Virtual healthcare communities of practice: an Italian experience during the Covid-19 pandemic

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Recently, the literature observed a significant growth of studies on the healthcare communities of practice, above all for their contribution in addressing the health crises, and in particular the Covid-19 pandemic. However, the literature on the topic is still fragmentary, especially with concern of the bottom-up citizens' engagement approach. This study aims to explore the contribution of healthcare communities of practice in addressing the Covid-19 pandemic through the citizens engagement. Based on the case-study method, we conducted a qualitative analysis on the community created in Italy named "Comitato Cura Domiciliare Covid" (Covid Home Care Committee). The paper focuses on the experience of this health care community of practice, seeking to identify major challenges and opportunities for supporting policymakers and clinicians dealing with a health crise.

Keywords: community of practice, bottom-up citizen engagement approach, pandemic emergency, Covid-19.

Comunità sanitarie virtuali: un'esperienza italiana durante la pandemia da Covid-19

*Recentemente, la letteratura ha osservato una crescita significativa degli studi sulle comunità di pratica nel settore sanitario, soprattutto per il loro contributo nel gestire le crisi sanitarie, in particolare la pandemia da Covid-19. Tuttavia, la letteratura sull'argomento è ancora frammentaria, specialmente per quanto riguarda l'approccio partecipativo dei cittadini dall'alto verso il basso. Questo studio si propone di esplorare il contributo delle comunità di pratica nel settore sanitario nell'affrontare la pandemia da Covid-19 attraverso il coinvolgimento dei cittadini. Utilizzando il metodo dello studio di caso, abbiamo condotto un'analisi qualitativa sulla comunità creata in Italia chiamata "Comitato Cura Domiciliare Covid" (Comitato per la Cura Domiciliare Covid). Il paper si focalizza sull'esperienza di questa comunità di pratica nel settore sanitario, cercando di identificare le principali sfide e opportunità per supportare decisori politici e operatori sanitari nell'affrontare una crisi sanitaria.

Parole chiave: comunità di pratica, approccio partecipativo dei cittadini dall'alto verso il basso, emergenza pandemica, Covid-19.*

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1. Introduction

Most research argue that during health-care crisis, such as the Covid-19 pandemic, the digital technology, especially social media, plays a crucial role, providing novel and effective ways to connect, interact, collaborate, share, and use knowledge (e.g., Gui *et al.*, 2017; La *et al.*, 2020; Al-Omoush *et al.*, 2021). In general, a stream of research investigates the interconnections between people, organizations, and Information and Communication Technology (ICTs) during different categories of crisis events (Palen *et al.*, 2007). For instance, these studies highlight the great importance of social media, such as Twitter or Facebook, for helping people who seek assistance or develop situational awareness.

During the Covid-19 pandemic, digital platform supported numerous groups of clinicians and healthcare communities of practice to sharing Covid-19-related issues, strategies, and possible effective solutions (e.g., Sadiq, 2020; Delgado *et al.*, 2020, 2021; Wilson *et al.*, 2021; Shaw *et al.*, 2021, 2022; Mullan *et al.*, 2022). Communities of practice consist of a space where members are engaged in conversation and in doing working practices to promote the exchange of ideas and experiences and, more in general, the discussion about clinical problems. Healthcare communities of practice emerged thanks to the use of ICTs that aimed to exchange ideas, information, experience and to address a clinical problem thanks to remote meeting of the members. In this regard, community of practice has been recognized as a virtual space that enables members to over-

come spatial and time barriers and to promote the collaborative learning among nurses, physicians and, more in general, healthcare workers (Delgado *et al.*, 2020). At the same time, empirical evidence has shown that these online support groups derive from the adoption of a bottom-up approach, where citizens participate in decision-making processes and delivery of services for improving population health (Barker *et al.*, 2020). This community engagement within the health field is crucial to meet primary healthcare needs and promote people-centred services. Thus, according to the bottom-up citizen engagement approach, citizens actively participate in the co-production and co-creation in designing and delivering healthcare services they need and use.

Recently, the literature observed a significant growth of studies on the healthcare communities of practice, above all for their contribution in addressing the health crises, and in particular the Covid-19 pandemic. However, the literature on the topic is still fragmentary, especially with concern of the bottom-up citizens' engagement approach. Furthermore, much of the research on this topic focuses on the description of experiences in different countries, however to date there are no studies related to the Italian context.

This study aims to explore the contribution of healthcare communities of practice in addressing the Covid-19 pandemic through the citizens engagement. For addressing the Covid-19 pandemic emergency in Italy, in early April 2020 a group of citizens established a virtual community, and thanks to the direct engagement, participation and collaboration, the healthcare professionals share Covid-19 related issues as well as the treatment of Covid-19 patients. Thus,

our paper is aimed to investigate the experience of a healthcare community of practice, seeking to identify major challenges and opportunities for supporting policymakers and clinicians dealing with a health crise. Therefore, the research question that guided this study is "How is a Community of Practice born and organized to deal with a health crisis?" Based on the case-study method, we conducted a qualitative analysis on the community created in Italy named "Comitato Cura Domiciliare Covid" (Covid Home Care Committee).

The remainder of the paper is structured as follows. Section 2 provides details about the theoretical background. Section 3 describes the methodology adopted and the case study. In Section 4 a short and in-depth discussion about the findings is provided. Finally, Section 5 outlines the main limitations, implications, and final considerations.

2. Theoretical background

2.1. Bottom-up citizen engagement in healthcare emergency

Citizens engaging in public services occur when they actively participate in co-production and co-creation in designing and delivering the services they use. In the last two decades, policymakers have shown increasing interest in society's capacities and citizens participation, as a possible antidote to the decreasing legitimacy and resource cutting in the public sector. Moreover, reinvigorated voluntary participation strengthens social cohesion, opposing an increasingly fragmented and individualized society (McMullin and Needham, 2018).

The topic of citizenship participation in developing public value represents a significant subject of study for students, academics, and policymakers, in several fields, such as public administration, business administration, economics, political science, public management, sociology and voluntary sector research.

Academics and practitioners widely argue the importance of community participation for improving healthcare delivery and health equity perception, but there is little agreement about what 'participation' means in practice, or when it might be necessary (Ianniello *et al.*, 2019; Pestoff, 2018). Community engagement in participatory processes is largely characterized from socio-psychological elements, which represent the core part. Primarily, it is significant the link between public participant identities and social representations of patient and public involvement among healthcare institutions and individual professionals, to understand the role they play in supporting or undermining inclusive and bottom-up forms of patient and public engagement (World Health Organization, 2018).

Some authors investigate the topic through an ethnographic study in London (UK), using in-depth interviews with public participants and healthcare professionals involved in patient and public involvement, and observations of these activities in the local field, to understand how involved people build their own identities through engagement and professional beliefs and how discourses can help to develop processes that are positive, rather than negative and limiting (Renedo and Marston, 2011). Patient and public involvement resulted dependent on more than individual participants' capacities. The findings show that professionals were not allied in identifying and describing the char-

acteristics of participant identity, and, as consequence, involvers' self-understanding and experience as public participants resulted full of contradictions, constraining their individual characteristics and forms of knowledge, in crystallized participatory practices. Furthermore, involvers declared that they face heavy negotiating efforts with professionals' negative discourses to develop self-images that reflect their own interests and projects, and that empower them to produce successful participation and useful effects in the public sphere, even where there is an institutional infrastructure formally promoting civic engagement with healthcare (Renedo and Marston, 2011).

Other scholars stressed the importance of 'coalitions of the willing' rather than 'diktats' in quality improvement and, generally, in health policy (Cribb and Collins, 2021). There is the need to strengthen 'civic culture', such as a culture of citizenship in healthcare services. Thus, encouraging citizenship should now be seen as a priority for those who lead and work in healthcare: there are emerging new organizational models of care and collaboration, new discussions about staff wellbeing, during the Covid-19 pandemic, suggesting new emerging priorities for policy directions.

People who organize services and the professionals and others who make them work on the ground are being asked to form new kinds of relationships, to be more fully responsive to diverse needs and perspectives and to embrace new ways of thinking and acting. The levels of responsiveness and forms of flexible partnership being encouraged are not best advanced through standardized direc-

tives or protocols but require ongoing creativity, dialogue, and debate; in other words, effective citizenship is required (Marston *et al.*, 2020).

To let effective citizenship matters, it is needed a significative civic culture, encouraged and built upon citizenship within communities and institutions. In this direction for advocating the idea of 'communities of practice', searching for the strengthening of a civic culture represents an inclusive goal reaching using everyone's accumulated experience and capabilities. This represents the contribution of bottom-up participation and collaboration in practice development, with relevance across very different settings and roles, transcending organizational boundaries. In this scenario disagreement as well as agreement principles are potentially constructive.

The relevance of citizenship is unarguable in some contexts such as a public health crisis. The successful implementation of this mode clearly depends upon health professionals' maintenance of working ways with other community citizens who have different perspectives, purposes, and lines of accountability, transcending professional boundaries and being ready to negotiate between conflicting concerns and claims. For instance, this might mean involving citizens in health planning and potentially re-designing services, according to involving health services staff responsive to, and willing to participate in the bottom-up process.

2.2. The healthcare communities of practice

Community of Practice is "a group of people who come together to share common interests and goals, with the

aim of sharing information, developing knowledge and developing themselves both personally and professionally" (Lave and Wenger, 1991; Agrifoglio, 2015, p. 26). The community of practice has been recognized as a locus where people are engaged to explore ideas, talk about their needs, and help each other solve problems (e.g., Lave and Wenger, 1991; Wenger *et al.*, 2002; Metallo, 2007; Agrifoglio, 2015). Community enables members to share knowledge and experience in free flow, which aims to improve their abilities and skills, and to foster learning, although they do not meet every day. However, not all communities are communities of practice. According to Wenger and his colleagues (2002), a community can be defined as a community of practice if three conditions (building blocks) are met, such as (i) domain, (ii) community, and (iii) practice.

The domain is the area of knowledge of a community of practice and defines the issues that can or cannot be addressed among members (e.g., Wenger *et al.*, 2002). The domain also allows community members to develop a sense of common identity, because of acting community people are more inclined to identify with the community itself. The second one is the community, which is the social structure existing within a community of practice that allows people to learn through interaction and relationships – a concept known as 'situated learning' – (e.g., Wenger, 1998; Wenger *et al.*, 2002). As Brown and Duguid (1991) pointed out, informal interactions are coming out as a new way to enhance working practice and to address urgent and/or recurrent problems of professionals. Moreover, cultivating commu-

nities of practice promotes mutual interaction and exchange of information and knowledge of workers across different communities within and outside their own organization, a concept known as 'community-of-communities' (Fischer, 2001). When the social relationships are regular, the community also enables members to develop a sense of belonging and commitment. The last one for having community of practice is the practice itself, that is a set of shared repertoires of resources, that include ideas, information, experiences, stories, tools, and ways of addressing recurring problems (e.g., Wenger *et al.*, 2002). In this regard, the practice is that set of knowledge existing within a community thanks to interactions and mutual relationships of members.

Unlike team, community is not constrained by time and space and allows its members to carry out critical reflection about a specific idea, a topic, or an issue, as well as to engage in dialog and/or in activities and other forms of participation in social and professional life (e.g., Lave and Wenger, 1991; Wenger *et al.*, 2002). It is no coincidence, in fact, that many professionals (e.g., developers, consultants, academics, lawyers, judges, clinicians, and nurses) have decided to join the communities of practice to develop knowledge and specific expertise about a particular domain, which could not be obtained otherwise. In this regard, 'professional' communities of practice were recognized as a natural locus for fostering learning and exchange of information and knowledge among members (e.g., Katzy and Ma, 2002). In what follows, this study conducts a review of the main contributions in the literature focused on the healthcare communities of practice, with

peculiar reference to the knowledge management issue.

The healthcare communities of practice can be defined as a space where members are engaged in conversation and in doing working practices to promote the exchange of ideas, information, and experiences under the clinical domain (Delgado *et al.*, 2020, 2021). In healthcare settings, the communities of practice promote discussion about a clinical problem relevant to their daily working life or sometimes about urgent clinical problems, such as the treatment of Covid-19 patients. Although some scholars have investigated the contribute from communities of practice in preparing nursing and medicine students for their professional roles (e.g., Portoghese *et al.*, 2014; Hägg-Martinell *et al.*, 2016), it should be noted that communities require the membership and mutual support of more experienced and knowledgeable members which enable newcomers to learn through the exchange of information, knowledge, and experiences.

The term 'community of practice' became a research topic in medical literature in 2000 or later, when Parboosing (2002) explained the critical role played by communities of practice in fostering the physicians' professional development. Although the medical literature has initially used the term community of practice as a synonym for a group of healthcare professionals who are working together, Li and colleagues (2009)' in their systematic review noted some similarities between business and medical communities of practice and identified the following common elements highlighted in previous studies under healthcare domain: (i) social interaction; (ii) knowledge sharing; (iii) knowledge creation; (iv) identity building. Then, Ranmuthugala and colleagues (2011) conducted a systematic literature review on communities of practice in healthcare aimed to understand why they have been established and whether cultivating a community has contributed to improve healthcare practice. Their research shows that the main reasons leading nurses and clinicians to establish communities of practice in healthcare were learning and exchanging information and knowledge, even if more recently published research has also highlighted the contribute of such communities to foster clinical practice and to facilitate the implementation of evidence-based practice.

Nowadays, communities of practice are not only an attractive research topic in the healthcare literature, but they also are an important tool for creating and sharing knowledge among professionals in the medical setting (e.g., Jiménez-Zarco *et al.*, 2015; McLoughlin *et al.*, 2018). The critical role of such communities in the healthcare sector emerged thanks to the use of ICTs that allow people to reduce spatial and time distances and to meet remotely to discuss an idea or to address a problem, rather than face-to-face. Then, even in healthcare sector, traditional (or face-to-face) communities of practice – where members meet face-to-face – have turned in virtual communities of practice – where members can meet remotely using ICTs –, so fostering the exchange of knowledge and experience and promoting the collaborative learning among nurses, physicians and, more in general, healthcare workers.

Recently, some scholars investigated the contribution of healthcare com-

munities of practice in addressing the Covid-19 pandemic (e.g., Sadiq, 2020; Delgado *et al.*, 2020, 2021; Wilson *et al.*, 2021; Shaw *et al.*, 2021, 2022; Mullan *et al.*, 2022). Although communities of practice require time to develop organically, a lot of existing networks and groups of healthcare workers were strengthened during the Covid-19 pandemic, while other ones were established at the beginning of the crisis and subsequently developed organically (Sadiq, 2020). For instance, Lyons and colleagues (2020) pointed out that, since March 2020 to July 2020, about 30 healthcare communities of practice, including more than 3.500 across 30 different clinical specialties, were established in New South Wales (NSW), Australia, for fighting against Covid-19. Such communities were aimed to (i) support clinicians to network and share Covid-19-related issues, strategies, and local solutions; (ii) identify, prioritize and escalate issues requiring a statewide or system response; (iii) provide expert clinical review and advice on Covid-19-related guidance and resources; and (iv) distribute approved advice and resources within all local health districts and specialty networks (Lyons *et al.*, 2021, p. 306). Similarly, the research of Mullan and colleagues (2022, 264) explained the case of the Australian Covid-19 General Practitioners virtual community of practice which aim is "to facilitate rapid implementation of the necessary changes in general practices through widespread sharing of knowledge (know-what) and experience of the application of that knowledge in practice (know-how)".

According to Delgado and colleagues (2021, p. 377) "the CoPs constitute an intentional and determined space to promote the exchange of experiences that arise in clinical practice". The growth of CoPs by health professionals comes from the need to address shared clinical problems relevant to their daily working life or sometimes urgent clinical problems, like the treatment of Covid-19 patients (Delgado *et al.*, 2021). For instance, Wilson and colleagues (2021) discussed the need to ensure knowledge dissemination within the global infection prevention and control (IPC) community during the Covid-19 pandemic. After designing the IPC Global Webinar Series, they completed thirteen webinar sessions with an average of 634 attendants from more than 100 countries. Such communities enabled them to share critical information and to promote peer-to-peer learning within IPC community.

3. Methodology

This study adopts a qualitative approach based on a single case study methodology. We conducted the case study using secondary data sources, indeed we collected and analyzed information and data through websites, archival data analysis (internal documentation, reports, etc.), online social network sites (SNSs), archival data, and other external secondary data sources (e.g., institutional documents, newsletters, press and online magazines, and local newspapers). Research argues that secondary data documents can provide insights regarding actions, events and reasons which might not differently be readily available (Stake, 1995). In this direction, secondary data sources have been largely used in the case study approach. Yin (1994) argues that regarding case studies, the docu-

ments have one relevant function, that is to confirm and increase evidence from other sources. Specifically, in our case study, information, and data from a variety of secondary data sources, including social media, especially Facebook page, and interviews from the main actors involved available online and in the press magazines, were independently obtained and analyzed. Otherwise, the case study approach, where case studies are defined as "descriptive, exploratory or explanatory analyses of a person, group, event, policy, project, decision, or institutions" (Anderson *et al.*, 2014, p. 89). Case studies explore a defined system through in-depth data collection, including multiple sources of information, carefully describing the themes, and providing many avenues to learn about the specific features (Creswell *et al.*, 2007; Baxter and Jack, 2008; Stavros and Westberg, 2009; Anderson *et al.*, 2014). We adopted a case study approach using secondary data sources for exploring a complex phenomenon still under investigation, where multiple dimensions of a subject need to be studied exhaustively (Alavi and Carlson, 1992; Benbasat *et al.*, 1987; Eisenhardt, 1989; Yin, 2002), to find the answers regarding "how" and why" taking into account contextual factors, very relevant with concern of the Covid-19 pandemic, and the fact that behaviours are not able to be manipulated (Anderson *et al.*, 2014). Single case study design should be considered "as variations within the same methodological framework rather than as distinctly different approaches" (Yin, 2009). Data collection and information about the case study under observation occurred in early 2022 (March-June 2022). We analyzed data and information from the secondary data

sources (websites, online SNSs, and the overall available documentation) using a manual content analysis technique. The content analysis has been largely used for in-depth investigating the contexts and the motivation underlying information creation and sharing in CoPs (Xu *et al.*, 2015). Scholars define the content analysis as "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding" (Berelson, 1952; Krippendorff, 1980; Weber, 1990; Stemler, 2000, p. 5), thus it is recognized as a useful technique able to support us in discovering and describing the focus of individual, group, institutional, or social attention (Weber, 1990).

In this perspective, according to previous studies on CoPs, we adopt content analysis technique to extract significant and relevant themes especially from online sources (e.g., SNSs, such as Twitter, Facebook, Instagram, etc.), to address knowledge sharing contexts (Xu *et al.*, 2015). Indeed, we made the manual content analysis, using an Excel spreadsheet tool, of members' discussion and interviewees, all the documents related to the community of practice, comments and all the information and data available regarding the investigated CoP, to provide descriptive information about the development and functioning of the same CoP. In more detail, according to the literature, with reference to data analysis, we take a systematic approach to reduce potential researchers' bias. In this process we define stable codes which are assigned to similarities and specific corresponding categories (themes) able to describe coherent groups of these codes (Graneheim and Lundman, 2004). For instance, we use the words/

themes "participation", "citizen(s)", "collaboration", "cooperation", "Covid-19", "pandemic", "care", "protocol" and so forth. Otherwise, following the most common notion in qualitative research, we mostly use the manual content analysis for simply doing a word frequency count. Indeed, we analyze the words mostly often mentioned most and consider them able to reflect the greatest concerns, although in some cases it is necessary to consider specificities where the possible using simple word frequency counts is not enough to make inferences about matters of importance (Stemler, 2000).

3.1. Case study[1]

The "#terapiadomiciliarecovid19 in ogni regione" ("#Covid19homethera-py in each region") is a Facebook group founded between March and April 2020 by a well-known Neapolitan lawyer (https://www.facebook.com/terapiadomiciliarecovid19). The group born in Italy, during the first pandemic wave, as a committee of healthcare professionals who aid Covid patients with mild symptoms who spend their hospitalization at home. Indeed, the Facebook page of "#terapiadomiciliarecovid19 in ogni regione" declares "We are a group of citizens and physicians who have mobilized on Facebook to ask for the timely home therapy of Covid19 in every region". Numerous citizens and healthcare professionals have decided to join the community in a few months and to date the group has more than two hundred thousand users (268.312

users). The committee was born from an informal group of citizens and physicians created to provide support to people during the Covid-19 emergency, to exchange clinical information and develop a home care protocol in the absence of specific directives.

Over the time, this Facebook group has evolved to practice community, within this community healthcare professionals of each region can discuss about experiences, sharing important therapeutic choices on early home therapies for the care of the Covid patient, in the absence of regional decisions that adapt to the AIFA protocols of 17 March 2020. Through this group, physicians were able to develop relationships for constantly comparing about home therapies, sharing knowledge network, and favoring the learning process. The healthcare professionals' involvement in the community has been achieved only by passing the word.

The member of the group can submit a request for help through a specific procedure, the group assigns a specific physician who will have the task of providing support and medical assistance. Thus, a specific relationship is created between patient and physician, which allows the exchange of information on symptoms, particular reactions to therapies, specific needs (including psychological support that the group can offer). This relationship allows the physicians to accumulate experiences which, according to the group's regulation, he will have to share with the health personnel belonging to the community. This process of sharing and exchange of experiences allows to increase the knowledge of the community regarding the Covid-19 pathology. In addi-

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[1] The analysis of the case study focuses on the creation and organization of a community of practice to deal with the Covid-19 emergency. The authors have chosen not to enter the debate on the effectiveness (or less) of home care for Covid-19 patients. Therefore, this last aspect has not been investigated.

tion to health personnel, citizens also play an important role. They communicate to healthcare personnel information on symptoms and provide feedback on therapies, supporting knowledge creation about Covid-19. Moreover, the community offers members emotional and informative support, and there are numerous expressions of satisfaction from users for the services offered. For example, on Facebook page statements such as "I want to thank all the staff for the work done. If we have felt less alone and with the hope of returning to normal it is thanks to you" or "This wonderful community in two years taught me so much! He taught me to keep calm, to be more altruistic, to give me the necessary information... but above all he taught me not to feel alone! The existence of the group was my support". Informative support is also provided by guides, tutorials, and videos available on the Facebook page, on various aspects related to the Covid-19 pathology.

Healthcare professionals can join the committee in a freeway. However, newcomers must send to the founder a presentation e-mail to inform about their submission. Subsequently, they can participate actively to discuss and provide Covid-19 assistance to users who request it. To provide therapeutic assistance to citizens who have contracted Covid-19 is considered a necessary condition to fuel the discussion and to encourage knowledge sharing among members.

In November 2020, the Facebook group was institutionalized into a specific association named "Comitato Cura Domiciliare Covid" ("Covid Home Care Committee"), for offering a more structured organization to physicians and citizens. This Committee has its own statute defining the objectives and the organizational roles. The statute expressly provides that the association's purpose is to provide timely home therapy for all citizens Covid-19 sufferers, through therapy defined by clinicians of the community. Moreover, the statute also provides the organization of conferences and annual seminars to actively encourage participation and knowledge sharing among members as well as outside the community. For example, the Committee organizes a conference every year, there were three conferences, Rome in 2020, Milan in 2021, and Naples in early 2022. The administrative bodies are the following President; Vice-President; Assembly; Scientific Council; Spokesman.

Everyone can join the committee and the registration is free, by filling out the form on the website https://www.terapiadomiciliarecovid19.org/. Furthermore, it is possible to 'make a donation' at the end of the registration process. The website homepage declares: "Are you positive? After registering with the Committee, click here to fill out the Covid Assistance Form". The website is a Progressive Web App (PWA) that allows to install TDC19 Web App, with which to contact the network of clinicians in a more fluid way than the chaotic Facebook group. It is a telemedicine app that allows patients to be treated remotely, prescribing drugs even without a face-to-face visit. In this way, the Committee's healthcare professionals can follow several patients at the same time in different geographic areas.

Finally, the healthcare professionals' Committee has proposed alternative

protocols to the official ones and approved by the authorities to treat Covid-19 at home under certain conditions.

4. Discussion

Based on Lave and Wenger (1991) definition of CoP, the 'Covid Home Care Committee' seems to be a health care community of practice because it enables the remotely interaction and actively participation of people who exchange information about the Covid-19 issues allows clinicians to get data and information useful to the Covid-19 patients treatment.

The 'Covid Home Care Committee' represent the effect of a dynamical process of social negotiation and sharing of meanings, thoughts, knowledge and relational interdependency among people interested in deepening learning than those furnished by social and cultural structured world: meanings and the relations of people within the Committee are produced, reproduced, and changed, through storytelling and sharing of believe, knowledge and experiences, arising from the socially and culturally structured world, like it happens in a community of practice.

Persons of the community affect the historical development of the vision of the world through on-going activity, relational interdependency of agents and world, and socially negotiated character of learning. "Participation is always based on situated negotiation and renegotiation of meaning in the world. This implies that understanding and experience are in constant interaction – indeed, are mutually constitutive. The notion of participation thus dissolves dichotomies between cerebral and embodied activity, between contemplation and involvement, between abstraction and experience: persons, actions, and the world are implicated in all thought, speech, knowing, and learning" (Lave and Wenger, 1991, p. 50).

The 'Covid Home Care Committee' appears such as an example of personal and relational view of knowledge, bypassing the individualistic traditional perspective of analysis of learning focused on cognitive nonpersonal aspects of learning: knowledge, skills, tasks, activities, and learning represent the effects of persons and their constituted identities in learning through interactions with and in the community. Learning involves knowing as activity by specific individuals in specific circumstances: arising non personal knowledge domains, constructs of acquisition and assimilation, socio-cultural community of practice suggests an explicit focus on the whole individual in relation to specific activities and to social community of the world in learning process. The Covid Committee views learning as a tool of legitimate peripheral participation not only a condition for membership, in an evolving form of membership perspective, based on the intentionality of participation affected and which affects people identities during their life and their evolving way by multiple relations to define themselves in practice.

Consistent with Delgado and colleagues (2021) research, the 'Covid Home Care Committee' is a virtual locus enabling a group of people, like sick people, family members, healthcare professionals and other citizens, to exchange experience of clinical practice in Covid-19 treatment as well as to develop alternative proto-

cols in Covid-19 treatment at home respect than official ones. Also, our case is consistent with other HC virtual communities of practice, such as the Australian "Covid-19 GP virtual community of practice" (see Mullan *et al.*, 2022), which aims were sharing of experience concerning guidelines and policy application among the community members and offering to central authority suggestions and feedback about sick people experiences and the Covid-19 treatment effectiveness.

Although face-to-face encounters are missing, the community was able to favorite strong engagement with timely and active participation without difficulties or attritions. The community exclusively used interactive, online, asynchronous discussions, forums, and SNSs. As already outlined from previous studies, our case study confirms that the success of a CoP is affected by some factors, such as design features, role of the leader or facilitator, or intrinsic motivation of the participants (Barnett *et al.*, 2016; Kredo *et al.*, 2016; Haines *et al.*, 2017; McLoughlin *et al.*, 2018; Shaw *et al.*, 2021). The case study, with reference to the design, can be considered as an effective example of an accessible knowledge management system. Otherwise, the CoP continuously promoted debates and discussions, adequately designed also in terms of timing schedules, for stimulating the sharing of ideas, knowledge, information and practices among the healthcare professionals and citizens.

Overall, the results demonstrate that the investigated experience was able to put together different actors of the society, like healthcare professionals, common citizens, lawyers and so forth, by engaging in dialogue and knowledge sharing to address the challenges derived from the Covid-19 pandemic. In keeping with previous research, we can make two important considerations. First, the virtual CoP allowed participants to have timely access to relevant and useful, evidence-based, up-to-date information; these factors represent a key driver for joining the same CoP (Ikioda *et al.*, 2013; Yada and Head, 2019; Mullan *et al.*, 2022). In fact, the initial phase of the Covid-19 pandemic during 2020 was characterized by absence of an available vaccine or effective pharmacotherapy, and information was very limited. Therefore, sharing experiences and information on symptoms, as well as providing feedback on therapies has been very helpful for expanding the knowledge about this new disease. Thus, citizens have been an important source of information for community health personnel. Second, a sense of responsible togetherness and of community, active participation, as well as informational and emotional support marked the behavior of the members (Ardichvili, 2008). The bottom-up approach allowed us to share information and knowledge from bottom to top, and among all members of the community who have played an active role in response to the pandemic.

5. Conclusions

This case study presents a relevant experience about community in the healthcare setting where the constructs of mutual engagement, collaboration, and participation by citizens, from a bottom-up approach perspective, could be enacted in a fully online CoP to promote the sharing of knowl-

edge, information, and practices, including therapies for supporting Covid-19 patients (Mullan *et al.*, 2022; Shaw *et al.*, 2022).

The Committee provided help to citizens, offering support through the prescription of therapies to manage the effects of Covid-19 at home, as well as psychological assistance. In this way, within the initial phase of the Covid-19 pandemic and in a context of great uncertainty, the online community has filled the shortcomings of the national healthcare system overcoming the limits of territorial medicine under pressure. On the other side, however, over time, the Committee and home therapies have gained centrality in the political debate, promoting treatments and drugs. But there is still no scientific evidence that these home healthcare therapies, as defined, and developed by the Home Care Committee, have any positive impact on Covid-19. This represents the main limitation of the case analyzed. Thus, our case study focuses on the functioning ways of such a community, without entering into the debate on the effectiveness (or less) of home care for Covid-19 patients.

The lack of scientific evidence about the proposed protocols as well as the lack of a clear dialogue between this community and competent health organizations have not made it possible to achieve the benefits that have occurred in other countries with similar experiences. In fact, recent research investigated several examples of virtual CoP to assist with the Covid-19 response in UK, Australia, USA or Asia (United Nations Economic and Social Commission for Asia and the Pacific, 2020; NSW Government Health, 2020; The Royal College of General Practitioners, 2021; University of California, 2021; Mullan *et al.*, 2022), showing the participation and collaboration of members as key successful factors despite of the limitations concerning the online solutions, especially web-based forums, or social media and so forth. These experiences highlighted that in addition to the benefits for the participants, healthcare organizations may also benefit from the virtual CoPs, because clinical practices can be improved and adequately shared, as well as citizens' engagement and active participation become key successful factors especially for facing challenges due to crisis events (Mallon *et al.*, 2022; Shaw *et al.*, 2022). Compared to other several experiences of virtual CoPs during the Covid-19 pandemic, our case study was not able to activate an effective and continuous dialogue and interactions with the institutional healthcare organizations at local and national level.

Moreover, the study presents other limitations mostly related to its qualitative exploratory nature. First, we only focus on a single case study which provides a very small sample for the analysis. Hence, the findings cannot be generalized and didn't consider some relevant factors such as cultural or digital competence dimensions regarding the members of the virtual CoPs. Indeed, we don't have information or data about the age, the nationality, and other relevant elements of the members, because we only used secondary data sources. It's true that our study didn't encounter much difficulty collecting data due to the only use of secondary data, but this our solution didn't give us the opportunity to collect direct and personal opin-

ions by members of the community, also knowing better their needs and orientations about virtual CoPs. Furthermore, it should be noted that the use of Facebook could reduce the generalization of the results to other healthcare communities that use other social networks or ways to share experiences and information between citizens and doctors.

These limitations can be used as the basis to suggest interesting future research directions. In this regard, it might be useful to develop the study considering other experiences which can be qualified as virtual CoPs, as well as using also primary data sources adopting semi-structured interviews and indirect observation techniques, thus gaining the possibility to achieve in-depth knowledge about potential factors that could facilitate and/or inhibit the establishment of virtual CoPs in the healthcare system identifying the successful factors. Future research should focus on such features and draw on a larger qualitative study, also comparing Italian virtual CoPs with several countries worldwide, trying to develop basic guidelines for members in creating CoPs with their direct involvement and engagement. Furthermore, further research is required to understand the extent to which such virtual CoPs are "instrumental in gaining advocacy outcomes, enhance clinical practice or foster resilience among members during a health crisis" (Mullan *et al.*, 2022, p. 7), and to clarify the possible positive implications related to the creation of healthcare communities of practice following a bottom-up citizen engagement approach especially for facing crisis events.

Among the future perspectives of the study, we propose the further aim of analysing the causal and favourable factors for the establishment of communities of practice and the hindering factors not only in the management of health emergencies, but also in the context of the numerous communities of practice that have been created between subjects suffering from specific pathologies (rare diseases, virus infections in solid organ transplantation, fungal infections in solid organ transplantation recipients), much better studied over the last few decades than the causes, dynamics, effects and antidotes of a new and unknown pandemic, and healthcare professionals, to build together a development of knowledge on the symptoms and the favourable or unfavourable evolution of the pathologies, and increasingly adequate paths of prevention, containment of the symptoms, and treatment of the causes of the illnesses (Lee *et al.*, 2019; Pergam *et al.*, 2019; Allen *et al.*, 2019; Goldman & Julian, 2019; Miller *et al.*, 2019; Chin-Hong *et al.*, 2019).

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