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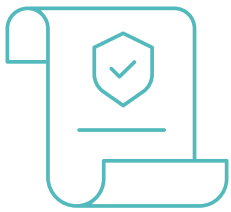

Addressing Vulnerability and Promoting Resilience in Social-Ecological Systems: A case study comparative analysis of the COVID-19 Pandemic throughout Europe

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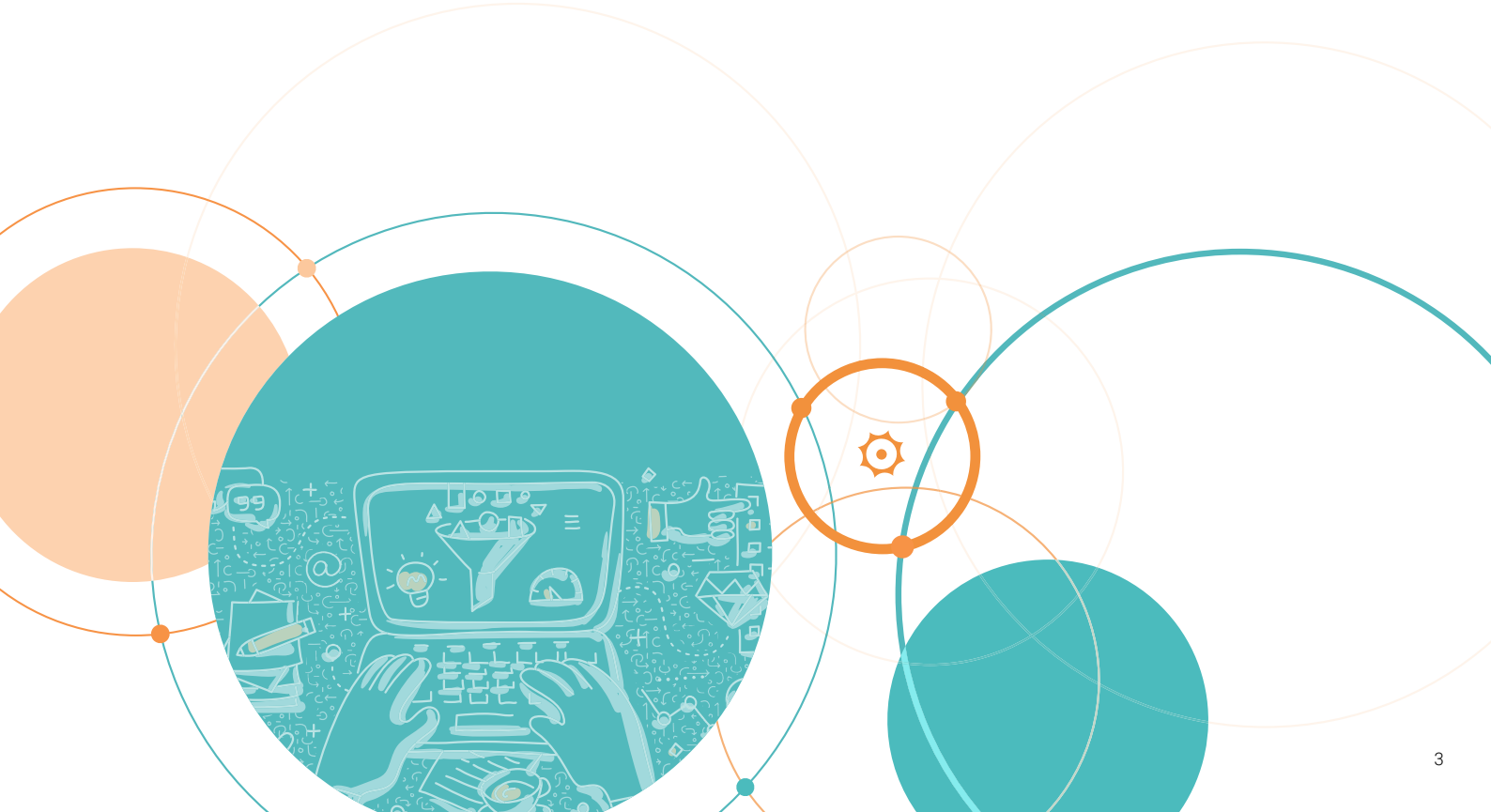
Table of Contents



Executive Summary

The COVID-19 pandemic emerged as a syndemic event, with its severity and impact disproportionately affecting vulnerable populations facing intersecting vulnerabilities. The COVINFORM project adopted a Social-Ecological Systems (SES) framework to delve deeper into the pandemic's impact on different vulnerable groups, with an emphasis on vulnerability and resilience.

The findings of the nine case studies conducted across Europe highlighted the interplay of diverse features, revealing how the factors contributing to imbalances during a pandemic are mainly those that exist before its occurrence. They reveal how the pandemic affected physical, mental, social, and economic dimensions of well-being, while also underscoring the importance of subjective experiences and interpersonal relationships in building community resilience.

Considering these findings, recommendations focus on enhancing resilience and reducing disparities through better social infrastructure, resource allocation, reinforced (mental) health services, social policies, and literacy programs. Moreover, promoting effective risk communication strategies and bridging the gap between knowledge and action is crucial, and communication should be tailored to ensure effectiveness. Ultimately, reducing risks and fostering resilience in vulnerable communities require a nuanced understanding of their unique needs and behaviors, since some factors and behaviors that exacerbate vulnerability in some contexts are the very same ones that enhance resilience in others. Tailored policies and communication strategies should be based on this deeper understanding, recognizing that there is no one-size-fits-all approach to promoting resilience in diverse populations, communities, social and professional groups or, in a nutshell, social-ecological systems.

Introduction

The COVID-19 pandemic rapidly emerged as a syndemic event, with adverse health interactions resulting from social and economic disparities. Early evidence revealed COVID-19 severity and mortality concentrating among populations experiencing intersecting vulnerabilities like old age, chronic illness, poverty, crowded housing, and occupational risks (Courtin & Vineis, 2021; McGowan & Bambra, 2022). This reflects the syndemic nature of the pandemic, as biological and socioecological determinants interact to shape differentiated outcomes (Singer, 2009).

The COVINFORM project has this syndemic approach as the theoretical basis but intends to go beyond it. The characterization of COVID-19 as a syndemic is the starting point for a more specific analysis of how different groups were impacted and adapted to the COVID-19 pandemic, with a special focus on vulnerability and resilience (i.e., the capacity to withstand, successfully adapt or recover from challenging life experiences). For this purpose, COVINFORM adopts a more specific, contextualized, and intertwined definition of vulnerable groups.

To study the vulnerability and resilience critical factors that shaped the pandemic experiences of different groups, there is the need to adopt a complex systems perspective (Hynes, Lees & Muller, 2020) and define the system being studied. For that, COVINFORM applied the Social-ecological System (SES) framework (McGinnis & Ostrom, 2014; Ostrom, 2007) which allows for the recognition of complex linkages and feedback loops between entities. It enables us to organize analyses of how attributes of a resource system, the resource units generated by that system, the users of that system, and the governance system jointly affect and are indirectly affected by interactions and resulting outcomes achieved at a certain time and place, while also enabling us to organize how these attributes may affect and be affected by the larger socioeconomic, political, and ecological settings (Ostrom, 2007). Therefore, the SES approach allows us to conceptualize how multi-layered biological, social, economic, and political variables interact, leading to cascading COVID-19 disruptions. In this sense, we are interested in understanding how disruptions like COVID-19 permeate and ripple unevenly through the nested systems of certain vulnerable populations.

Having this approach in mind, the COVINFORM project conducts comparative case study research evaluating COVID-19 impacts on vulnerable communities across Europe and the way these communities were able to adapt and be resilient, while aiming to identify key determinants shaping differentiated pandemic experiences. The goal is synthesizing the main findings and lessons learned to inform policies bolstering resilience and mitigating future pandemic impacts on vulnerable groups.

Studying Social-ecological Systems: Research and Analysis

Via the COVINFORM Project, the SES framework guided assessment of how pre-existing disparities increased COVID-19 risks and adverse outcomes among vulnerable populations as well as what were their resilience factors. Each of the 9 case studies of the COVINFORM project focused on specific groups made vulnerable by the pandemic, including healthcare workers, migrants, ethnic minorities, women in socially assisted housing who were formerly homeless, elderly residents of long-term care facilities, and economically disadvantaged communities. The case studies were conducted in Austria, Belgium, England, Germany/ Sweden, Greece, Italy, Portugal, Spain, and Wales (see Figure 1, Box 1).

Box 1. COVINFORM Case Studies Settings

1) Austria – The role of a socially assisted housing institution for homeless women in mitigating the risks of COVID-19.

2) Belgium – COVID-19 pandemic impacts on the mental health and wellbeing of migrant community members.

3) England – Pandemic communication practices within minority "hard-to-reach communities".

4) Germany & Sweden – Information-seeking and communication behaviours of ethnic minorities in socially and economically vulnerable neighbourhoods.

5) Greece – The COVID-19 impact on the role of Law Enforcement Agents and its effect on perception, social interaction and measure compliance, communication, and trust of minority populations.

6) Italy – Consequences of the Covid-19 pandemic on physical and mental wellbeing of Italian health care workers.

7) Portugal – Resilience in long term care facilities of different socio-economic status: COVID-19 structural and psychosocial impacts on elderly residents.

8) Spain – The experience of COVID-19 amongst migrants of Latin American and Moroccan origin.

9) Wales – The effects of pandemic policies and protective measures in the healthcare setting on migrant nurses with a Black, Asian, and Minority Ethnic (BAME) background.

Figure 1. Map of the COVINFORM Case Studies.

As we were aiming to go beyond the syndemic approach, we were not simply interested in understanding the impacts of the pandemic at the physical health level, but more in understanding the subjective experience of these vulnerable populations. The subjective evaluation they make of their personal and shared experiences, the most relevant factors of their systems, the respective perceived impacts, and how these individuals perceive this complex interaction of variables – these constituted our main focus. In this sense, a mixed methods approach was used to collect quantitative and qualitative data to assess vulnerability and resilience through a few objective indicators and, most importantly, through the personal reports of the participants. Comparative analysis of the cases studies elucidated emergent system behaviors influencing community resilience.

The case studies revealed adaptation and resilience to be complex processes in the sense that groups that are apparently similar, often showcase different strategies and mechanisms, depending on a variety of factors. One aspect of a system can be a resilience factor in one context and a risk factor in another – it all depends on the characteristics of the system. For example, socially assisted housing institutions are contexts with adverse conditions that usually put a lot of strains on its inhabitants, especially during a pandemic, but for women that had a prior homeless experience, the opportunity of permanent shelter represented an essential stress release mechanism that outweighed the negative effects of lockdowns and isolation, since aspects such as security, safety and acceptance are valued higher. Living in a long-term elderly care facility during the COVID-19 pandemic increased perceived negative impacts and vulnerability for individuals who had a positive prior experience (e.g., living well in their own homes, having frequent contact with their families and having a lot of autonomy), but it represented a resilience factor for elderly that had negative prior experiences since they felt more protected, more supported and less lonely living in the LTCF, having gained a new family among their social relations inside the LTCF.

In general, and as the literature predicts, we find that vulnerable groups find strategies to adapt psychologically, to cope, to control damage and lessen the negative impacts. When looking at the general population, as a whole, we see that there is usually some form of resilience and, regardless of the strategy adopted (e.g., there can be resilience even under wrong belief systems), there is a general tendency for adaptation. For instance, many people changed their visions about COVID-19 over time. While at the beginning of the pandemic there was a general acceptance of the lockdown, with the continuity of the restrictive measures and all the economic and work demands people faced, we began seeing diversified reactions, with people embracing beliefs about the pandemic that allow them to cope and adapt better (e.g., front line workers that had to develop strategies to keep going to work or returning to work without feeling fear all the time).

However, when cumulative risk factors and vulnerability levels are present, this task becomes more difficult and the strategies that people find or develop are often not enough to prevent the negative impacts and the exacerbation of pre-existent vulnerabilities. The case studies revealed interconnected social, economic, political, and environmental factors that amplified pandemic impacts on physical, mental, social, and economic well-being. Key themes include heightened stress, anxiety, and burnout among healthcare workers; struggles with social isolation, loneliness, and deteriorating mental health among minority groups; digital divides exacerbating inequalities; loss of income and precarity due to pandemic restrictions; inadequate housing conditions increasing contagion risks; and complex dynamics of trust and mistrust towards government messaging.

More specifically, the main findings were:

- **Timeline of impact:** Initial lockdowns caused maximum disruption, but later phases also revealed persistent issues like ongoing mental health challenges and economic instability.

- **Health inequities:** Racial and ethnic minorities experienced disproportionate COVID-19 mortality due to higher rates of underlying medical conditions stemming from barriers to healthcare access and preventive resources.

- **Mental health:** Almost universally, mental health was adversely affected as a result of a heightened demand for assistance coupled with a diminished supply of resources. Healthcare

workers faced stress and burnout, while migrants and minorities suffered from social isolation and discrimination. The significance of green areas, the natural environment and community support for both mental and physical well-being became more apparent.

- **Economic marginalization:** Low-wage essential workers faced occupational COVID-19 risks but lacked paid leave or job flexibility to isolate when sick. Pandemic job losses were concentrated among minorities and the poor. As a result, many groups, especially those in gig economy jobs, faced economic hardships, including income loss and housing issues.

- **Housing conditions:** Lower-income groups faced elevated transmission risks from crowded, multi-generational housing lacking space to quarantine. Homelessness multiplied risks.

- **Digital divide:** Inequalities in access to digital information and resources affected especially migrants and minority groups. Limited internet access and technology curtailed telehealth and remote education options most needed by disadvantaged communities during lockdowns.

- **Trust gaps:** The were varying levels of trust in governmental institutions and communication effectiveness across different countries and communities. When present, distrust of public health guidance and vaccines hindered mitigation among marginalized groups with historical mistreatment by medical systems.

- **Fragmented communication structures:** Communication was often fragmented and with contradictory messages; the start of pandemic was a time of great uncertainty which made communication more difficult. Communication was not sufficiently adapted to the most vulnerable groups of society.

- **Social capital:** Interpersonal relationships were strengthened due to closer proximity and emergent needs of the vulnerable communities, which resulted in positive outcomes for many individuals and a more efficient functioning of social groups. Bonding, a shared sense of belonging, trust, reciprocity, cooperation, and comprehension – fostered by shared experiences, values, and goals – were essential resilience factors in many cases.

In sum, the case studies comparative analysis highlighted how pre-existing structural disparities synergistically concentrated risks among specific vulnerable communities when the pandemic emerged, which means that the most severe impacts manifested at the intersection of multiple layers of disadvantage. Therefore, aside from the specific adjustments made within a pandemic context, such as creating customized risk communication strategies, what holds greater significance is the implementation of supportive measures, such as expanding mental health networks. This bolstering of measures during periods of normal societal functioning is the only way to prevent a pandemic from exacerbating pre-existent vulnerabilities and creating new ones, which means efforts should be made to enhance protective factors and promote resilience.

Recommendations

Applying a syndemic lens and a social-ecological system framework reveals how disparities become embedded via reinforcing mechanisms, which means that responding effectively to the COVID-19 syndemic – as well as future syndemics – requires policy and interventions not only targeting biological disease factors, but also underlying structural disparities driving unequal outcomes.

To promote resilience, social infrastructure should be strengthened during periods of normal society functioning. Social infrastructure pertains to the essential services and amenities necessary for the welfare of a society's residents, which includes critical components such as schools, hospitals, public transportation systems, and community centers. These are not just practical necessities but also integral to leading a healthy and fulfilling life. Furthermore, social infrastructure fosters social inclusion and unity, helping to create a sense of community and encouraging social interactions among residents. It encompasses intangible assets that support human development and contribute significantly to an enhanced quality of life for all citizens which, in turn, helps diminishing vulnerability factors and promoting resilience, especially in vulnerable communities. Both among social infrastructure and beyond it (i.e., other important societal processes and services), there are several dimensions that can be improved to lead to more positive outcomes.

Specific key recommendations include:

- **Pandemic management:** Implement ongoing syndemic surveillance to identify communities experiencing interacting vulnerabilities that elevate pandemic risks. Monitor indicators like chronic illness prevalence, crowded housing, healthcare access, and poverty. Target resources to reduce recognized inequities.

- **Healthcare**: Expand healthcare system capacity in underserved communities to increase access to prevention resources like vaccines, testing, and education programs. Strengthen the patient-centered care and promote inter-professional collaborations and integrated care to take on a holistic approach to healthcare. Boost the number of community health workers and enhance community awareness, solidarity, and cohesion to enhance the resilience of healthcare systems, ease the strain during crisis situations, cater to local demands, and promote equity in healthcare access.

- **Mental health:** From the outset, acknowledge that mental health is an essential component of any crisis response. Review the government's financial allocations to the mental health sector and develop comprehensive, long-term strategies to tackle the rising need for mental health support. This proactive approach aims to prevent heightened psychological distress and the added social and economic challenges that it may bring. Targeted mental health services should be made available for frontline healthcare workers and minority/migrant groups to address the psychological toll of pandemics.

- **Work:** Develop workplace safety standards, and worker protections to enable self-isolation and reduce occupational transmission among essential workers. Prioritize minorities overrepresented in high-risk sectors.

- **Social:** Social protection schemes and unemployment benefits must cover gig economy and informal workers to mitigate income loss during crises. Strengthen social safety net programs that provide food, housing, unemployment, and disability assistance to mitigate pandemic financial strains and exposure risks. Fill gaps restricting undocumented immigrant access. Housing policies should expand access to affordable, adequate, and safe accommodation

options. Reform underlying socioeconomic, racial, and gender inequities that contribute to unequal pandemic impacts through policies expanding economic opportunity, addressing discrimination, and promoting social mobility. Enable special funding for civil society and volunteer organizations/initiatives working with vulnerable groups and led by members of vulnerable groups.

- **Digital Literacy:** Promote digital literacy. Rectify the digital divide limiting telehealth/education access for lower-income groups through broadband subsidies and device/technology assistance. Digital divide interventions (e.g., skills training, subsidized broadband access) are needed to ensure equitable access to critical information and services.

- **Information and communication:** Clarify relations between institutional bodies to resolve ambiguous leadership structures. Establish a single contact point for information exchanges to avoid multiple and uncoordinated communication channels. Trust-building between institutions and citizens requires transparency, acknowledgement of uncertainties, and inclusive participation. Dialogue needs to be multi-way and iterative. Create culturally competent public health messaging and community partnerships. Disseminate translated guidance via trusted channels and rely more on trusted intermediaries. Involve local leaders in co-designing interventions. Speak in a way that reaches different actors with different goals. Public health communication should utilize community partners to disseminate messaging in culturally and linguistically appropriate ways.

Furthermore, beyond strengthening of the social infrastructure, conditions, and services, it is important to acknowledge that the acquisition of knowledge and high levels of literacy that characterize the European context is not being adequately and consistently translated into practical actions by our citizens, namely during crisis periods, when knowledge should be translated to practical and helpful actions. Instead, there appears to be an increasing reliance on service provision by the communities, often at the expense of self-sufficiency and proactivity. For example, amidst the COVID-19 pandemic, there was a prevailing tendency for individuals to seek immediate medical attention rather than being equipped with the knowledge to address certain aspects of the virus that could be addressed at home; this reliance on external services has inadvertently contributed to the strain on healthcare facilities.

To tackle this challenge, we must prioritize and elevate our strategies for risk communication. In the absence of widespread general knowledge and literacy, individuals must rely on the available communication channels and conduct a cost-benefit analysis that is influenced significantly by their levels of trust, which does not guarantee full compliance with protective measures. In fact, in the context of the COVID-19 pandemic, many individuals perceived the communication efforts as insufficiently tailored to their specific circumstances. The measures and guidelines presented were often viewed as simultaneously too broad and too detailed, causing confusion and hindering implementation and adaptation. Therefore, during times of normalcy, communication strategies should emphasize reinforcing literacy, basic scientific understanding, and tools for critical thinking and reliable information-seeking. In moments of crisis, communication should pivot toward furnishing citizens with clear, actionable guidance, not just for prevention but also for responsive actions. Communication objectives must extend beyond the mere dissemination of information and actively encourage its practical application. The primary focus should be on facilitating the transfer of knowledge, sharing practical expertise, and promoting the adoption of concrete procedures, such as primary healthcare practices. This approach aims to bridge the gap between information and action, fostering a society that is more resilient and self-reliant, better equipped to respond effectively to crises.

Most importantly, it is crucial to recognize that there is no one-size-fits-all approach when it comes to promoting resilience and positive outcomes among vulnerable populations. While a broad, uniform communication strategy may suffice initially, such as the early pandemic message of "flatten the curve" directed at the general population, it becomes increasingly essential to tailor communication as a crisis evolves. This entails developing specialized teams and customizing communication strategies to address the specific factors influencing the behavior of the target populations. As previously mentioned, different groups adopt diverse adaptive strategies, and what enhances resilience in one context may pose risks in another, contingent on the characteristics of the given system. Therefore, devising effective strategies necessitates a comprehensive knowledge and understanding of the groups under consideration and targeted by policies. To achieve this, there is a need for concerted efforts to engage with these communities, gain insight into their subjective experiences, including their thought processes, perceptions, behaviors, and their unique assessments of reality, needs, and objectives. Developing this deeper comprehension of the populations we aim to assist is the sole means by which we can tailor policies and communication effectively, ultimately reducing risks and fostering resilience.

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Deliverables

D3.8 Final case study reports and comparative report.

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The COVINFORM project

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