effective practice during the pandemic, as suggested by several study participants. As participant 4.12 expressed, “*Drawing diagrams or writing down key points simplified complex medical information, especially when patients couldn’t see our facial expressions due to the masks.*”

Rediscovering each other

All participants state that writing their name and profession on their protective suits “*... helped the patient orient themselves in the care process* (participant 6.12).” This expression of identity allowed the healthcare professional to convey their essence and be recognized by both the patient and colleagues because “*Establishing professional recognizability was an important and not obvious aspect... Patients don’t easily distinguish between nurses, orderlies, or doctors, which sometimes creates a sense of disorientation* (participant 6.12).”

Words matter

From all the interviews, it emerges that the communicative message mediated by PPE was often unclear, almost muffled. Therefore, it was of fundamental help to “*... enunciate the words better, perhaps trying to use a slightly louder tone of voice than usual* (participant 12.3),” using simple and understandable words and frequently reformulating concepts, as testified by the following participants’ statements:

Theme 3: Key takeaways and lessons learned

The professionals reported having learned from the experience of the COVID-19 pandemic. Despite working at a frenetic pace and almost reaching physical and emotional exhaustion, they always tried to find the positive aspects within the dramatic situation of the pandemic. Two sub-themes emerge:

Rediscovering the value of empathy

From the interviews, it is evident how much value the professionals place on empathizing with the patients, and the pandemic has allowed them to rediscover that “*the patient relationship... has acquired a particular significance*” (participant 3.17). Empathy has aided the professionals in the care process, keeping them connected to the patients during moments of great difficulty, despite being physically distant. “*Being there... even in protective gear*” (participant 8.8) made a difference for the patients. Furthermore, the professionals emphasize that they experienced firsthand how the “*healing relationship*” transcends the distance imposed by PPE.

3.3.2 Personal and professional growth

Despite the challenges, the professionals mentioned experiencing personal and professional growth as a result of the pandemic. The intensity of the situation prompted many of them to reassess their priorities and acquire new skills and abilities to cope with daily challenges. Some emphasized learning how to manage stress and anxiety in new and more effective ways, while others mentioned developing greater resilience and adaptability.

Conclusions

In the context of the COVID-19 pandemic, healthcare professionals faced unprecedented challenges in providing care while navigating the complexities of personal protective equipment (PPE) usage. Our study shed light on the profound need for empathy and emotional communication during this critical period. Despite working tirelessly and often experiencing physical and emotional exhaustion (22,23), healthcare providers consistently emphasized the importance of finding positive aspects within the dramatic pandemic situation, as suggested by previous studies (24,25).

One of the primary hurdles identified by the professionals was the difficulty of establishing a therapeutic rapport with patients while wearing face-covering devices that obscured much of their facial expressions.

This physical barrier potentially hindered the transmission of trust and emotional connection, impacting both verbal and non-verbal communication. Other studies (26,27) further validated these concerns, revealing that emotions like happiness, sadness, and anger were often misinterpreted when masked. Nonetheless, healthcare professionals showed resilience and resourcefulness, relying on the power of empathy to maintain a strong patient-provider relationship (28, 23).

Empathy emerged as a pivotal factor in the caregiving process, with healthcare professionals expressing the value of understanding and connecting with their patients on a deeper level. They recognized that the pandemic had elevated the significance of these emotional connections. Despite physical distancing measures, the healthcare team aimed to be present emotionally, seeking alternative ways to convey empathy. They used eye contact, increased the intonation in their voices, and found innovative methods to express emotions and warmth through the eyes. The concept of “smiling with the eyes” became a powerful tool in this new era of masked communication, as suggested also by previous studies (29)

Healthcare providers recognized the importance of this connection, understanding its impact on patients’ emotional well-being and overall healing process, as suggested by previous studies on this topic (30,31,32).

Finally, the absence of significant changes in the therapeutic relationship during the pandemic, as reported by ten interviewees, is indeed a notable finding. It suggests that the strategies adopted by healthcare professionals were effective in establishing and maintaining a strong patient-provider bond despite the challenges posed by PPE usage. The fact that patients still felt protected and cared for by professionals who were willing to provide treatment indicates that the implemented strategies were successful in fostering a meaningful connection with patients.

While this qualitative study provided valuable insights into the impact of personal protective equipment (PPE) on patient-doctor relationships during the COVID-19 pandemic, it is essential to acknowledge some limitations. Firstly, the participants were likely volunteers, which could introduce selection bias, as those who volunteered may have different

experiences or perspectives than those who chose not to participate. As the study relied on interviews, there is a possibility of recall bias, as participants may not accurately remember or report all relevant experiences. Furthermore, due to the focus on the Italian healthcare settings and culture, the findings may not be directly applicable or transferable to other healthcare environments or geographical locations.

As a qualitative study, it focused on in-depth descriptions and narratives. However, the absence of quantitative data may limit the ability to measure and quantify specific aspects of the patient-healthcare workers relationship. Despite these limitations, the study provides valuable insights into the impact of PPE on patient-healthcare workers relationships and serves as a foundation for future research and interventions aimed at improving communication and empathy in similar contexts.

In conclusion, the COVID-19 pandemic served as a transformative event that reshaped healthcare communication dynamics across the globe.

The experiences and lessons learned from the pandemic should serve as invaluable insights for future healthcare scenarios. Emphasizing the importance of empathy, patient-centered communication, and continuous professional development, this crisis has highlighted the need for healthcare providers to remain adaptable and open to evolving communication practices. By prioritizing patient needs and emotions, healthcare professionals can deliver compassionate care even in the face of challenging circumstances.

As the world continues to navigate through unforeseen health crises, the pandemic's impact on healthcare communication will undoubtedly inform and enrich future healthcare practices. The significance of empathy and effective communication in building and maintaining therapeutic relationships should remain at the forefront of healthcare training and practice. Embracing a patient-centered approach, while remaining flexible and responsive to emerging communication challenges, will be essential in ensuring that patients receive the highest quality of care, even amidst uncertain and unprecedented situations.

As we reflect on this study results, valuable insights for future healthcare practice emerge, emphasizing the profound significance of empathy, patient-centered communication, and the need for continuous improvement in the delivery of compassionate care, even amidst the most challenging circumstances. As we delve into the implications of these results, several key practice considerations come to the forefront:

- **Prioritizing Empathy and Emotional Communication:** Healthcare professionals must recognize the heightened significance of empathy and emotional communication during challenging circumstances, such as the COVID-19 pandemic. Practitioners should be encouraged to find innovative ways to express warmth and compassion behind PPE, such as using eye contact and varied intonation, to foster meaningful connections with patients.
- **Utilizing Transparent Masks:** Healthcare facilities should consider providing transparent masks, especially for patients with hearing impairments, as they enable lip-reading and access to crucial auditory cues. Transparent masks promote effective communication and personalized care, ensuring patients feel understood and heard.
- **Integrating Technology:** Embrace technology as a means to facilitate patient-provider and patient-family communication. Video calls, tablets, and smartphones can bridge physical gaps, reducing feelings of isolation and enhancing emotional support for patients during times of restricted visitation.
- **Incorporating Alternative Communication Methods:** Healthcare providers should be trained in alternative communication methods, like using pen and paper to draw and write, to aid patients with communication difficulties. These approaches can significantly improve interactions, especially with patients experiencing language barriers or cognitive impairments.
- **Training and Education:** Invest in training programs that simulate real-life scenarios to enhance healthcare providers' communication

skills while using PPE. Consider involving speech therapists in the care team to develop personalized communication guides for vulnerable patients.

- Reinforcing Patient-Centered Care: Continuously emphasize the importance of patient-centered care, encouraging healthcare professionals to be attentive, intentional, and adaptable in their interactions. The positive feedback from patients during the pandemic highlights the impact of personalized care on patient experiences and outcomes.
- Reflecting on Lessons Learned: As the world faces potential future health crises, the experiences gained from this pandemic should inform and enrich future healthcare practices. Embrace the lessons learned to enhance patient experiences, strengthen therapeutic alliances, and improve overall healthcare delivery. Continuous improvement in compassionate care should remain a top priority, even amidst challenging circumstances.

Our healthcare professionals have demonstrated their unwavering dedication and adaptability, leaving us with a blueprint for nurturing patient-health practitioner relationships that transcend physical barriers and embrace the power of empathy and compassion. By implementing these practice implications, healthcare providers can navigate the complexities of patient-doctor relationships while wearing individual protective equipment, ensuring that empathy and effective communication remain at the heart of patient-centered care.

Authors Contribution: MB and SB played vital roles in the conceptualization and design of the study. SB contributed significantly to the methodology and manuscript supervision. GC, FD, AB, JM, EB were actively involved in data collection, interpretation, and manuscript preparation. MA contributed to data analysis and interpretation. GA, SB, AB and LS provided guidance and supervision throughout the research process. All authors participated in critical discussions, reviewed and approved the final manuscript, demonstrating a collaborative effort in conducting and presenting the research. This distribution of responsibilities reflects a comprehensive and collective contribution from each author to the successful completion of the study.

References

1. Sheppard M. Client satisfaction, extended intervention and interpersonal skills in community mental health. *J Adv Nurs.* 1993;18(2):246-259. doi: 10.1046/j.1365-2648.1993.18020246.x.
2. Meuter RF, Gallois C, Segalowitz NS, et al. Overcoming language barriers in healthcare: A protocol for investigating safe and effective communication when patients or clinicians use a second language. *BMC Health Serv Res.* 2015;15(1):1-5. doi: 10.1186/s12913-015-1024-8.
3. Laschinger HK, Boss MW. Learning styles of nursing students and career choices. *J Adv Nurs.* 1984;9(4):375-380. doi: 10.1111/j.1365-2648.1984.tb00386.x.
4. Bullington J, Söderlund M, Sparén EB, et al. Communication skills in nursing: A phenomenologically-based communication training approach. *Nurse Educ Pract.* 2019;39:136-141. doi: 10.1016/j.nepr.2019.08.011.
5. Granados-Gámez G, Sáez-Ruiz IM, Márquez-Hernández VV, et al. Development and validation of the questionnaire to analyze the communication of nurses in nurse-patient therapeutic communication. *Patient Educ Couns.* 2022;105(1):145-150. doi: 10.1016/j.pec.2021.05.008.
6. Grassi L, Caruso R, Costantini A, et al. Communication with patients suffering from serious physical illness. *Clin Challenges Biopsychosoc Interface.* 2015;34:10-23. doi: 10.1159/000369050.
7. Watzlawick P, Beavin JH, Jackson DD, et al. *Pragmatica della comunicazione umana.* Astrolabio. 1971;Roma(35):1-47.
8. Rubinelli S, Myers K, Rosenbaum M, et al. Implications of the current COVID-19 pandemic for communication in healthcare. *Patient Educ Couns.* 2020;103(6):1067. doi: 10.1016/j.pec.2020.04.021.
9. Kobayashi R, Hayashi H, Kawakatsu S, et al. Recognition of the coronavirus disease 2019 pandemic and face mask wearing in patients with Alzheimer's disease: an investigation at a medical centre for dementia in Japan. *Psychogeriatrics.* 2020. doi: 10.1111/psyg.12617.
10. Ten Hulzen RD, Fabry DA, et al. Impact of Hearing Loss and Universal Face Masking in the COVID-19 Era. *Mayo Clin Proc.* 2020. doi: 10.1016/j.mayocp.2020.07.027.
11. Aengst J, Walker-Stevenson G, Harrod T, et al. Uncomfortable yet necessary: The impact of PPE on communication in emergency medicine. *Int J Qual Health Care.* 2022;34(4):mzac095. doi: 10.1093/intqhc/mzac095.
12. Kratzke IM, Rosenbaum ME, Cox C, et al. Effect of clear vs standard covered masks on communication with patients during surgical clinic encounters: a randomized clinical trial. *JAMA Surg.* 2021;156(4):372-378. doi: 10.1001/jamasurg.2021.0836.
13. Porschmann C, Lubeck T, Arend JM, et al. Impact of face masks on voice radiation. *Acoust Soc Am J.* 2020. doi: 10.1121/10.0002853.
14. Marini M, Anzani A, Paglieri F, et al. The impact of facemasks on emotion recognition, trust attribution and reidentification. *Nature - Sci Rep.* 2021. doi: 10.1038/s41598-021-84806-5.

15. Giovanelli E, Valzolgher C, Gessa E, et al. Unmasking the Difficulty of Listening to Talkers With Masks: lessons from the COVID-19 pandemic. *SAGE J*. 2021. doi: 10.1177/2041669521998393.
16. Kelly S, Kaehny M, Powell MC. Learning from Nursing Home Infection Prevention and Control Citations During the COVID-19 Pandemic. *J Gerontol Nurs*. 2023;49(2): 36-42. doi: 10.3928/00989134-20230106-06.
17. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health service research. *BMJ*. 1995;311:42-5. doi: 10.1136/bmj.311.6996.42.
18. Eatough V, Smith JA. Interpretative phenomenological analysis. *The Sage handbook of qualitative research in psychology*. 2017:193-209.
19. Patra M, Hamiduzzaman M, McLaren H, Siddiquee NA. A scoping review of changes to patient-doctor communication during COVID-19. *Health Communication*. 2024;39(1):25-48.
20. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101.
21. Braun V, Clarke V. Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counsel Psychother Res*. 2021;21(1):37-47. doi: 10.1002/capr.12360.
22. Barello S, Caruso R, Palamenghi L, et al. Factors associated with emotional exhaustion in healthcare professionals involved in the COVID-19 pandemic: an application of the job demands-resources model. *Int Arch Occup Environ Health*. 2021;1-11. doi: 10.1007/s00420-021-01669-z.
23. Barello S, Palamenghi L, Graffigna G. Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Res*. 2020;290:113129. doi: 10.1016/j.psychres.2020.113129.
24. Chen R, Sun C, Chen JJ, et al. A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 pandemic. *Int J Ment Health Nurs*. 2021;30(1):102-116. doi: 10.1111/inm.12796.
25. Zhang N, Bai B, Zhu J. Stress mindset, proactive coping behavior, and posttraumatic growth among health care professionals during the COVID-19 pandemic. *Psychol Trauma, Theory, Res Pract Policy*. 2022;15(3):515.
26. Marler H, Ditton A. "I'm smiling back at you": exploring the impact of mask wearing on communication in healthcare. *Int J Lang Commun Disord*. 2021;56(1):205-214. doi: 10.1111/1460-6984.12578.
27. Bani M, Russo S, Ardenghi S, et al. Behind the mask: Emotion recognition in healthcare students. *Med Sci Educ*. 2021;31(4):1273-1277. doi: 10.1007/s40670-021-01317-8.
28. Barello S, Graffigna G. Caring for health professionals in the COVID-19 pandemic emergency: toward an "epidemic of empathy" in healthcare. *Front Psychol*. 2020;11:1431.
29. Okazaki S, Yamanami H, Nakagawa F, Takuwa N, Kawabata Duncan KJ. Mask wearing increases eye involvement during smiling: A facial EMG study. *Sci Rep*. 2021;11(1):20370. doi: 10.1038/s41598-021-99872-y.
30. Ganeshan S, Hsiang E, Peng T, et al. Enabling patient communication for hospitalized patients during and beyond the COVID-19 pandemic. *BMJ Innov*. 2021;7(2). doi: 10.1136/bmjinnov-2020-000636.
31. Provenzi L, Grumi S, Borgatti R. The experience of child neuropsychiatry residents who volunteered in Italian COVID-19-designated hospitals. *Acad Psychiatry*. 2020;45:587-592. doi: 10.1007/s40596-021-01442-x.
32. Provenzi L, Grumi S, Borgatti R. Alone with the kids: Telemedicine for children with special healthcare needs during COVID-19 emergency. *Front Psychol*. 2020;11:2193. doi: 10.3389/fpsyg.2020.02193.

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Received: 25 January 2024

Accepted: 11 March 2024

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