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Be a physiotherapist during Covid-19: A grounded theory study

Emanuela Ricci[1,2], *Lorena Menta*[2,3], *Filomena Simeone*[1,2], *Gianfranco Lamberti*[1,2], *Vittorio Casati*[1], *Gianluca Ciardi*[1,2]

[1]Department of Rehabilitative Medicine, Azienda Usl Piacenza, Piacenza, Italy; [2]Degree course of Physiotherapy, University of Parma, Parma, Italy; [3]Azienda Usl di Parma, Parma, Italy

Abstract. *Background and aim:* Covid-19 pandemic posed a challenge to National Health Systems, both in terms of resources and working setup changes. Introduction of spacing, personal protective equipment, infection prevention measures forced healthcare professionals to change both work contexts and patient-operator and inter-operator relationship dynamics. The present qualitative study aimed to deepen the experience of physiotherapists working at AUSL in Piacenza. *Methods:* A constructivist grounded theory approach was employed. Initial sampling was achieved through a purposive strategy among physiotherapists working at Department of Rehabilitation Medicine at AUSL in Piacenza. They were firstly contacted by e-mail; for included professional a structured collection of nine audio diaries was employed in the first phase; semi structured interviews were then employed in order to reach data saturation. Data analysis was carried out using the Grounded theory, in order to build a theory based on emerging data. *Results:* Nine physical therapists accepted to participate; mean (±SD) age of the sample was 46,5 (range 33 to 60 years), and the majority of participants were female (77,8%). Each participant recorded an average of 7.5 audio diaries out of nine; all recruited physiotherapists were then interviewed. *Conclusions*: Theory that arises from data explains Covid-19 pandemic as a moment of personal and professional growth for physiotherapists, which changed their role by adding communication skills, new knowledge and the need of a multidisciplinary care for their patients, in a continuous process of one's own role evolution.

Key words: Covid-19, physiotherapist, lived experience, grounded theory, qualitative study

Introduction

Sars-Coronavirus (Covid-19) pandemic, first identified in Wuhan (1-2), posed a challenge to National Health Systems, either in terms of resources or changes in the working setup. Particularly in the early months of the pandemic, when resources were limited and scientific knowledge of virus and treatments restricted, health systems came under great pressure and were forced to face a profound challenge in terms of organizational structure (3). The introduction of spacing, personal protective equipment, and infection prevention measures forced healthcare professionals to change both their work contexts and their patient-operator and inter-operator relationship dynamics (4). Anything has produced significant effects on practitioners: a large body of literature highlights high levels of distress in healthcare personnel, a more pronounced risk for women and the nursing profession; the higher levels of anxiety/depression and poorer quality of life found for these professionals represent a red flag that can further challenge public health systems (5). Given its complexity, the issue of the pandemic's impact on healthcare workers has also been addressed to the qualitative scientific literature in an attempt to contextualize and define the extent to which the experiences

in an emergency context may have marked a deep furrow between the 'before' and the 'after' Covid-19. Researchers studied in depth the first line of the Covid-19 contrast: critical care units-intensive care professionals. A paper by Fernandez-Castillo et al. (6), through semi-structured video interviews and inductive content analysis, identified the perceptions of intensive care nurses employed in the fight against the pandemic. The authors frame four main themes that emerged: the need for continuity of nursing services, psychosocial aspects and emotional lability, personal resource management and safety, and professional relationships (6). Similar conclusions were also reached for the medical profession, whether practiced in a hospital or territorial context (7-9).

Research has also highlighted how the critical events of the pandemic crisis have marked the experience of all healthcare professions, leading to a wide variety of emotions and feelings (10-23). Qualitative studies concerning the experiences of physiotherapists during the Covid-19 pandemic are less conducted to date (24-25) focused on the experience of physiotherapists who worked in intensive care units (24), their perspective on the pandemic (26), and the ethical issues related to the most critical months of Covid-19 (24,27). Thus, some areas of the rehabilitators' experience remain unexplored:

- First of all, rehabilitation field was not completely deepened: Italian experience teaches that pandemic had its strongest impact on territorial rehabilitation services classically carried out in presence: outpatient pathways, home treatments and continuity of care for chronic diseases (28-30)
- Covid-19 first phase induced the displacement of doctors and healthcare professionals to emergency departments, often leading to suspension of rehabilitation cares (31), thus leading chronic patients to worsen (32)
- Finally, territorial context: northern Italy saw at first in Europe pandemic and its dramatic consequences; physiotherapists were forced to live through a traumatic experience, which traced a deep furrow in the way they experience their profession and daily challenges (33-34)

The present study, so, was aimed to answer the following research question: "How did physiotherapists' role change during Covid-19 pandemic? how did this process take place?".

Participants and method

A qualitative single-center observational study, was carried out at Piacenza Local Healthcare Unit, an area involved from the beginning in facing Covid-19 pandemic.

According to the research question, a grounded theory based on constructivist model (CGT) was drawn: subjects and researchers, in fact, were both considered active parts of scientific knowledge's discover, through their actions, meanings and language (35). No pre-constituted hypotheses guided the research, which was developed by constant comparison between collected data and emerging categories (concurrent analysis underlined by Birks (36). Our final aim was to build a theory based on data, to explain the evolution of physiotherapists' perspective and working approach.

Selection, sampling, and recruitment

According to CGT model two main sampling steps were performed: initial and theoretical sampling. In the first case a purposive sampling strategy was employed: research's Principal Investigator (E.R.) sent an e-mail to physiotherapists working in Piacenza at AUSL-Department of Rehabilitation Medicine, to map willingness to be involved in the study. Particularly, physiotherapists were selected on the basis of three criteria: having served during the pandemic in hospital or territorial context, being employed at Piacenza AUSL since before 2020, being willing to participate. Starting by a hundred sent e-mails, only nine professional accepted study participation.

Theoretical sampling, instead, was driven by initial data analysis (by audio diaries- see data collection paragraph), in order to reach saturation and increase conceptual categories; in this case the same participants were asked to be interviewed (so with a different data recording technique).

Data collection, management, and analysis

As already underlined two different techniques were employed to record data and reach theoretical data saturation:

1. The first regarded the collection of audio diaries by participants: this technique is emerging in qualitative research, with an increasing number of papers documenting its use (37-38). Pandemic has further enabled the transition to this mode, which has proved to be also more effective during lockdown/social distancing. So, a wide range of qualitative studies with audio diaries have been conducted: experience about informative sources during the Italian lockdown (39), perceived role by frontline operators (40), and symptoms' prevalence in specific populations (41). In this perspective, according to Migliorati (42), audio diaries acquire the role of a self-ethnography tool.

For the present study, a structured collection of nine audio diaries in three weeks was planned for each participant; a guide track with some suggestions (see Table 1) and a digital audio recorder were given to each included physiotherapist. No limits in terms of time and deepen of subjects was imposed.

Table 1. Stimuli for audio diaries recording.

Suggestions for Audio –Diary Recording	
Thematic Area	**Suggestion**
The patient	*S-1* Have you been in contact with covid-19/long-covid patients since pandemic beginnings? *S-2* Do you feel prepared to deal with this condition? Is there an aspect that most affects your treatment? *S-3* How do you take care of these patients? Do you think it should be modified? If so, In which way? *S-4* Do patients tell you about their illness experience? If yes, what feelings do they convey? When they tell you, how do you feel? *S-5* How are the relationships with these patients, in terms of quantity and quality? And with other patients, have the relationships changed?
The Physiotherapist: setting, timing and modalities	*S-1* Did your role change with the pandemics? If yes, in what way? How did your work space change? *S-2* Did your working day scanning change? Do you think the time devoted to the patient changed? If yes, what did this change cause in your practice? *S-3* Did your treatment modalities change? Did you encounter any difficulties? *S-4* Do you use technology-implemented rehabilitation techniques? If yes, are there any new methods to approach the patient? *S-5* Did these changes induce feelings or emotions in you? If yes, do you still feel comfortable during your working day, or have you changed your way of being at work? *S-6* How did you experience your relationship with your colleagues? Did you feel comfortable with them?
Illness and fear of falling ill (today)	*S-1* Do you fear getting sick or ill at work? If so, what frightens you most? Do you fear infecting your family and loved ones? *S-2* As healthcare professional you vaccinated: does it make you feel safer or does it still leave you a feeling of uncertainty? *S-3* If you swab periodically, do you fear that you will test positive? Does this affect your life or your relatives' ones? *S-4* What precautions do you use besides those imposed by your job?
The professional and personal future	*S-1* How do you see your profession in the future? *S-2* How will this work change due to the present pandemic? *S-3* What makes you feel comfortable when thinking about the future? What do you feel uncomfortable about when you think about the future? *S-4* What meaning do you give to the pandemic? Why should it?

Table 2. Second study's phase- interview guide.

Interview Track	
Audio diaries technique	Did you have any difficulties with the initial instructions? Did you record all audio diaries? In what way (day by day, more than one together)? Did you send them day by day? What do you think of this technique? Did you enjoy it? Was it heavy? Did you feel comfortable with recording? Do you think that through the audio-diaries you were able to express everything you wanted to? Do you think this experience helped you to understand your ideas? What negative aspects did you find? And the positive ones?
Pandemic's effects on work/relations	How long have you been working? Have you always worked at this Ausl or at any others? Have you always worked at this place or in other places/operational units within this Ausl? Did you work during the acute phase of the pandemic? If yes, what kind of work experiences did you have? How did you cope with them, did they change your role? How did you deal with this change? How did you deal with patients? Do you have experiences to tell?

2. In the second phase of the study, a semi-structured interview was planned, in order to expand the content that emerged from audio diaries, and obtain additional data for comparison and analysis of physiotherapists' working reality. The aim of this second technique employment was firstly to complete theoretical sampling, and to underline limits and strengths of audio diaries tool. All researchers who conducted interviews (E.R., G.C., F.S., L.M.) had a specific training in qualitative research design and conduct. An "Interview Track" format was employed (available in Table 2), with some questions to encourage participants' narratives and depth of information. Each interview lasted between 30 and 50 minutes and was audio-recorded.

Data analysis

Information from the first and second phases were stored in a shared folder previously created by the company's information technology service and anonymized through encryption techniques/identification codes that would not make them directly traceable to individuals concerned for a more extended period than necessary study conduct.

Once the collection of audio diaries was completed, they were transcribed by researchers (G.L., V.C., E.R., G.C.) and stored in a computer directory inaccessible to third parties. The directory was created by Piacenza Ausl computer service exclusively to collect the data that emerged from the research.

All meaning units (verbatim) were transcribed into excel worksheets; data were then coded by creating reference categories and sensitizing concepts through constant comparison (43) among researchers (G.L., E.R., V.C., G.C., L.M.).

Data analysis was carried out using the *Coding* technique, an analytical process used to identify concepts, similarities, and conceptual data recurrences.

Ethical consideration

The study received CE AVEN ethics committee approval on 08/03/2022 (Fisio-Covid Protocol) and authorization for corporate conduct on 03 March 2022. A preliminary training/informative meeting to provide further information and obtain signed consent was planned for interested participants.

Results

Sample selection and participant characteristics

The study involved nine physical therapists; each participant confirmed his interest by answering the researchers' e-mails and arranging an informal meeting with one of the researchers, to have specifications regarding participation.

The Mean (±SD) age of the sample was 46,5 (range 33 to 60 years), and the most part was female (77,8%). The gender and mean age of participants were quite representative of physical therapists working at the Department of Rehabilitation Medicine.

Each participant recorded an average of 7.5 audio diaries, and all participants in the first phase participated in the study's second phase.

Emerging data

Data analysis was carried out through the technique of CODING as the process of joining the collection of data and the development of a theory to explain it. The units of meaning contained within the audio-diary transcripts led to the definition of subcategories and enabled the construction of 10 main conceptual categories (see Table 3).

The overall analysis by theoretical coding allowed the identification of a core category, which fully explained changes for a physiotherapist working at Ausl Piacenza rehabilitation: Professionalism. This category allowed the information from the audio diaries to be saturated, providing a procedural key to Covid-19 seen through a rehabilitator's eyes. In fact, there was a rapid evolution: the phase of fear and loss of certainties concerning work (main categories 1-6), and then the one of awareness (main categories 7-10). In the first phase, dominated by fear, physiotherapists redefined their concept of 'taking care' of the patient, no longer seen only as rehabilitating, but more generally as paying attention to the patient (considering his global condition, alarm signals coming from his/her body, his/her often traumatic experience).

Table 3. Conceptual categories identified by audio diaries.

Conceptual Categories
CHANGE
DIFFICULTY
TAKING CHARGE
FUTURE
FEAR
PERSONAL PROTECTIVE EQUIPMENT
ROLE OF THE PHYSIOTHERAPIST
SAFETY
VACCINE
RELATIONSHIPS

Main category Taking Charge and its subcategories intensity of care, global management, and team relationship reports a new idea of teamwork; emergency and the need for multidisciplinary in care allowed the establishment of a relationship of mutual support between different health professions and an inherent personal growth inherent to the physiotherapist (audio 6 code 2– Table 4). At the same time, this made it possible to face difficulties arising from anxiety and stress perceived by each operator and to share it with the entire care staff; physiotherapists, during the pandemic, perceived teamwork as active collaboration and reached a sharing of the emotional state of each professional, confirming how much professional experience was adapted to the personal context of fear (main category) and difficulty (main category) (audio 2 code 5 – Table 4).

In addition, rehabilitation intended as help instrument, no longer only in the ward but in any role and setting proposed (assuming tasks broader than own role, putting oneself at the service of other professionals).

These stimuli then allowed further growth in the professionalism of physical therapists, which was enriched with new tools and tasks.

The professional change (main category) induced by the pandemics led physiotherapists to change the way they do their work, introducing more attention related to a different rehabilitation proposal, often unstructured a priori due to the difficulty of finding material or the instability of patients due to Covid. In this sense, the subcategory professional adaptability arises as an aspect to be related to the taking care of the patient, no longer a sick subject, but as a system to be rehabilitated as a whole (audio 8 code 9, Table 4).

Some physical therapists transformed, especially in the first phase of the pandemic, their professional role without limiting the form of help. The difficulties (main category) encountered initially and the rapid spread of Covid predisposed a rapid internal reorganization of the staff, with continuous changes in the activities that every health worker, with the exception of doctors and nurses in intensive care units, performed. Any support

Table 4. Citations by audio diaries.

	Citations
audio 8 code 9	It is a different way of working because you become more aware of the importance of things previously taken for granted. You can no longer take for granted that the other person in front of you may be a sick person; he is a sick person not only because he had a stroke and had a hip replacement but a sick person, a person who can bring with him many situations that we have to face. A sick person must be seen in its complexity; it must be seen throughout its system, therefore in the global discourse, imminent pathology, and the whole general one, then pay greater attention to all the small signals they can give us.
audio 1 code 3	Here, I remember this thing that I felt I could help, I considered it as a fortune compared to those who wanted to help, but not having a health role and had to stay at home and maybe tried to help, giving in many ways, even just sending objects when the ASL asked for something, such as clothes rather than TV, there was just a race to help, I considered myself lucky to be in a position to help anyway.
audio 8 code 4	The pandemic has changed our activity, making it more direct towards that aspect, forcing many, even the most skeptical, to make contact with this type of work aspect and therefore has broadened people's horizons.
audio 8 code 4	because in any case, Covid is not a specific respiratory disease; it is a systemic disease, invests the body in its entirety and takes the respiratory aspect as a marked sign and symptom, but not, it is not specifically respiratory here.
audio 6 code 2	The thing that I want to emphasize is precisely the relationship that had also been established with all the other professional figures, from the doctor to the nurse, to the OSS, precisely because, in that moment of emergency ... We had really managed to team up.
audio 2 code 5	I thank the presence of this nurse who came several times to teach us how to dress, and undress with a calm tranquility that I remembered then when I had to dress. Especially undressing. Obviously, because when you dressed, you knew that what you touched was still contaminated; it had been in contact with Covid, so there was a memory as I thought back to the quiet words that took away some of the anxiety we usually had.
audio 1 code 8	... I find that the new configuration of our work, first of all, the mask, but then also the whole speech of gloves, sanitization, etc., takes away a little the sense of closeness to the patient.
audio 7 code 9	Maybe I am still afraid; maybe I still have this thing where I live it with great difficulty. I saw it instead more positively; I saw one who said, "I was given a second chance, and I want to live it differently"... Optimistic, realistic, better than me? Maybe.
audio 6 code 6	I did the vaccine, but I am. I was terrified to do it. In fact, if I had not been forced, I honestly would not have done it.
audio 2 code 8	What struck me most is that she did not feel adequately treated during her period of illness because she had made a choice that I think she believed; she was not shared with the doctors and, therefore, in this sense.
audio 8 code 4	And this is a beautiful here of the future that awaits us, how it will be articulated eh… is worth seeing, but it is a beautiful one, it is a good opportunity for growth and improvement.
Audio 1 code 9	And it is still there. But that also contributed to a lot of change in the way of approach, so you had to reassure more with voice more with sound, rather than with a facial expression, because there were no longer those smiles, that chance to see a nod of confidence, something that used to come in a different way.

activities, from reception to transporting personal protective equipment to distributing goods donated by individuals, were ways in which physical therapists got involved and gave, in other forms, a response to the need for care of Covid patients (audio 1 code 3 - Table 4).

The second phase chronicled the progressive growth of physiotherapists and their knowledge.

The acquisition of protective equipment, the increasing collaboration with other operators, and the arrival of vaccines are the milestones of this change.

Using personal protective equipment (main category) has guaranteed, especially in the acute phase, the protection of health personnel and the patient, but it has also generated fatigue and heaviness (sub-categories) in operators. Paying attention to cleaning and sanitizing in any risky situation, with procedures regulated in a cadenced manner in each pandemic phase, led physiotherapists to the elaboration and greater knowledge of cautions that otherwise they would not have considered. At the same time, the patient felt protected by

the staff but lived the relationship in a distorted way: patient showed a lack of contact with the physiotherapist, both in terms of physical contact and in terms of eye contact (audio 1 code 8, Table 4).

Despite this, the use of personal protective equipment became indispensable in dealing with the pandemic, ensuring the safety of staff and patients and reducing the state of fear that each worker, especially in the first phase, experienced. Fear, initially mixed with a sense of loss and helplessness, led the physiotherapist to a personal and team elaboration of the experience: this allowed a less blurred and more combative vision, as if the pandemic were a battle to be won and not a war now lost.

In this sense, the increasing collaboration with other health care professionals led to an enhancement (subcategorization) and repurposing of their role (subcategory), emphasizing the professional and personal evolution of each physical therapist. (main category role of the physiotherapist)

To face this challenge, the introduction of the vaccine (main category) has guided each physiotherapist to a category and personal choice: if for some it was a forced choice dictated by work context, for others it was essential to guarantee personal protection and those with whom they came into contact (audio 6 code 6– Table 4).

For physiotherapists, vaccination and screening activities have allowed a gradual return to normality; personal elaboration and memory of what happened, however, guided physiotherapists to a greater readiness, as well as to a different professional modality, achieved through a future of professional and personal growth (audio 8 code 4). Specifically, the main category relationships describe how relationships with colleagues and patients has undergone changes in terms of language, verbal and non-verbal, and approach; subcategories stories, voice and need to be listened are examples (audio 1 code 9).

Interviews confirmed the traumatic experience tried out by physiotherapists during the pandemic phases; at the same time, motivation for broader knowledge and adaptation of their skills to the context emerged. Patient care took on the aspects of wholeness, with a care pathway within which work experience and personal processing are tools for personal and professional protection.

The combination of care-adaptation has enabled the implementation of alternative rehabilitation approaches such as telerehabilitation, providing greater patient protection and leading to changes in work habits. These aspects that emerged in the interviews are useful elements to conclude the theoretical process above from which professionalism emerges as a core category.

Conclusion

The present study was conducted in accordance to Standards for reporting qualitative research (SRQR) statement (44). This qualitative study explored physiotherapists' experience during the first phase of the Covid-19 pandemic, both in hospital and territorial contexts, highlighting changes in working methods, both organizational and clinical, and in the own significance of the pandemic.

By the present qualitative double-step study, physiotherapists' professionalism, which has adapted and developed by understanding the different aspects of care, emerged as core category; these finding seems in agreement with similar experiences in other countries: Eftekhar Ardebili et al. (45), in example, underlined that healthcare professionals have gone through a profound change in their working and personal lives, resulting in growth and adaptation to pandemic rhythms and rules. Similarly, Ming-Koo et al. (46) showed that knowledge and experience were crucial to support healthcare workers during all pandemic phases. In Italy, the mix methods survey by Bozzolan et al. (47) demonstrated that physiotherapists dealing with Covid-19 patients, even starting by fear and lack of knowledge, became resilient and developed a personal growth; this was further in accordance with our emerging theory. Data analysis (theoretical coding), in fact, explained a process in which the physiotherapist enriched his role by including those work and personal aspects that before the pandemic were less known, as already described in literature (47-48). New emerging responsibilities about correct using of personal protective equipment, screening and vaccination practices defined a wide perspective for physiotherapist's role, no longer within his only specific competencies, but also with a preventive and educative function. This

underlines the need for greater closeness to the other multidisciplinary team members, thus in accordance with previous literature (49-50).

Some limitations, however, emerged by our research; first of all, audio diaries technique showed strengths and criticalities: ease of using, ability to decide times and contents flow, absence of direct contact with researchers allowed participants to express experiences profoundly, dusting off memories they thought were lost. Disadvantages were the possibility of listening to the audio itself and the subsequent perception of exceeding one's privacy limit; these limits have been described in literature (51-52). Furthermore, a lack in understanding the guidance provided by researchers was reported as criticality.

Another limit of our study was represented by the temporal distance between events and recording by participants: from this point of view, audio diaries collection may have revealed less data than expected, not reaching data saturation. To overcome this bias source, semi-structured interviews were planned, thus investigating all potentially unexplored cognitive interstices.

In conclusion our research showed that Covid-19 changed the world of rehabilitation, inducing a series of professional changes that, although hindering, were a valuable resource for the physical therapists interviewed to complete and evolve their professional identity

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Correspondence:
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Gianluca Ciardi, PT Ph.D
Physiotherapy Degree course-Azienda Usl Piacenza
Viale Abruzzo, 12
Fiorenzuola d'Arda, 29017 Italy
E-mail: gianluca.ciardi@unipr.it