Project Result 1

Pandemic Resilience Competence Model

Co-funded by the European Union

Project Result 1	
Title:	Competence Model for Pandemic Resilience
Description:	The aim of PR 1 was to develop a competence model that refers to individual skills and organisational capabilities with the purpose to promote the resilience and to implement them in day-to-day corporate practices during crisis situations in primary and secondary care, home and community care and public health authorities.
Lead Organisation:	UMIT TIROL – Private University for Health Sciences and Health Technology
Language:	EN

Overview & Aims of PR1 “Pandemic Resilience Competence Model”

The development of a competence model for strengthening resilience in healthcare settings during crises was a central objective of the first phase of the project. This model addresses both individual-level skills and organisational capacities that enable effective coping, adaptation, and recovery during public health emergencies such as pandemics. The overarching aim was to identify, define, and conceptualize the competences that are most relevant in such contexts and to lay the groundwork for integrating these competences into everyday practices and structures within healthcare institutions.

Conceptual Foundation and Methodological Approach

The competence model was developed through a multi-method process combining theoretical groundwork with empirical investigation. In the initial step, a thorough literature review and market analysis were conducted to assess existing frameworks, concepts, and needs related to resilience in healthcare crises. This was followed by qualitative empirical research carried out in five participating countries—Austria, Germany, Italy, Portugal, and the United Kingdom.

The competence model presented in this report is based on data collected and analysed within the framework of this research project. The model and its components were first described in detail in the peer-reviewed article “Lorenzoni, N., et al. (2025). Development of a Pandemic Resilience Competence Model for Healthcare Professionals—Individual and Organisational Aspects. *International Journal of Environmental Research and Public Health*, *22*(5), 712.*”,* which was developed as part of the project’s dissemination strategy.

As outlined in Lorenzoni et al., (2025), the model was developed using empirical data generated during the project. This report builds upon the findings published in that article and refers to them where appropriate to avoid duplication.

The empirical research component comprised semi-structured interviews with healthcare professionals across different roles and organisational levels. In each country, ten interviews were conducted with individuals working in hospitals, nursing homes, and emergency services. The sample included both managerial staff (such as directors of nursing, hospital executives, and health administrators) and front-line healthcare providers (including nurses, physicians, therapists, and paramedics). This diverse sampling strategy was chosen to ensure a broad spectrum of perspectives and experiences.

Table 1: Characteristics of interview participants (Lorenzoni et al. 2025)

Country	Participants	Gender F/M	Age Range	Occupations
Austria	10	5/5	25–73	Medical Doctors, Nurses, Physiotherapist, Nursing Director, Dietician, Emergency Doctor, Nursing Home Director;
Germany	10	6/3 *	31–58 **	Physiotherapists, Nurses, Nursing Director, Health Administration Workers, Health Technology Specialist;
Italy	10	4/6	38–64	Nurses, Medical Doctors, Nursing Directors, Health Administration Workers, Social Worker, Lawyer at an emergency service;
Portugal	10	8/2	29–62	Occupational Therapists, Physiotherapist, Nurses, Medical Doctors, Radiology Technician, Member of Hospital Board;
UK	10	6/4	n/a	Nurses, (Senior) Healthcare Assistants, Operations Support Manager, Team Leader Care Home;
Total	50	29/20 *	25–73 ***	

* One participant did not indicate gender. ** Age range excludes 6 participants with missing age information. *** Age range based on 39 participants with available age data.

The interviews explored how professionals experienced and responded to the challenges posed by the COVID-19 pandemic, with a focus on coping strategies, perceived gaps in preparedness, and support structures. Data collection was adapted to local circumstances, with some interviews conducted in person and others online. The interviews were carried out in the participants' native language, transcribed, and subsequently translated into English for cross-national analysis.

Defining Competence

For the purposes of this project, competence was defined as the ability to mobilize and apply a combination of knowledge, skills, attitudes, and values to perform tasks and meet challenges successfully under varying and often unpredictable conditions—either independently or collaboratively. This definition includes dimensions such as planning and organisational skills, adaptability to non-routine situations, innovation, and the capacity to interact effectively with others. The model also incorporates personal attributes such as relational intelligence, emotional regulation, and the ability to sustain effectiveness under pressure.

Theoretical Models and Frameworks Consulted

Several established models served as reference points during the development of the competence model. These included:

- **The Resilience Competence Face Framework for the Unforeseen** (Herberg & Torgersen, 2021), which investigates how highly experienced professionals understand, prepare for, and respond to unforeseen events, and what individual, social, and organisational competences are essential in such contexts.
- **The WHO-ASPHER Competency Framework** (WHO, 2020), which provides guidance for public health professionals and institutions across multiple levels: individual (e.g., career planning), organisational (e.g., human resource development), and systemic (e.g., workforce policy and planning).
- **The Comprehensive Hospital Agile Preparedness (CHAPs) Model** (Adelaja et al.,2020), which outlines key areas for strengthening hospital readiness under strain, such as resource allocation, staff support, and flexible planning.

These frameworks helped inform the structure and content of the model and ensured that it is anchored in both academic and practice-oriented perspectives.

Model Development Process

The competence model was developed through an iterative, participatory process involving members of the international project team. The interview data were analysed using qualitative content analysis (Kuckartz, 2014), with a combination of deductive coding (based on the interview guide) and inductive category development (based on emerging themes). MAXQDA24 software supported the coding process.

Subsequently, the project team convened in a dedicated workshop to synthesize the findings. Eight team members contributed to defining the structure and core elements of the competence model, drawing on their disciplinary backgrounds and national contexts. The process involved critical discussion, reference to relevant literature, and reflection on the practical implications of the identified competences.

Key Findings from the Empirical Study

Analysis of the interview data revealed several core themes and patterns. To present a first overview, these were grouped under two overarching categories, **individual resilience** and **organisational resilience,** and presented below:

1. **Individual Resilience**
    - Healthcare professionals described numerous psychological and emotional challenges, including fear of infection (particularly of infecting others), stress caused by prolonged use of personal protective equipment (PPE), and emotional strain due to witnessing high numbers of patient deaths, often under isolating conditions.
    - Interviewees frequently reported a lack of psychosocial support, insufficient time for reflection, and high levels of uncertainty, particularly at the beginning of the pandemic. Despite this, many demonstrated considerable resourcefulness and emotional strength.
    - Skills identified as critical included:
        - Stress management and emotional regulation
        - Empathy and interpersonal sensitivity
        - Conflict management and de-escalation skills
        - Teamwork and communication
        - Time and self-management
        - Ability to remain calm under pressure
        - Reflective practice and willingness to learn
    - Several professionals emphasized the importance of distancing themselves emotionally as a survival strategy, drawing on personal resilience and professional boundaries to prevent long-term psychological harm.

2. **Organisational Resilience**

    - Participants in leadership roles often expressed more confidence in institutional preparedness than front-line workers. However, both groups identified a number of structural challenges:
        - Pandemic preparedness plans were often outdated or impractical.
        - Internal communication was frequently described as reactive and inconsistent.
        - There was a perceived lack of transparency in decision-making and resource allocation.
        - Many organisations were seen as failing to learn from earlier phases of the pandemic, leading to repeated mistakes and low trust among staff.
    - Desired improvements included:
        - Clearer crisis management structures and protocols
        - Routine communication channels for updates and feedback
        - More flexible staffing models and work schedules
        - Integration of psychosocial support into organisational routines
        - Appreciation of staff efforts, both symbolically and materially
        - Training in leadership, crisis communication, and emotional competence

Across all interviews, uncertainty emerged as the most significant and recurring challenge.

Responses regarding standards and certifications varied widely, both in terms of their perceived usefulness and the extent of their implementation. While pandemic preparedness plans were generally in place, often due to legal requirements, they were frequently viewed as impractical or poorly adapted to real-world conditions. A consistent obstacle identified was the lack of time and opportunity to reflect on experiences and integrate lessons learned into ongoing practice.

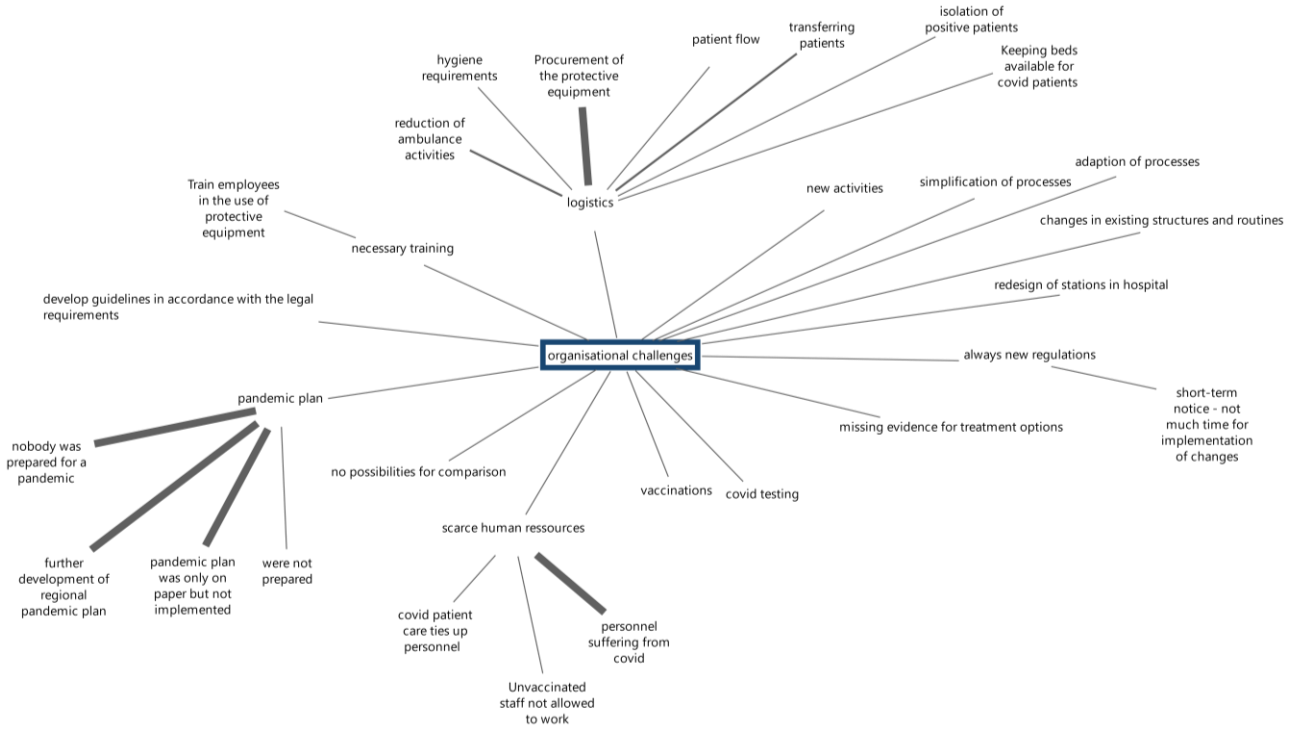


Figure 1 Organisational Challenges during the Pandemic

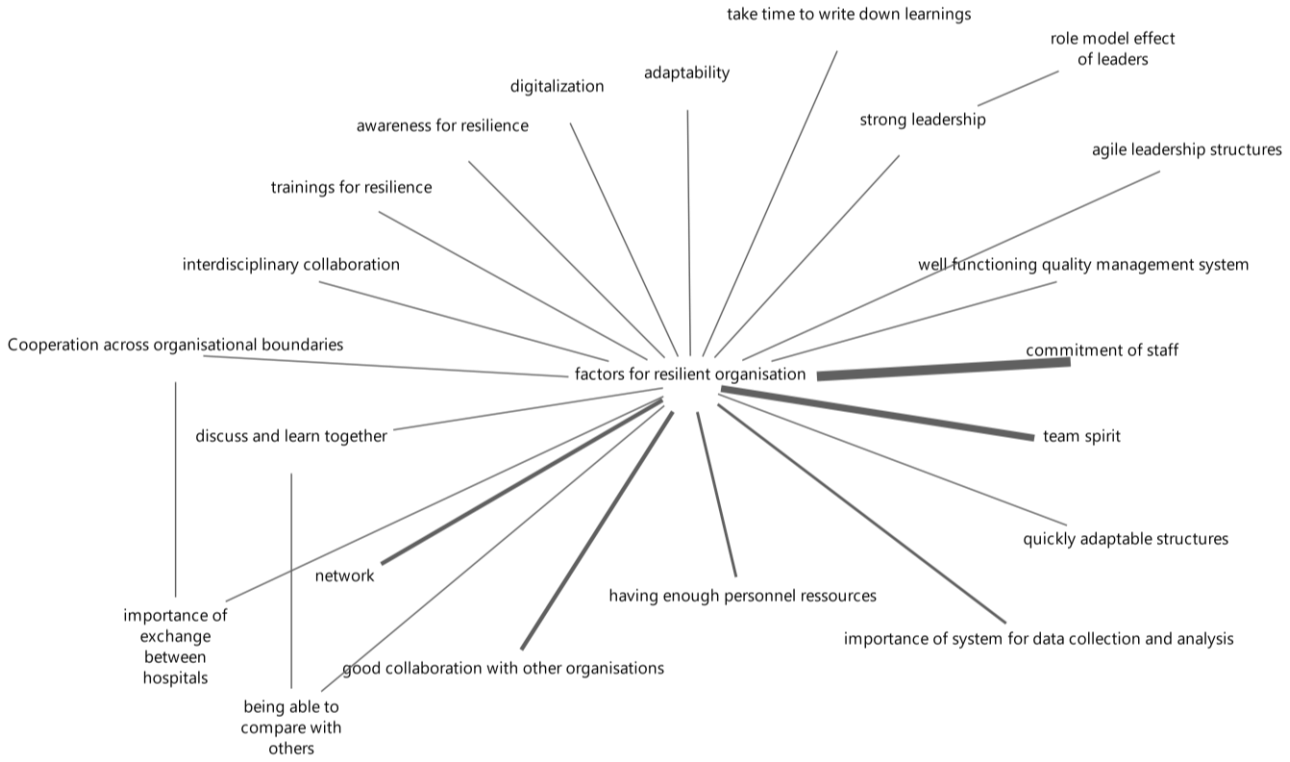


Figure 2 Factors for resilient organisations mentioned in the interviews

In the following the main topics from the interviews are described in more detail.

Reflections on Leadership and Mental Health

Leadership was highlighted as a decisive factor in fostering resilience. Several respondents pointed to the positive effects of visible, supportive leadership during the early stages of the pandemic. Leaders who were consistently present and accessible to staff were seen as a source of stability and motivation. However, some noted that authoritarian crisis responses, while sometimes necessary, required careful communication to avoid alienating staff.

Mental health emerged as a significant concern. Participants expressed a need for structured psychosocial support, peer supervision, and opportunities for emotional decompression. Many reported feeling emotionally exhausted, especially when working in isolation or under conditions of persistent uncertainty. The sustainability of resilience was a recurrent theme: respondents emphasized that resilience must be nurtured on an ongoing basis, not only during acute crises.

Main challenges and difficulties

Lack of staff

A persistent shortage of healthcare staff emerged as a fundamental structural issue that severely limited resilience during the pandemic. Many professionals emphasized that resilience cannot be sustained when staff are consistently pushed to their physical and psychological limits. The pandemic once again laid bare the vulnerabilities in healthcare systems, particularly the dependency on a sufficiently staffed and well-prepared workforce. Respondents reported that requests for additional personnel to ease the burden were often denied, exacerbating the pressure on existing teams. Several participants described the current situation as incompatible with any meaningful resilience, citing cumulative and chronic stress as a key barrier. They noted that without immediate action to reduce major stressors, such as excessive workloads, constant uncertainty, and a lack of recovery time, neither individual nor organisational resilience could be maintained. In addition to pandemic-related demands, emerging challenges like the energy crisis further strained resources. As one interviewee put it, the pressure to simultaneously manage crisis follow-up and new operational demands, without adequate capacity, contributes to an unsustainable accumulation of stress across all levels of the system.

Psychological burdens

Healthcare professionals faced a range of psychological burdens during the pandemic, many of which were rooted in both emotional stress and systemic shortcomings. A pervasive fear of infection was reported, not only the fear of contracting the virus themselves, but even more so the anxiety of potentially transmitting it to others, including patients and loved ones. The shortage of personal protective equipment (PPE) significantly exacerbated this fear, leaving many feeling unprotected and vulnerable. Additionally, encounters with aggressive patients and distressed relatives were a frequent source of emotional strain. Staff expressed deep concern for the well-being of their patients, many of whom experienced isolation during their hospital stays. There was often insufficient time available to provide patients with the emotional support they needed. The emotional toll was further heightened by the high number of deaths, many of which occurred without the presence of family members. Uncertainty and unpredictability in daily operations added to the mental strain, compounded by a lack of access to structured psycho-social support. Many healthcare workers also reported the persistent worry of bringing the emotional and psychological burden of their work into their personal lives.

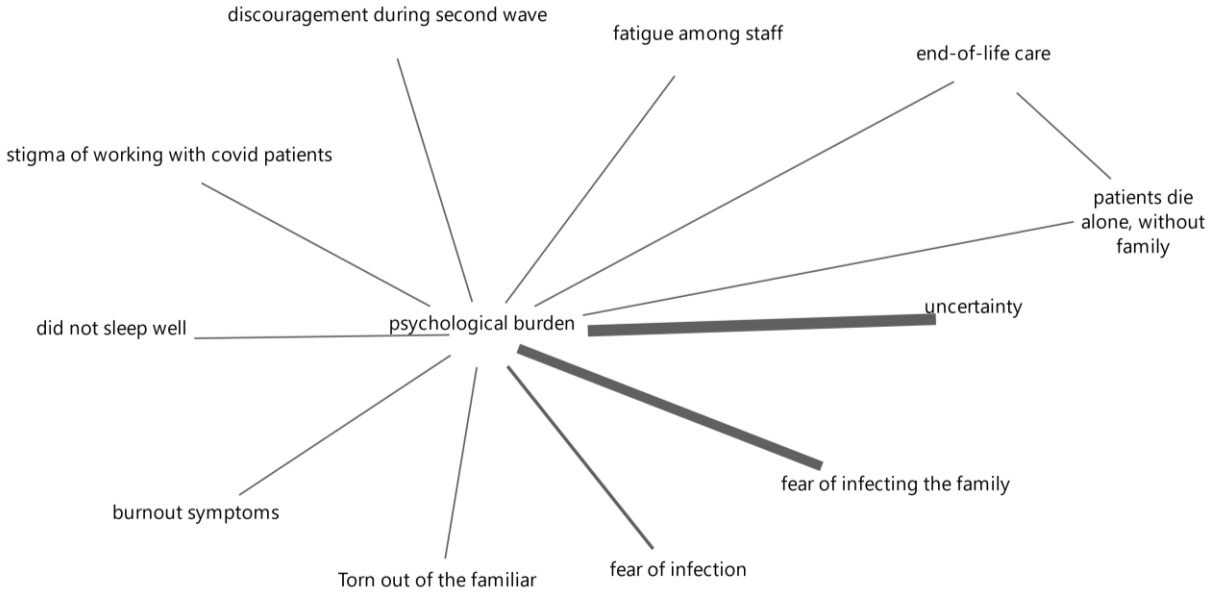


Figure 3 Psychological Burdens during the Pandemic experienced by the interview participants

Lacking organisational support

Many healthcare professionals reported a significant lack of institutional support throughout the pandemic. Chronic understaffing placed considerable strain on individuals, often pushing them to their physical and emotional limits. Resource allocation practices were frequently perceived as unfair or lacking transparency, contributing to feelings of frustration and mistrust. Institutions were often ill-equipped to manage interactions with aggressive or confrontational patients and visitors, as no clear strategies or protocols were in place. Staff highlighted a general absence of guidance, with inadequate instructions, structures, and recommendations, leaving them to navigate complex situations without sufficient support. Communication was inconsistent and lacked routine updates, exacerbating the sense of disorientation. There was a widespread impression that lessons from earlier phases of the pandemic were not being incorporated into ongoing practice and each new wave was met with the same mistakes and last-minute decisions. Additionally, there appeared to be little tolerance for staff illness, with sick leave discouraged or frowned upon. Crucially, many respondents reported a total absence of psychosocial support, despite the high emotional toll of the crisis.

Desired Organisational Support during the Pandemic

Healthcare professionals articulated a clear need for stronger institutional support during the pandemic, pointing to several areas where interventions could have significantly improved their ability to manage the crisis. One of the most frequently expressed desires was for a more thorough evaluation of crisis management processes and decision-making structures. Staff emphasized the importance of learning from past experiences, not only to improve future preparedness but also to integrate these lessons into professional training programs. Many respondents also called for access to external psychosocial support, such as supervision or inter-vision formats, particularly during high-stress phases of the pandemic.

Staff wished for tailored patient management strategies, especially in handling conflict situations or refusals of care, for example among COVID-19 sceptics. A major theme was the need for formal appreciation and recognition, including financial compensation or additional time off for the extra burdens shouldered during the crisis. Suggestions included longer breaks, consecutive rest days, and opportunities for social interaction within the team to support emotional recovery.

Structural issues were also addressed: professionals called for clearer, more stable routines and the standardization of procedures across units and institutions to improve continuity, reduce confusion, and ease transitions for staff. Additionally, there was a strong emphasis on keeping the focus on patient and visitor needs, even during high-pressure periods.

In terms of training and education, participants identified multiple areas for improvement. These included:

- Crisis management knowledge
- Conflict resolution and de-escalation techniques
- Emotional resilience and stress management training integrated into basic healthcare education
- Leadership skills development
- Practical training on hygiene protocols and equipment use
- Tools for team building and effective communication

Beyond training content, structural conditions around education and planning also needed to improve. This included more flexible and employee-friendly scheduling, options for remote work (where applicable), better resource planning, and stronger support from supervisors, including ongoing assessment of team needs and capacities.

Overall, these reflections highlight the importance of not only recognizing the efforts of healthcare professionals but also creating conditions that genuinely support their psychological well-being, teamwork, and ability to provide high-quality care.

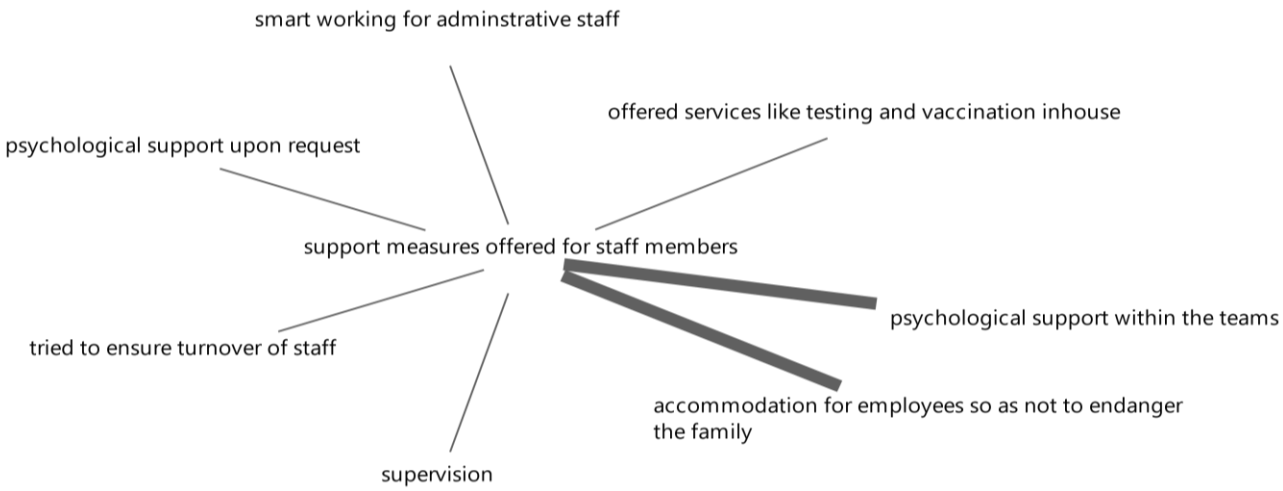


Figure 4 Support Measures offered for staff members in healthcare organisations

Coping Mechanisms and helpful aspects

Healthcare professionals identified a wide range of personal and interpersonal abilities that were essential for coping with the demands of their work during the COVID-19 pandemic. The ability to remain calm in high-stress situations was consistently mentioned, alongside a strong willingness to learn and adapt to rapidly evolving information about the virus. Many professionals emphasized the importance of understanding and applying stress management techniques, particularly in preventing emotional overload and maintaining boundaries between work and personal life. Core resilience traits such as patience, empathy, and emotional stability were seen as indispensable, especially when dealing with aggressive or sceptical patients and visitors. Conflict resolution and de-escalation skills were also highlighted as crucial in maintaining a safe and respectful care environment. Beyond individual emotional competences, team-based skills were equally important: being a reliable team player, possessing strong communication skills, and demonstrating social competence enabled staff to collaborate effectively under pressure. Participants also noted the value of a structured and solution-oriented work approach, the ability to see the bigger picture, and solid time management. Drawing lessons from prior experiences and applying them to new, unpredictable challenges was seen as a hallmark of professional resilience in times of crisis.

The Competence Model

This chapter describes the competences identified as essential for pandemic resilience at both the individual and organisational levels. These categories are grounded in recurring patterns across the interviews, reflecting how healthcare professionals described the difficulties they encountered, the strategies they employed to cope, and the contextual factors that either supported or obstructed their efforts. The resulting framework seeks to translate these lived experiences into practical domains for strengthening resilience in healthcare environments. Notably, our analysis did not uncover significant differences in experiences, challenges, or coping mechanisms based on country or type of facility. This suggests that healthcare workers across diverse national contexts were confronted with similar demands and stressors during the pandemic.

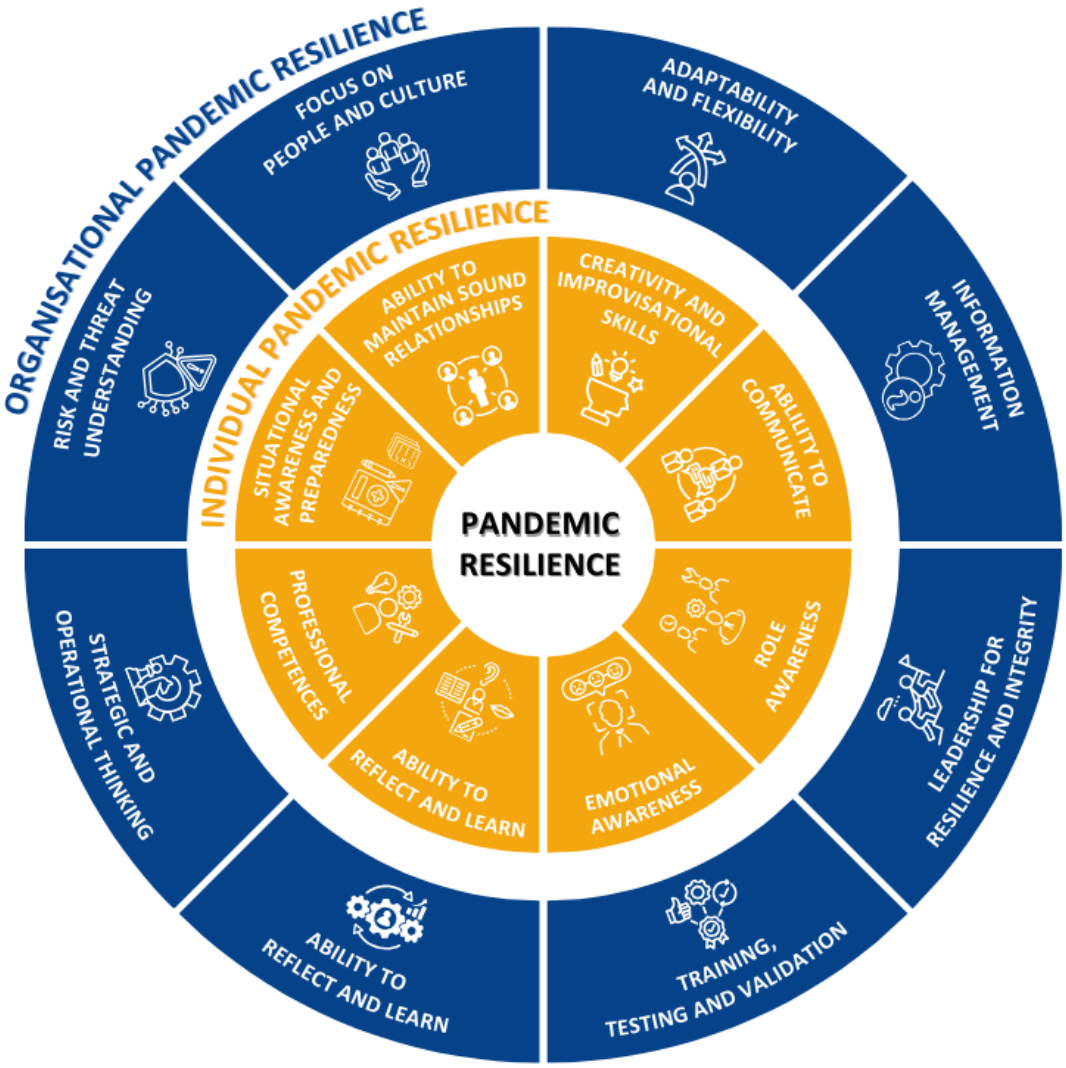


Figure 5 Pandemic Resilience Competence Model

The following section is reproduced from Lorenzoni et al. (2025) as the competence definitions and the corresponding quotes represent the final published version developed during the project and used in the training programme and are therefore used here without modification for reasons of consistency.

Individual Pandemic Resilience Competences

Emotional Awareness

Emotional awareness refers to the ability to recognise, express, understand, and process emotions. Accurately perceiving and regulating emotions enables healthcare workers to better cope with the emotional demands of their job, which can be especially important during a pandemic when they may experience increased stress, anxiety, and fear. Emotional awareness helps to identify and manage stress, which is important to prevent burn-out and maintain an overall mental well-being in high demanding situations like pandemics. High emotional awareness enhances understanding of how emotions impact individual perception and decision-making. Furthermore, it helps in better recognising the needs of colleagues and patients, thereby enabling an effective and compassionate response during a pandemic or in a crisis situation. One interviewed nurse captured this connection between self-awareness and care for others by stating *"And I think it was also good to look after yourself and to do something good for yourself. Because you are there for others a lot in the medical profession, so you still look after yourself and look for little moments of happiness and treat yourself well too".*

Role Awareness

Role awareness means maintaining awareness of one's own competences and scope of practice while also recognising the need for adaptability during a pandemic. In crisis situations, professional and social roles may change rapidly, requiring individuals to quickly understand, learn, and adjust to new professional and social responsibilities within new or evolving team structures. One interviewee reflected *"These challenging moments prompted me to brief young colleagues in critical situations, if possible, before entering the situation, and to actively offer myself as a peer to discuss the situation and offer possible solutions and support".* Role awareness includes adherence to duties, obligations, and codes of conduct defined by occupational standards, legal regulations, and organisational procedures, including any updated protocols and guidelines related to the pandemic.

When encountering situations beyond one's competence or scope of practice, guidance is sought. Ensuring that individuals understand and adapt to their roles facilitates coordination, which is crucial in crisis situations where resources are limited, decisions must be made quickly, and effective teamwork is essential.

Ability to Communicate

The ability to communicate influences both how healthcare workers share their knowledge among each other and how they guide, inform, support and collaborate with their patients and colleagues. *"In hindsight, the most important thing was probably to create a sustainable structure first, to establish good communication, especially with patients, but also with all external partners."*, concluded one interview participant. Another interviewee described*: "Many times I would wait for the night shift to arrive to explain to them why certain measures had to be changed and how it was to be done and the importance of doing it, and I wanted to be the one to pass the message on so that there would be no gaps in the information here, so that everyone would be in agreement"*.

Healthcare workers need to be proactive in managing these interactions, considering the heightened level of anxiety and stress that many individuals experience during a pandemic. This requires adapting communication to the goals, needs, urgency, target group, and sensitivity of each interaction. In addition, conveying information in a purposeful and clear manner is crucial, especially in the context of a pandemic, where there is a high demand for accurate and up-to-date information. This involves effectively managing the dissemination of information and documentation to ensure that all stakeholders have access to the information they need. Effective communication entails more than the mere exchange of information; it encompasses essential emotional and psychosocial dimensions.

Creativity and Improvisational Skills

Creativity and improvisational skills refer to the ability to use available resources and knowledge in new and innovative ways to address the challenges of providing best possible care during a pandemic. Healthcare workers may need to develop new and innovative strategies to provide care, protect themselves and their patients. One of the medical doctors described *"What was absolutely crucial for me was the courage - or perhaps the desperation - to abandon all standard procedures and improvise"*. Creative thinking can lead to the development of new medical interventions, technologies, and protocols that can help to mitigate the impact of the pandemic on patients and healthcare workers alike. Additionally, improvisational skills are essential in adapting healthcare services to rapidly changing circumstances during a pandemic.

Ability to Maintain Sound Relationships

The ability to maintain sound relationships refers to the capacity to foster positive relationships based on psychological safety, well-being, openness, trust, and support. Especially during a pandemic, when healthcare workers face increased stress and pressure, it is important to prioritise good relationships and team cohesion. One interviewee emphasised the key role of direct supervisors in this regard: *"The ward managers are the ones who have the most influence, who give structure and security. Because it's the ones who stand there, the ones who are tangible, who comfort people, build them up, motivate them, give them support"*. Creating a sense of community and support is essential to maintain well-being and cope with the demands of the job. This includes maintaining open and transparent communication, showing empathy and sharing emotions. The ability to maintain sound relations is essential in promoting trust, confidence, and cooperation, which can help to mitigate the mental impact of pandemics. Beyond the workplace, seeking support from friends and family can also be beneficial for mental health. Most interviewees described their families and friends as most important support network during the challenging times of the pandemic.

Situational Awareness and Preparedness

Situational awareness is the ability to perceive, comprehend, and anticipate the situation. It includes understanding the potential risks and being able to make informed decisions based on this. The healthcare setting is complex and constantly changing, and the circumstances of a pandemic further exacerbate this dynamic. Recognising and comprehending the situation is critical to anticipate changes and deliver best possible care under pandemic circumstances. Pandemic preparedness refers to measures taken to prepare for and reduce the effects of pandemics. This includes predicting and preventing the spread of pandemics, mitigating their impact on vulnerable populations, and effectively managing their consequences. It involves developing pandemic plans, training healthcare personnel, educating communities, and regularly monitoring and evaluating preparedness measures. The feeling of being well prepared and being able to assess the situation was described as helpful: *"I think it was good to have prior experience that you had already dealt with illnesses that you have to isolate like MRSA or something like that, so you could already do that and also the protective measures and the targeted training that you have every year in advance were beneficial".*

Professional Competence

Professional competence helps to remain calm and focused, also in the face of a pandemic. Being confident in one's professional abilities and having the skills and knowledge to handle difficult situations, helps to manage the challenges that arise during a crisis like a pandemic. One interviewee summarised *"After 25 years in service you simply have a portfolio that you can also draw on in crisis situations".*

Ability to Reflect and Learn

The ability to reflect and learn refers to a continuous process of simultaneous real-time adaption and systematic post crisis evaluation. Taking time to ponder what happened, and critically assessing what went well, and what could have been performed differently is essential not only in the aftermath of a pandemic but also throughout its course. Based on these adaptations and improvements for preparedness and response to future pandemics can be made. To effectively reflect and learn, one must create room for having a reflexive mindset, taking a step back, and ask and discuss critical and relevant questions. Through capturing and utilising all the elements from past experiences, one can continually improve resilience, and the services delivered in the next pandemic or crisis. However, finding the time on a regular basis becomes often challenging, as one interviewee observed, *"I think the management staff would have needed training as well. It seems to me that when you're young, you go through a lot of training. And then at some point, you're in a leadership position and no longer receive regular training - especially not in how to handle a crisis situation".* Another participant highlighted the challenge of sustaining reflective practices in the face of operational pressures: "It would be important for all those involved in pandemic management to sit down together and work through what happened, but then you know, it always gets lost in the day-to-day business".

Organisational Pandemic Resilience Competences

Risk and Threat Understanding

Risk and threat understanding involves culture, processes and structures that are established to understand and effectively manage pandemics in the primary healthcare sector and to reduce risks to patients, staff, suppliers, the wider public, and the organisation to an acceptable level. This includes the ability to develop ongoing situational awareness and to conduct appropriate cost–benefit analyses of risk reduction strategies. As one nurse reflected, *"There were areas, though, where I felt that things could have been handled differently. For example, we would wear PPE at work, but then we would still commute home on crowded buses. Additionally, if we cared for a COVID-19 patient, we would then go back to caring for other patients who didn't have COVID-19. We didn't have enough staff to isolate those who had been exposed to the virus".* This highlights how gaps in systemic planning and resource allocation can undermine risk management strategies, emphasising the need for integrated approaches.

Strategic and Operational Thinking

Strategic and operational thinking encompasses a full understanding of how the organisation is running and governing during a pandemic. This includes preparedness and operational adaptations, in line with relevant health protocols, to meet the needs of patients and to protect healthcare workers, suppliers and the wider public. As an example, one interviewee explained *"During the pandemic, most organisations were short of staff […] because so many people were out of work. But I don't think we had that in my place of work. Whenever anybody called in sick with COVID or any other medical condition, there was always provisions for a replacement".* It requires demonstrable evidence that the organisation is not complacent, fully compliant and proactive in minimising the spectrum of risks that arise from a pandemic.

Leadership for Resilience and Integrity

Leadership for resilience and integrity focuses on responding quickly, appropriately and in line with public health protocols to the pandemic threat, demonstrating competent decision-making and accountability across organisational structures. Implementing a response based upon a culture of trust, transparency, empathy and innovation capability that allows the organisation to continue functioning efficiently and to meet its obligations towards its patients, staff, suppliers and the wider public. One leader described his personal approach to being visibly present and accessible during the early phase of the pandemic: *"So in the first wave in particular, where the issue of fear and*

uncertainty was very strong, I was in the building every day for 46 or 47 days in a row. I went through all the wards every day and it was very, very important to me that I was close to the staff and accessible to them".

At the same time, other participants expressed a desire for more supportive and empathetic leadership under extreme conditions. One interviewee reflected *"I would have liked a little more understanding. We've endured things that you can't actually endure".*

Information Management

Information management refers to the ability to continue to manage information—physical, digital and intellectual property—according to the standard protocol, whilst ensuring the timely and authoritative sharing of pandemic related information. This includes being trusted to safeguard sensitive information whilst meeting necessary reporting requirements. This requires the adoption of information security—minded and dynamic practices that allow stakeholders to gather, store, access, share and use authoritative information securely, effectively and in a timely manner.

The interviewees described different ways in which fast and reliable information management was handled in their organisation. E-mails, employee apps, notice boards, intranet, and face-to-face exchanges at handover meetings were frequently cited examples. Provision via different channels was seen as particularly important: *"The COVID Taskforce meetings resulted in a protocol that was forwarded. And then we repeatedly summarised so-called Infonews in paper form and sent it to all employees, via the mailboxes and also via the internet, so that there were various sources for passing on information".*

Adaptability and Flexibility

This competence implies the ability of organisations to successfully handle changing circumstances, that may range from minor to disruptive eventualities, whilst minimising, as much as possible, adverse impacts on core operations. This means that managers must also be able to adapt to the challenges of a crisis. However, this is not always so easy, as one interviewee described *"At that moment, it was possible to determine quite quickly who was suitable for crisis management and who was not. [...] Crisis means that you no longer have control or have limited control. And there are people who can deal with it better. And there are people who are less good at it".*

Focus on People and Culture

A focus on people and cultures includes how the organisation supports staff and ensures individual preparedness while maintaining safe work environments. One interviewee, who worked in a nursing home, summarised it *"A good response to a pandemic from an organisation is […] prioritizing the welfare of both the people we support and staff members at the time of the pandemic".* This also includes how healthcare workers interact with patients and their families, and how the organisation is perceived to interact with relevant authorities, its supply chain partners, and the wider public during the pandemic. Some interviewees were supported by their employers were supported by their employer with temporary accommodation to prevent possible infection of their families. Consequently, the organisation understands that it will be judged by the personal experience individuals have with it during the pandemic. Yet several participants described feeling a lack of support, particularly for staff well-being. As one stated *"If we go to our boss and say we need supervision, we always get no for an answer".*

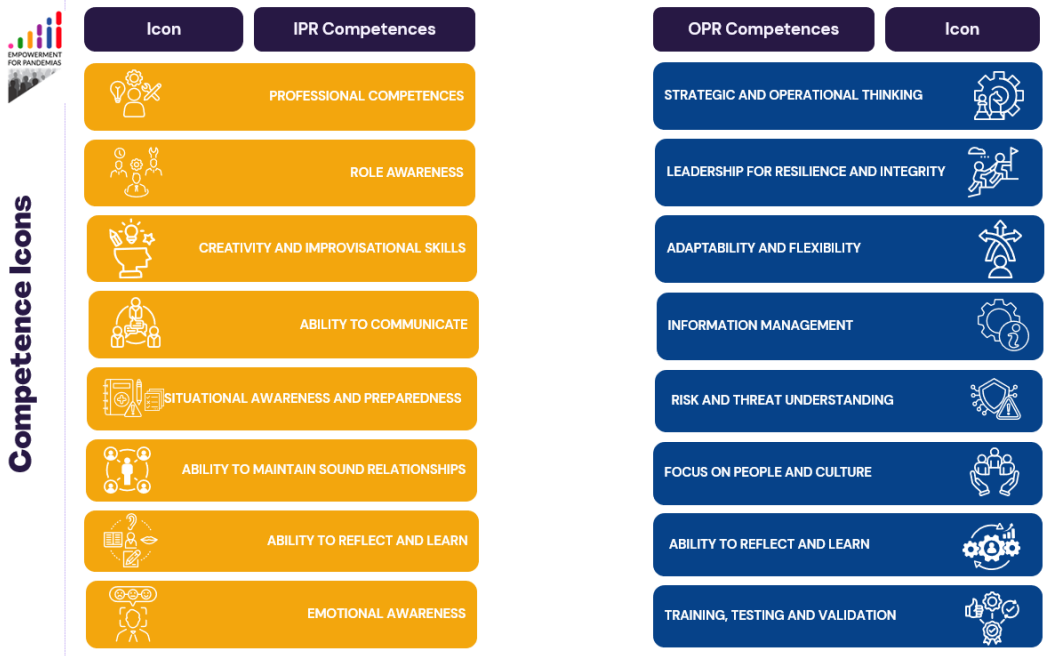
Training, Testing, and Validation

This competence implies the examination of a pandemic plan that addresses multiple components, in conjunction with each other, typically under simulated operating conditions. This involves the following: (i) an analytical methodology which considers concurrent and contextual review of multiple metrics, to provide a more complete picture regarding the pandemic plan; (ii) regular exercises and testing conducted on multiple interrelated components of the pandemic plan, typically under simulated operating conditions to ensure workability and role understanding across the workforce; (iii) testing and training should extend beyond regular plan assessments to include the testing and training of other institutional resilience segments. One nurse described the importance and the resulting confidence of regular trainings *"The most important aspect during the pandemic was infection control. I had previous training in infection control […] and it was mandatory for everyone to stay up-to-date. This knowledge proved invaluable during the pandemic because I knew the appropriate measures to take for every patient. […] Having received prior training, applying it during the pandemic, and benefiting from ongoing support by the infection control team all played a crucial role in my ability to handle the situation".*

Ability to Reflect and Learn

The ability to reflect and learn in an organisational context is based on four core capabilities: (i) Adaptive Capacity: reflecting the ability to react to emerging, immediate and sustained pandemic situations; (ii) Horizon Scanning: the ability to examine information to identify approaching changes, including threats and opportunities; (iii) Innovation: an organisation's ability to be innovative during a pandemic and on retrospection; and (iv) Learning Capacity: drawing and learning from conclusions for forward planning However, participants described major obstacles to fully realising these capabilities in practice. As one interviewee put it, *"What I should actually be doing is dealing with the aftermath of the last crisis, but we don't have the time. Neither we in management nor the employees at the grassroots level. And that leads to this accumulated stress"*. Another emphasised the importance of institutionalising learning for the future*: "And if possible, take the experiences you have had with you, write them down and take the time for pandemic plans too - who knows, maybe in 5–10 years you will need them again"*. These reflections show how structural constraints, such as time pressure and staff shortages, can hinder both immediate and long-term learning processes within healthcare organisations.

To support better recall and recognition, we selected specific symbols for each of the competencies. These visual elements help to make the content more accessible and easier to remember. For future use in the training programme, we developed different versions of the icons and graphics to allow for flexible application in various formats and settings.



Conclusion

The resilience competence model presented here offers a foundational structure for enhancing both the adaptive capacities of healthcare professionals and the operational robustness of healthcare institutions. In high-pressure settings like healthcare, where psychological stress and systemic strain are commonplace, cultivating resilience-related skills is crucial for safeguarding individual mental health and ensuring the long-term viability of organisations. By integrating the interdependent dimensions of personal and institutional competences needed for effective crisis response, the model delivers a holistic strategy for addressing the complex demands of pandemics and other large-scale disruptions. In addition to its conceptual value, the model provides practical guidance for developing training initiatives, supporting organisational transformation, and shaping policies that promote resilient healthcare systems.

Within the project, this model served as the foundation for all subsequent tools and outputs. It informed the development of the resilience assessment tools, guided the design of the training programme, and provided the conceptual backbone for the transfer manual. These outcomes build directly on the model's framework, ensuring coherence and alignment across all project components aimed at strengthening resilience in healthcare.

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Annex:

Interviewguides and Informed Consent Forms in English (both documents were also made available in the respective national language to give the interview participants the opportunity to speak in their mother tongue)

Name and contact information of person in charge

Participant Information

for the project

Empowerment for Pandemias - Learning from CoVid19

Erasmus+ Program (Empowerment for Pandemias 2021-2-AT01-KA220-VET-000004992)

Dear participant,

Thank you for your interest in taking part in our study! Below you can read the information about the study to help you to decide whether you are willing to participate.

1. Basic Information

The pandemic has shown the importance of the functioning of primary and secondary care as well as home and community care. Based on the learnings of Covid-19 this project intends to define competences that strengthen the individual and organisational resilience first, and second, to operationalize them into innovative learning experiences. The main objective of this project is to pilot a blended learning training to enhance resilience skills of professionals and decision makers in the health care to strenghten the individual and organisational resilience to better cope with pandemic crisis.

2. Research Method

For the identification of relevant competences the project team will conduct interviews with professionals and end-users of the training in the health care. The interview will last about 45 minutes. The interviews will be recorded by video and/or audio tape. In a next step the interviews will be transcribed anonymously. The video and/or audio tape will be destroyed immediately after the creation of the transcripts. The text of the analysis will be analysed using the qualitative method GABEK®WinRelan® (GAnzheitliche BEwältigung von Komplexität; Holistic Handling of Complexity). We also ask our participants to provide some basic sociodemographic information. Collected socio-demographic data are reduced to a minimum of a “need to use basis” and will include data, such as age, sex, work experience in years, educational degree, profession and field of work, type of organisation and country.

3. Structure of the study

The duration of the project will be 32 months starting on April 1st, 2022. The five partners of the project comprise three (applied) universities, one research centre and two small sized enterprises from Austria, England, Germany, Italy and Portugal.

4. Risks and preventive measures

Participation in the study does not involve any risks to the participants. All recording methods are non-invasive and do not involve any physical stress of risk to the participants. Participation in the study is voluntary. Participants have the right to withdraw from the study at any point without stating reasons. This does not lead to any disadvantages.

5. Confidentiality

The video and/or audio tape will be destroyed immediately after the creation of the transcripts. The interview transcripts will be kept until the end of the study. Access to the data is available only to the people working on the project, who are obliged to maintain confidentiality. Publications of the results - for example in journals - will not include data about individual participants, only compressed results on a group level are getting published. Thus, confidentiality is completely guaranteed.

Please do not hesitate to contact us if you have further questions about the study.

UMIT TIROL
DIE TIROLER PRIVATUNIVERSITÄT

Co-funded by the European Union

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INFORMED CONSENT FORM

for the project

Empowerment for Pandemias - Learning from CoVid19

Erasmus+ Program (Empowerment for Pandemias 2021-2-AT01-KA220-VET-000004992)

Overall Project Coordinator: Dr. Margit Raich, Tiroler Privatuniversität UMIT TIROL, Eduard Wallnöfer Zentrum 1, 6060 Hall in Tirol, Phone: +43(0)508648 3909, E-Mail: margit.raich@umit-tirol.at

I hereby declare that I have read the information sheet, and thus received enough information about this study and understood the meaning behind the information.

I am aware that my participation in this study is entirely voluntary and that I can end my participation at any time without stating reasons and without any disadvantage to me of any kind.

The video and/or audio tape will be destroyed immediately after the creation of the transcripts. The interview transcripts will be kept until the end of the study. Access to the data is available only to the people working on the project, who are obliged to maintain confidentiality. Publications of the results - for example in journals - will not include data about individual participants, only compressed results on a group level are getting published. Thus, confidentiality is completely guaranteed.

My personal data will remain anonymous and will be coded. My personal data will be treated with strict confidentiality. I understand the reasons for which these data are collected, treated and used in this study.

I voluntarily agree to take part in this study and to satisfy the conditions as they are described in the Participant Information.

Place and date: _____

Participant's name: _____

Signature of participant: _____

Part reserved for the study leader

I, name, hereby confirm that I have informed the above participant about the objectives, the nature, the duration and the risks of this study and confirm that he/she has agreed to take part in this study.

Place and date: _____

Signature: _____

Interview Guide

Individual Resilience

Thank you for finding the time and helping our study with this interview today. For about 45 minutes, I would now like to understand what challenges you personally faced during the Covid-19 pandemic in your professional role and what helped you to cope with them. I will now start the recording of this interview if this is ok for you. Is there anything that is not clear to you or that you would like to ask beforehand?

1. **General Questions about function and responsibilities**

- What is your function and what are your responsibilities in your organisation?
- Since when are you in this position?

2. **Question experiences start phase of CoVid19**

- Please remember back to the start of the pandemic CoVid19 crisis in 2020.
  Can you please give me a brief description of how you experienced the pandemic personally at your workplace.

3. **Questions regarding working routines and challenges of CoVid19 in 2020 / 2021**

- With which challenges you were confronted at the start phase of CoVid19?
- Which ones were the most challenging ones you were faced during this time and how did you deal with them?
- How did your daily work routine changed due to the CoVid19 regulations and how did you to adjust your daily working routines during the time period 2020/2021 of the pandemic? What worked well and what worked not so well?
- Are you aware of any good practice in that context? What would have been most helpful from your point of view?

4. **Questions regarding patient care during CoVid19 in 2020 / 2021**

- What were the most serious concerns of your patients between 2020 and 2021 of the pandemic?
- What were your biggest concerns whilst dealing with patients?

5. **Questions related to organisational support**

- In your opinion, how has your organisation coped with the pandemic so far?
- Which kind of support did you get from your organisation during the start phase of CoVid19? Could you please specify? Was the support by your organisation helpful to you and in which way?
- Which kind of further support would you have wished for by your organisation?
- Which kind of support did you get from your directly assigned supervisor / leader during the start phase of CoVid19? Could you please specify? Was the support by her/him helpful to you and in which way?

- Which kind of further support would you have wished for by your supervisor / leader?

6. Questions related to <u>individual skills and stress</u>

- To what extent and how were your experiences before the pandemic useful to cope with the challenges brought by the pandemic?
- According to you, what are the most important skills for persons in your professional role in general to cope with challenging situations due to a pandemic?
- Which one of those skills did you make use of to cope with the challenges you described earlier?
- What were your biggest sources of stress for you during the pandemic?
- Which kind of measures did you take to reduce the stress?
- Which skills do you think you would be needed in getting trained to deal with this type of situations in the future?

7. Questions regarding <u>individual learning</u>

- Which lessons did you learn from this CoVid19 experience as a person in your professional role?
- Which ones would be useful to implement in healthcare services? How could they be implemented?
- Have you had any training of how to deal with crisis similar to the CoVid19 pandemic? If yes, how useful was the training?
- Which kind of training could be useful for individuals and organisations to deal with a pandemic in an adequate way?

8. <u>Final Questions</u>

- In conclusion, is there anything else you would like to add?
- Is there anything else important you have not been mentioned yet?

Thank you very much for the interview!

Socio-Demographic Data

Profession:	
Age:	
Sex:	female □ male □ non-binary □
Years of professional experience in HC:	
Education (highest degree):	
Leading position with staff responsibility:	yes □ no □
How many people do you lead? (number of leading staff members)	
Type* of the organisation:	
Size** of the organisation:	Number:
Location of the organisation:	urban □ rural □
Country:	

* As defined in our 1st transnational meeting in June 2022:

- inpatient organisations: Hospitals, care homes, rehabilitation facilities, palliative care, hospices.
- transit organisations: Emergency services (e.g. Red Cross, Johanniter, Malteser, etc.) but they must have direct patient contact.

** Size of the organisation by listening the number of the whole number of employees.

Interview Guide

Organisational Resilience

Thank you for finding the time and helping our study with this interview today. For about 45 minutes, I would now like to understand what challenges your organisation faced during the Covid-19 pandemic and what helped the organisation to cope with them. I will now start the recording of this interview if this is ok for you. Is there anything that is not clear to you or that you would like to ask beforehand?

1. General Questions about function and responsibilities

- What is your function and what are your responsibilities in your organisation?
- Since when are you in this position?

2. Questions regarding challenges in of CoVid19 in 2020/2021

- Please remember back to the start of the pandemic CoVid19 crisis in 2020.
  Can you please give me a brief description of how you experienced the pandemic personally?
- What impact did the pandemic have for your organisation? (what happened, the extent, people affected, etc.)
- With which kind of challenges were you confronted as organisation in the start phase?
- Which factors influenced your organisations' processes and workflows during the pandemic most?
- How did your organisation change processes and workflows to adapt to the pandemic?
- On the one hand, what hindered you as organisation to adapt during CoVid19 during the start phase and on the other hand, what supported you?

3. Questions regarding preparedness and risk management

- In your opinion, how was your organisation prepared for a crisis like the CoVid19-pandemic? E.g., did your organisation have a pandemic plan or other types of business continuity plans? If yes, how useful were the plans?
- Which industry standards does your organisation follow? (for example management systems such as ISO, etc.). How did these standards support/hinder you in coping with the CoVid19 crisis?
- Prior to the pandemic, has your organisation used any risk assessment tool? To which extent was it useful? Has your organisation changed it since the outbreak of the pandemic?

4. Questions regarding people management

- How was the staff responding to the decisions that your organisation has taken during the pandemic? Please describe different groups of staff (care staff, medical staff, administrative staff…)
- Which measures were undertaken by your organisation to support the staff members to fulfill their daily tasks? Please describe the measures for different groups of staff (care staff, medical staff, administrative staff…)

- Which organisational measures were set up to create a safe workplace environment for the employees during the pandemic? Please describe the measures for different groups of staff (care staff, medical staff, administrative staff…)

5. Questions regarding <u>patient management</u>

- Which measures helped your organisation to provide the services needed by your patients?
- How did patients respond to the decisions that you have taken during the pandemic?

6. Questions related to <u>structures, processes and decision making</u>

- How was the decision process organised and how it was worked in the start phase of CoVid19?
- What were the main barriers in decision making during different phases of CoVid19?
- How did you change your response to take decisions during CoVid19?
- How did your working relationships have changed during the pandemic? (Internal (Staff/Units) and with external stakeholders (e.g. suppliers, authorities)
- What and who supported you personally when you had to make tough decisions regarding the CoVid19 situation?
- What measures did you take to maintain a good public image during the pandemic?

7. Questions regarding <u>learnings</u>

- What are the most important lessons you have and your organisation has learned?
- What most important changes have you introduced and/or would you like to introduce as a result of learning from the pandemic?
- In your view, what does a good organisational pandemic response look like?

8. <u>Questions on resilience</u>

- What is important from your point of view to keep/to make your organisation more resilient?
- Would you and your organisation be interested in being able to **assess** your resilience?
- Would you and your organisation be interested in getting **support** on resilience? What could be useful for you?

9. <u>Final Questions</u>

- In conclusion, is there anything else you would like to add?
- Is there anything else important you have not been mentioned yet?

Thank you very much for the interview!

Socio-Demographic Data

Profession:	
Age:	
Sex:	female □ male □ non-binary □
Years of professional experience in HC:	
Education (highest degree):	
Leading position with staff responsibility:	yes □ no □
How many people do you lead? (number of leading staff members)	
Type* of the organisation:	
Size** of the organisation:	
Location of the organisation:	urban □ rural □
Country:	

* As defined in our 1st transnational meeting in June 2022:

- inpatient organisations: Hospitals, care homes, rehabilitation facilities, palliative care, hospices.
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** Size of the organization by listening the number of the whole number of employees.