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# LeadinCare: A Qualitative Informed Digital Training Platform Development to Increase Physicians' Soft Communication Skills After COVID-19

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## ABSTRACT

The post-COVID-19 pandemic era has placed new demands on physicians. One of these demands is the need to use targeted knowledge and soft communication skills, to address the psychosocial problems (e.g. vaccine hesitancy, fears) of individuals with Chronic Physical Illnesses (CPIs). Focusing on training physicians in targeted soft communication skills can help health care systems to address psychosocial-type problems. Yet, such training programs are rarely implemented, effectively.

This study aimed to (a) understand physicians' implementation challenges when using soft communication skills during the COVID-19 pandemic; (b) identify beliefs, barriers, and facilitators that can influence physicians' behaviours to use soft communication skills; and (c) inform the content of the LeadinCare; a new digital training platform, designed to improve physicians' soft communication skills, by leveraging the TDF Theoretical Domain Framework (TDF).

We conducted 14 in-depth semi-structured interviews with physicians in Greece, supporting non-COVID-19 cases with CPIs. We analyzed their data using inductive and deductive approaches.

Physicians highlighted time, inability to see patients in person, absence of space for non-COVID-19 cases, and poor organizational procedures as barriers to using soft communication skills. Five TDF domains (beliefs) were identified as the most salient to inform the LeadinCare platform: (1) practical and well-organized knowledge; (2) skills that support patients and their relatives; (3) physicians' beliefs about capabilities to use the skills; (4) beliefs about consequences of using the skills (job satisfaction); and (5) the use of digital, interactive, and on-demand platforms (environmental context & resources). We mapped the domains in six narrative-based practices that informed the content of the LeadinCare.

Physicians need skills that go beyond talking and towards cultivating resilience and flexibility.

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## KEYWORDS

Soft communication skills; COVID-19; Theoretical domain framework; Qualitative study; implementation problem; inductive and deductive analyses

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This article has been corrected with minor changes. These changes do not impact the academic content of the article.

## 1. Introduction

During the first and second waves of the COVID-19 pandemic, governments, worldwide, responded to the increased emergency and intensive care needs COVID-19 generated, by providing hospitals with the necessary funds and equipment, to care for critically ill patients (Giang et al., 2020; Verhoeven, Tsakitzidis, Philips, Van Royen, 2020). Yet, additional supplies would not be more helpful now, unless physicians who work in relevant clinical contexts, set a series of practical measures, to address the psychosocial impact of the pandemic. These seem to extend beyond those who suffered during the COVID-19 peaks. The psychosocial impact of the COVID-19 pandemic now affects different groups of the wider community (Mills et al., 2020; Nicolaou et al., 2021; O'Connor et al., 2021).

One group that even during the peak of the COVID-19 pandemic exhibited a higher prevalence than COVID-19, are patients with Chronic Physical Illnesses (CPIs) (Monaco et al., 2021; Thornton, 2020), particularly the relevant complex cases and those with multi-morbidities (Beard et al., 2016). During the lockdown periods, patients with CPIs experienced a series of psychosocial-type complaints (e.g. unstabilized glycaemic control, non-adherence to medication, excessive fears about COVID-19, etc.) that physicians had to address, in addition to providing medical care (*The Impact of the COVID-19 Pandemic on Noncommunicable Disease Resources and Services: Results of a Rapid Assessment.*, 2020). Previous experiences with epidemics (e.g. Ebola) show that physicians can address the majority of these problems in the first instance and at an outpatient service level, using soft communication skills (Brooks et al., 2020; Finset et al., 2020). Hence, providing first-line physicians with targeted training programs in soft communication skills (Wittenberg et al., 2021) has become a priority for healthcare systems (Appelbom et al., 2021; Dewey et al., 2020).

Soft communication skills include a set of modifiable behaviors, including attitudes, ethics, interpersonal abilities, and communication (Joubert et al., 2006). For example, knowing how to announce bad news to patients with compassion and care, or have skills set to promote health behavioral changes, such as medication adherence are now becoming necessary skills for clinicians. These skills are usually performed in complex settings and influenced by multiple contextual and individual factors (Zulman et al., 2020). Given the significant multilevel influence of soft communication skills, what should precede the development of a training program, is the identification of what soft communication skills should be emphasized (Cabana et al., 1999), and what barriers and facilitators are likely to support or hinder such a training program. Assessing physicians' needs is a good research practice that can prevent the unnecessary delivery of training skills which either are not relevant or not in need in the post-pandemic era.

In this study, we focused on first-line physicians' needs, following relevant research that indicated that physicians was the healthcare professional group which experienced the highest burden during the COVID-19 period (Liu et al., 2020; Mheidly et al., 2020). We followed an established implementation framework, named Theoretical Domain Framework (TDF) (Michie, 2005), to identify the factors that can support physicians in routinely using soft communication skills.

The TDF was developed to maximize the accessibility of psychological theories of behavioral changes. It is a research tool that helps implementation scientists identify

influences on healthcare professional behaviours (Atkins et al., 2017). This includes the identification of barriers and facilitators, related to applications of evidence-based guidelines (Michie & Johnston, 2012; Michie, 2005). The framework was developed by synthesizing 33 behavioral theories, grouped into 14 domains (Cane et al., 2012) that cover several individual and organizational theories (e.g. e.g. ‘emotions’, social/professional role and identity”). The domains provide a theoretical lens through which one can identify all the cognitive, affective, and environmental influences on behavior. The TDF has been applied in many areas where changing physicians’ behaviour is important, and has been employed, to better understand parameters that may facilitate or hinder an intervention’s success (Abboud et al., 2022; Connell et al., 2014; Curran et al., 2013; Debono et al., 2017; Gondi et al., 2021; Huyer et al., 2018, 2018; Merianos et al., 2022; Patey et al., 2012). Despite its popularity, TDF has not yet been applied to understand physicians’ challenges in implementing soft communication skills.

This study aimed to: (1) understand implementation challenges physicians faced in using soft communication skills during the COVID-19 pandemic; (2) identify and select prominent TDF domains and beliefs that are likely to influence physicians’ behaviours to using soft communication skills; and (3) develop narrative practices to inform the content of a digital training platform, called *LeadinCare*.

## **2. Materials and methods**

### **2.1. Methodology**

This study used qualitative semi-structured one-on-one interviews with physicians from Greece that, during COVID-19, provided care to non-COVID-19 patients with CPIs. We followed the subtle realism (Pope & Mays, 2020) as an epistemological position; recognising that researchers are not entirely independent and value-free from data analyses and interpretation. Additionally, in this study, we used the Framework for participation approach (Wilcox, 1994) to develop the themes for the *LeadinCare* training platform. The study also applied the consolidated criteria for reporting qualitative research (COREQ) (Tong et al., 2007) and the SQUIRE 2.0 publication guidelines (18 items).

### **2.2. Recruitment & participants**

The study employed a purposive sampling procedure (Palinkas et al., 2015), followed by a snowball-sampling technique, asking physicians from the purposive sampling pool, to suggest at least one colleague whom they thought differed in their training and practice. We circulated a flyer via digital social groups of physicians to identify the relevant sample. The Research Assistants recruited physicians which were geographically dispersed, from suburban and semi-rural areas of Greece, representing different clinical specialties (e.g. Pathologists, Cardiologists, Orthopaedics, etc.), regions in which employed, gender, and clinical settings (primary and secondary health care units).

Inclusion criteria consisted of physicians with at least two years of specialty experience (licensed and specialized physicians) who during the COVID-19 first breakout in Greece (March 2020) provided care to patients with chronic illnesses (e.g. cardiovascular diseases, asthma, diabetes, etc.), yet, did not involve in treating COVID-19 patients. We

excluded participants with a specialty in Psychiatry, those with significant proven experience of soft communication skills (e.g. attended a fully certificated program), and those working in laboratory-based specialists (e.g. Microbiologists, etc.). Thirty-two individuals expressed interest. Eight were ineligible, four were not contactable, and two opted not to participate due to competing commitments. Interviews lasted between 28 and 55 min and the mean duration was 40.79 min ( $SD = 7.73$ ). The saturation on the topic discussed was reached after the first 10 interviews.

### **2.3. Data collection and Materials**

We developed an interview guide, consisting of two interrelated parts (see Supplementary Material S1). The first part included questions to elicit physicians' perceived challenges encountered during and after the first nationwide lockdown period in Greece (March- June 2020), The second included questions capturing the TDF inquiry (Atkins et al., 2017). The topic guide was drafted from an interdisciplinary team, consisting of a male Clinical Health Psychologist (VSV), a team of three females Qualitative Researchers with expertise in Counseling Skills (IP, CD, EM), and a male digital health Consultant (IT). The questions were reviewed by a practicing clinician and pilot tested with two participants. The team endorsed the final version of the guide and the accurate representation of the research questions, ensuring that the TDF domains are adequately covered in the interview.

### **2.4. Procedures**

Two Research Assistants with experience in qualitative research were trained in the TDF framework and conducted the interviews. The Research Assistants sent a link to potential participants, explaining the purpose of the study, and asked them to read the information sheet before signing the consent form. Then, the participants were invited to an online interview via the Zoom platform. All the interviews were digitally recorded as word files, transcribed verbatim in Greek, examined against the recordings to ensure correctness, and anonymized. They are then stored in an encrypted data repository using the StorSimple data storage in Business Information Systems, provided by University College Cork (UCC) IT services. The study was approved by the ethics committee of the School of Applied Psychology, UCC (Reg. number: sft 1803202113) . The Research Assistants completed all the interviews without the presence of a third person in July-September 2020. Physicians received a 100€ honorarium coupon for their participation.

### **2.5. Analyses**

We employed a two-stage analysis, adopting abductive logic (Pope & Mays, 2020) through inductive and deductive reasoning. In the first stage, the research team analysed the data with primary inductive coding (Isari & Purkos, 2015), tapping on the first aim. For this analysis, two coders, independently, read and reread, all the transcribed interviews- and their reflective notes- and highlighted passages, making notes about patterns and ideas. Next, they interrogated the data from the first two interview transcripts,, combining codes into patterns and provisional subthemes until candidate themes were

generated. They then grouped the threads with similar meanings or those which overlapped, into the same provisional themes, and then named them. After assigning codes to the first two interview transcripts, the coders met to compare their coding, and resolved any differences in the coding with the presence of a mediator. The coders completed the analysis of the remaining 12 interviews using the agreed coding and theme premises.

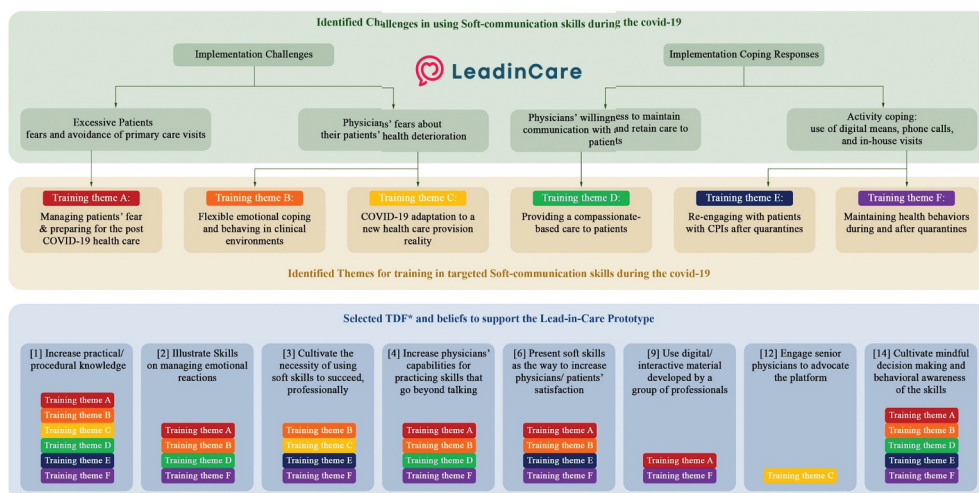
In stage two, the research team first employed Steps 1 and 2 of the Action, Actor, Context, Target, Time (AACTT) Framework (Presseau et al., 2019) to clarify the following parameters: 'who' needs to do, 'what' differently, 'when' (time), and 'where' (context). After tabulating these parameters, a deductive approach was employed. The coders used the TDF constructs' definitions and also examined barriers and enablers that need to be addressed so that physicians can increase the use of soft communication skills (targeted behaviour).

For this analysis, firstly, the two coders interrogated the interviews' transcripts independently, assigning codes to direct quotes of participants by attributing these to one of the 14 domains/themes of the TDF. Next, one coder (VSV) generated a list of beliefs per TDF domain by grouping participants' responses into similar underlying meanings while the other coder reviewed the generated lists of beliefs (EM). The generated beliefs per TDF domain provided details about how each identified domain (e.g., environmental context and resources) could support the targeted behavior (i.e., influence physicians to routinely use soft communication skills). A domain was rated 'important' by the two coders and mediator if beliefs were frequently indicated that it might influence physicians' behaviors (i.e., to use soft communication skills). The research team held three half-day workshops over 3-months, to consensually agree on the final selection of the TDF domains (see Supplementary Table S2 which tabulates the process of the final selection of TDF and beliefs).

Following the completion of data analyses, the research team participated in two online open grouping co-ideation exercises. These meetings aimed to map the identified themes in the LeadinCare training platform. First, the researchers who analyzed the data, presented the key findings to the team, using Miro's infinite whiteboard canvas; an embedded Microsoft Teams application for ideation and planning work. Secondly, the research team discussed the findings, by brainstorming and generating ideas with the assistance of Miro's facilitation tools, such as sticky notes, arrows, voting, timers, etc. One of the main researchers involved in the analyses, shared the Miro whiteboard with the group and created real-time different graphs, boxes, etc., so that all involved, collaborate live, and agree, consensually, on the resulting themes. The outcome of this ideation exercise informed the training platform that is illustrated in [Figure 1](#).

### 3. Results

[Table 1](#) presents the demographics and other related information of our sample. The study sample included more females (64%), with a mean age of 44 years old. More than half of the sample had a specialty in internal medicine (57%). There was an equal distribution of physicians working in public and private hospitals (43% each) with 14% working in primary care centres. Half of the participants had acquired a graduate degree. Physicians reported that 67% of their daily clinical work time involves care provision to



**Figure 1.** LeadinCare Mapping Work and Development Process. Note: Supplementary Material S3 presents the findings from the comprehensive analyses of the TDF. The LeadinCare logo has a trademark number from the European Intellectual Property Office (publication identifier: 2023/062).

**Table 1.** Demographics Characteristics of the sample.

Variable	Frequency or Mean Score ( <i>SD</i> or %)
<i>Gender (%)</i>	
Male	5 (35.70%)
Female	9 (64.30%)
Age (in years)	44 (12.33)
Years of clinical practice (after residency)	12.07 (8.80)
<i>Specialty</i>	
Internal Medicine (Cardiologists/Pathologists/Pneumonologists/GPs)	8 (57%)
Surgeons	4 (28.60%)
Orthopaedics	2 (14.20%)
<i>Location of practice (%)</i>	
Public Hospital	6 (42.90%)
Private Hospital	6 (42.90%)
Primary Care centre	2 (14.30%)
<i>Education (%)</i>	
No	2 (14.30%)
MSc/MA/MBA	7 (50.00%)
Doctoral (Ph.D. or MD)	5 (35.70%)
<i>% of patients seen daily with chronic illness</i>	66.79 (17.05)
<i>Prior knowledge in soft/communication skills (%)</i>	
Yes	64.30
No	35.70

individuals with CPis . More than half (64%) of the sample reported some previous knowledge of soft communication skills (nature of the behavior).

Illustrative quotes are provided to allow readers to judge whether the interpretation, we provide, to support the study findings, is adequately grounded by the data. Each utterance is identified with a unique recognised interview code and numerically, to represent a specific extract from each of the coding interviews (e.g. W20\_PT\_30).



### 3.1. COVID-19 Challenges in Applying Soft Communication Skills

As Table 2 below shows, all physicians reported their patients' fearful and panicogenic reactions (e.g. *We lost them; all the patients had been terrified and didn't leave their homes*; W20\_AI\_73\_37, *some patients were very panicked*; W20\_ET\_14), including the need for reassurance to address poor care adherence (e.g. *many times, I had to face*

**Table 2.** Direct quotes for inquiring Covid-19 challenges in applying soft-communication skills.

Theme	Sub- Themes	Extract data
Covid-19: patients' concerns and physicians' reactions	Fear of COVID-19 contamination	<ul style="list-style-type: none"> <li>• W20_AD_31: Um, many times, I had to face patients' denial to go to the hospital, I had to refer them, cause they were afraid of COVID-19 infection.</li> <li>• W20_AI_73_37: We lost them; all the patients had been terrified and didn't leave their homes; rarely had we seen new cases, even at the end of the quarantine.</li> <li>• W20_ET_14: Well, let me first start by saying a little bit about just the status of the patients I had. Some patients were very panicked and couldn't manage their panics and most of them didn't attend their appointments.</li> <li>• W20_PM_16: Hmmm, ok, it was first the fear of patients and their insecurity, as most of them were seeking reassurance, particularly that a respiratory infection they had, it couldn't have happened due to COVID-19 infection and on the other hand their refusal to visit a health care service for an examination. To make this clear, I felt that they were looking from us to reassure them over the phone; reassure them that it is impossible to have been infected for something like this (covid-19).</li> </ul>
	Physicians' active communication skills in response to COVID-19 challenges	<ul style="list-style-type: none"> <li>• W20_AI_73_41: Well, I don't know how this would have been gone and the help that might be able to offer to them, if in some cases, we would be able to see them, in person . . . I don't know how others (patients) have dealt with it, they would have found a private doctor who was quite reserved but still was doing home visits, even in this case, though, if someone (a doctor) hears shortness of breath and fever, doesn't go.</li> <li>• W20_DM_04_30: we were trying to reassure them and especially those who had a sort of a stable non-other diagnosed condition, who were in remission . . . we were trying to reassure them so that they were not affected by this delay of our appointments. Well, as much as we would be able to do this over phones and while not having an in-person contact.</li> <li>• W20_PA_95_14: well, personally, I was able to talk to all of my patients with chronic illnesses who had been trapped in rural areas through Skype or Facetime. Given the opportunity of the new e-prescribing platform, I was able to send them the referrals and the subscriptions, digitally.</li> <li>• W20_KI_07_32: there was the e-prescription, there was a prescription I was given them at the door so that would not come in contact, but the most important thing was our communication and the many hours I used to spend communicating with them, digitally.</li> </ul>

*patients' denial to go to the hospital, I had to refer them, cause they were afraid of COVID-19 infection; W20\_AD\_31).*

Physicians described that their patients' reactions, triggered their own stress and insecurity, expressed as concerns about their patients' well-being, including illness complications (e.g. *surgical patients should be always in direct contact with their physicians and the units should know any complications, to deal with them at their birth, not to wait until the patient dragged into the E.D. So, you can imagine this whole thing generates stress, and not only stress, but also insecurity, well, maybe the insecurity generates stress; W20\_PT\_32).*

Further, physicians highlighted how contextual parameters lowered their motivation to use soft communication skills, including a lack of resources and staff (e.g. *The core challenge was about patients' examination, well, the strict health protocols we had to adhere; limiting the appointments in outpatient clinics, limiting the number of nurses who serviced the outpatients' units, and the corresponding E.D; W20\_PT\_26), their inability to see patients (it was almost impossible to see a patient; W20\_PT\_26), the absence of medical examination rooms for non-COVID-19 cases, and the poor guidance (e.g. what we should do) about non- COVID-19 patients management (e.g. one thing I faced was doctors' ambiguity, there were no guidelines in regional units and primary health centers. We didn't have a selection box outside so that we ended up seeing all the patients who had a fever and all the emergencies; W20\_ET\_14).*

Notably, physicians managed to quickly overcome communication barriers through frequent use of digital means (e.g. *well, personally, I was able to talk to all of my patients with chronic illnesses who had been trapped in rural areas through Skype or Facetime. Given the opportunity of the new e-prescribing platform, I was able to send them the referrals and the subscriptions, digitally; W20\_PA\_95\_14).* Although they would prefer an in-person communication, their motivation to maintain communication with their patients and provide reassurance, particularly for the elderly and those in rehabilitation or with complex needs, resulted in an increased of empathetic responses to patients' needs, something that was positively perceived by most of them (e.g. *we were trying to reassure them and especially those who had a sort of a stable non-other diagnosed condition, who were in remission . . . so that they were not affected by this delay of our appointments. Well, as much as we would be able to do this over phones and while not having an in-person contact; W20\_DM\_04\_30).*

### **3.2. Domains and Beliefs likely to Influence Physicians Use of Soft communication Skills**

In total, 517 utterances were selected from 14 interviews and coded into the 14 TDF domains. The interrater reliability was acceptable ( $k = .62\%$ , CI .24 to .81,  $p < .01$ ). In sum, all the theoretical domains were found to play a role in supporting the targeted behaviour (i.e. increasing the routinely use of soft communication skills in patients with CPIs in the aftermath of the COVID-19 pandemic), yet, one domain (optimism) and six beliefs, mapped on skills, optimism, reinforcement, memory, attention & decision processes, and social influences, respectively, were least frequently raised. After using the three criteria set for selecting specific domains and beliefs, these domains and beliefs were judged inappropriate and excluded (See Supplementary Material S2). The supplementary

Material S3 outlines the 33 generated beliefs, mapped on the 13 selected domains along with illustrative quotes and the frequency of the belief mentioned by the physicians. Notably, the coded data in the first aim was also deliberately coded in the last two aims, underlying the trustworthiness and credibility of our data analysis and interpretation. For a comprehensive analysis and interpretation per TDF domain, see the Supplementary Material S4.

Among the 13 domains, five were found to be the strongest, including Knowledge, Skills, Beliefs about capabilities, Beliefs about consequences, and Environmental context/resources. Physicians inferred an influence of how specific knowledge (practical, focused, and well-organized information about soft communication skills) can help them develop soft communication skills that guide and support patients and their relatives to cope with the illness. Accordingly, physicians highlighted how their lack of self-confidence in using soft communication skills (beliefs about capabilities) may affect the quality of care provision. Data showed that boosting physicians with appropriate knowledge about soft communication skills (both the core and more advanced skills) and via appropriate means (e.g. examples, experiential self-reflective exercises, etc.), developed through collaborations among various Mental health professionals, associations, and higher educational institutions, and delivered digitally via an on-demand (log-in) platform (*environmental context and resources*); would increase their beliefs about capabilities, hence, increase their willingness to provide empathy that “*goes beyond communication and into patients’ life with sincere interest*”. Notably, increasing physicians’ confidence in the use of soft communication skills would increase physicians’ job satisfaction and patients’ self-management skills (beliefs about consequences).

Capitalizing on the TDF framework, a critical reflection of the beliefs, mapped on the TDF domains, generated specific barriers and facilitators that when applied, can further support the target behavior and even enhance the successful implementation of the Lead inCare in clinical settings. The Supplementary Material S3 presents the 19 barriers and 33 facilitators identified from physicians’ interviews.

Some barriers and facilitators mapped cleanly onto specific TDFs, while others purport reciprocal relationships between domains, meaning that they co-occur with other domains, to support the targeted behavior. For example, knowledge and skills share a similar implementation barrier that represents an overall lack of foundation knowledge and skills of soft communication skills. [Figure 1](#) illustrates the synthesis analyses of the TDF, including the mapping process of TDF-related beliefs into six narrative data-informed practices that guided the development of the Lead-in-Care platform’s content.

#### 4. Discussion

This study implemented the TDF in a complex qualitative and participatory design analysis, to inform the development of the LeadinCare: a research/enterprise training platform. An interdisciplinary team of behavioral and implementation scientists leveraged modern participatory design processes and psychological and behaviour change technologies (Bavel et al., 2020; Karekla et al., 2021), as per the Medical Research Council (MRC) Framework (Craig et al., 2008), to map the data onto a guiding graph that generated key themes to inform the new platform (see [Figure 1](#)). The findings showed that time availability and presence have been

traditionally reported in the relevant literature as important skills for physicians, working in busy clinical settings (Zulman et al., 2020). Yet, now in the COVID-19 relevant literature, these parameters are also seen as necessary that can increase a sense of safety for patients, particularly during conditions that require physical distance (Maunder et al., 2003; Schlögl & Jones, 2020). The study provides data-driven practical, organizational, and policy-based themes. The themes can be used by researchers and implementation sciences as ‘foci’ interventions component that can enhance more patient-centred care.

The TDF framework analysis indicated 13 domains as potentially useful targets. Of those, five seem to be the most influential, including Knowledge (practical, procedural, detailed, and when urgently needed), Skills (learned via practical examples, to guide, support, and provide emotional relief), Beliefs about capabilities (particularly to enhance physicians sense of using soft skill to show empathy, sincere interest, and understanding), Beliefs about consequences (to increase physicians’ job satisfaction and patients’ self-management skills), and Environmental context/resources (to develop a digital platform via an interdisciplinary team of experts, and then promote the platform via medical directives, associations, and public universities).

The findings provide a roadmap towards the development of a training platform that is meant to be physicians’ not researchers-led, consistent with premises from participatory-based research (Wright et al., 2018). Data-driven recommendations indicate that the LeadinCare platform should attempt to manage patients’ and physicians’ concerns and reactions to mitigate COVID-19 barriers in implementing soft communication skills. This can occur by promoting structural organizational changes (e.g. designated rooms for non-COVID-19 cases, clear protocol procedures for non-COVID-19 cases, etc.) and proactive communication skills that will ensure physicians have all the necessary tools to communicate with their patients (e.g. providing access to multiple and different secured platforms for physicians, e.g. via phone web-app based devices). Findings indicate that the platform should include targeted skills that can help physicians address patients’ fears, and also help them to promote real expectations about disease management. These should be considered under the rhythm of ongoing changes in relation to COVID-19 mutations, setting premises for an ongoing post-COVID-19 healthcare provision, too.

The study findings are in line with recent similar research indicating the barriers and enables in maintaining good health care professionals and patients relationships (McDonnell et al., 2022; Vogt et al., 2023). Some contextual and environmental issues, such as staffing pressures and ongoing workload existed to a large degree before the pandemic but deteriorated by it. Contrary to others’ findings, indicating that healthcare after the pandemic became less holistic and patient centred (Curnow et al., 2021), our study findings showed an increased physicians’ attention to patients’ needs, and physicians’ commitment to maintaining good healthcare service, even, remotely. A possible explanation may be attributed to the lockdown measures which lowered the frequency of in-person medical appointments, consequently increasing the time physicians could spend with the remaining patients. For example, physicians used innovative ways to provide care to their patients, leveraging technology (e.g. facetime) even when they reported limited knowledge of its use. Further, physicians reported a lack of training and confidence in delivering soft-communication skills; a finding that is consistent with previous studies (Keyworth et al., 2018), indicating the need for ongoing training provision in soft communication skills.

Despite the trustworthiness of the data, we identified several study limitations. Firstly, saturation may have been reached prematurely, given the pressure of time to rapidly identify the training content and develop the LeadinCare training platform. Secondly, the sample was relatively small with half of the physicians, consisting of specialists in Internal Medicine. Although the sample size and characteristics were representative of national averages in Greece (Pappas, 2015), including participants from more than a homogenous group of specialists (e.g. Cardiologists), still other groups might have elicited different views against or in favor of the targeted behavior to change. Thirdly, the TDF reflects a group of physicians' views that do not define exclusive influences on the behavior of interest (Arvanitis et al., 2022; Francis et al., 2009; Sissons et al., 2020). There may be other influences that this study has not identified. Step wedge designs are now needed (e.g. qualitative realist evaluations, pragmatic micro-RCTs, and N-of-1 studies) to assess which of TDF drives behavioral changes. It is possible that if we had triangulated our findings with those coming from CPIs or stakeholders (e.g. clinics' directors), we might have highlighted other parameters to guide the platform's content.

In conclusion, this study identified for the first time parameters that would prompt physicians to start using soft communication skills more frequently. It indicated how soft communication skills can be employed to mitigate the psychosocial impacts of the COVID-19 pandemic in patients with CPIs. The findings showed that it is likely to provide brief, focused, and effective soft communication skills to physicians. This can be achieved by developing a digital training platform that should target increasing knowledge and skill and competencies that can enhance physicians' capacity to manage patients' fears relevant to COVID-19. It should also focus on promoting compassionate-based care that goes beyond talking, and towards cultivating resilience and flexibility in both to physicians and individuals with CPIs.

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## Disclosure statement

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## Human Rights

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. For all the research activities, ethical approval was granted from the Ethics Committee of the University College Cork (UCC; No: STF 1 803 202 113) which was the main institution of work for the first author at the time this study was conducted.

## Informed Consent

Informed consent was obtained from all the clinicians who participated in the study.

## Welfare of Animals

This article does not contain any studies with animals performed by any of the authors.

## Transparency statements

(1) study registration: the study was not formally registered, (2) analytic plan registration: The analysis plan was not formally pre-registered, (3) availability of data: De-identified data from this study are not available in an a public archive. De-identified data from this study will be made available (as allowable according to institutional IRB standards) by emailing the corresponding author; (4) availability of analytic code: Analytic code used to conduct the analyses presented in this study are not available in a public archive. They may be available by emailing the corresponding author; and (5) availability of materials: Materials used to conduct the study are not publicly available, but can be given upon specific request to the corresponding author.

## Data availability statement

Available upon request from the corresponding author

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