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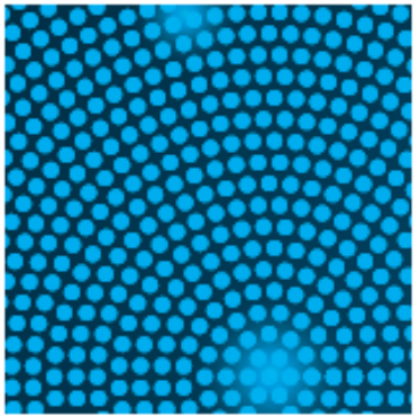
Connecting the dots: towards a national plan of Health



Health
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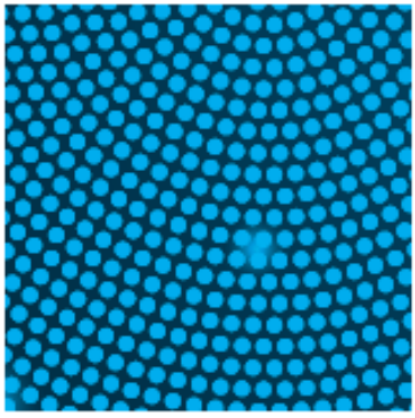

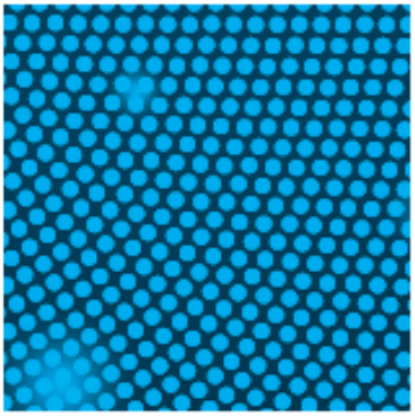

2nd Report - 2023

With the scientific support to the research activities:

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Summary

Introduction

The title of this new report, as the previous one, captures the essence of a year of research. The 2022 report saw us emerging from the pandemic emergency, revealing the extensive impact the crisis had at every level – health, economic, organizational, and even emotional. At that time, our primary focus, and the research mandate we sought to address, was the need to "**Get Bearings in the Transformation**." Significantly, the title of the 2022 report made no explicit reference to health or healthcare, reflecting the vast and all-encompassing nature of the transformation under consideration.

The situation in the 2023 II Report presents a different scenario.

The dust from the syndemic upheaval has largely settled, the initial shock of media and information overexposure has subsided, and we have begun to take stock of the material and immaterial damages caused by service disruptions and supply chain failures. We have also assessed the resources allocated for "recovery and resilience" and, having measured the inevitable and irreversible changes that reshaped our concept of "normality", we now aim to reconstruct a unified framework of phenomena affecting the national health system – beginning the process of "**Connecting the Dots**."

Since March 2020, we have witnessed an unprecedented surge in health-related legislation, marked by an unprecedented "hypertrophy" in recent years. Prevention, chronic conditions, telemedicine, electronic health records, and territorial care have been, and continue to be, the subject of various overlapping and interrelated legislative initiatives at multiple levels.

The pace of this proliferation of rules has often been hastened by contingent needs driven by the necessity of meeting milestones and targets. This urgency sometimes resulted in deferring the detailed operational definitions of the initial plans to subsequent acts, which has added further complications to the implementation of such acts. These complications were partly caused by **genuine unforeseen issues**, such as the increase in energy and raw materials prices, and at times by "**predictable" surprises**, such as the shortage of medical and healthcare personnel needed to implement the envisioned reforms.

Given the complexity and impact of the aforementioned reforms on the current organizational structure, as well as the dimensional and territorial overlap these reforms impose on the functions of the involved entities, it has been necessary to create *ad hoc* working groups for managing the **action perimeters** of the various initiatives.

An emblematic example of the difficulty in managing this issue is the establishment (and subsequent expansions) of the working group for "the study of emerging issues from the implementation of Hospital Assistance Regulation DM 70 and Territorial Assistance Regulation DM 77". This group managed to reach up to 79 members over the course of several decrees, so much so that it was journalistically nicknamed "little parliament."

The complexity of managing different and concurrent plans highlights a significant evolution in the national healthcare and assistance system, namely the **hybridization** of the classic tripartite division between prevention, hospital and territorial care. This transformation is characterized by the shift towards care intensity in organizational practices, the managerial development of the nursing role, the general evolution of healthcare professions, a strong push towards remote assistance technology, and the changing demographic contexts (with new needs related to aging and active aging). These are among the factors contributing to the overcoming of the traditional tripartition.

Whereas prevention has traditionally been defined as activities aimed at protecting one's health *before* the onset of a disease, today we speak of *secondary* and *tertiary* prevention, which are implemented *after* the disease has occurred.

The development of the Integrated Home Care (*Assistenza Domiciliare Integrata*, or *ADI*) adopts a transversal "cross-sector" approach, spanning through prevention, hospital, and territorial care, supported by a greater possibility of accessing for telemonitoring and telerehabilitation. The widespread adoption of various telemedicine services is now extending to supermarkets and soon to railway stations, breaking free from the typical confinement of healthcare services to traditional care settings, and enabling new places and "non-places" to become primary care locations.

In this historical phase, **connecting all these dots** would itself be a considerable feat, yet not sufficient to ensure a harmonious and coherent development of the national health system, aligned with the changing needs of an increasingly older population with greater expectations for care and well-being.

Additionally, a renewed sensitivity towards "**the environment**, biodiversity, ecosystems also in the interest of future generations", outlined in the recent amendment of Article 9 of Italian Constitution, has led to further coordination initiatives between activities with adjacent and partly overlapping perimeters: the establishment of the new National Health Prevention System from environmental and climate risks (*Sistema Nazionale Prevenzione Salute dai rischi ambientali e climatici*, or *SNPS*) which refers to the National Institute of Health *(Istituto superiore di sanità*, or *ISS*), and will interface and coordinate with the National System for Environmental Protection (*Sistema Nazionale per la Protezione dell'Ambiente*, or *SNPA*), which refers to the Institute for Environmental Protection and Research (*Istituto superiore per la protezione e la ricerca ambientale*, or *ISPRA*), through a Steering Committee tasked with fostering integrated and synergistic dialogue between the two systems.

We must not forget that we are in the midst of global climate change from which no one is exempt, where various cause-and-effect relationships are closely interlinked. Italy, specifically, is part of the Mediterranean region, a key hotspot of climate change and a long-standing stage for significant migratory flows and social, economic, and cultural exchange.

To holistically manage various issues of national health needs, it is necessary to establish a national planning system capable of restoring the cardinal directions to programming action, reaffirming the role of **stewardship** at the central level, valuing

partnership tools for implementation phases, recognizing the actions of different health actors, revisiting the principal planning tool in health matters, the National Health Plan, absent in Italy since 2008. This plan will **expand the scope** from healthcare to health establishing a new programming tool: **moving** "**towards a national health plan**".

Identifying the components and characteristics of a National Health Plan is the first step of a theme that is evolving outlining the need to understand the nature of the health demands that will need to be addressed in the upcoming years. It is about redefining the boundaries of the concept of health and well-being, identifying what kind of response can be given at the country level, the varying levels of assistance and services, and the extent of the implementation of the constitutional mandate of "**health safeguarding.**"

1. The Health Wellbeing and Resilience Observatory

1.1. Why a Health Wellbeing and Resilience Observatory

Recent years have witnessed a profound and radical transformation across social, systemic, and economic spheres, influencing all sectors of society. This shift cannot be confined to healthcare alone but has given rise to what is known as a global syndemic[1]. First, the pandemic crisis significantly reshaped society, altering not only people's lives but also the very structure of healthcare systems. Second, the ongoing Russian-Ukrainian conflict has caused additional global disruption, with substantial impacts on supply chains. This has resulted in increasing challenges in the procurement of essential commodities, such as food and energy, directly affecting countries within the Euro-Asian bloc and indirectly influencing the rest of the world[2] [3] [4] [5].

These sweeping social and health changes at both the international and global levels have also had a marked effect on Italy's national context, amplifying the scale of the ongoing systemic transformation across various levels. To better understand and track these changes in Italy, the *Bruno Visentini Foundation* established in 2021 the Health, Wellbeing, and Resilience Observatory. The Observatory was trusted with developing a new innovative synthetic health impact measurement tool, that integrated research from the health sector with social and economic ones.

The Observatory has, among its mandates, the task to intercept and delineate the features of an evolving health system. Consequently, it must highlight areas where targeted and priority interventions are needed, promoting dialogue and policy proposals that are developed collaboratively by health system stakeholders. A clear necessity has emerged for a different, integrated, and multidisciplinary approach—one that moves beyond the outdated siloed logic of the past. The traditional approach is nowincompatible with the new metrics and languages aligned with the One Health framework and is not in step with the political strategy of Health in All Policies, nor with the goals outlined in the broader context of the United Nations' Agenda 2030 and the *National Recovery and Resilience Plan* (NRRP).

The need for a cross-cutting, multi-level approach is further underscored by ongoing demographic trends that have been advancing for several years. These include an aging population and the increasing fragility and multi-morbidity among the elderly. Additionally, changing societal concepts of well-being and quality of life are raising citizens'' expectations for health, wellness, and quality of life. All of this takes place within a broader historical framework of change, characterized by (a) a shifting geopolitical landscape, including ongoing international conflicts, (b) rapid technological and digital advancements that require new skills to avoid systemic

[1] (Horton, 2020)
[2] (Food and Agriculture Organization , 2023)
[3] (World Food Programme, 2022)
[4] (Food Security Information Network, 2023)
[5] (European Council, 2023)

exclusion, and (c) environmental and climatic challenges, shaped by the ecological and energy transition.

Such a perspective requires the implementation of a **new cultural shift**, achievable through an extension of the health system covering new components and knowledge. The aim is to better serve both citizens and users, empowering individuals to take greater control over their choices and actions, not only in their personal lives but also in their political and community roles (empowerment). Additionally, it requires public decision-makers—the key actors in this transformation—to understand and act upon a broadened and interdependent scope of study and intervention.

The work of the Observatory is positioned into today's context as a guiding tool *towards* the transformation, whose activities are based on the adoption of a more complex and innovative theoretical framework that respects the interdependence of all those social, economic, and environmental phenomena and conditions the health and wellbeing of the citizen. This is made possible through the research and analysis of data from reliable, publicly accessible sources, which are interpreted and processed from a new perspective and then aggregated and translated in a way that enables decision-makers to develop effective policies.

With these objectives in mind, the Observatory's activities serve institutions, both institutional and social actors, as well as civil society, aiming to foster constructive debate centered on health and well-being. At the core of this *modus operandi* is the intent to integrate and enhance mechanisms of **stewardship** and **partnership**, as the coexistence of these two models is essential for preparedness and resilience in our country[6].

Preparedness, in particular, has proven to be critical, reflecting the complexity of planning, coordination, early diagnosis, assessment, investigation, response, and communication efforts. These activities are aimed at minimizing the risks posed by infectious diseases and viruses, as well as mitigating their impact during public health emergencies, regardless of the scale -whether local, regional, national, or international[7].

In alignment with its core research activities, the Observatory also promotes a series of Symposia on the Nearness of Health. These symposia are organized as a series of meetings aimed at exploring key issues that significantly influence the mechanisms and phenomena capable of bringing health closer to the citizen. The discussions are designed to address themes and dynamics deeply impacted by today's context, which is marked by profound political, social, environmental, and economic transformations—both nationally and globally.

In 2023, the following meetings were held:

- The first Symposium - **One Health and Intergenerational Nearness**

[6] (Carusi, D., 2021)
[7] (Italian National Institute of Health, 2020)

The central theme of this inaugural meeting was the inclusion of environmental and intergenerational issues into the Constitutional framework, with a particular emphasis on the development of the **One Health** approach. Discussions centered on One Health and its evolutions, such as planetary health and how the protection of living environments impacts individuals' health and their proximity to health services. The component of intergenerationality was highlighted as a long-term infrastructural element of support, viewed as essential for the occupational, professional, and industrial development of younger generations in the country.

- The second Symposium - **Presentation of the results of the 1st National Survey on Telemedicine in the private outpatient setting**
  This symposium shed light on critical ongoing trends in telemedicine and identified priority areas for intervention to ensure the proper development of telemedicine in the years ahead.

- The third Symposium **- Connective Tissue of Health: New Forms of Nearness**
  This meeting explored the evolving of individual and collective health needs, new forms of healthcare assistance, and the tools available to address these emerging needs. Key discussions revolved around new forms of cohesion and interconnection, horizontal subsidiarity, and the increasing hybridization of actors traditionally outside the health system. These new "health actors," driven by the post-pandemic perspective on health and emerging technologies, are playing crucial roles in new forms of partnerships and integrating competencies in ways that were previously unheard of.

2. Guiding Principles

The research and policy orientation activities of the Observatory are grounded in fundamental guiding principles that are vital for developing a resilient and interconnected health system. This system is built upon the coordinated efforts of diverse actors and the strategic integration of various resources, ensuring a comprehensive approach to health and well-being.

2.1 The One Health and Health in All Policies Approaches

The Italian National Institute of Health (*Istituto Superiore di Sanità*, *ISS*) identifies **One Health** as "*an ideal approach to achieving global health as it addresses the needs of the most vulnerable populations based on the intimate relationship between their health, the health of their animals, and the environment they live in, considering the wide range of determinants that emerge from this relationship*"[8] .

This approach is particularly relevant in today's context, especially after a zoonotic pandemic that has highlighted the need to expand the health interpretative framework to include not only direct health concerns but also a broader range of social, cultural, and economic determinants[9].

Integral to this understanding is the **Health in All Policies (HiAP)** vision, which promotes the integration of health considerations into all sectors and policies, transcending the traditional boundaries of healthcare intervention. Health is viewed as an essential condition for the proper development of human life, encompassing individual, social, and productive dimensions. The role of health as a foundational enabler became especially apparent during the COVID-19 pandemic, when mitigation and containment measures paralyzed global social and productive systems. These measures disrupted normal human interactions and relationships, interrupted global supply chains of key goods and services, and forced much of the world to rethink their social and economic structures[10] [11] [12].

A concrete example of applying the HiAP strategy and the holistic One Health approach can be seen in the United Nations' framework for the **Sustainable Development Goals (SDGs)**. In the **Sustainable Development Report 2022**, titled *"From Crisis to Sustainable Development: The SDGs as a Roadmap to 2030 and Beyond*[13]*,* the report examines how environmental, climatic, social, and economic changes are deeply interconnected and affect all aspects of health, well-being, and population livelihoods.

[8] (Italian National Institute of Health, 2022)
[9] (World Health Organization; UNICEF, 1978)
[10] (Forman & Mossialos, 2021)
[11] (European Commission, 2023)
[12] (International Labour Organization, 2023)
[13] (D. Sachs, Lafortune, Kroll, Fuller, & Woelm, 2022)

This analysis underscores the importance of adopting a multidisciplinary approach to health in order to achieve the SDGs and build a resilient, sustainable future[14].

An immediate illustration of the significance of an approach that incorporates health into all policies can be found in the report "Climate Indicators and Sustainable Development - Demonstrating the Interconnections" by the World Meteorological Organization of the United Nations. This report emphasizes that the examination of major climate change phenomena uncovers a network of interconnections, causal links, and relationships that simultaneously affect the ability to achieve numerous goals outlined in the UN's Agenda 2030. By recognizing these interdependencies, the report underscores the necessity of a holistic approach to policymaking that prioritizes health alongside environmental sustainability and social well-being, ultimately fostering a more integrated strategy for global development.

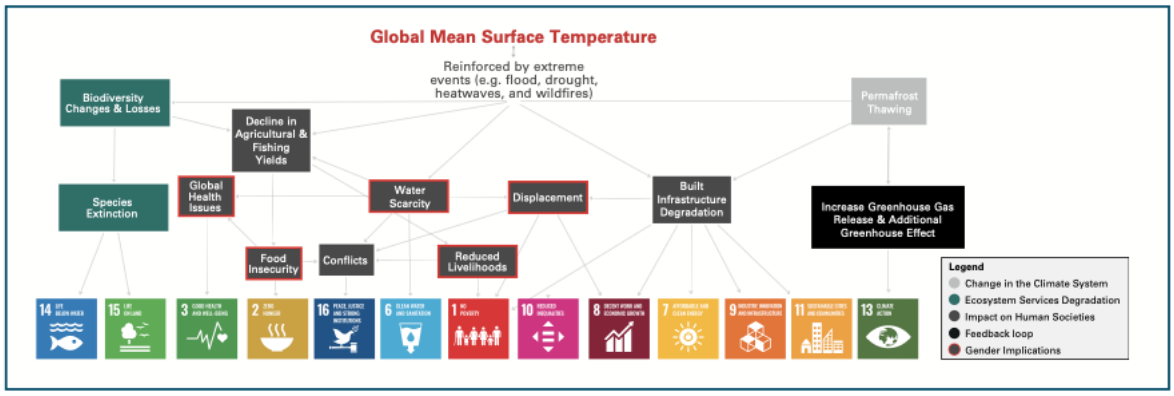

Figure 1- United Nations - Climate Indicators and Sustainable Development: Demonstrating the Interconnections.

For instance, the report illustrates how the phenomenon of rising average surface temperatures on Earth affects biodiversity, crops, and livestock, resulting in food supply challenges. As a consequence, the survival and life expectancy of certain populations decline. In response to deteriorating living conditions, these populations may generate migration flows and/or conflicts, further exacerbating health issues, both in terms of endemic diseases and those spread through migration.

This analysis underscores the necessity for an integrated approach to health, one that extends beyond purely medical considerations. It emphasizes the need to define the scope of analysis and action to encompass environmental, social, relational, and economic components. By adopting such a comprehensive perspective, policymakers can better address the complex interplay of factors that influence health and well-being, ultimately fostering more resilient communities.

[14] (World Meteorological Organization, 2021)

2.2 Stewardship as a Governance Model[15]

The implementation of the One Health approach, adapted to align with the Health in All Policies (HiAP) strategy, should aim for a participatory and inclusive health governance model. This model seeks to transcend the traditional "siloed" approach that continues to characterize much of the planning and management within healthcare.

The identified model is one of **Stewardship**[16] [17], which embodies a participatory health governance strategy strongly advocated by the WHO[18]. This model allows for the role of steward to be assumed at various levels by both central and local health authorities. Its objectives include eliminating double standards, promoting trust in government, ensuring transparency in resource allocation and incentive systems, adequately monitoring health system performance, and supporting all entities involved in the protection and promotion of population well-being.

From a systemic perspective, the integration of these approaches, models, and strategies becomes a fundamental prerequisite for enabling the country to address the myriad challenges related to health, security, and climate. From an individual perspective, fostering enabling factors for health enjoyment—beginning with enhancing basic literacy and acquiring new skills for professionals, public decision-makers, and citizens—emerges as an indispensable and central theme.

The pandemic, in particular, has underscored how traditional organizational paradigms and the typically "siloed" approach are inadequate when reconciling with the now recognized and necessary holistic One Health vision and the Health in All Policies strategy supported by the WHO. These frameworks advocate for new forms of integration and the hybridization of various mechanisms and sectors within society.

Promoting a multidimensional and sustainable development model based on collaborative relationships among stakeholders and different sectors—ranging from environmental to social and economic—is at the core of the **United Nations 2030 Agenda for Sustainable Development Goals (SDGs)**, as well as European cohesion and recovery policies, including the **National Recovery and Resilience Plans**.

A decisive step in advancing this process is to establish a government strategy that pursues consistent and cohesive policies across all sectors and areas of society, viewing the protection of people's health as a shared responsibility rather than solely the domain of health policies. The HiAP strategy and the One Health approach, which have become integral to both national and international institutional agendas, aim to maximize health benefits for people while supporting intersectoral interventions and collaborative actions.

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[15] (Carusi, D., 2022)
[16] (Neelesh Kapoor, 2014)
[17] (Derick W. Brinkerhoff, Harry E. Cross, Suneeta Sharma, Taylor Williamson, 2019)
[18] (World Health Organization, 2000)

"*All people have the right to access the best possible state of health, understanding health as a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity*": the most widely accepted and used definition of health by the World Health Organization (WHO) succinctly captures the totality of human essence and the interdependence of biological, psychological, and social components [19].

Thus, health is not solely defined by the absence of disease or symptoms; it also encompasses a positive social and mental condition that enables individuals to perform daily activities, achieve ambitions, and satisfy needs. Most importantly, it allows individuals to evolve with their environment, adapt to it, and overcome potential crises. Consequently, the concept of health can be described in at least four dimensions:

1. A medical dimension: health as the absence of disease.
2. A social dimension: health as the ability to perform a social role.
3. An idealistic view: health as complete physical, psychological, and social well-being.
4. A humanistic dimension: health as the ability to positively adapt to life's challenging situations [20].

2.3 Partnership in Healthcare

In recent years, the Italian healthcare system has experienced a profound transformation in its cultural, political, and governance frameworks, coinciding with the implementation of a directive that embodies the public-private partnership model. This shift has resulted in the adoption of privatized management models for public healthcare services, aiming to enhance efficiency and responsiveness while navigating the complexities of contemporary health demands[21].

A key feature of this process is the simultaneous integration of professional, institutional, and managerial logic within healthcare governance. This management approach emphasizes the collaboration of diverse actors with varying mandates, aiming to enhance the capacity to act, improve the speed of intervention, and create an informational framework that would be challenging to achieve through isolated, purely public efforts

The development of a Public-Private Partnership (PPP) offers several advantages, primarily stemming from improved financial resources. Private organizations can make substantial investments, thereby alleviating some of the financial burdens on the public sector. Additionally, PPPs provide greater flexibility in responding to market demands and evolving health needs, facilitating quicker adaptations to new challenges. This collaborative approach not only enhances resource availability but also fosters

[19] (World Health Organization, 1948)
[20] (Zanella, 2011)
[21] (Anselmi, 2014)

innovation and efficiency in the delivery of healthcare services, ultimately benefiting the overall health system and the populations it serves.

Moreover, the private sector can play a crucial role in facilitating the introduction of new technologies and innovative medical practices, thereby enhancing the quality and effectiveness of healthcare services.

In light of these conditions, it is imperative to examine the ongoing changes within the healthcare system as it evolves into a mixed entity. This entails exploring how public governance, private managerial practices, and the roles of non-profit and third sector organizations operate and coexist. Additionally, it is essential to understand how these combined logics can lead to enhanced service quality that is more responsive to citizens' needs while also promoting greater operational efficiency.

Indeed, the numerous political, historical, and social transformations that the healthcare system has experienced, particularly during the COVID-19 pandemic, have prompted a spontaneous redefinition of its strategies, structures, and processes. This evolution has fostered positive collaborations and management models among public and private sectors, as well as non-profit and third sector organizations. Such collaborative efforts are crucial for ensuring that the healthcare system can respond more efficiently to various changes and emerging crises.

To harmonize the convergence of different experiences and expectations, it is essential to establish clear and transparent rules governing the interactions between the public and private sectors. In this framework, the public sector must maintain its role as the central coordinator, monitor, evaluator, and overall manager of healthcare activities. Embracing a stewardship governance model allows for effective oversight while also promoting the innovation that often emerges from the private sector. Recent examples, such as the adoption of telemedicine solutions, illustrate how such collaboration can enhance healthcare delivery and improve patient outcomes.

2.4 Health Determinants

Health is closely linked to **quality of life**, which is defined as the level of individual well-being in relation to one's socio-cultural background and environmental context, with a particular emphasis on subjective perceptions of health. Health and well-being are influenced by a range of phenomena that operate at different levels and interact with one another, collectively referred to as health determinants[22] [23].

These determinants can be categorized into various groups, organized in concentric circles that reflect their degree of influence. At the centre is the individual, whose biological characteristics represent immutable determinants, such as sex, age, and genetic heritage[24].

[22] (Whitehead & Dahlgren, 1991)
[23] (Marmot, Friel, & Bell, 2008)
[24] (Maciocco, 2009)

Surrounding this core are the modifiable determinants, which can be adjusted and transformed. These include individual lifestyles, social networks, environmental factors, quality of life at work, and the broader political, economic, and cultural context.

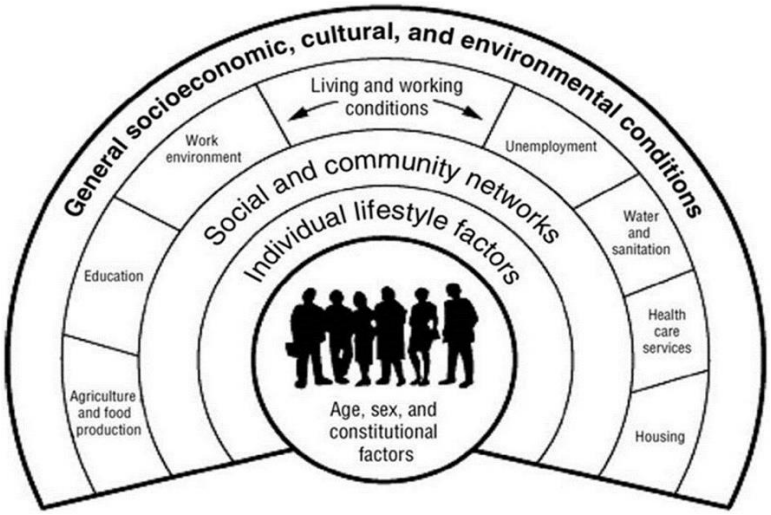

Figure 2 - Health determinants

Therefore, analysing the determinants of health is crucial, as it encompasses key aspects of individuals' living and working conditions and their social networks. It also includes studying the health implications of economic and social policies, as well as the potential benefits arising from investments in health initiatives.

Today, it is essential to outline a framework that considers health determinants within the broader context defined by the strategic goals of the 2030 Agenda and the National Recovery and Resilience Plan. This approach enables us to monitor how and to what extent the "good of health" is accessible and available to individuals. To capture a comprehensive snapshot of the current state, it is necessary to regularly collect data on relevant phenomena within the health system and its determinants. Such data collection is vital for informing and influencing public policy decision-making processes, ultimately ensuring that health initiatives are effective and responsive to the needs of the population.

It is clear that the health and well-being of a country cannot be evaluated solely through economic parameters, such as GDP. A comprehensive assessment must also consider various social and environmental contexts, including measures of inequality and sustainability. This holistic approach aligns with the new frameworks established by the Health in All Policies (HiAP) strategy and the One Health logic, as outlined in the NRRP[25].

[25] (National Recovery and Resilience Plan, 2021)

These two approaches—Health in All Policies (HiAP) and One Health—serve as reference standards for managing the ongoing cultural and systemic transformation within healthcare. They aim to establish a new multi-level and multi-sectoral framework that emphasizes the inseparable connection between health, environmental, and climate domains. By integrating these elements, the goal is to promote and protect the health of individuals in a comprehensive manner, recognizing that health outcomes are influenced by a myriad of interconnected factors[26].

As emphasized by the Health in All Policies (HiAP) strategy, it is essential to acknowledge that health is influenced by a multitude of factors that extend beyond healthcare and, in many instances, beyond the realm of traditional public health activities.

This comprehensive vision can be realized through a series of consistent and prioritized actions and decisions aimed at facilitating a rapid evolution toward an integrated and digitalized health system. Achieving this transformation necessitates a well-structured and methodical evaluation and monitoring mechanism, which will ensure that health policies are effectively implemented and adjusted in response to emerging needs and challenges.

[26] (World Health Organization, 2015)

3. The Evolution of the Normative Framework

The rapid social transformations and the consequent legislative evolution at both the European and national levels, triggered by the COVID-19 pandemic, have laid the groundwork for implementing reforms and structural changes in various fields. Among these, the healthcare sector is naturally included, having been severely tested by the impact of the emergency. In this regard, the National Recovery and Resilience Plan (NRRP) [27], represents a significant opportunity for Italy to prepare the necessary reforms to meet the renewed needs of the socio-economic fabric. Specifically, Mission 6 of the NRRP[28] on the theme of "Health" sets out the investments and reforms that Italy is committed to implementing by 2026 in order to overcome the critical issues afflicting the National Healthcare System (*Servizio Sanitario Nazionale*, or *SSN*): among others, it addresses the territorial inequalities in the distribution of health services, the inadequate integration between services and territory, long waiting times to access certain services, and the National Healthcare System's inability to involve external professionals. These resources represent an opportunity to meet the needs of Nearness to citizens and to provide a solution to the critical issues that characterize our healthcare system.

The resulting interventions are directed at reforming the organizational structure of the SSN and improving the articulation of its services from a perspective of proximity and home care (although here, we prefer to speak of "nearness" in an extensive sense) by acting on its infrastructural and technological equipment, innovation, and the development of new and more specific technical-professional and managerial skills of the staff. The evolutionary perspective just outlined has made it necessary to lay the foundations for a reorganization of the Ministry of Health and, specifically, the SSN service network, with the aim of strengthening and transforming territory assistance more efficient.

One of the first legislative interventions that began the season of reforms promoted and stimulated by the NRRP is represented by Ministerial Decree No. 77/2022[29], which, in the aforementioned perspective of Nearness to the individual and patient care, has laid the foundations for a new model of territorial assistance, which will gradually materialize and come to fruition in the upcoming years. In this sense, the decree defines the models and standards for the development of territorial healthcare, aiming to improve accessibility, quality, and sustainability of the services offered by the National Health System. From this perspective, a leading role is assigned to telemedicine and its ability to make healthcare more effective and of higher quality and, above all, more accessible to citizens, regardless of where they live and their mobility possibilities.

[27] **Next Generation EU**, the European Union has approved a new financial instrument aimed at supporting the economies of Member States by enabling processes of socioeconomic recovery and revival. Access to the resources of this instrument has been made possible based on a National Recovery and Resilience Plan (NRRP), with which each Member State has outlined a package of reforms and investments spread over the period from 2021 to 2026.
[28] **Mission 6** of the NRRP.
[29] **Ministry of Health**, Decree of May 23, 2022, No. 77.

Telemedicine allows for the delivery of services remotely and facilitates the consultation between clinicians from a distance, through the so-called "teleconsultation"; consequently, telemedicine is also distinguished by greater sustainability both from an economic and environmental standpoint.

In this reform process, the Legislator assigns a very important role to technological innovation and, specifically, to telemedicine. In fact, two separate decrees were issued a few days apart in September 2023, containing instructions for an effective introduction of telemedicine within the National Health System.

The first is the decree of September 21, 2022, which, for the first time, introduces mandatory regulations on the minimum requirements for the practice of telemedicine. The significance and importance of this decree become clear when we consider that, the field of telemedicine followed the recommendations contained in the "National Guidelines on Telemedicine" from 2014 until the time these guidelines came into force, and in the "National Guidelines for the Provision of Telemedicine Services" of December 17, 2020, which proposed advisable service standards but lacked binding character.

The second decree, therefore, is the decree of September 30, 2022, which introduces, with Annex A, the operational guidelines for the submission of regional telemedicine projects with which the National Agency for Regional Healthcare Services (Agenas) will acquire the operational plan and the needs of each Region and Autonomous Province for the minimum telemedicine services, and with Annex B, the guidelines for telemedicine services to support the regions and autonomous provinces in defining and composing the project initiatives on telemedicine services that can be financed.

To meet the commitments and timelines of the NRRP, the decree of September 30, 2022 recognizes all Regions and Autonomous Provinces the possibility to activate telemedicine solutions whose conformity assessment is entrusted to a national evaluation process[30], specifying that "regions that possess telemedicine solutions already widespread on a regional scale may choose not to use the aforementioned solutions, indicating this in the plan in question provided that the solutions owned comply with the above guidelines. 'Guidelines for telemedicine services for sub-investment 1.2.3.2' define the general, functional, and technological requirements for all the modules that make up the regional telemedicine infrastructure" [31].

It is therefore necessary that telemedicine activities are integrated with other social care and health activities and that this remote activity ensures the quality of services, patient relations, and the protection of the health information handled[32]. Telemedicine is called upon to play a significant role in the full implementation of the reforms affecting the National Health System (SSN); thus, it will be interesting to follow the application of the regulatory provisions mentioned here to see if we will capitalize on the opportunity presented by the NRRP and create a health system that is truly "closer" to the people and territories.

[30] Ministry of Health, Decree of September 30, 2022..
[31] Ibid.
[32] Ministerial Decree77/2022, Annex 1, page 10.

The organizational model that emerges from Ministerial Decree No. 77/2022 revolves around the Health District. In addition to being a functional-organizational articulation of the Local Health Authority (Azienda Sanitaria Locale, ASL), it serves as a strategic location for the management and coordination of the network of territorial health and social-and-health services. From a perspective of comprehensive care, the Health District allows for the provision of integrated patient care across various aspects: resources, tools, and professional skills. [33]

Again, with the aim of ensuring greater penetration of territorial health services and thus more effective Nearness[34], the decree also provides that within the Health District operate the so-called "Community Houses," which represent not only the physical place that actually makes it possible to bring healthcare closer to all citizens but also the place where the National Health Service manages to coordinate and integrate its system with social services, becoming a privileged location for designing and delivering new service solutions and interventions in the territory.

The development of Community Houses[35]. is based on equity of access, service proximity, and their penetration across the territory; therefore, the establishment of a territorial care network according to the hub and spoke model has been planned. In this evolutionary perspective, Decree No. 77/2022 establishes that "All existing territorial physical structures must usefully fall within the design of the new geography of territorial services and structures and therefore of the Community Houses and related networked services. The plan for the development of territorial services in each regional context must therefore aim at designing networked services, with a precise selection of existing physical infrastructures to be enhanced, redirected with other vocations and services or decommissioned" [36].

Nearness and entrance of services in the territory also involve the strengthening of home care, which the decree emphasizes by reaffirming the concept of "home as the first place of care" for the patient, if clinical conditions and treatments allow, as well as strengthening of the palliative care network, which allow individuals and their families to access services and facilities that can provide comprehensive care.

In the organizational structure of the Healthcare System envisioned by the decree, alongside the Health Districts and Community Houses, Community Hospitals (facilities serving as a bridge between home care and full hospitalization) are also called to play an important intermediate function between home care and hospitalization. These facilities will serve to prevent inappropriate hospital admissions or facilitate protected discharges to more suitable locations where the patient that still requires care; or, they provide clinical stabilization of the patient should they require functional recovery or rehabilitation. [37].

The reform, however, does not only concern regulating the operational structures of the Health System and their coordination but also focuses on the personnel and key

[33] Ministerial Decree. n. 77/2022, pages 14 and following.
[34] Ministerial Decree n. 77/2022.
[35] Ministerial Decree n. 77/2022, page 24.
[36] Ministry of Health, Telemedicine National Guidelines
[37] Ibid

figures needed to implement the introduced innovations. The decree outlines the role of the family or community nurse, conceived as a professional figure who, through constant and active presence in their area of competence, can guarantee patients interdisciplinary healthcare assistance from services and professionals [38].

In this perspective of bringing services closer to territories and communities, as previously mentioned, telemedicine, and the ability of professionals to integrate it within the service network in all its facets, play a fundamental role for a more efficient and sustainable Healthcare System [39]

Telemedicine, as mentioned, constitutes an important enabling element for the implementation of most of the SSN reform interventions. In fact, it is well-recognized in the healthcare field as technological innovations "can contribute to a reorganization of healthcare, particularly by supporting the shift of the healthcare focus from the hospital to the community, through innovative care models centered on the citizen and facilitating access to services across the national territory." "[40].

Telemedicine allows, moreover, the delivery of health services and care remotely through the use of new technologies and the internet, supporting and facilitating the interaction and exchange of information between professionals to make services more accessible to citizens and harmonize care standards throughout the territory. [41]. The decree thus implements Mission 6, Component 1 of the National Recovery and Resilience Plan by redesigning the functions and standards of territorial healthcare. A further step beyond these directives was made through the delegate law of March 23, 2023, No. 33 on policies in favor of the elderly and non-self-sufficient people. There is no need here to delve too deeply into an analysis of the delegate law, but it is right to focus on aspects that recall the concepts of Nearness and home care of health and social health services already mentioned in the aforementioned decree, to understand the innovations and specifics introduced.

Among the coordination methods of the organizational structures and services that make up the SSN, delegate law 33/2023 inserts the National System for the Non-Self-Sufficient Elderly Population (SNAA), defined as "a permanent organizational mode for the unified governance and joint realization (...) of all public measures dedicated to the assistance of non-self-sufficient elderly by the state, regions, and municipalities that maintain existing entitlements" [42]. Promoting the nearness of health and social health interventions for the elderly is another aspect that is taken up and reiterated by the delegate law, which, on this point, provides for the placement of single access points for health, social, and social care services at the Community Houses, to provide non-self-sufficient elderly and their families with informational, administrative, and access support to services and interventions.

The topic of proximity and the concept of "home as the primary place of care" are reiterated in the delegate law when it come to the issue of home care services for

[38] Ministerial Decree n. 77/2022, Annex 1.
[39] Ministerial Decree n. 77/2022.
[40] Delegated Law No. 33/2023, Article 4, paragraph 2, letter b.
[41] Delegated Law No. 33/2023, Article 4, paragraph 2, letter i.
[42] Delegated Law No. 33/2023, Article 4, paragraph 2, letter n.

elderly people who are unable to care for themselves. On this point, in addition to requiring the necessary involvement of Social Territorial Areas (ATS) and the National Healthcare Service, proximity provides "the integration and coordination of services and therapies provided at home, also through telemedicine tools, by accredited public and private providers and those contracted, including the Third Sector, that can ensure the management and coordination of activities identified within the Individual Care Plan (PAI)." Here again, telemedicine is identified as an important enabling element for the implementation of home care for the non-self-sufficient elderly.

To pick up on the thread of regulatory interventions that followed Ministerial Decree 77/2022, we must look back at the delegate law on non-self-sufficiency. Of particular interest is Article 6-bis of the decree-law of November 11, 2022, No. 173, 3[43] which was converted with modifications into Law No. 204 of December 16, 2022, introducing a significant restructuring of the organizational structure of the Ministry of Health. Specifically, the current structure, which includes a General Secretary and twelve General Directorates, has been completely revised by introducing an organizational structure divided into four Departments and twelve General Directorates. [44]. It specifies that existing regulations will remain in force until a new Organizational Regulation is approved, which, according to Article 13[45] of decree-law November 11, 2022, No. 173[46], is subject to a simplified approval procedure. [47]. On this point, it is noted that the approval of the aforementioned regulation was carried out by the Council of Ministers on October 30, 2023. The general reorganization of the Ministry of Health is also reiterated by the programmatic directive of 2023, which identifies changes to the ministerial organization as an important element to strengthen the system's efficiency, dedicating a specific paragraph to this. In the new organizational structure of the Ministry of Health, in particular, the Department of Human Health, Animal Health, and the Ecosystem and International Relations stands out, which is internally divided into the Directorate-General for Correct Lifestyles and Relations with the Ecosystem, the Directorate-General for Food Hygiene and Safety, and the Directorate-General for Animal Health[48]. This Department reflects a **One Health health model**, based "on the recognition that human health, animal health, and ecosystem health are inextricably linked." [49] The One Health approach is recognized by the Ministry of Health, the European Commission, and all international organizations as a "relevant strategy in all sectors that benefit from collaboration between different disciplines (doctors, veterinarians, environmentalists, economists, sociologists, etc.)." Indeed, this framework, makes it possible to holistically identify and respond to the needs and necessities of the most vulnerable people, emphasizing the relationship between their health and the environment in which they live in. **[50]**

[43] Art. 6-bis of Decree-Law of November 11, 2022, No. 173.
[44] Ministry of Health, General Directive for administrative activity and management, 2023, page 55.
[45] Decree of the President of the Council of Ministers (DPCM) of February 11, 2014, No. 59.
[46] Art. 13 of Decree-Law of November 11, 2022, No. 173.
[47] Ministry of Health, General Directive for administrative activity and management, 2023, pages 54 and following.
[48] One Health - ISS.
[49] Ibid.
[50] Ministry of Health, Decree of June 9, 2022.

The changes to the SSN analyzed so far show how institutions have become aware of the changed scenario and have opted for a new configuration, which sees in the holistic One Health approach as the only solution to protect health as a common and collective good.

The operational application of this paradigm identifies as its pillars, firstly, the National Prevention System for Health from environmental and climate risks, which includes:

- Regions and Autonomous Provinces, to which, in summary, are assigned the following tasks:
    - Establishment of the Regional Health Prevention System from environmental and climate risks (SNPS) ensuring a One Health approach "in its evolved Planetary Health version";
    - Identification of the structure, among the entities that are part of the SNPS, which will serve as the coordination center and be responsible for implementing prevention policies;
    - Definition and implementation at the regional level of primary prevention policies;
    - Development and consolidation of the epidemiological observation function at the regional and company level and, to this end, ensure the integration of regional information systems, prevention departments, health and social health facilities, and other competent entities present in the territory;
    - Providing prevention departments with adequate instrumental and human resources;
    - Planning and implementing training interventions to promote the improvement of territorial management capacity to prevent and control health risks associated, directly or indirectly, with environmental, climatic, and/or socioeconomic events.
- Experimental zooprophylactic institutes, which, among other tasks, are responsible for:
    - Collaborating in national and regional planning to integrate surveillance, monitoring, analysis of risk factors related to the use of animals and animal products;
    - Participating and supporting the implementation of programming acts in the field of prevention;
    - Contributing to the definition and implementation of essential levels of care associated with prevention priorities;

- Higher Institute of Health, which as reported by Article 4 of the decree of June 9, 2022, by the Ministry of Health "Without prejudice to the competencies of the regions and the Autonomous Provinces of Trento and Bolzano, the Higher Institute of Health, in agreement with the Ministry of Health, performs functions of coordination, direction, and technical-scientific support of the SNPS, in order to contribute to the development and harmonization of the same Ministry of Health." [51]

- Ministry of Health, which is called to ensure, in concert with the Higher Institute of Health, the coordination of the regional structures of the SNPS and the uniform application of the provisions of the decree of June 9, 2022, and to promote the identification of priority areas for the prevention and control of health risks associated, directly or indirectly, with environmental and climatic events. [52].

The second pillar supporting the implementation of a One Health approach is the National Networked System for Environmental Protection (SNPA), tasked with responsibilities such as inspection activities in the field of environmental control, monitoring the state of the environment; controlling sources and factors of pollution; research activities aimed at supporting its functions; providing technical-scientific support to the activities of state, regional, and local entities with active administrative duties in the environmental field; and the collection, organization, and dissemination of environmental data[53]. Therefore, the reorganization of the health system involves a comprehensive restructuring of the health system, also considering other realities interconnected with it, as to improve the level of responsiveness to citizens. For these reasons, a control has also been planned to coordinate the work of the two Systems and the exchange and integration of available information.

The legislative interventions discussed so far are aimed at making the National Health System more efficient and suited to the health and socio-health needs of the Italian population, which, in perspective, is becoming increasingly older and therefore in greater need of assistance. In this regard, the reforms are working towards reducing waiting lists, strengthening home care and coordination among structures, services, and health and socio-health personnel, improving information exchange, and planning and delivery of services and performance.

Nevertheless, we must acknowledge that during the acute phase of the pandemic and following it, we have witnessed a proliferation of regulatory interventions that today appear poorly coordinated and often characterized by overlapping application perimeters.

In this context, it seems increasingly necessary to return to a planning effort at the national level, capable of defining the general parameters for the development of the health system and oriented towards the inclusion of the various health actors and leading to a concrete tool that we might call a "National Health Plan," which, post-

[51] Ibid,.
[52] Ibid.
[53] Censis, 57th Annual Report, 2023.

pandemic, resumes and integrates on multiple dimensions the good practice of having a national health plan, that has not existed since 2008.

4. The Health Nearness Index

4.1 Tools for Measuring Complex Phenomena

The index of taxonomy is organized into three contexts related to areas with an increasing perimeter starting from the individual dimension:

1. Individual and social relations Context: This is characterized as the number of areas of interest and intervention that have the minimum distance from the individual themselves as they belong to the individual sphere.
2. Organizational system Context: Represents a level more external than the individual sphere and is characterized by given conditions and intervention abilities that are subject to certain latency in their modification, depending on the organization and response capacity of the health system.
3. Environment and living places Context: This is the most external of all and represents the Context in which the constraints and given conditions change over a longer time span, also due to the interrelated co-causes that define its features.

This structure of the index reflects the need to be able to delve into and study each Context individually while maintaining an overall vision of the levels and respecting their inevitable interdependence. For example, environmental and socioeconomic processes, which include complex matters such as well-being, territorial inequalities, and sustainable development, among others, require analysis at an appropriate spatial and temporal scale to ensure a coherent evaluation of the complexity of their interactions. At the same time, well-being, territorial inequalities, and sustainable development are not mutually exclusive concepts but find reason in a common analytical framework of understanding and interpretation, considering the intimate logical and definitional connections.

The index thus makes it possible to maintain coherence among various components and phenomena, for example, between health problems and their determinants with regards to the creation and understanding mechanisms of health, disease, and social distress.

The taxonomy of the tool allows for a differentiated reading by context and to move according to the degree of monitoring required, along a scale of analysis that facilitates the transition from a global view to a more detailed one, thanks to the articulation of each Context into various domains, for a total of twenty-three. Thus, it is possible to study the physiognomy of the various internal dynamics within the three contexts and, therefore, the different determinants that characterize the diverse and peculiar trends of their respective macro-levels. Each Domain aims to describe and measure different areas, including:

1. For the Individual and social relations Context: Health status; Literacy; Lifestyle; Mental health; Chronicity; Isolation; Social cohesion; Economic fragility.

2. For the Organizational system Context: Prevention; Healthcare assistance; Avoidable mortality; Availability of services; Responsiveness; Integrated welfare; Sustainability; Territorial homogeneity.
3. For the Environment and living places Context: Housing conditions; Urban Health; Polluting emissions; Antimicrobial resistance; Meteorological and climatic events; Eco-anxiety.

4.5.1 The Domains of the Taxonomy and the Missions of the NRRP

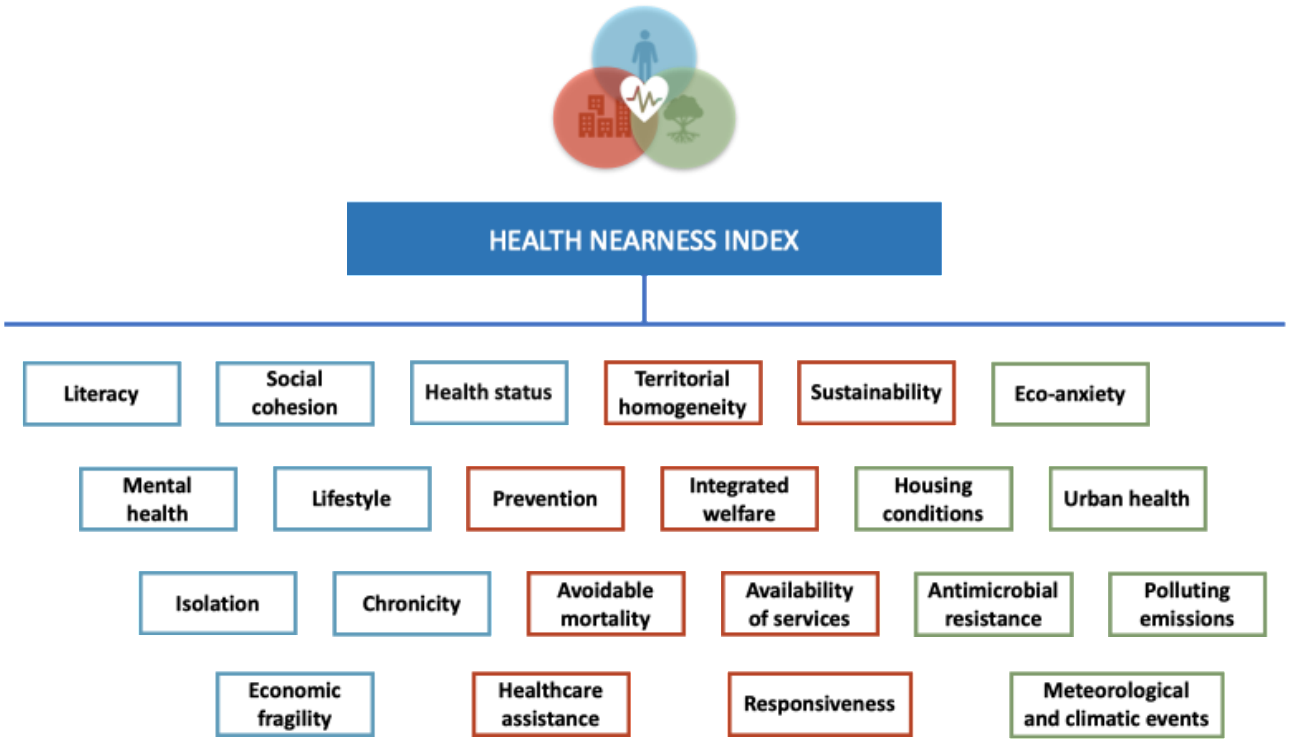

Figure 3 - The Taxonomy of the Health Nearness Index

The complete Taxonomy includes 22 Domains, and the areas investigated for the development of the Health Nearness Composite Index are strongly interrelated with the dimensions of the NRRP, particularly with Missions 5, 6, and 2, and with the latest Mission 7 as envisaged by the new ReactPowerEU chapter.

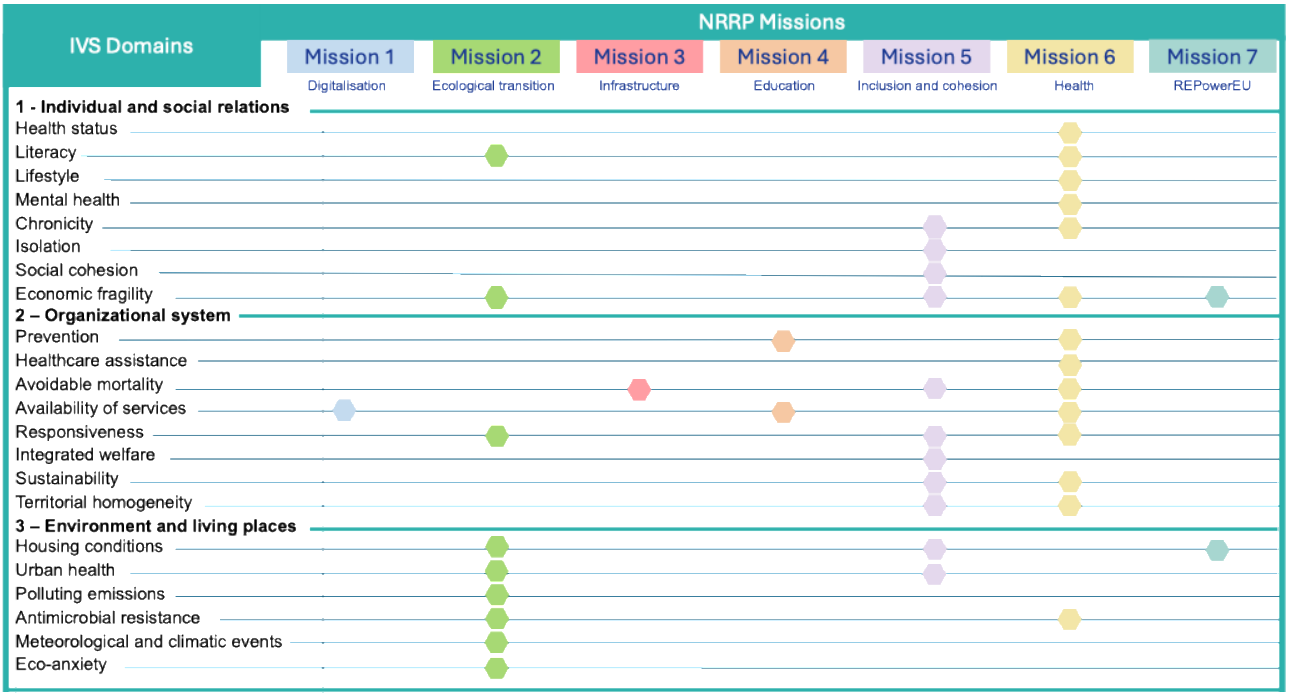

Figure 4 - IVS Domains and NRRP Missions

5. Analysis - Survey Results

Monitoring the state of public health provides governments with useful information for planning and evaluating their policies, helping to identify inequalities among population groups and to assess progress in achieving health goals. Measuring the state of health and the quality of life of individuals both quantitatively and qualitatively requires the construction of tools capable of capturing the many subjective and functional dimensions of well-being, including characteristics and perception of physical, mental, and social status.

Creating a composite index to measure socioeconomic phenomena related to health is even seen as a necessary effort for the analysis and evaluation of the alignment and coherence of policies not only in the health sector but also concerning individual and collective well-being, in a complex and articulated context such as that unfolding since 2020.

4.2 The Concept of Health Nearness

The most widespread definition of health is the one accepted by the World Health Organization (WHO) in the aftermath of World War II and enshrined in the preamble of its constitutive convention: "All peoples have the right to access the best possible state of health, understanding health as a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity" [54].

This definition, better than others, synthesizes the totality of the human experience and the interdependence between its components—biological, psychological, social—while also considering the predominant role of healthcare in influencing and determining the well-being of the population. Thus, health is not identified merely by the absence of disease or symptoms but also as a positive social and mental conditions which allow the individual to perform daily activities.

Health can be seen as a resource needed for everyday life, through which a person can, on the one hand, realize their social ambitions and meet their needs, and on the other, evolve with the environment, adapt to it, and overcome inevitable periods of crisis.

Thus, the concept of health can be defined in at least four dimensions:

1. A strictly medical dimension: health as the absence of disease.
2. A social dimension: health as the ability to perform a social role.
3. An idealistic vision: health as complete physical, psychological, and social well-being.

[54] (Italian National Institute of Health, 2013)

4. A humanistic dimension: health as the ability to positively adapt to life's problematic situations[55].

In this perspective, a definition is outlined that is so broad it approaches and intersects with the concept of happiness and life serenity, an ideal state to aspire to that prioritizes subjective perceptions. Thus, the concept of health is closely connected to that of quality of life, which is identified with the level of individual well-being in relation to the socio-cultural and environmental context.

The Concept of Health Nearnsess refers to *the relationship that exists between a person and the availability of health as a good in terms of in space, time and the possibility of benefiting from it*[56]. Essentially, it aims to bring as close as possible the moment when the need for health arises, the moment this need is recognized, and the moment a response is provided, the moment the target user is able to benefit.

This concept translates, for example, into equitable and universal access to quality education at all levels, healthcare, and social protection, outlining a society where physical, mental, and social well-being is ensured to a 360-degree extent and homogeneously available across the national territory. In addition to priority development goals such as eradicating poverty, protecting the right to education, promoting food security, and nutrition, it sets out a broad range of economic, social, and environmental goals.

The semantic sphere, therefore, encompasses solidarity, inclusivity, integration, and mutual social and relational support. Based on the distance in time and space between the emergence of a need and the ability to intervene, three contexts can be identified and classified, overlapping the levels of social analysis previously mentioned: micro, meso, and macro.

Thus, the complexity of the Concept of Health Nearnsess is shaped by multidimensional and multilevel phenomena, which trace the mentioned three levels of analysis respectively to three main levels: an individual level; a systemic level; an environmental level. This is because the analysis of social structures and change (macro) is not an alternative to the study of interactions and everyday life (micro) but identifies complementary research horizons. The meso level is a level of connection between the focus on the individual and the focus on social systems. According to this logic, current health programming and funding actions are interpreted in a unified perspective, synthesized in the concept of health, intended as a good to be made as accessible as possible to the citizen. Here, the individual is seen as the primary actor and therefore the starting point for measuring Nearness.

[55] (Zanella, 2011)
[56] (Carusi, D., 2021)

4.3 The Composite Index

To improve our health system, according to the models of Stewardship and Partnership, it is first necessary to accurately capture the current situation and, retrospectively, its evolution. In this way we can promptly identify both the positive aspects and the issues that need addressing.

This is made possible using statistical tools such as composite indices and indicators, which after an initial phase of analysis and data acquisition allow to continue the study through monitoring and observing the trends over time of the phenomena under examination.

Perhaps more than any other system, the health system requires the availability of such tools, capable of capturing and understanding the internal and structural dynamics of the numerous social, economic, and environmental processes that interact and influence each other over time. To meet these needs, the Health Nearness Index has been designed, which, in line with the rationale of any composite index, does not claim to exhaustively cover all possible dimensions of the health phenomenon; instead, it aims to go beyond the predominant health component as to expand its boundaries in a non-deterministically defined manner. The index represents an easily interpretable tool capable of expressing with a single synthetic trend the different aspects of a multidimensional phenomenon: the annual performance of the components of our health ecosystem relative to the reference year (2010).

The Health, Well-being, and Resilience Observatory intends to carry out, with the development of the aforementioned Index, research and analysis activities both of the components of the national health system and, correspondingly, of the NRRP, specifically Missions 1 (Digitalization, innovation, competitiveness, culture, and tourism), 5 (Inclusion and cohesion), and 6 (Health), whose components and related interventions contribute to implementing and improving the principle of Health Nearness. In this perspective, the Index, through its domains, helps to understand the complex dynamics and phenomena that develop behind the achievement of the various objectives and missions of the NRRP.

The detection of social, economic, cultural, health, and demographic phenomena related to health is realized through an annual measurement that is publicly available and contains an integrated reading of the detected phenomena, described by the synthetic Index. The annual reporting document will thus consist of the findings from primary and secondary source detection activities, the extent to which the chosen scenarios have materialized and identify areas for improvement and intervention. Along with operational research, the current moment of revolution in organizational paradigms in the health sector opens up the possibility of examining the profound dynamics at work at the legal order level, towards which moments of discussion and in-depth analysis can be established.

The Health Nearness Index is intended as a synthetic measure designed to detect the existence of conditions and interventions considered factors that contribute positively

to health and, conversely, to detect gaps and delays that distance the availability of the health good from the individual. In developing such an instrument, therefore, there is a pressing need to have measures and parameters that are simple to interpret but effective in defining interventions and reforms that need to be implemented on the territory, and the monitoring of their correct implementation, all this through a lens that considers various interdependent and multilevel factors.

4.4 Methodology and Sources

To accurately measure Health Nearness, the composite index was conceived along three axes, namely the three "Contexts": individual, systemic, and environmental. These were identified based on a theoretical framework that places the individual sphere at the centre, embedded within two areas with an increasingly broad examination perimeter, extending to the environmental system.

Each Context encompasses a number of domains, which represent the areas of investigation and the phenomena chosen for monitoring.

Given the complexity and the number of domains considered, two or more indicators were used for each, selected according to specific methodological criteria and requirements.

The set of indicators considered thus represents the final choice of a long and careful analysis of possible combinations and aggregations of various variables and phenomena capable of generating relevant information in relation to the theoretical framework identified for constructing the composite index. From an initial set of over 280 candidate indicators, a verification of the requirements for each indicator was conducted, an activity that allowed the reduction of the set to about 170 indicators; subsequently, it was necessary to further refine this to understand which and how many of these were actually the most suitable to describe the nature of the Health Nearness Index, resulting in a final total of 78 indicators (of which 72 contribute to the Index and an additional 6 observe the phenomenon of Digitalization, though not included in the Index due to lack of time series meeting the set standards).

The selection of indicators primarily occurred according to four criteria:

- Validity: indicators were selected from those already used and processed by various statistical institutes, institutional and research entities, and national surveillance systems, publicly accessible, including AIFA; ASviS; Agenas; ANIA; COVIP; Eurostat; ISPRA; ISTAT; ISS -; ESWD - European Severe Weather Database.

- Specifically, the used indicators were selected from 10 different sources.

- Availability of values in an adequate historical series: indicators with a complete and consistent historical series were selected so that values could be compared over time, starting from at least 2010.

- Spatial and generational comparability: the ability to observe values across various regional units and age groups.

- Irreplaceability of each indicator: the impossibility of compensating for or replacing the values of one indicator with those of another.

4.4.1 Imputation of Missing Data

In the final selection of chosen indicators, in specific cases concerning indicators deemed particularly important, it was decided to retain some indicators that did not fully meet the methodological criterion of completeness of the historical series.

The process then moved to the imputation of missing data, which involves substituting missing or erroneous values in a data record with coherent and plausible alternatives. The aim of imputation procedures is to reduce the distortions introduced by the presence of missing data and to provide greater assurances about the consistency of the results derived from the applied analyses. Consequently, depending on the specific nature of the missing data, the decision was made to fill the gap using statistical tools and formulas.

Three types of missing data were identified, and depending on the case, different interventions were considered:

1. For historical series that showed missing values at the start of the series, a linear forecasting function was used[57]. Specifically, the missing data was calculated using a linear regression[58]. Using the values from the first three years available as reference, the value for the preceding year was estimated.

2. For historical series that showed missing values within the series, a mathematical interpolation formula was applied. Mathematical interpolation[59] was used to calculate values within an interval of already estimated data and was applied for two specific cases.

[57] **Prediction:** Calculating or forecasting a value using existing values. The value is a y value for a given x value. The existing values are known x and y values, and the estimated value is predicted using linear regression.

[58] The regression line is used in statistics to study a linear relationship between two quantitative variables. The parameter a is the slope, which represents the steepness of the line, and the parameter b is the intercept, which is the point where the line crosses the Y-axis. The regression line is applied within the simple linear regression model to estimate the value of a dependent variable Y as a function of an independent variable X. Regression, therefore, is based on a correlation relationship between two variables, where one is directly related to the other.

[59] **Interpolation** in statistics and numerical analysis refers to the process by which, given some known ordered values x1<...<xnx_1 < ...< x_nx1<...<xn of an independent variable **X**, and, corresponding to these, as many values y1,...,yny_1, ... , y_ny1,...,yn of a dependent variable **Y**, the unknown values of **Y** are determined corresponding to the values of **X** that belong to the interval [x1,xn][x_1, x_n][x1,xn] but differ from the previous ones (Treccani, 2013).

3. For historical series that showed missing values at the end of the series (2021), a forecasting function was utilized through the application of the Exponential Smoothing (ETS) algorithm. The ETS algorithm calculates a future forecast through a weighted average over all observations and past values of the time series dataset. The weights decrease exponentially, thus diminishing over time. These weights depend on a constant parameter, known as the smoothing parameter. A weighted average was chosen as the forecast in such a way as to give more importance to the most recent values over the earlier ones[60]. For most of the forecasts thus employed, the calculation was preferred to be based along the entire available time sequence, therefore selecting as the starting value that referred to the year 2010, in order to achieve a more accurate measurement. The forecasted value thus resulted as an estimate as closely adherent to the preceding chronological values as possible. In the case of historical series with missing values at the end of the series and which showed an anomaly in the last available year (2020), after qualitatively analysing the nature of the indicator in question and assuming that such anomaly could have been generated by the pandemic shock and that this phenomenon might continue into 2021; it was decided to intervene differently on the ETS forecasting formula: only data relating to the last three available years were used for the ETS forecast calculation, in order to assign greater value to the anomaly and the subsequent different trend.

4.4.2 The Method of Normalizing Historical Series

The year 2010 was chosen as the starting point for the various historical series because it represented the year with the best trade-off between the minimum necessary length for the historical series and the availability of indicators; the last reference year chosen is the latest available from the sources, which at the time of publication was 2021.

Although set of indicators thus far constituted represents a consistent set in terms of the established selection criteria, it was initially characterized by a high heterogeneity of measurement units inherent to each indicator, which did not allow for a direct comparison between the various indicator values.

This initial heterogeneity derived from the fact that the different indicators measured diverse and distinct phenomena; consequently, each had specific functions and objectives that entailed different methods of detection and, ultimately, data values (e.g., absolute values, percentages, etc.).

Therefore, for the purposes of calculating the Health Nearness Composite Index - i.e., measuring the trends of its components - it became essential to apply an indexing procedure and thus normalize all data into percentage values. The year 2010 was identified as the reference year for the indexing of the historical series, and each indicator was recalculated on a new base starting from a percentage value of 100

[60] (Exponential Smoothing Method (ES))

assigned to the reference year, applying two different formulas depending on the polarity of the individual indicator:

- In the case of positive polarity, the index number with a fixed base of 2010 was calculated.
- In the case of negative polarity[61], an inverse formula was applied, adding 100 to the difference between 100 and the index number with a fixed base of 2010.

4.4.3 The Weighting Method of the Index

The taxonomy of the Health Nearness Index (discussed in detail later) is structured into 22 domains, fuelled by 72 indicators and organized into 3 contexts.

Regarding the weighting method of the index, it was decided to assign the same statistical weight to each Domain, which this takes up the value of 1. This choice, namely, not to assign different statistical values to each study area that makes up the Index, is due to the desire not to inadvertently give more importance to one aspect of investigation over another, possibly leaving such a methodological approach to subsequent analyses. The 72 indicators are distributed heterogeneously across the various domains; therefore, a unique weight cannot be assigned to all indicators, as was preferred for the domains. Each indicator assumes a statistical value equal to 1/n, calculated using a simple average, and thus in relation to the number of indicators that pertain to the Domain under examination.

4.5 The Index Taxonomy

The following section presents the results of the Observatory's annual research on Health Nearness, displaying both graphical and quantitative trends observed for the individual dimensions that constitute the taxonomy of the Health Nearness Index.

The presentation will progressively increase in detail, starting with the general trend of the Index, followed by the trends within its Contexts, and finally the trends within individual Domains.

The taxonomic structure of the Index allows for analysis based on different contexts and domains: it provides the flexibility to adopt either an overall view or a more focused, disaggregated analysis on specific themes and phenomena.

This tool thus enables the study of the dynamics related to the three Contexts and, consequently, the identification of the various Domains and Indicators that most characterize their respective trends and developments.

[61] Negative polarity has been assigned to those indicators that measure the development of an unfavorable phenomenon, where an increasing trend in values over time reflects a reduction in the Proximity to Health.

Beginning with a general perspective, the survey will then delve into the trends of individual Contexts, highlighting the evolution of various phenomena underlying the individual Domains.

The structure of each Domain, composed of various subcomponents, allows for deeper investigation and detailed analysis of the results provided by the individual Indicators.

Preface to the results reading

As indicated in the methodology, some indicators have a "negative polarity," meaning, in practical terms, that as the values detected for the investigated phenomenon increase, the situation worsens in terms of "health Nearness." For example, an increase in fine particulate emissions in the air would result in a decrease in Health Nearness, leading to a worsening trend and lower scores on the respective chart. Therefore, keep in mind while reading the results that the values recorded and reported through the corresponding graphs always refer to the contribution that the phenomenon, observed each time, makes to bringing the "health good" closer to the person and thus to the trend of Health Nearness.

5.1 The Health Nearness Index Trend

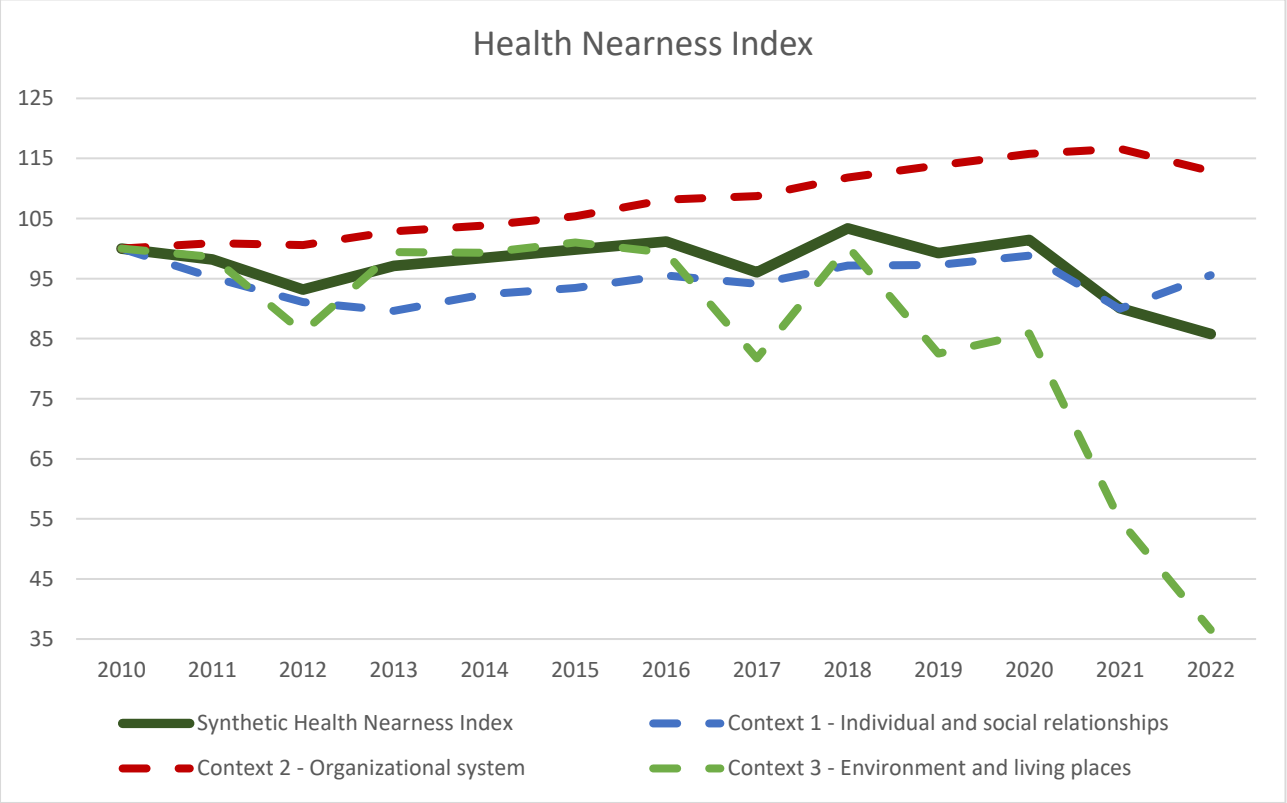

Figure 5 - Health Nearness Index

The trend outlined by the Health Nearness Index represents a synthesis of the individual trends of the twenty-two domains that make up its taxonomy. Figure 5 depicts the overall trend of the Synthetic Health Nearness Index, including details of the trends of the three Contexts that comprise it. It is immediately noticeable how the various forces at play and their respective, even contrasting, contribute to shaping the depicted trend.

The Index as a whole does not describe a linear progression but appears to fluctuate over the years, sensitive to the dynamics and various changes within the heterogeneous contexts of social, economic, and environmental nature. This fully reflects the logic inherent in the One Health approach, where every aspect and change, whether internal to the individual sphere or external to it—thus related to dynamics beyond an individual's control—has significant repercussions on people's lives, with positive or negative consequences on health Nearness.

The Health Nearness Index, tracked from 2010 (base reference year with a score of 100), initially shows a marked downturn during the sovereign debt crisis years (2011-2012), then continues its trend with a steady and consistent increase until 2016. The last two years display a marked decline, reaching a historical low in 2022 with a score of 86. This result is not solely due to the pandemic shock, as one might immediately think, but also to other concurrent causes related to the different Contexts.

From the Observatory's analysis, it is evident that this outcome is influenced by the negative trends of some components of the Health Nearness Index, specifically: the "Environment and living places" Context, which suffers from the intensifying effects of climate change and reaches a score of 37. The "Individual and social relationships" Context, after being affected by the restrictions during the pandemic, has begun to grow again, reaching a score of 96.

Lastly, the trend of the "Organizational system" Context, which had been consistently increasing until 2019, then halted its historical growth starting from that year, and has shown a "plateau" in recent years, before reversing the trend and describing a marked decrease in the last year.

A more detailed analysis of the individual Domains that make up the Contexts allows for a deeper understanding of the factors contributing to the general curve trends, aiding in navigating the understanding of the phenomenon and identifying its causes.

The overview of the survey results for Contexts and Domains will be reported below.

5.2 The Trend of the Individual and social relationships Context

The Individual and social relationships Context is composed of eight Domains: Health status, Literacy, Lifestyle, Mental health, Chronicity, Isolation, Social cohesion and Economic fragility. This Context examines various phenomena and dynamics related to the individual sphere and social relationships, characterizing it as a collection of areas of interest and immediate intervention linked to the person.

Structured in this way, the Individual and social relationships Context is also aimed at capturing the main themes of Mission 5 - Inclusion and Cohesion of the National Recovery and Resilience Plan and Mission 6 - Health.

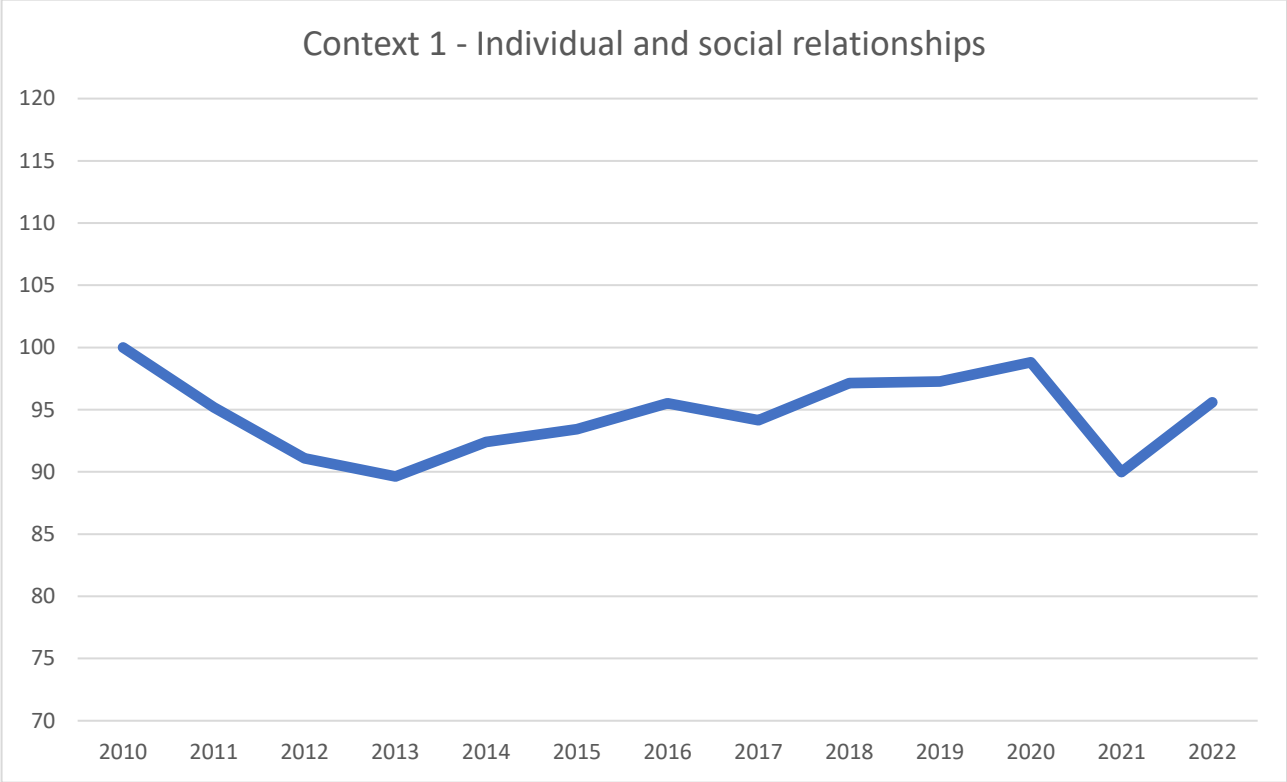

Figure 6 - Individual and social relationships Context: General Trend

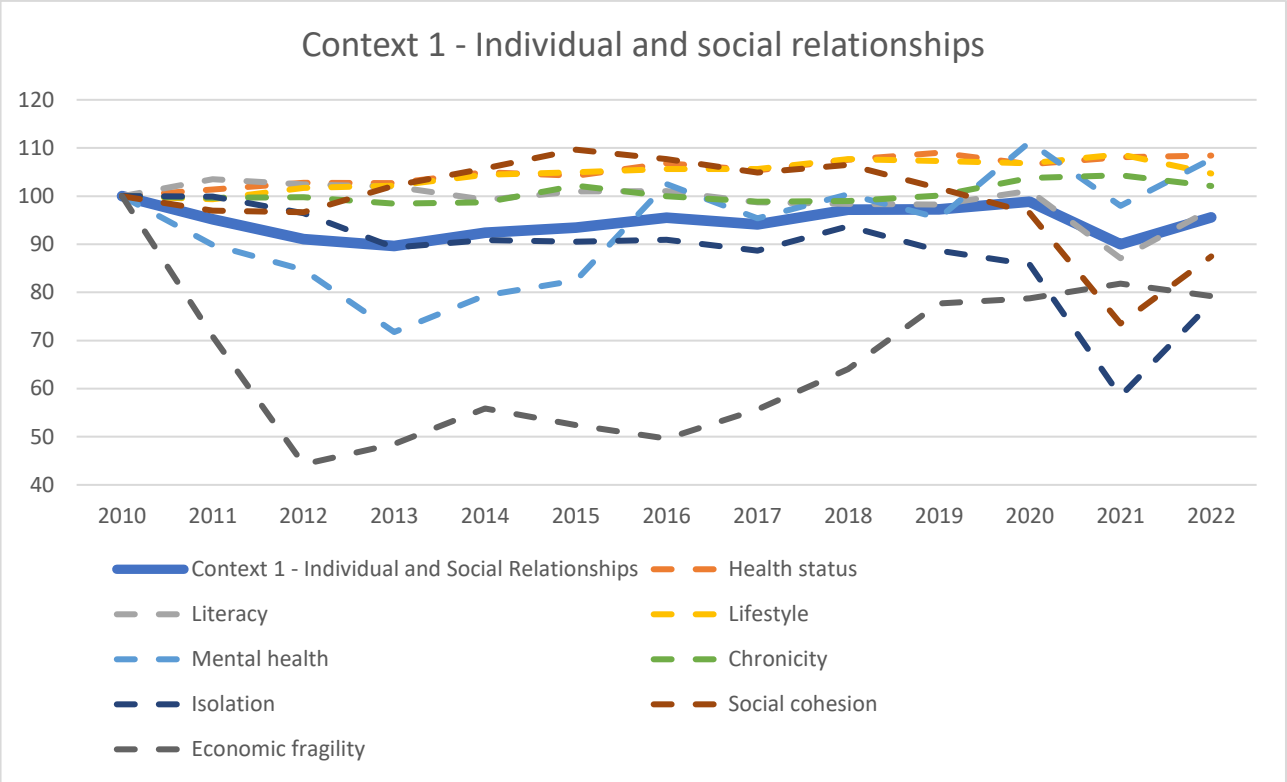

Figure 7 - Individual and social relationships Context: Domain Details

The first chart of the Individual and social relationships Context shows the general trend of the Context, representing the synthesis of the trends of the eight Domains that compose it. Starting from the standard value of 100 points in 2010 and along the historical series under review, the trend initially traces a marked decrease, reaching a value of 91 points by 2013; it then continues up to 2020 with a moderate and almost linear growth, bringing the curve back to levels close to those of 2010.

The impacts of the Pandemic can be observed in the drastic downturn detected in 2021, where the score of 90 points represents the historical low in the trend of the Context. The trend resumes its growth over the last year, climbing to a value of 96 points.

The second chart shows the trends of the individual Domains within the Context, with immediate attention drawn to the domains of Economic fragility, Social cohesion, and Isolation, particularly noting how the values of these last two plummeted during the years of the pandemic.

The following charts will describe individually all the Domains that compose the Context.

5.2.1 Health status

Health status refers to the state of physical and mental well-being, the absence of disease or infirmity. These psycho-physical conditions are measured not only through objectively measurable data, but also through a subjective evaluation by the individual that must be integrated with environmental and social dynamics to determine not only the life expectancy of the population but also the life expectancy in good health as objectively and subjectively perceived.

The advantage of having a quantitative and qualitative dimension of people's health status is clear: it aids in the demographic and epidemiological identification of those parts of the population that require more preventive and care interventions and become a priority target for health planning at both central and local levels.

This area of research includes four indicators: Good health status (perceived); Healthy life expectancy at birth; Life expectancy free from activity limitations at age 65; Life expectancy at birth (threshold value 75 years). Collectively, these indicators aim to monitor not only the perceived health status but also the average number of years a person can expect to live in good health.

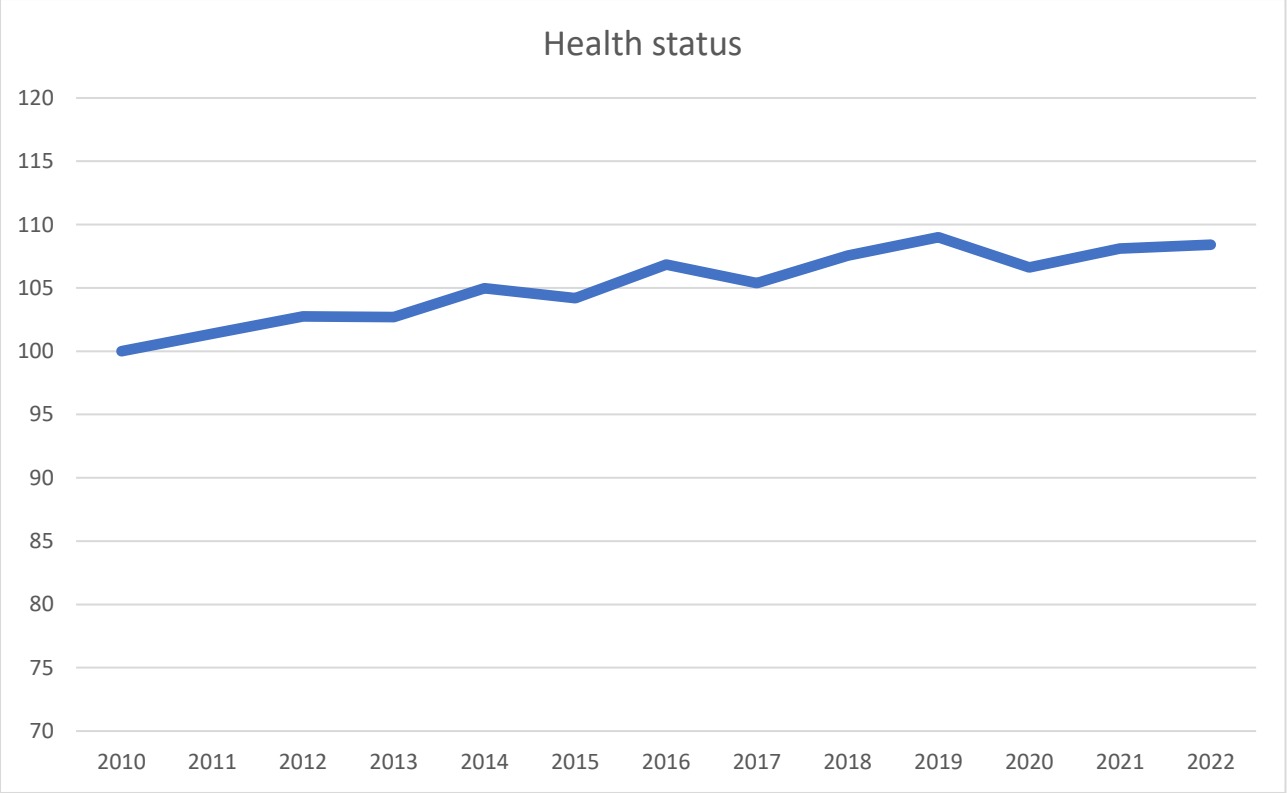

Figure 8 - Health status Domain: General Trend

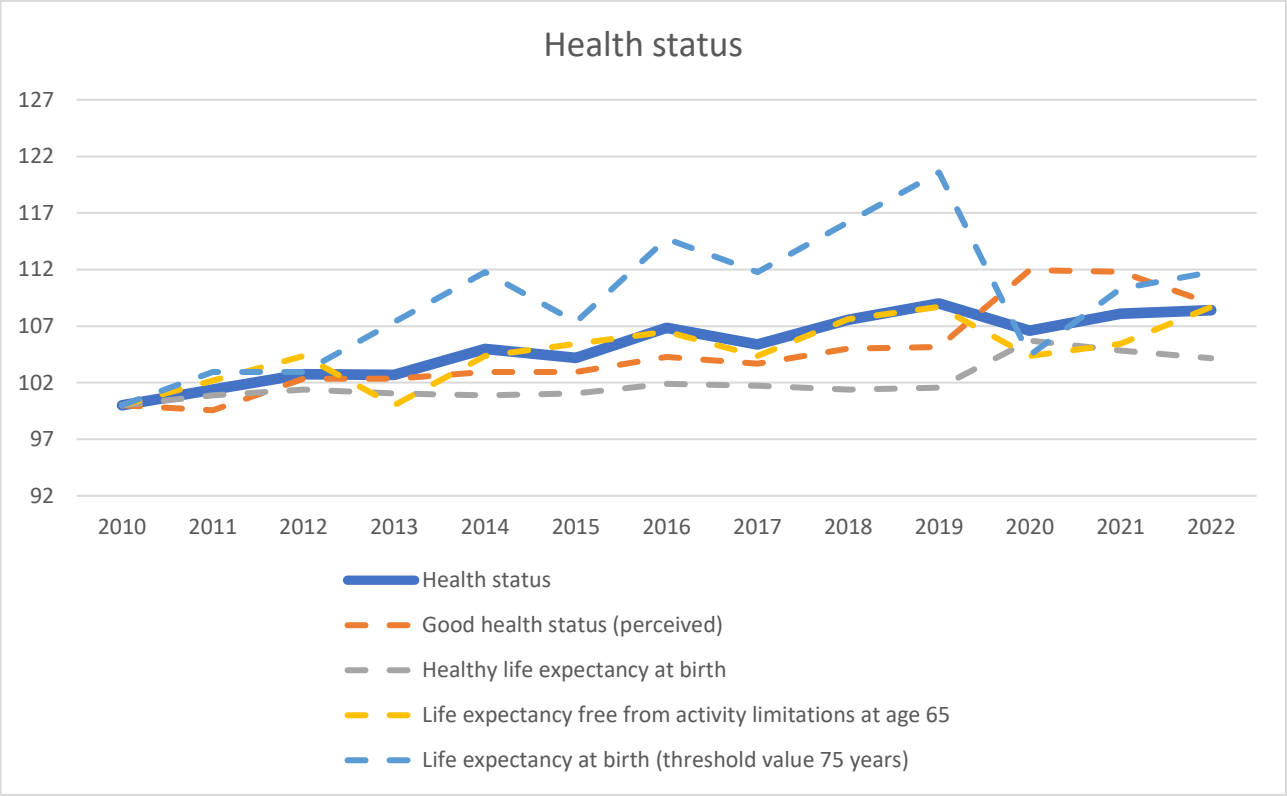

Figure 9 - Health status Domain: Detail of Indicators

The analysis of the domain shows a trend characterized by intermittent variations, but with a steady increase from 2010 to 2020. From 2021 to the present, however, the values have plateaued at 108

Regarding the indicators linked to the domain, there is a slight decrease in Good health status (perceived) and Healthy life expectancy at birth. The assessment of this specific indicator requires particular attention due to its intrinsic structure, which can be influenced by an increase in mortality among older age groups during the pandemic period. Life expectancy at birth (threshold value 75 years) shows a slight recovery in 2022 compared to 2021, although it remains below the levels of previous years.

5.2.2 Literacy

The concept of literacy describes the ability of people to acquire new skills and the capacity to identify, understand, interpret, create, and communicate using written and non-written material from various contexts. “Literacy identifies continuous learning in individuals as they aim for their goals, develop their knowledge and potential, and fully participate in community and societal life” (UNESCO, 2005).

Literacy is a profound and fundamental component which represents the investment to be made in training and cultural dissemination for the entire society. A high level of literacy widespread among the population positively and deeply influences individual well-being since it affects healthier life choices and less risky behaviours, in addition to contributing to the reduction of inequalities.

Studying and examining literacy also means investigating the conformation of this phenomenon, which takes on different connotations depending on the contexts in which it is placed. Specifically, two branches are examined: Health Literacy and Digital Literacy. These two macro trends are inevitably related, especially when they meet in the field of telemedicine.

According to the results of the first Health Literacy population-based survey HLS19, conducted in 2021 by the Italian National Institute of Health, 23% of the Italian respondents were found to have inadequate health literacy, 35% had "problematic" health literacy, 34% "sufficient," and 9% "excellent." The respective averages for the total of 17 countries were 13%, 33%, 40%, and 15%.

Italy added a module dedicated to the Covid-19 pandemic emergency to assess how easy it is to find, understand, evaluate, and make decisions based on available health information. The outcome was that for 6% of the sample, it was "very difficult," for 25% "difficult," for 52% "easy," and for 17% "very easy."

The Literacy Domain comprises four indicators: Use of internet to search for health information; Reading newspapers at least once a week; Cultural participation; School dropout. The choice of these indicators meets the need to monitor the development of the cultural and cognitive level of people, not only concerning the education system but also regarding the personal sphere and the desire for individual knowledge.

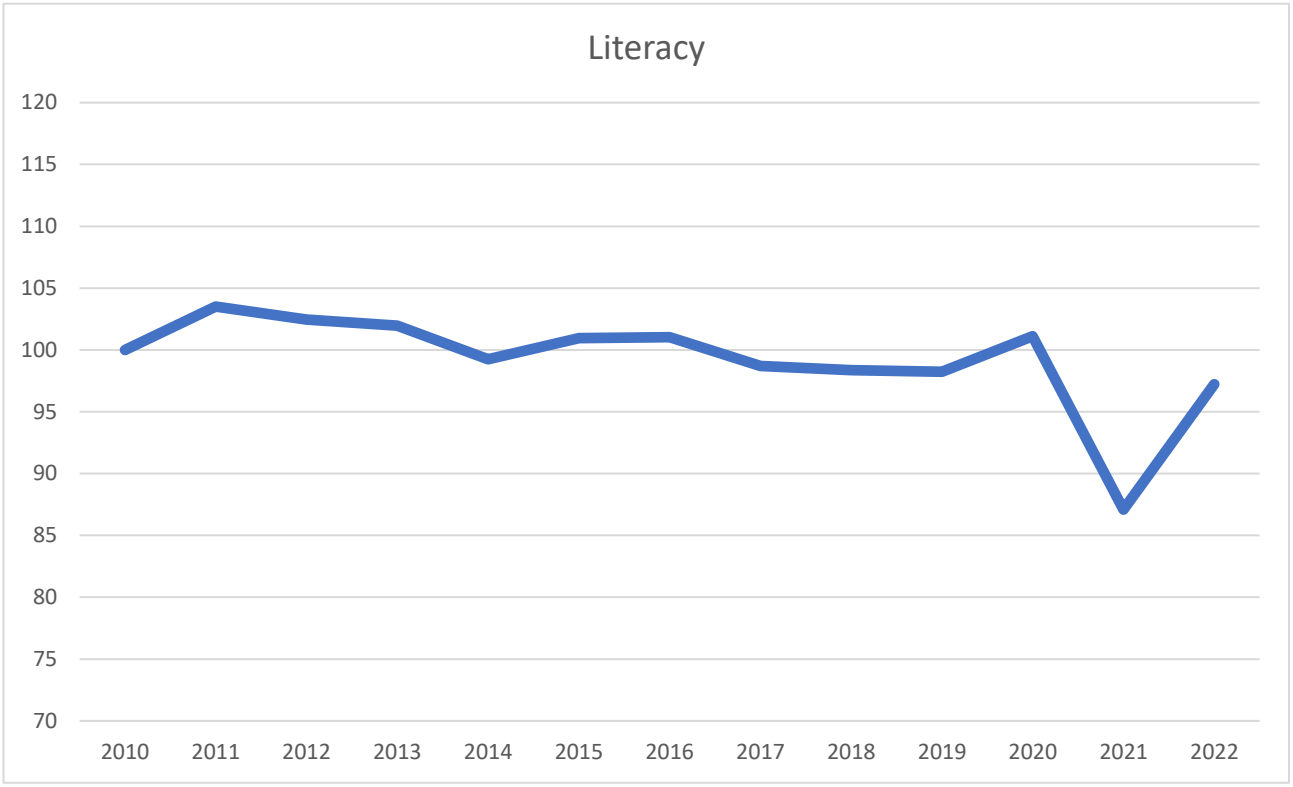

Figure 10 - Literacy Domain: General Trend

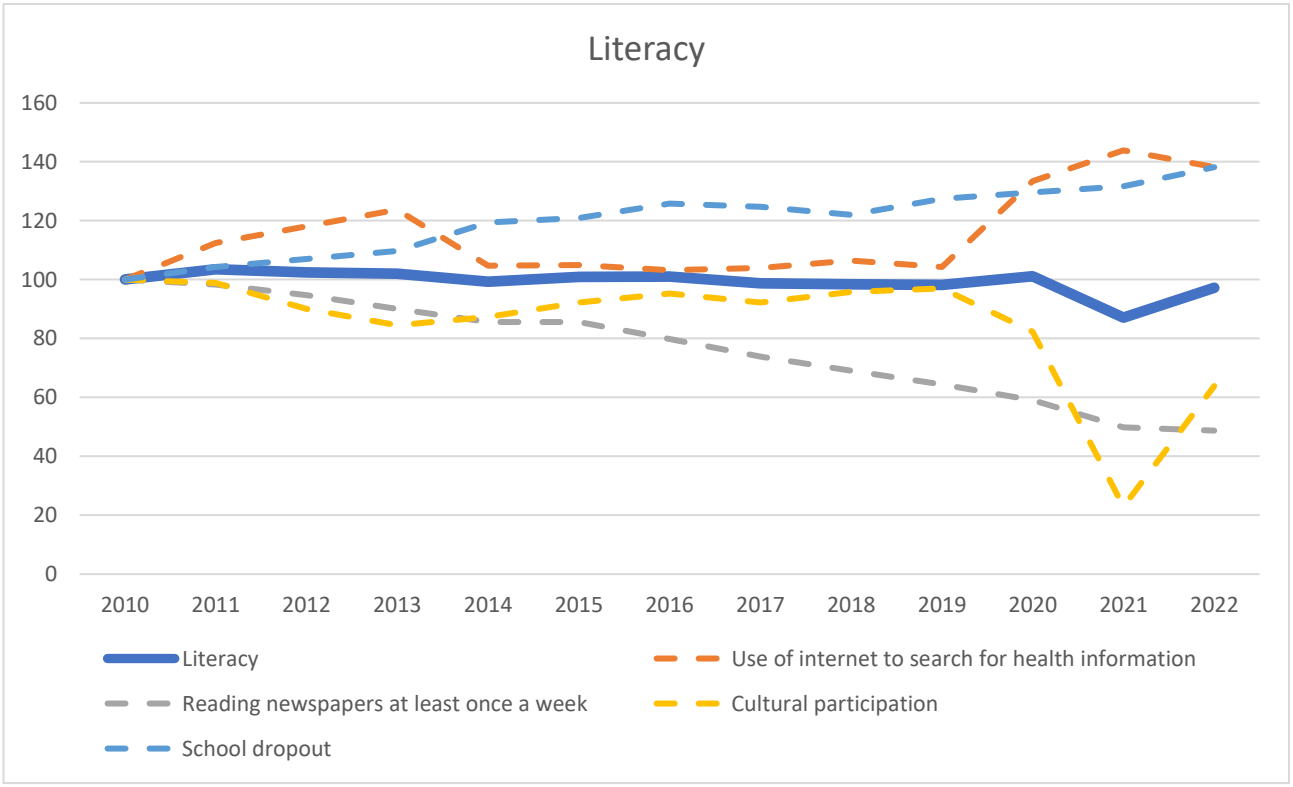

Figure 11 - Literacy Domain: Detail of Indicators

The domain under examination shows a linear trend with very limited variations from the standard value of 100 until 2020. Following a sharp deterioration in 2021 with a value of 87, there is a growth of 10 points that brings the general trend back to usual values.

The dynamics of the indicators underlying the Domain show a significant drop in the indicator related to Cultural participation for the year 2021 is highlighted, a trend that was affected by the restrictions in place during the pandemic phase. Once the crisis was overcome, and with it the containment and mitigation actions of the viral spread were abandoned, the phenomenon under examination acquires a positive trend, albeit without reaching the values prior to the pandemic.

Conversely, there are the trends of the indicators: Reading newspapers at least once a week, characterized by a constant decrease, and the Use of the internet to search for health information which, after an initial increase, records a drop of 6 points.

5.2.3 Lifestyle

Lifestyle can be described as the way in which individuals define themselves and evolve within the reality and society in which they are embedded; it is, therefore, their profile of thought and action. Lifestyle significantly impacts people's health[62]: this realm encompasses all those behaviours, values, interests, and habits that have significant repercussions on an individual's well-being and quality of life. From a strictly sociological perspective, lifestyle refers to patterns of thought and behaviour that are strongly influenced by various external variables to the individual, such as environmental, economic, and social factors.

From a health perspective, what most characterizes individual lifestyle concerns decisions related to diet, physical activity, and bad habits acquired, such as smoking and alcohol consumption.

Thus, this Domain encompasses five indicators within it: Healthy diet; People who do not practice sports; Overweight; Tobacco use; Alcohol consumption.

[62] Thorstein Veblen & Max Weber

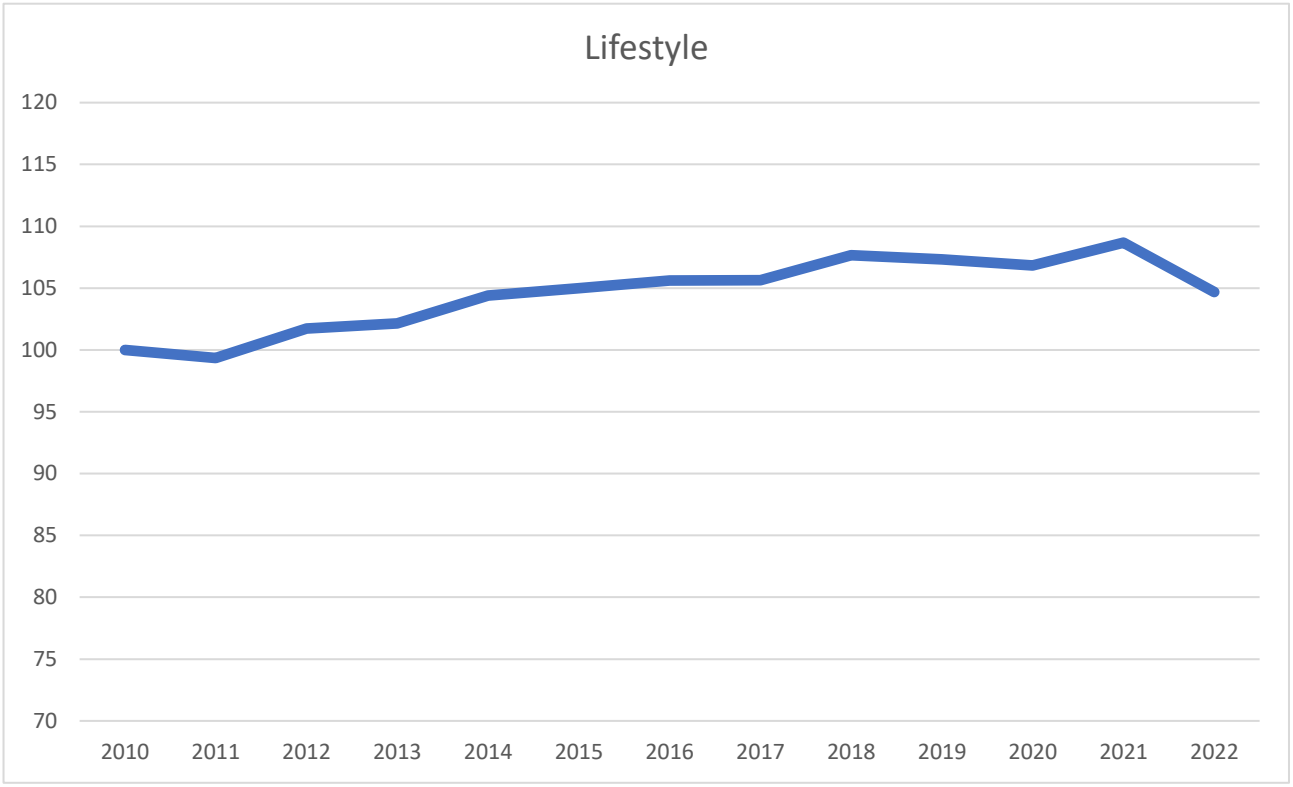

Figure 12 - Lifestyle Domain: General Trend

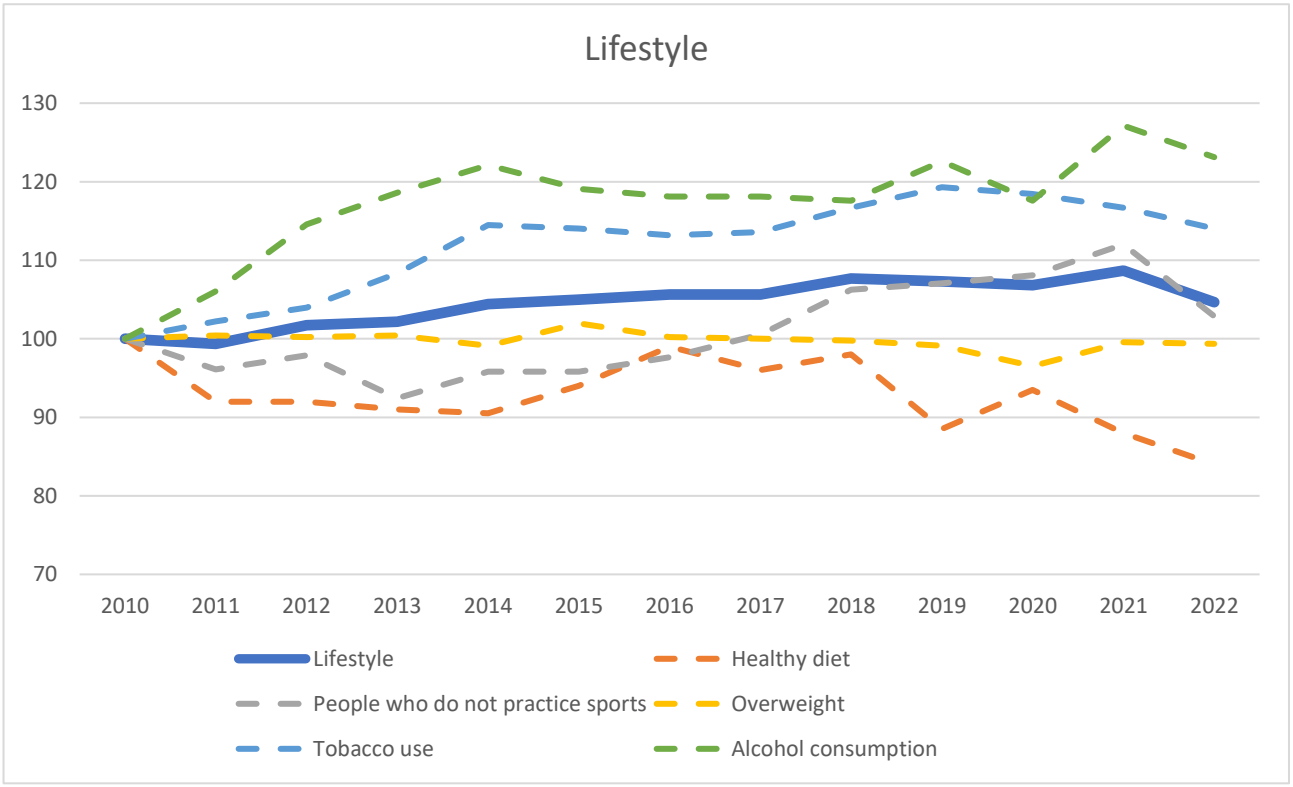

Figure 13 - Lifestyle Domain: Detail of Indicators

The "Lifestyle" domain, up to 2021, recorded a trend of moderate and steady growth, which, however, dipped in the last year, dropping to a value of 105 points.

Within the dynamics of the indicators underlying the domain, it is evident that most of the indicators condition the overall decline, with only the "Overweight" indicator maintaining a nearly constant trend.

The trend of the domain is balanced by the contrasting forces of various indicators, which split above and below the average trend. The " Tobacco " and "Alcohol consumption " have historically traced a positive trend in terms of Health Nearness, despite various ups and downs. Both the " Healthy diet" indicator, after an apparent increase, and "People who do not practice sports" continue to perform negatively, contrary to the confident growth described in previous years.

The behaviour of these phenomena indicates an increase in the number of people who do not follow behaviours and habits aimed at protecting and maintaining their health.

5.2.4 Mental health

The World Health Organization defines Mental health as "a state of emotional and psychological well-being in which the individual is able to utilize his or her cognitive or emotional abilities, perform functions within society, meet the ordinary demands of everyday life, establish satisfying and mature relationships with others, participate constructively in changes to the environment, adapt to external conditions and internal conflicts."

Mental health is thus an integral part of health and well-being and plays a crucial role in enabling people to lead a healthy and productive life. Consequently, the presence of a mental health issue can have a significant impact, potentially contributing to worse educational outcomes, higher unemployment rates, and poorer physical health.

Like other aspects of well-being, mental health can be influenced by various socioeconomic factors which require national strategies for promotion, prevention, treatment, and recovery within a comprehensive government approach.

Mental health can be analyzed using indicators such as perceived health, often used as a global indicator of health status, and the quality of life in its most general aspects. Additionally, various dimensions of well-being must be considered, including relational, functional, participatory, and adaptive aspects, along with reported chronic diseases, use of healthcare services, prevention, and lifestyle choices.

The Mental health Domain comprises four indicators:

1. Symptoms of depression: This indicator tracks the prevalence and severity of depressive symptoms within the population.

2. Life satisfaction (not satisfied at all): This measures the degree to which individuals feel dissatisfied with their life overall, providing insights into general well-being.
3. Suicide rate: This indicator reflects the frequency of suicides within a community, which is a critical measure of mental health distress.
4. Job satisfaction (not satisfied at all): This assesses how individuals feel about their work environment and job roles, as job dissatisfaction can significantly impact mental health.

These indicators together provide a comprehensive view of mental health within a population, highlighting areas where interventions may be necessary to improve mental well-being and overall life satisfaction.

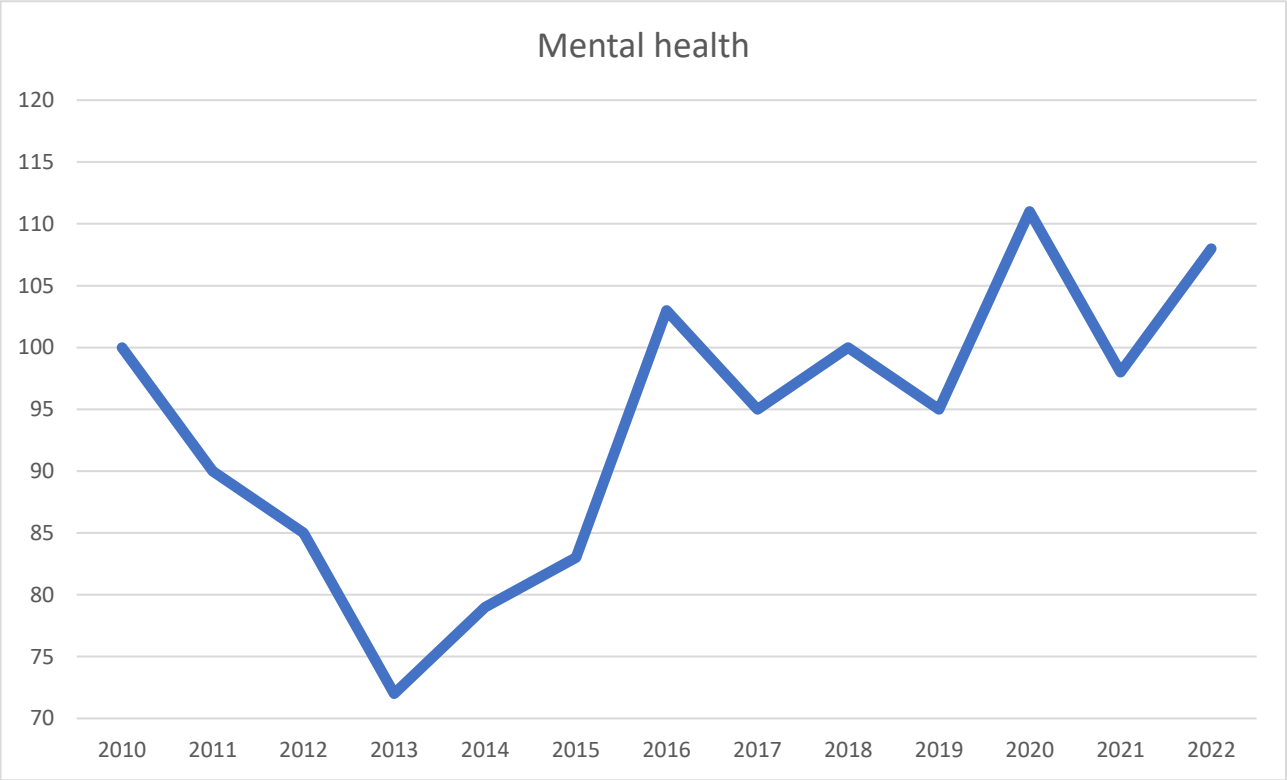

Figure 14 - Mental health Domain: General Trend

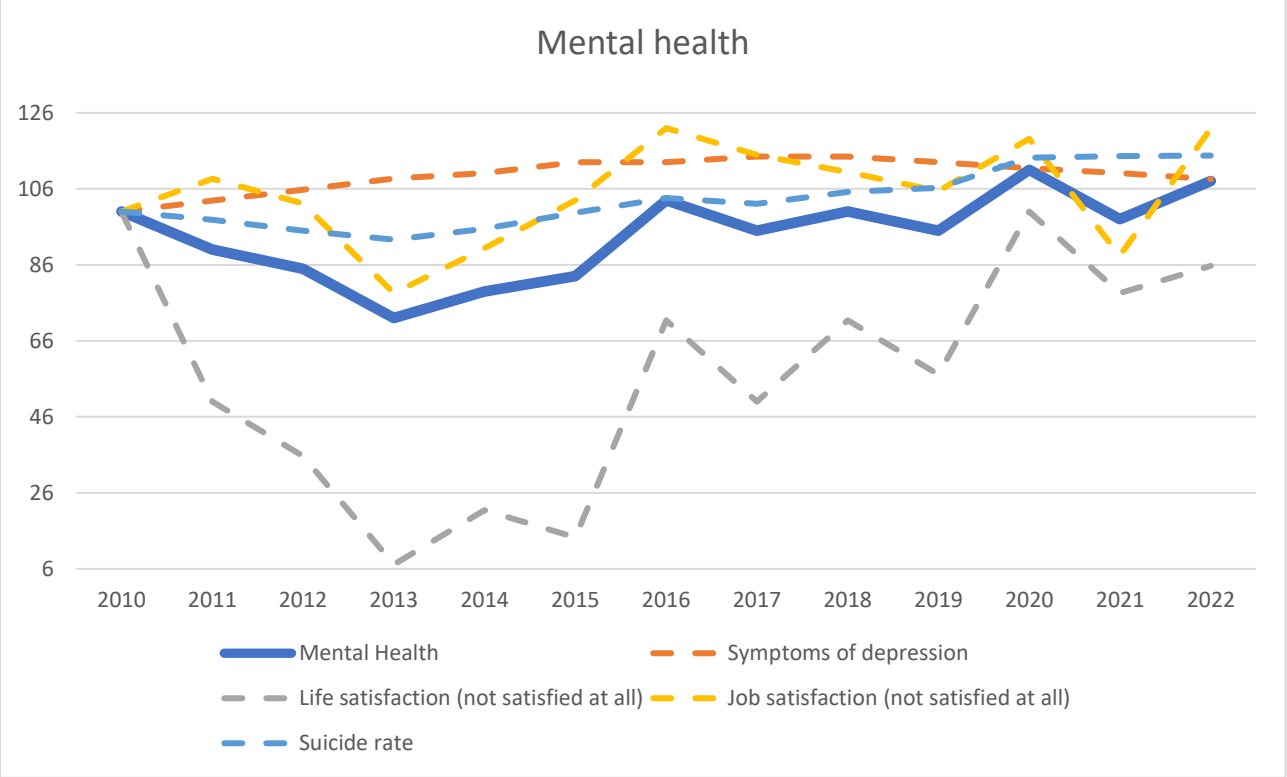

Figure 15 - Mental health Domain: Detail of Indicators

Over the years, the evolution of the domain in question shows fluctuations. In 2022, the general value of the domain reached 108 points, an improvement from the score of 98 the previous year and closer to the values of 2020.

From the analysis of the indicators associated with the domain, there is a rise in the " Job satisfaction (not satisfied at all)" indicator, returning to pre-pandemic levels. The trend of those who identify as "Life satisfaction (not satisfied at all) " should also not be underestimated; it continues to follow a fluctuating path, though marked by a slight increase in the last year.

5.2.5 Chronicity

Chronicity is defined by the irreversibility of a slowly progressing disease condition with limited prospects for resolution and healing. This is associated with a decline in various aspects of life such as autonomy, mobility, functional capacity, and social interactions, leading to an increase in psychological stress, hospitalizations, use of resources (health, social, and care services), and mortality[63]. The most widespread chronic diseases today include cardiovascular and cerebrovascular diseases,

[63] (Ministry of Health, 2016)

respiratory ailments, cancer, neurological disorders, and diabetes. Chronic patients find themselves in a situation of having to coexist over time with one or more diseases which, if well managed, allow for a reasonable quality of life.

Describing and monitoring a chronic condition can be complex because it involves considering dynamics related not only from a purely health and physical perspective but also those social difficulties and disadvantages associated with such a state that contribute to generating adverse effects on health and quality of life.

Given these considerations, three indicators have been selected to outline the phenomenon under study:

1. Patients with chronic illnesses in good health conditions: Measures the proportion of individuals with chronic diseases who maintain a good quality of life despite their conditions.

2. Multimorbidity and severe limitations (over 75): Focuses on older adults who suffer from multiple chronic conditions and face significant functional impairments.

3. People with one or more chronic diseases (% of population): Provides an overview of the prevalence of chronic diseases within the general population.

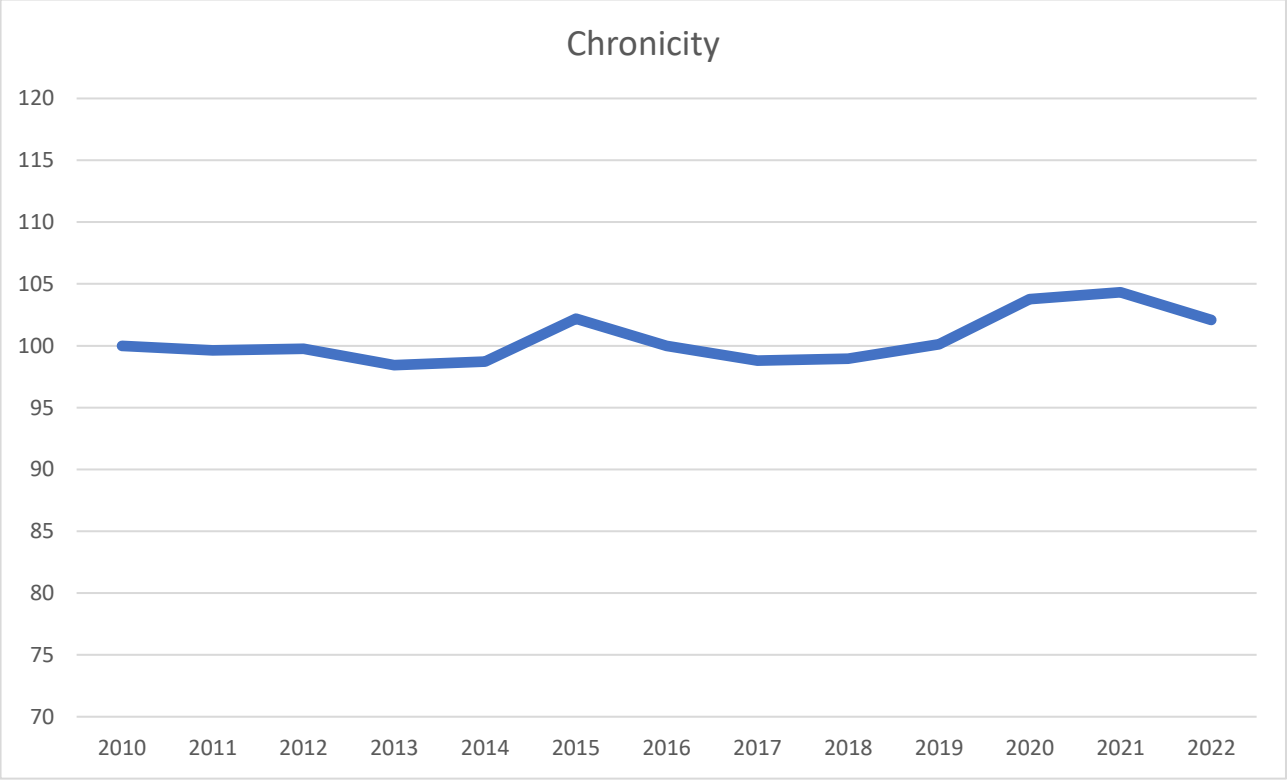

Figure 16 - Chronicity Domain: General Trend

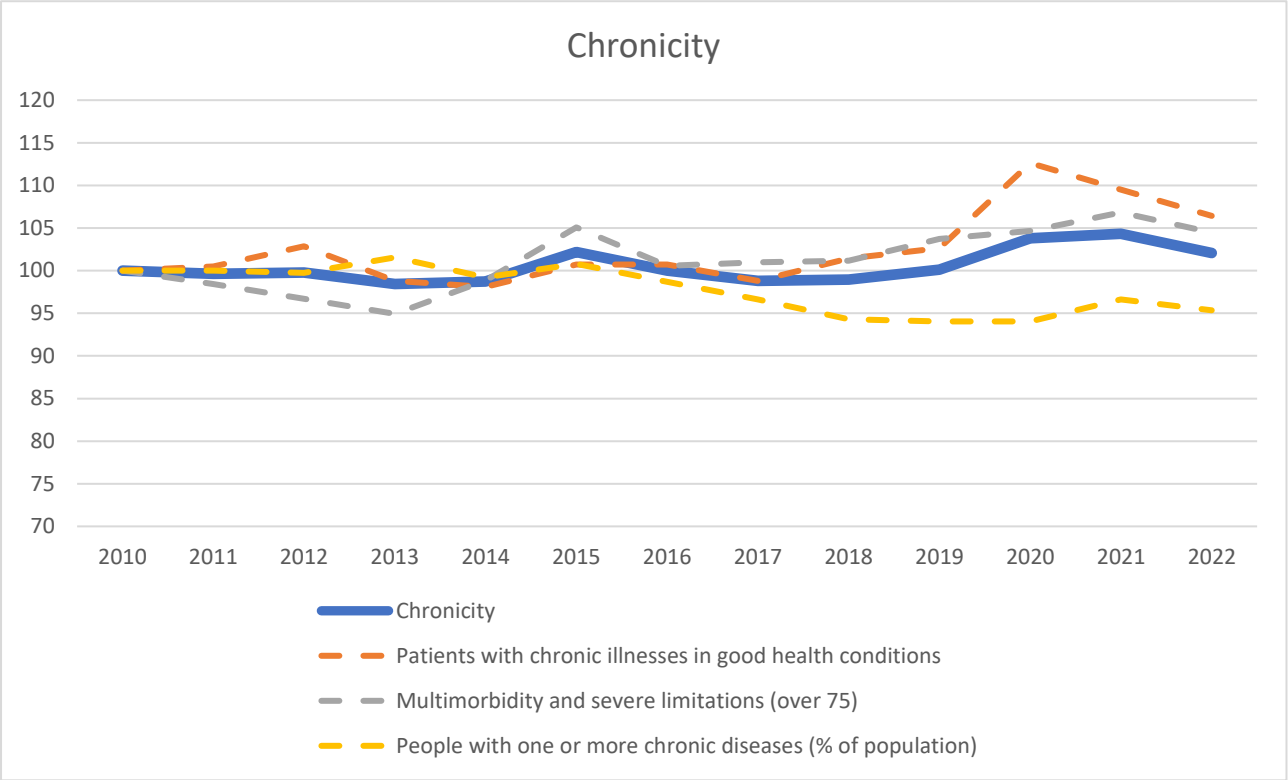

Figure 17 - Chronicity Domain: Detail of Indicators

The domain under examination describes a trend with values very close to the standard baseline of 100. Following improvements in 2020 and 2021, a slight variation occurs, with the value for 2022 decreasing by two points, reaching 102.

In the dynamics of the indicators underlying the domain, a downward push is evident from all three monitored phenomena, particularly when looking at the trend of the indicator " People with one or more chronic diseases (% of population)". Although it experiences fluctuations, this indicator continues its negative trend.

Contributing to the overall decline is the " Patients with chronic illnesses in good health conditions" indicator, whose positive trend, with a historical high of 113 points in 2020, gives way to a sharp drop, reaching a value of 102. Similarly in decline, although with a different trend, is the "Multimorbidity and severe limitations (over 75)" indicator.

5.2.6 Isolation

The tendency towards isolation and loss of contact with the outside world are manifestations of particular conditions of distress that contribute to undermining the mental and physical health of individuals. One of the most significant risks arising from isolation is an increasing difficulty and demotivation for an individual to engage with social life, a problem that can lead to an outright rejection of it. Loneliness and isolation also contribute to the development of conditions of stress and depression, in addition to reducing the quality and quantity of sleep. All of this affects the perceived quality of life, negatively impacting the use of health services and even the individual's mortality[64].

The phenomenon in question is examined in terms of loneliness, thus related to the quality of interpersonal contacts, and more critically as social isolation—meaning the lack of contacts and social connections. This investigation is conducted with the help of four indicators: Family relationships satisfaction (over 14), Lonely people, People not meeting friends during free time (over 6), People living too far from relatives.

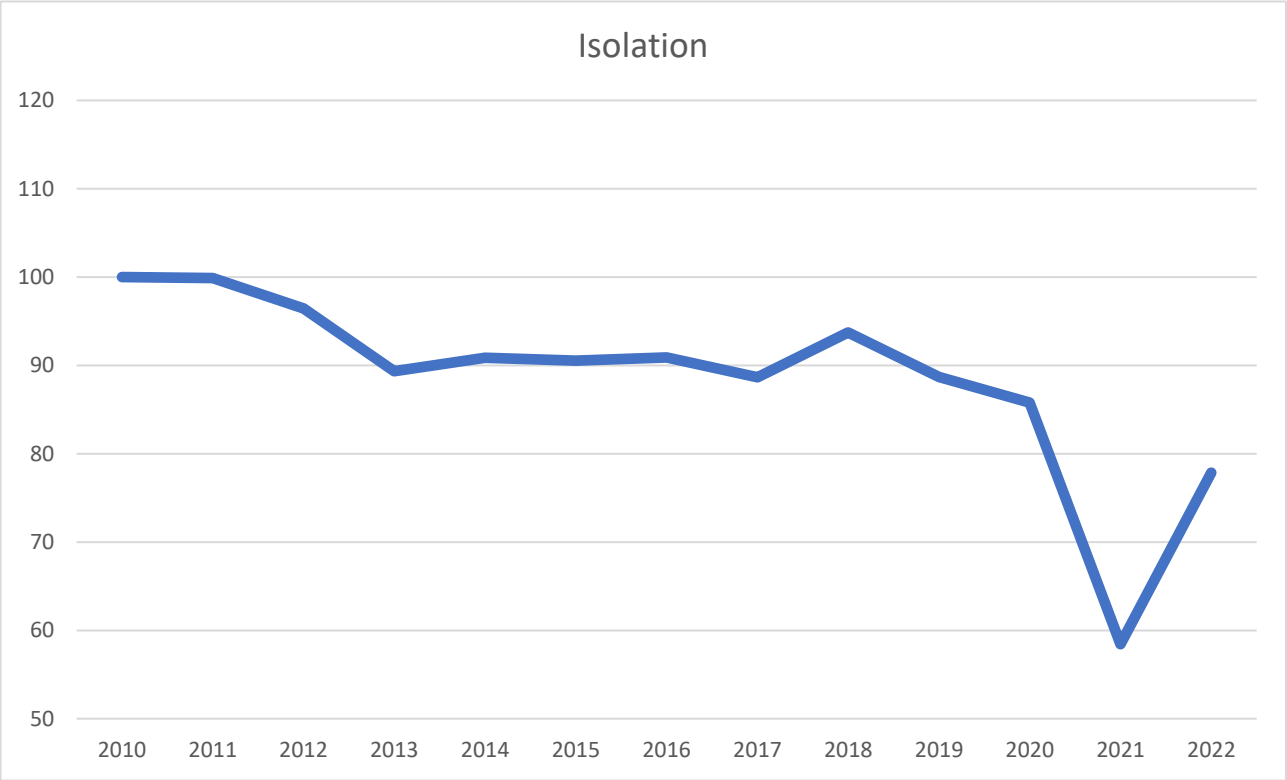

Figure 18 - Isolation Domain: General Trend

[64] (Leigh-Hunt, 2017)

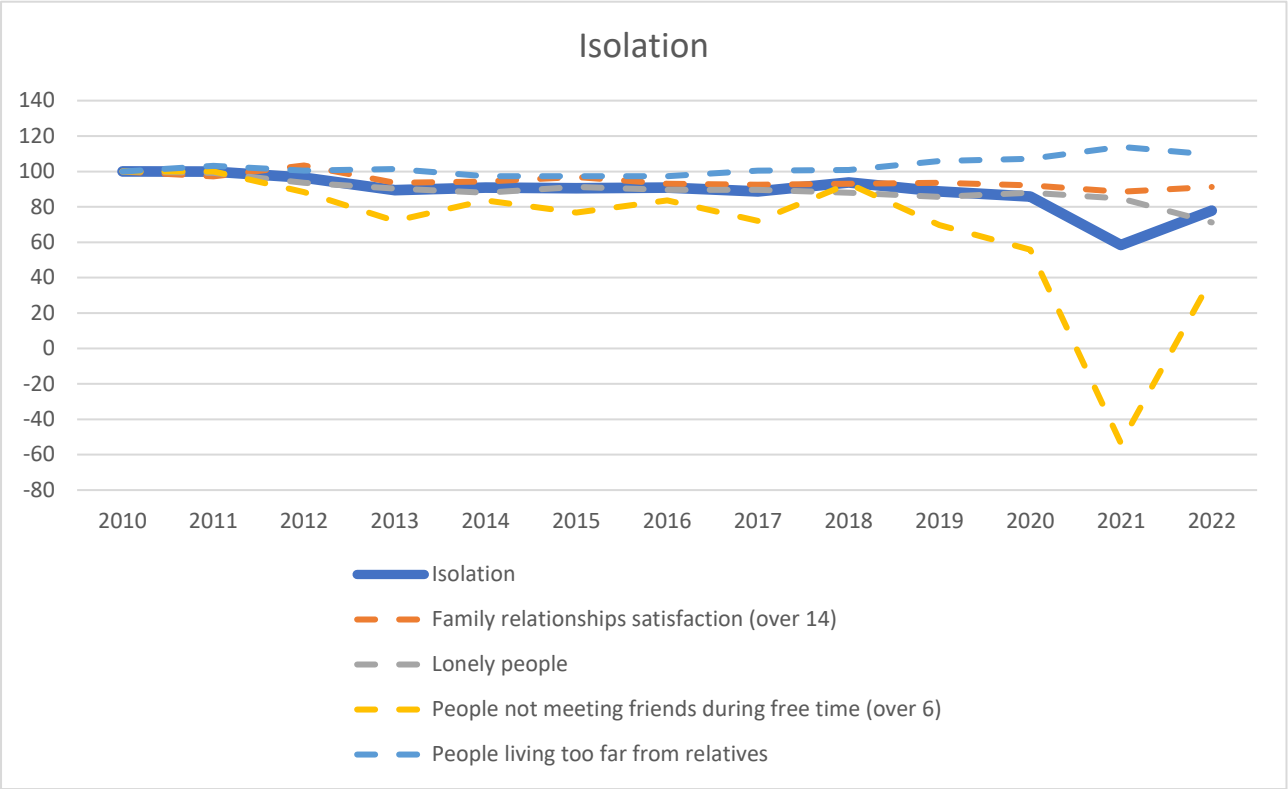

Figure 19 - Isolation Domain: Detail of Indicators

The domain under review shows a continuous and steady decline up to 2021, indicating a deterioration in terms of Health Nearness caused by the increase in phenomena related to Isolation. This critical trend registers a change in direction for the year 2022, where it shows a clear recovery, increasing by 20 points and reaching a value of 78, which, however, neither surpasses nor equals the pre-pandemic values.

In the analysis of the parameters associated with the Domain, a significant change is noted in the indicator "People not meeting friends during free time (over 6)" This indicator experienced a significant decline starting in 2018 and underwent a sharp decrease in 2020, bringing the values even below zero the following year. This phenomenon also reflects the impact of containment measures related to the pandemic, which inevitably increased individual isolation and influenced people's habits and behaviours.

In 2022, however, there is a notable recovery in the score of this indicator, reaching 40, still confirming the historically decreasing trend. In contrast, the " Lonely people" indicator continues its decline from the previous year, moving from a score of 85 to 71 and indicating a situation of persistent isolation for a segment of the population.

5.2.7 Social cohesion

The concept of social cohesion is articulated differently when linked to various dimensions of society:

1. Structural Dimension: Concerns the mechanisms of social inclusion and exclusion and the degree of social mobility.

2. Cultural Dimension: Identifies the degree of sharing norms and values.

3. Identity Dimension: Defines the measure of belonging to the community, the recognition or rejection of certain social groups, and the degree of tolerance.

4. Action Dimension: Relates to participation in collective activities and commitment within various associations, networks, and operational fields.

Within the framework of the Health Nearness Index, social cohesion is understood as a set of various factors that characterize a community, including trust and satisfaction with interpersonal relationships, and the inclination to participate in activities and to join volunteer associations. Indeed, the relationship between social cohesion and social capital is crucial, where the latter, combined with social relationships, can be considered a foundational element of social cohesion, especially when viewed from the perspective of "being able to do something for society."

The phenomena underlying this domain are examined through three indicators:

1. Friendships satisfaction (over 14 years): This measures the level of satisfaction individuals feel regarding their friendships, reflecting the quality of their social interactions.
2. Social participation: This assesses the level of active engagement in community or social activities, indicating the vibrancy of social life.
3. Volunteering: This indicator tracks voluntary engagement, showing the commitment to community service and cooperative efforts.

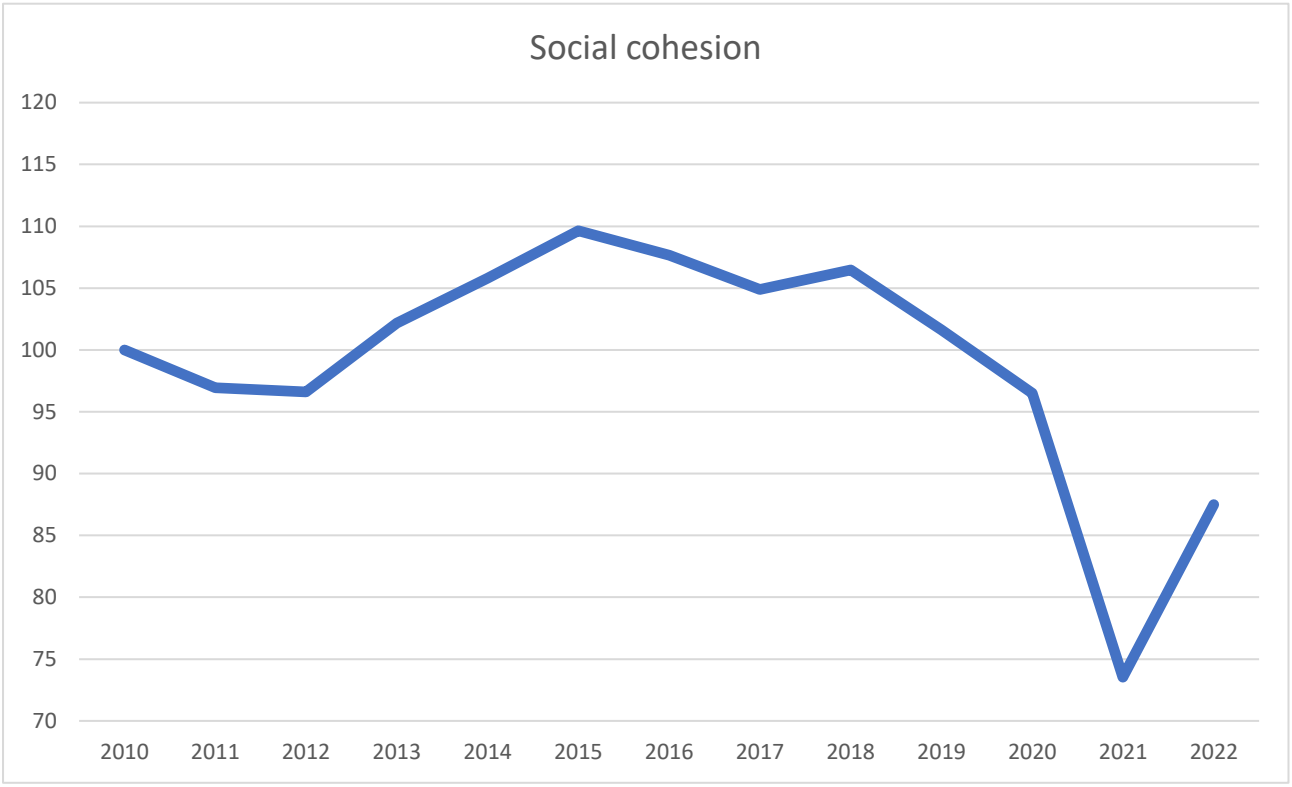

Figure 20 - Social cohesion Domain: General Trend

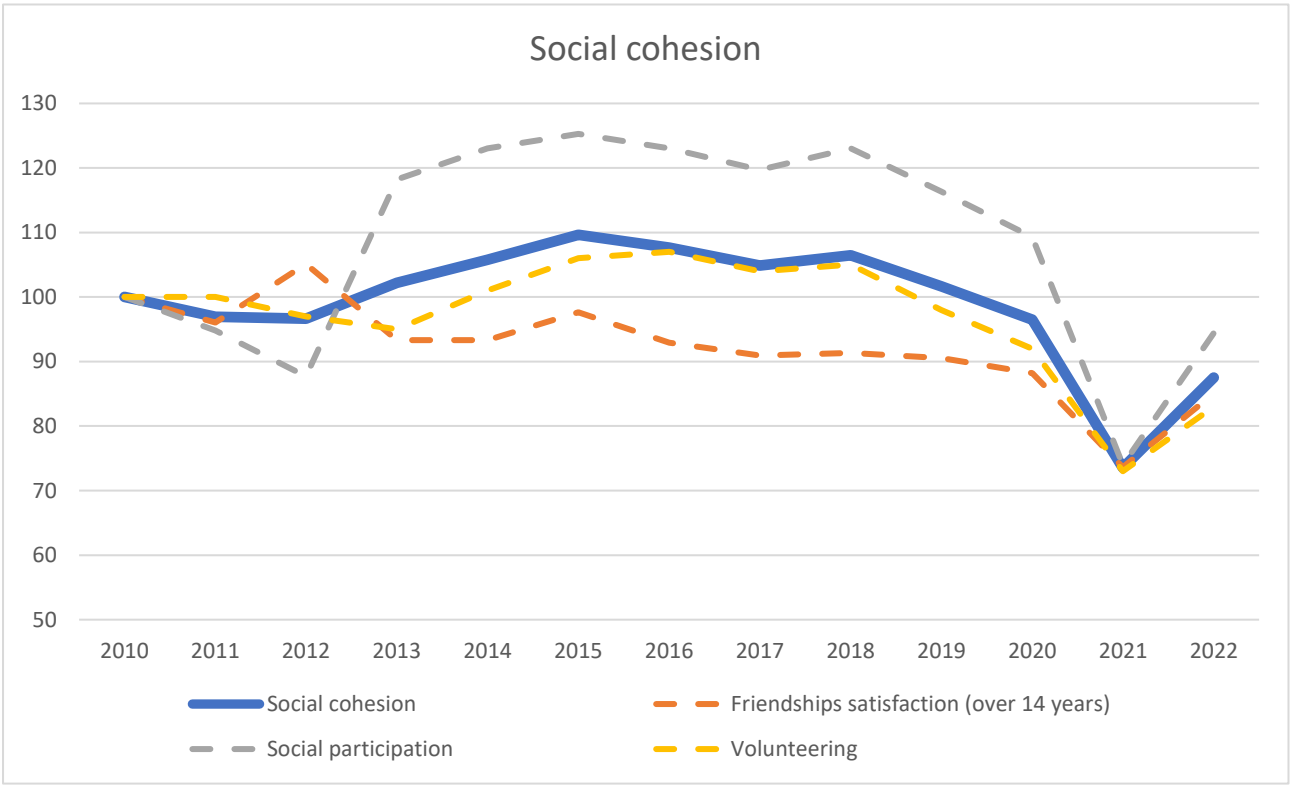

Figure 21 - Social cohesion Domain: Detail of Indicators

The domain analysed shows a constant decrease until 2018, followed by a marked decline in the following years, culminating in 2021 with a historical low value of 67 points. However, a significant reversal in trend occurs in 2022, where a substantial increase in the domain score is observed, reaching 87, compared to 74 the previous year.

Within the framework of analysing the parameters related to the domain, a homogeneous trend emerges among all the indicators examined. These were in a phase of decline from 2020, likely influenced by the pandemic containment measures. Conversely, starting from 2022, they have shown a significant change in trend, which remains, however, in line with the overall decreasing trend.

5.2.8 Economic fragility

The concept of Economic fragility is used to analyse specific discomforts and social issues that, especially in recent years, lead to a sense of greater instability and precariousness in the population. Factors such as increasingly widespread income instability or the marked presence of temporary jobs, especially among the younger generations, contribute to economic discomfort, and therefore a condition of fragility; in the most extreme cases, this results in difficulties in coping with expenses of primary importance and having access to essential and primary social goods and services.

In general, over the last forty years, several significant socio-demographic and occupational changes have altered the structure and nature of social risks, bringing to light new needs and issues: the reduction in the average family size and the fragility of family unions have indeed significantly reduced the ability to rely on familial networks in case of economic problems and care needs, decreasing the role of the family as a social buffer historically[65].

By analysing various health determinants, it can be observed how economic prosperity impacts several aspects of social life: the level of education, environmental respect, and the civic sense of people; moreover, there is greater attention to one's health status.

Therefore, the domain consists of four indicators, essential for outlining a national portrait preparatory to the goals pursued by the Health Nearness Index: Families at risk of poverty, Families showing signs of material deprivation, Absolute poverty rate, Families who cannot adequately heat their house (energy poverty).

[65] (Ferrera, 2006)

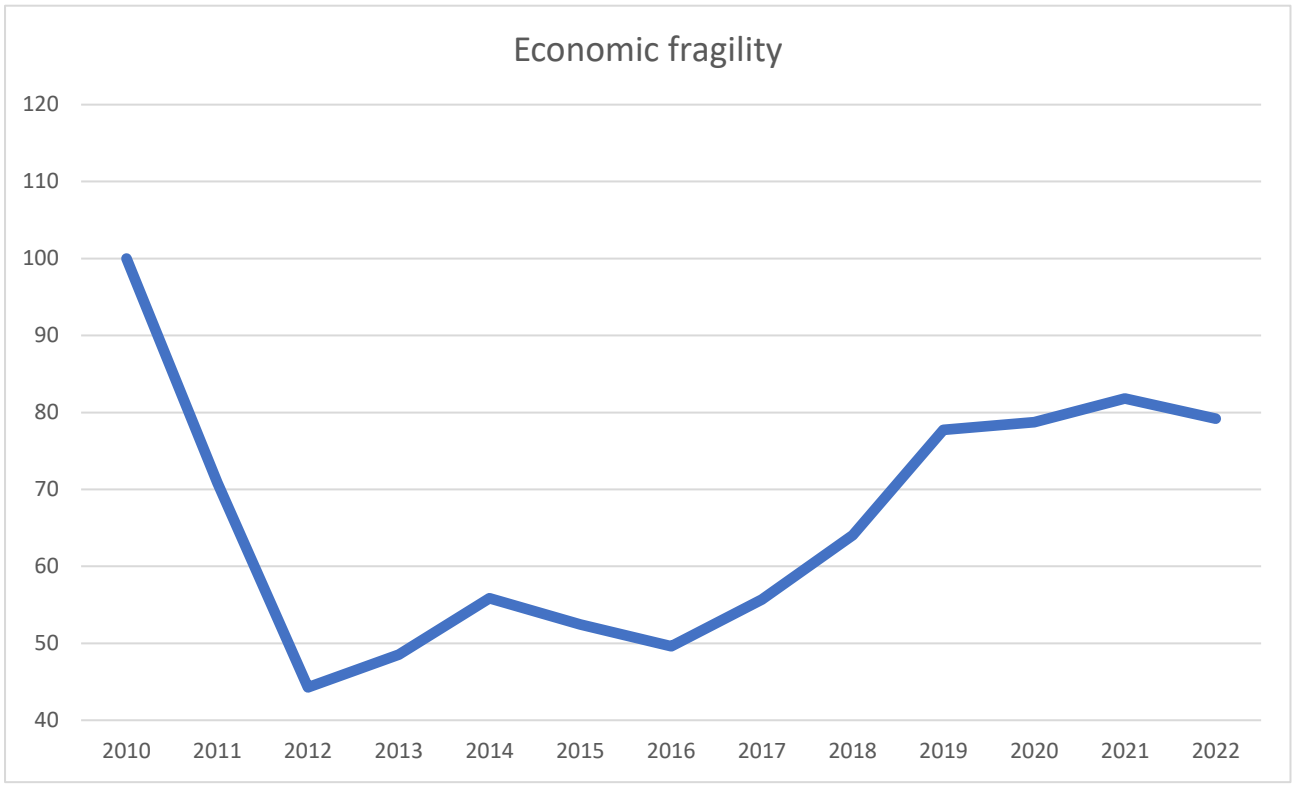

Figure 22 - Economic fragility Domain: General Trend

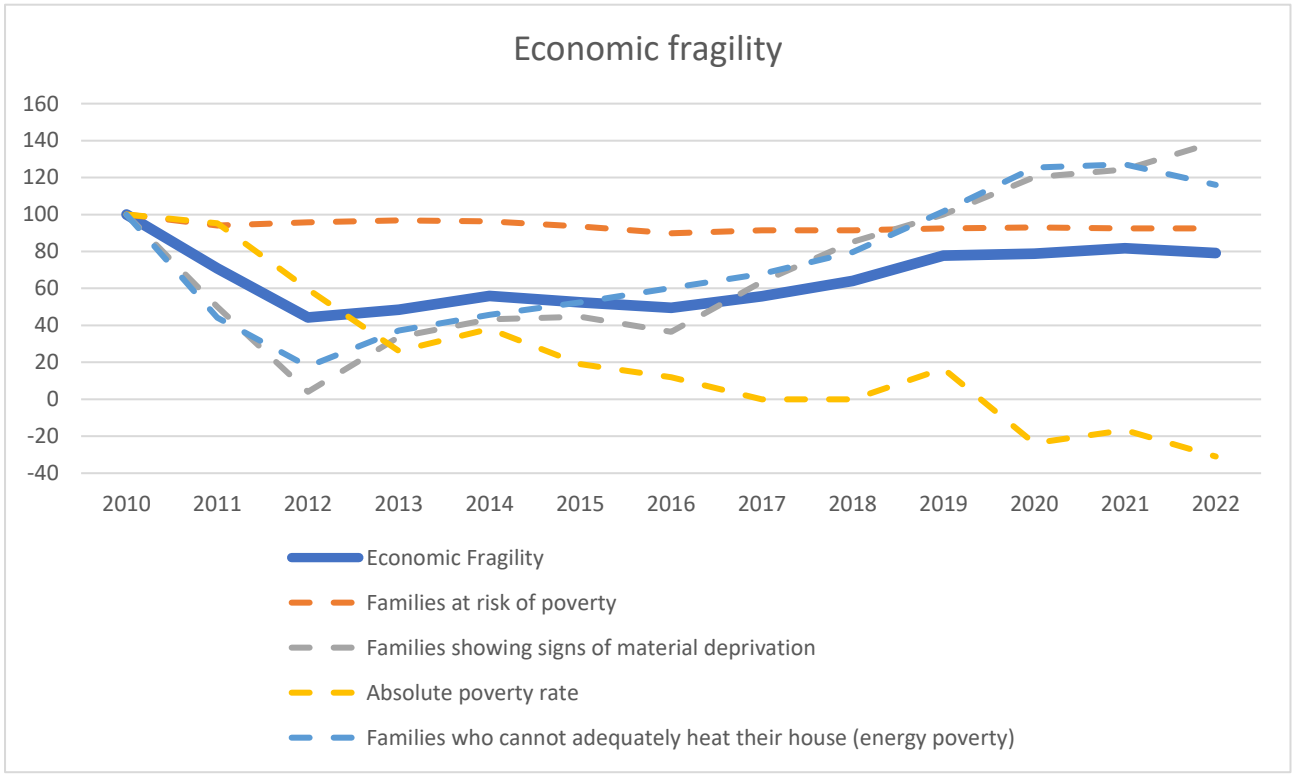

Figure 23 - Economic fragility Domain: Detail of Indicators

The domain under examination describes a downward trend until 2013. Subsequently, there is a brief recovery, only to return in 2017 to the same values as 2014. From 2017 to the following two years, the values increase, and from 2019 they remain almost unchanged, settling at 79 points in 2022.

In the dynamics of the Indicators underlying the Domain, the trend of the indicator related to the Incidence of absolute poverty stands out, reaching strongly negative values in the last year, representing one of the most worrying warning signals of the entire research. It is then noted that the trend of the indicator "Families at risk of poverty", while a decrease is recorded in 2022 for the "Families who cannot adequately heat their house (energy poverty)", where the likely weight is the increase in energy prices due to the geopolitical restructuring caused by the conflict between Russia and Ukraine. The positive trend that represents "Families showing signs of material deprivation" influences the trend of the Domain. Its increase indicates, in fact, a decrease in the monitored phenomenon and therefore a smaller number of people who cannot afford certain goods considered necessary for an adequate life.

5.3 The trend of the Organizational system Context

The Organizational system Context is composed of eight domains: Prevention, Healthcare assistance, Avoidable mortality, Availability of services, Responsiveness, Integrated welfare, Sustainability, Territorial homogeneity.

This area of examination represents a more external level compared to the individual sphere, but intermediate compared to the environmental sphere and is characterized by given conditions and intervention capacities that are almost entirely dependent on the organizational capacity and responsiveness of the health system. Given its composition, the Context covers fields of intervention related to Mission 5 – Inclusion and cohesion of the National Recovery and Resilience Plan and Mission 6 – Health of the National Recovery and Resilience Plan.

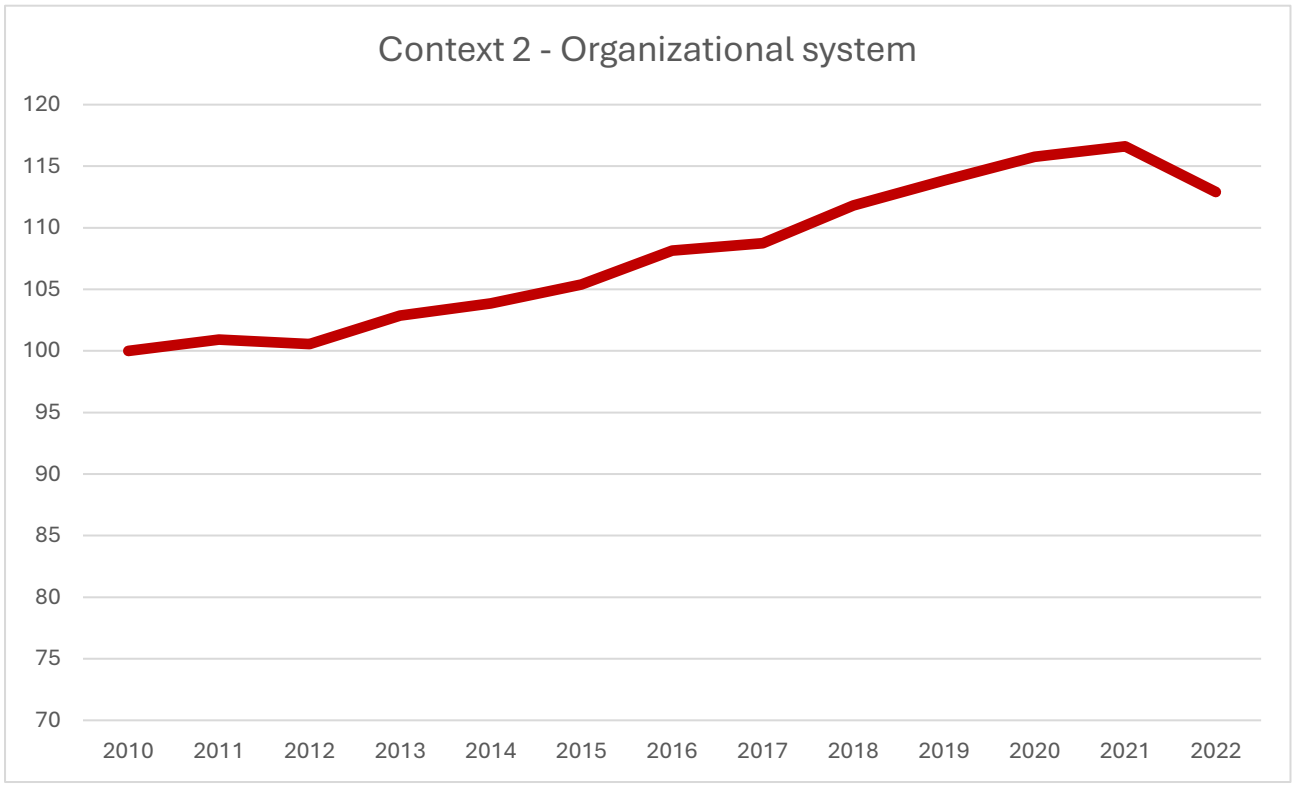

Figure 24 - Organizational system Context: General Trend

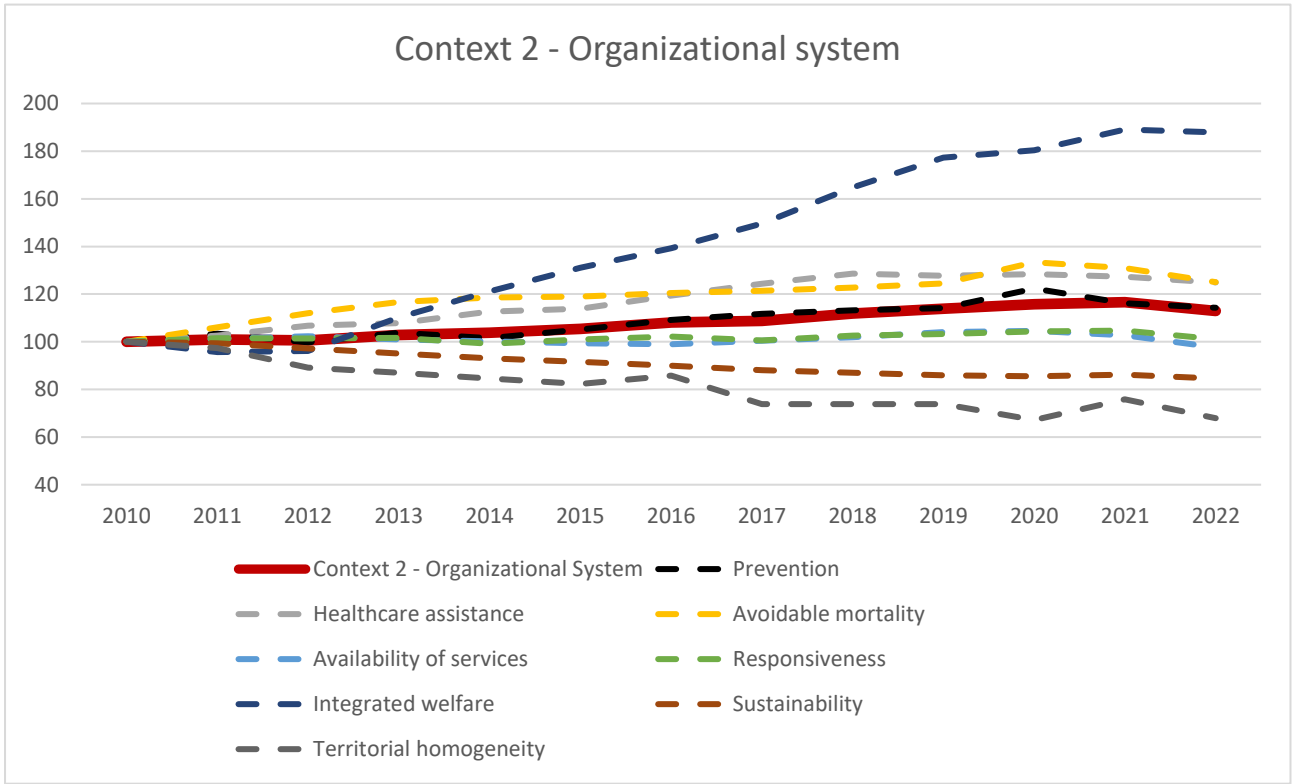

Figure 25 - Organizational system Context: Domain Details

The first graph of the Organizational system Context shows the general trend of the Context, which represents the synthesis of the trends of the eight Domains that compose it.

Starting from the standard value of 100 points in 2010 and along the historical series under examination, there is first a constant and almost linear growth, which slows down in the last three years, resulting in a "plateau".

In 2021, the historical maximum value of 117 points is recorded, which also represents a turning point in the trend of the graph leading to a value of 113 points for the year 2022. For the first time, therefore, a trend reversal occurs in the context.

In the second graph, the trends of the individual Domains belonging to the Context can be observed, and the following immediately stand out: positively the trend of the Integrated welfare domain; negatively the trends of the domains Territorial homogeneity, Sustainability, Responsiveness, and Availability of services.

Below, the Domains that compose the Context are described individually.

5.3.1. Prevention

Prevention, within the framework of the Health Nearness Index, is addressed by considering all those measures that, if properly developed and implemented, are necessary to protect people's health in a 360° manner. Thus, prevention as such includes three types of interventions:

- Primary prevention: identifies interventions aimed at fighting and changing people's incorrect behaviours and habits that predispose to the onset of diseases; in the sampling and control activities of production chains in various sectors.
- Secondary prevention: aims to early identify sick or high-risk individuals so that they can be cured quickly or to halt the progression of the disease. For example, an intervention on a few individuals is represented by epidemiological investigations following a case of infectious disease or by interventions aimed at large homogeneous groups, such as screenings.
  Tertiary prevention: seeks to limit the problems of diseases that have already been diagnosed and sometimes are at a chronic stage, working to reduce the severity and the onset of complications.

The Domain under examination is composed of two indicators, intended as proxies of the studied phenomenon: Flu vaccination coverage in elderly population; Colorectal cancer screening tests coverage.

- Quaternary prevention has been defined as a set of techniques and actions undertaken to avoid the overuse of healthcare resources by healthcare professionals and patients. This includes avoiding unnecessary treatments and practices and offering ethical alternatives.

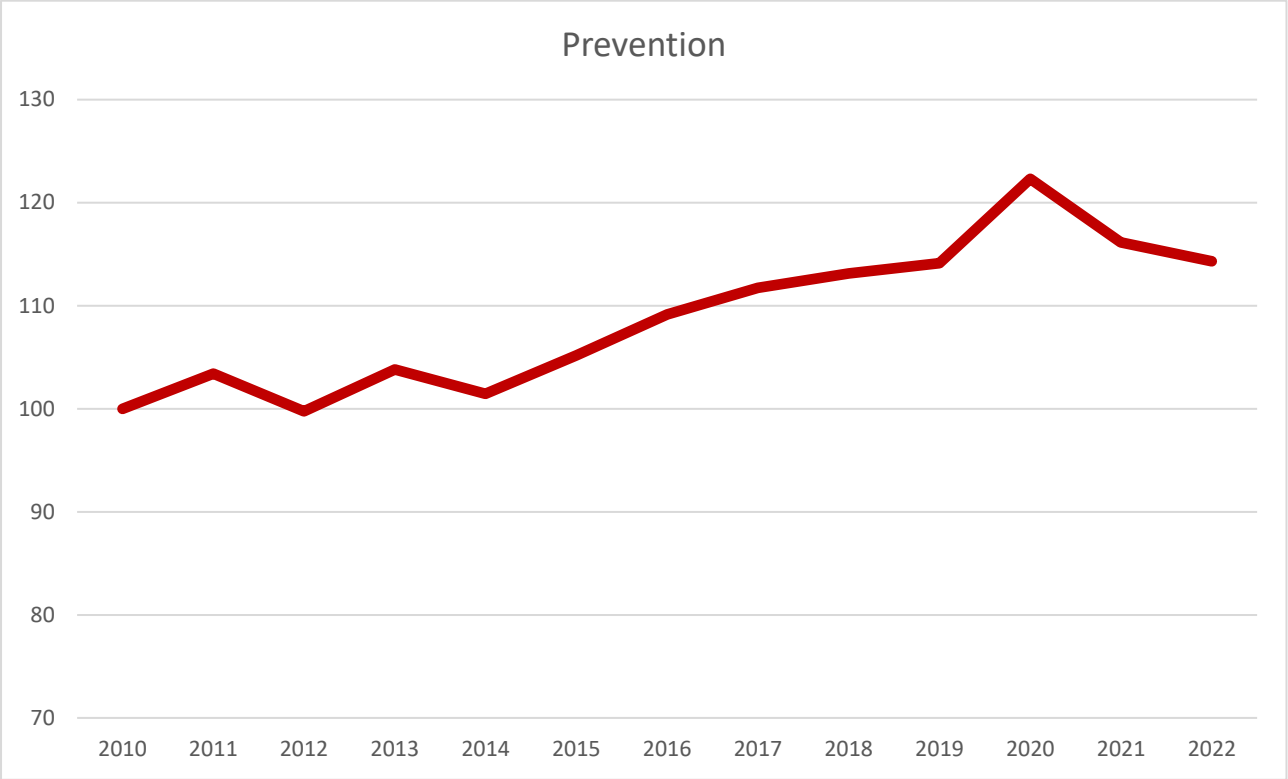

Figure 26 - Prevention Domain: General Trend

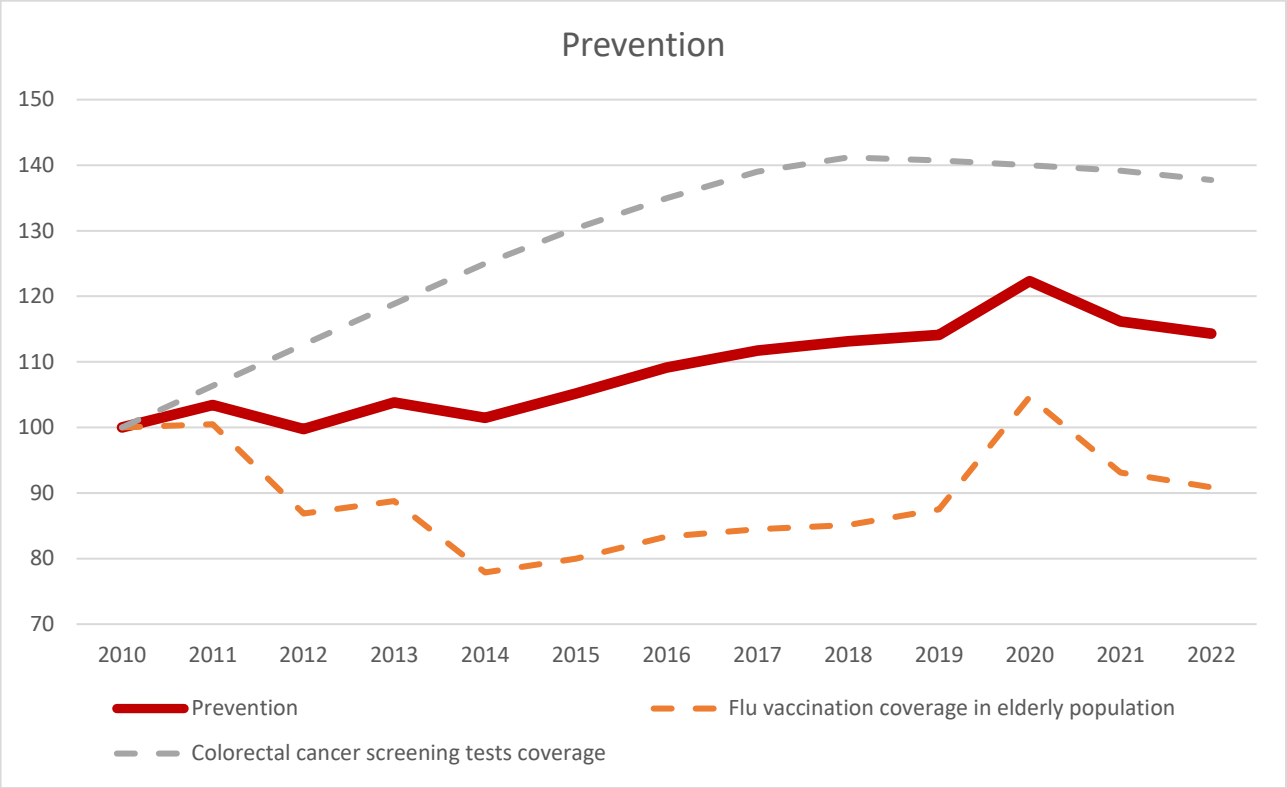

Figure 27 - Prevention Domain: Detail of Indicators

The trend of the Domain under examination shows a phase of substantial growth until 2020, reaching a value of 122 (also driven by pandemic fears and the spread of vaccination for Covid), and then decreases in the following years, returning to the values of 2019 in 2022.

Among the Indicators related to the Domain, two diverging trends emerge. On one hand, the "Flu vaccination coverage in elderly population", presumably due to the vaccination campaign during the pandemic, shows a peak in 2020 and then a decline in 2021, which continues in the following year. On the other hand, "Colorectal cancer screening tests coverage", which since 2010 has shown significant growth, presents a slight decrease starting from 2020.

5.3.2. Healthcare assistance

The Healthcare assistance domain encompasses components related to healthcare traditionally framed both in the hospital dimension and in the territorial dimension. Specifically, the following Domain aims to define, through a synthesis of the main classic indicators, a proxy of the degree of efficiency, quality, and assistance capacity, and management of the systemic component of health care.

The selection of the Domain's indicators accounts for the historical peculiarity of the health system to be able to have timely data related to health production, which in some cases are up to three years late in their release, resulting unsuitable for the intended purposes.

For this reason, five indicators have been used: some process indicators, to measure the appropriateness of the assistance process in relation to reference standards – guidelines, care pathways – and outcome indicators, therefore providing information on the outcome of the assistance process.

Thus, the Domain includes: Hip fracture: surgical intervention within 48 hours; Ischemic stroke: death within 30 days of hospitalization; Hospitalization rate for chronic obstructive pulmonary disease (COPD); Continuity of care service (out-of-hours doctors): visits made per 100,000 inhabitants; Integrated home care: average total hours per case.

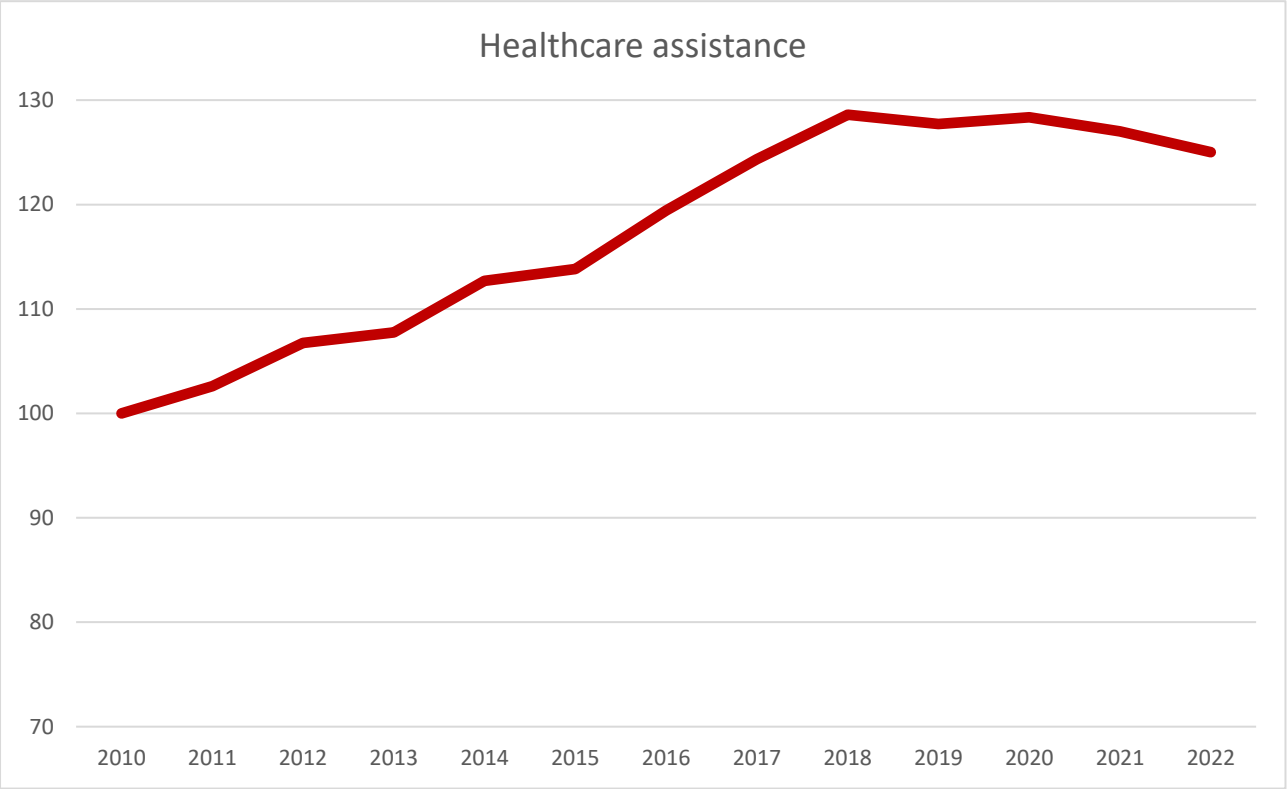

Figure 28 - Healthcare assistance Domain: General Trend

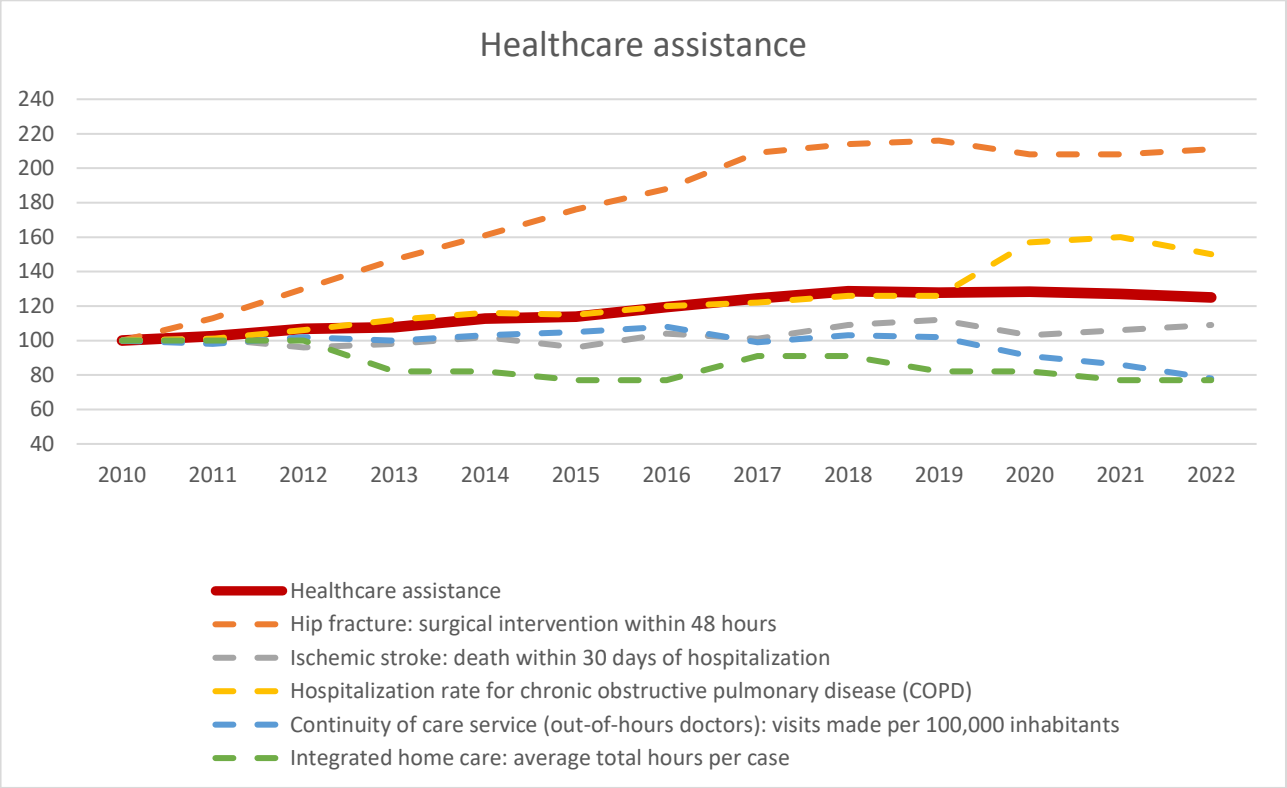

Figure 29 - Healthcare assistance Domain: Detail of Indicators

The Domain under examination describes a growth trend until 2018, reaching a historical maximum of 129 points. In the following years, it remains stable and then presents a slight descent in 2022 with a value of 125 points.

In the dynamics of the Indicators underlying the Domain, significant growth is emphasized until 2017 of the indicator "Hip fracture: surgical intervention within 48 hours", with a subsequent decrease in the following years and a recovery starting from the year 2022. Moreover, the indicator "Hospitalization rate for COPD" marks an improvement from 2020 to 2021, however, for the current year, a decrease is recorded, going from a value of 160 to 150.

5.3.3. Avoidable mortality

The concept of Avoidable mortality encompasses phenomena that concern deaths occurring from causes that could be actively countered with actions and interventions of increased prevention and protection at work, as well as effective healthcare, with early diagnoses and effective therapies. Monitoring avoidable mortality, therefore, appears as a beneficial tool for evaluating and guiding reforms and policies, not only healthcare-related but aimed at countering deaths due to otherwise preventable and treatable causes; thus, through a comprehensive approach to prevention[66]. The

[66] (Centro Studi Nebo, 2021)

composite Index aims to monitor this issue through the study of various underlying phenomena described by three indicators: Road traffic mortality rate (15-34 years old); Amenable deaths rate (0-74 years old); Fatal accidents and permanent disabilities rate (workplace accidents).

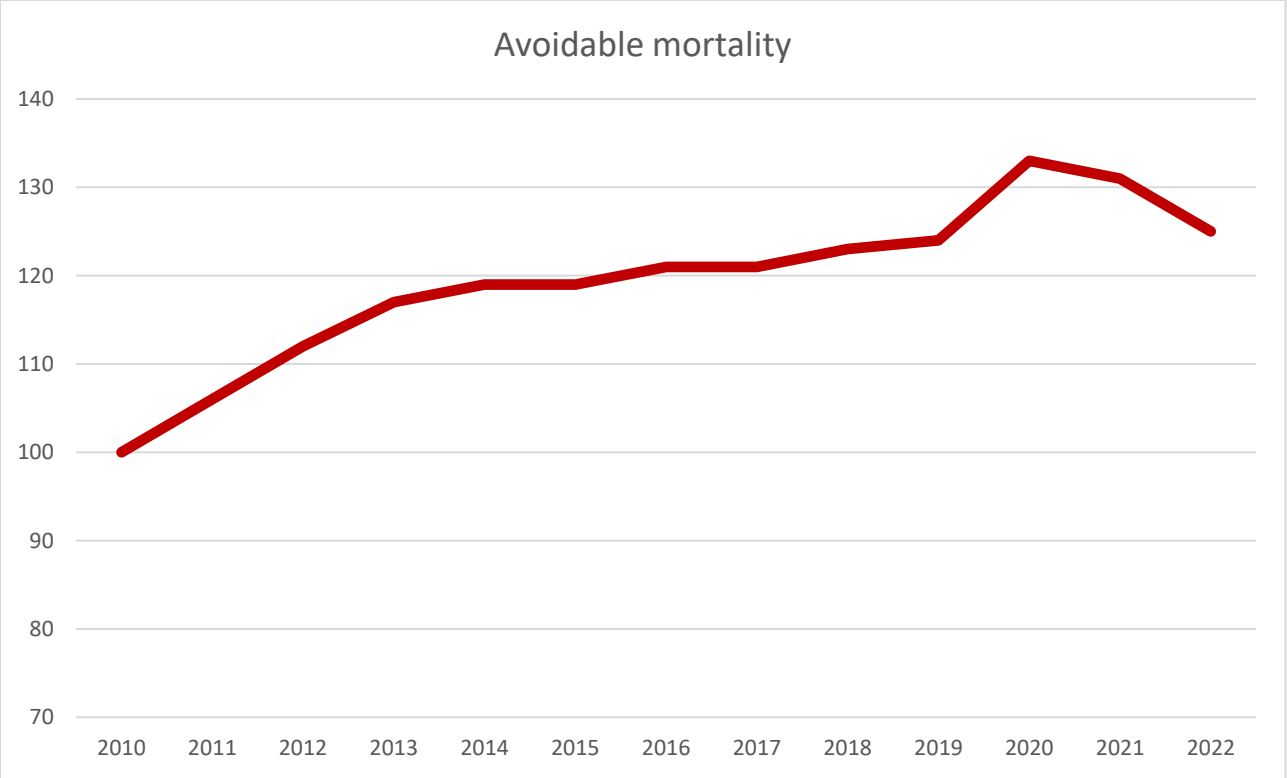

Figure 30 - Avoidable mortality Domain: General Trend

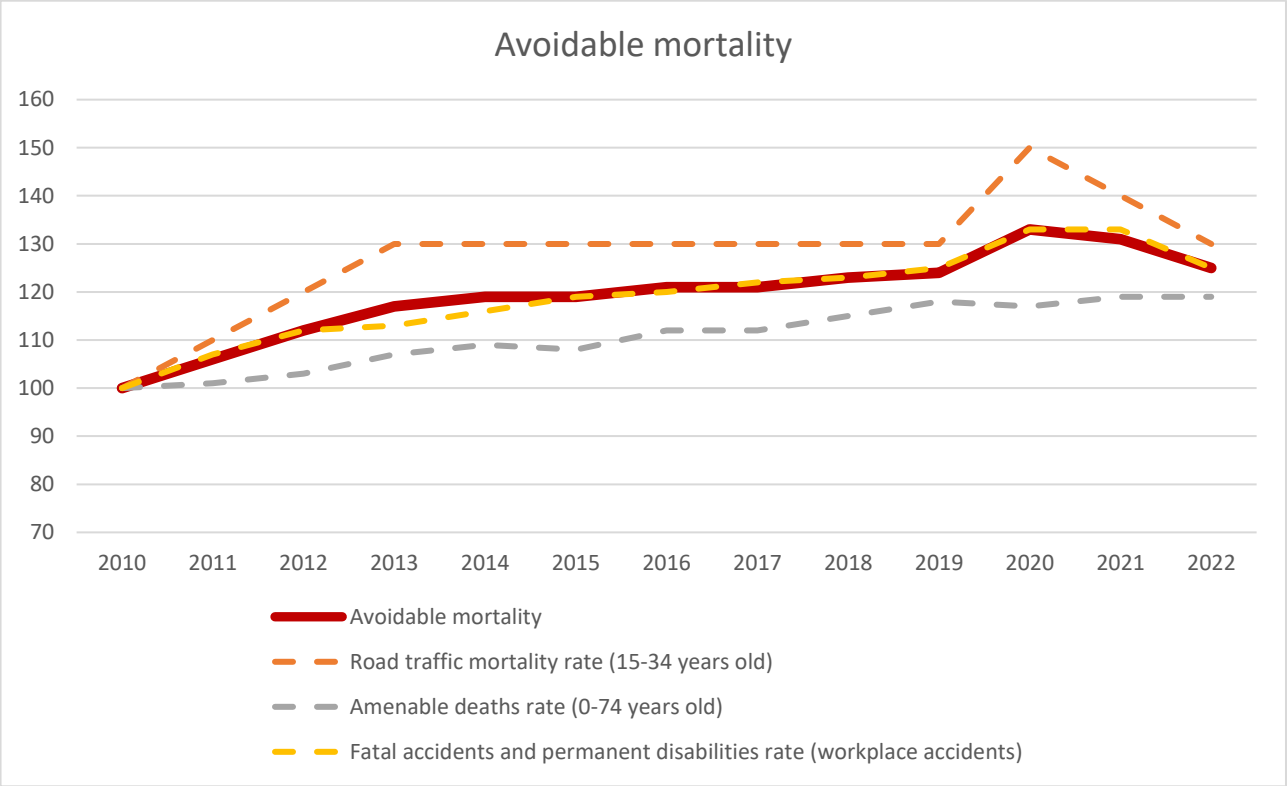

Figure 31 - Avoidable mortality Domain: Detail of Indicators

The domain under examination describes a constant growth that peaks in 2020 with a score of 133, mainly due to the restrictions implemented to counter the pandemic, which limited exposure to certain risks related to mobility and work activity. From 2021, a decline is registered that persists into the last year, arriving at a value of 125, very close to the pre-pandemic values, signifying a lack of improvement initiatives on the subject in the previous two years. In the dynamics of the Indicators underlying the Domain, a parallel worsening is highlighted relative to the indicators "Road traffic mortality rate (15-34 years old)" and "Fatal accidents and permanent disabilities rate (workplace accidents)" compared to previous years, with a return to the pre-pandemic values of 2019. This may be due to the easing of restrictions put in place during the pandemic. The indicator "Amenable deaths rate (0-74 years old)" remains almost unchanged.

5.3.4. Services availability

The definition of Health Nearness considers the availability of health and the possibility of benefiting from it as a necessary condition for achieving a better state of health and well-being. In this sense, the mandate of our National Health System[67] to ensure and guarantee all citizens universal access and equitable delivery of health services and essential medicines, without any distinction of individual, social, and economic

[67] (Pani, 2014)

conditions, ensuring equal benefit in relation to equal health needs, must be read. Added to this, in a broader framework of social well-being, is also the importance of non-health services that become essential for the proper development of family and daily life, contributing to strengthening the social component of health. The following Domain is, therefore, composed of specific indicators, such as: Socio-educational services offered by municipalities (nurseries); Difficulty in accessing services: pharmacies; General Practitioners with an over-threshold number of patients; Difficulty in accessing services: emergency room.

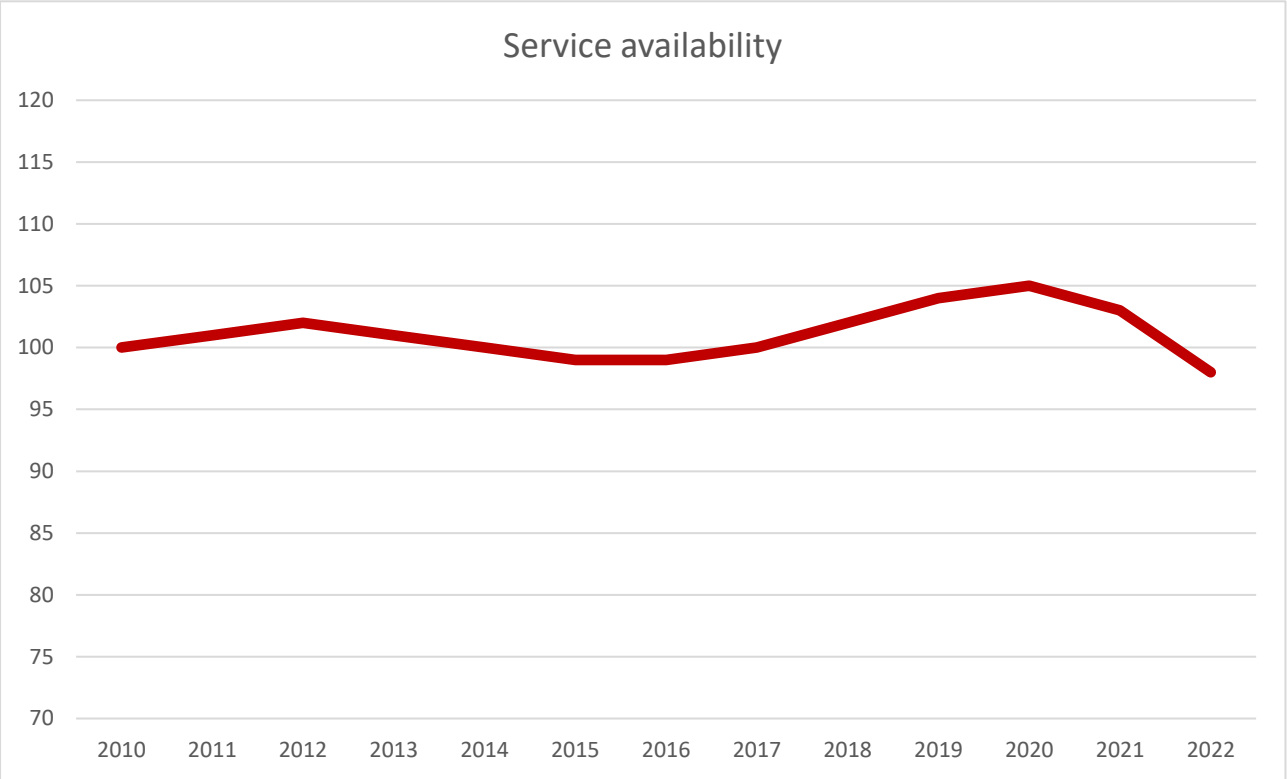

Figure 32 - Service availability Domain: General Trend

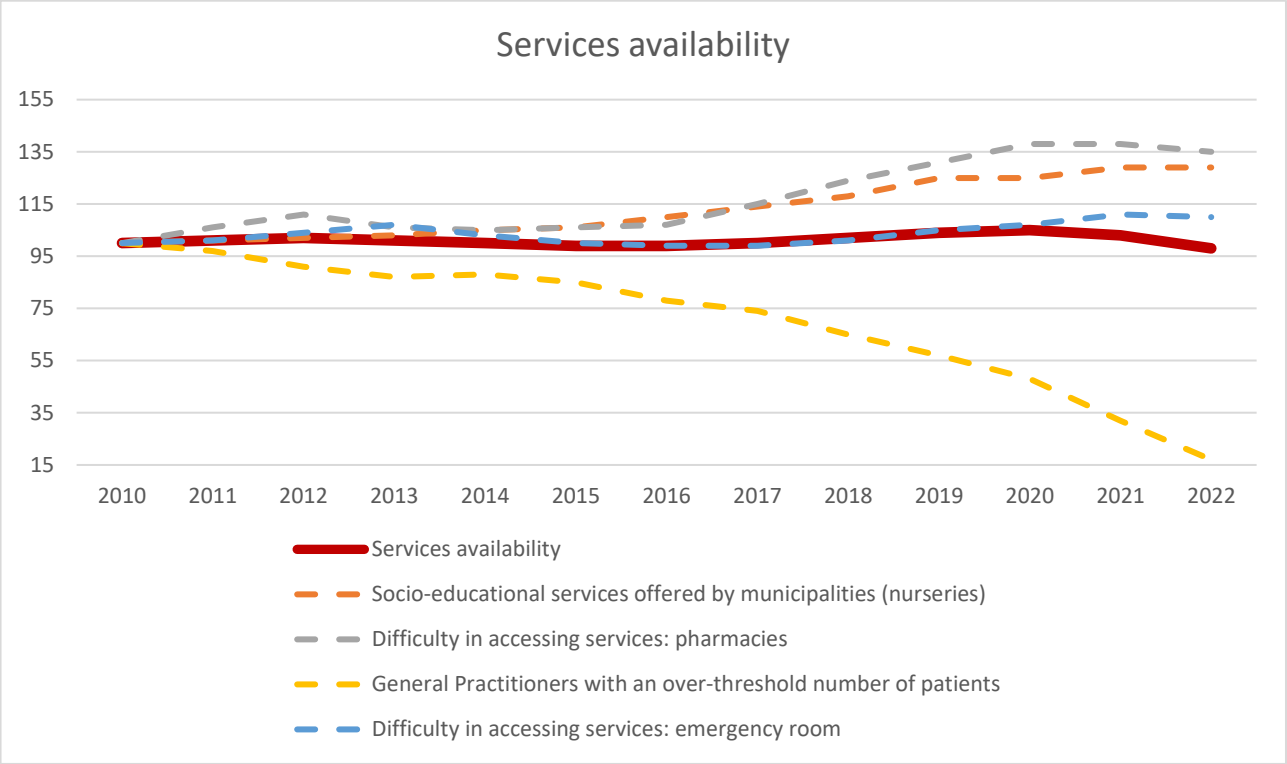

Figure 33 - Service availability Domain: Detail of Indicators

The domain under examination describes a slight downward trend, registering a value of 98 in 2022 compared to the previous year's value of 103. In the dynamics of the Indicators underlying the Domain, "General Practitioners with an over-threshold number of patients" significantly influences the overall trend of the Domain negatively. It is emphasized that the indicator presents a negative polarity. This can be seen in the light of the increase in the Old-age index and the consumption of drugs within the Sustainability Domain, and therefore an increasingly burdensome workload for general practitioners. The values of the indicators "Socio-educational services offered by municipalities (nurseries)" and the "Difficulty in accessing services: emergency room" remain almost unchanged.

5.3.5. Responsiveness

A cornerstone objective of national health systems is to allow excellent responsiveness to their citizens. Responsive systems anticipate and adapt to existing and future health needs, thereby helping to improve health outcomes. Among all the objectives of health systems, responsiveness is the least studied, perhaps due to the lack of complete reference frameworks that go beyond the regulatory features of responsiveness. The Index, in this sense, contributes to promoting a growing, albeit still limited, knowledge of this topic, as it has sought to respect a conceptual framework that takes into consideration the sensitive and articulated nature of the concept of reactivity. This theoretical framework develops along three areas:

1. The first estimates the Responsiveness following the real experience of people's interaction with the health system.

2. The second considers that the experience of interaction is conditioned both by people and their initial expectations on one side and the actual response of the health systems on the other.

3. Finally, to study the concept of reactivity means to consider that the relationship of interaction between patients and the health system is subject to changing judgments, influenced by various past experiences[68].

1. Therefore, to improve the evaluation of Responsiveness, it becomes necessary to recognize and analyse both sides of the interaction, which sees users and health systems with their respective determining factors as protagonists.

In this perspective, the World Health Organization has given the following formal definition to the responsiveness of the health system, identifying it as the *"ability of the health system to meet the legitimate expectations of the population regarding their interaction with the health system, regardless of expectations of improvement in health or well-being" [69].*

The Responsiveness Domain consists of three indicators: Nursing services satisfaction; Medical services satisfaction; Trust in firefighters.

[68] (Mirzoev & Kane, 2017)

[69] (Darby, Valentine, Murray, & de Silva)

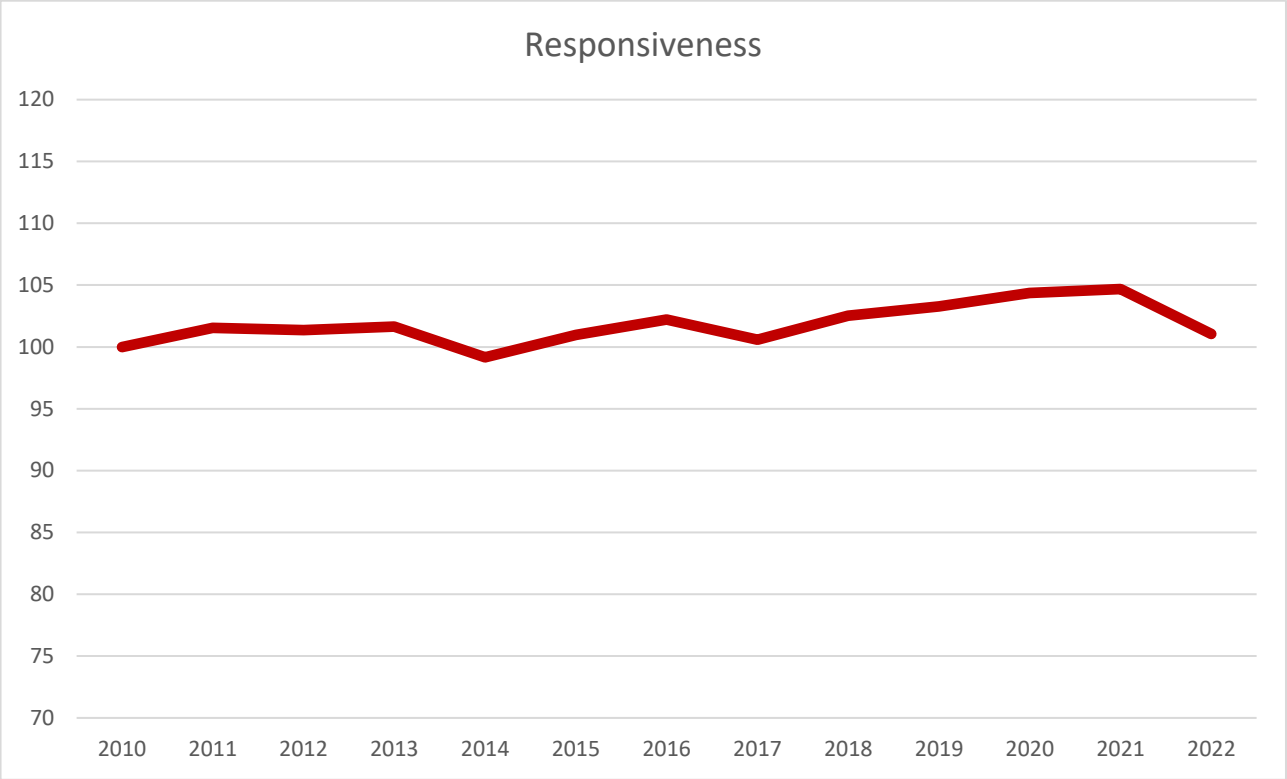

Figure 34 - Responsiveness Domain: General Trend

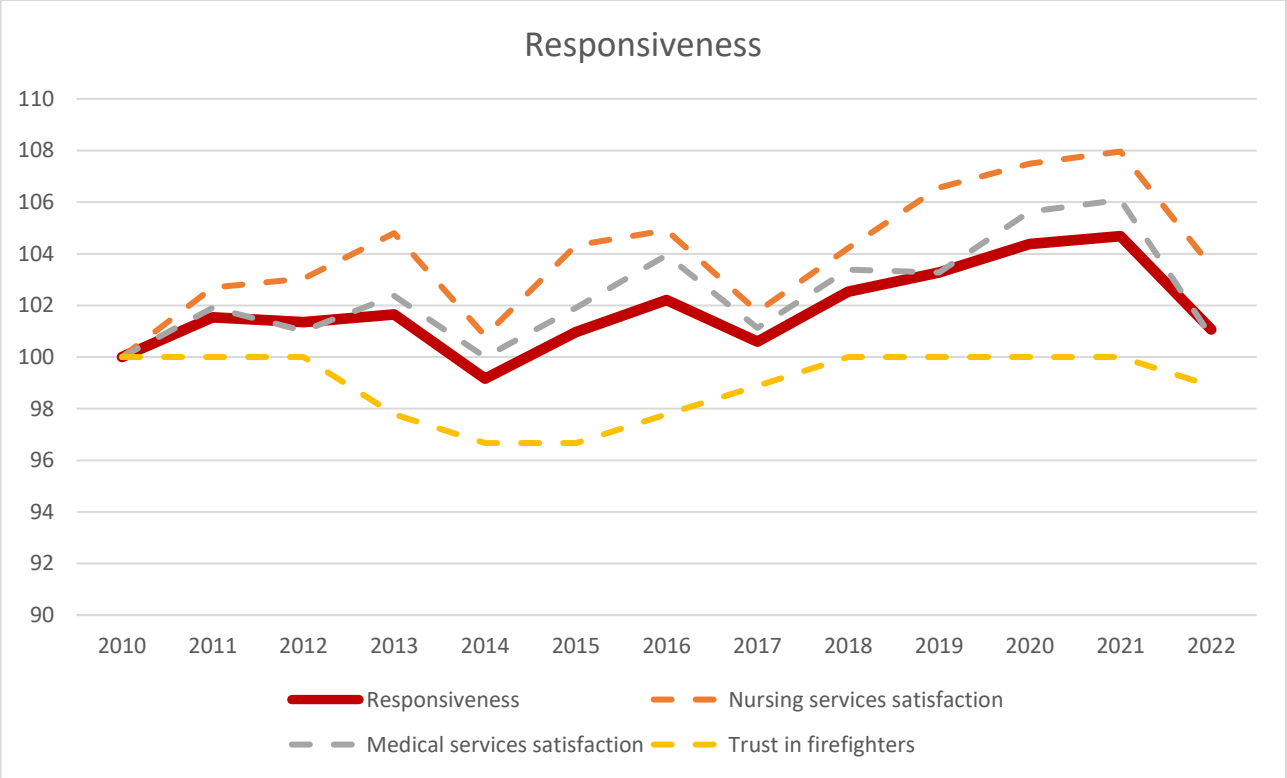

Figure 35 - Responsiveness Domain: Detail of Indicators

The domain under examination shows a slight and constant growth from 2014 to 2021, marking a value of 101 in 2022, down from previous years and returning to the values of 2017.

In the dynamics of the Indicators underlying the Domain, a parallel trend of the indicators related to both nursing and medical services satisfaction. In contrast to the previous year's trend, in 2022 there is a descent, influencing the general trend of the Domain. The indicator Trust in firefighters shows a similarly decreasing trend, although almost imperceptible, moving from a score of 100 in 2021 to 99 in 2022.

5.3.6. Integrated welfare

The Integrated welfare Domain includes a set of initiatives and services available to citizens to increase their well-being and facilitate the reconciliation between private and professional life. Two of the main forms of integrated welfare are supplementary pensions, delivered through Pension Funds, and supplementary health care, delivered through Health Funds: the former aim to supplement the basic public pension provided by INPS, the latter to reimburse the cost incurred by citizens to make use of health or socio-health services provided by the National Health Service or private operators.

Both these forms of welfare originate from the initiative of private entities (unions, trade associations, or individual companies) and are mutualistic in nature.

Another form of welfare is represented by the private insurance system, on an individual and voluntary basis. Insurance contracts can take numerous forms, including LTC policies, life and health insurance policies, and additional optional coverage on other products.

The domain under examination is formed by three indicators: People registered with supplementary pension funds; People registered with supplementary health funds; Life insurance portfolio (per year).

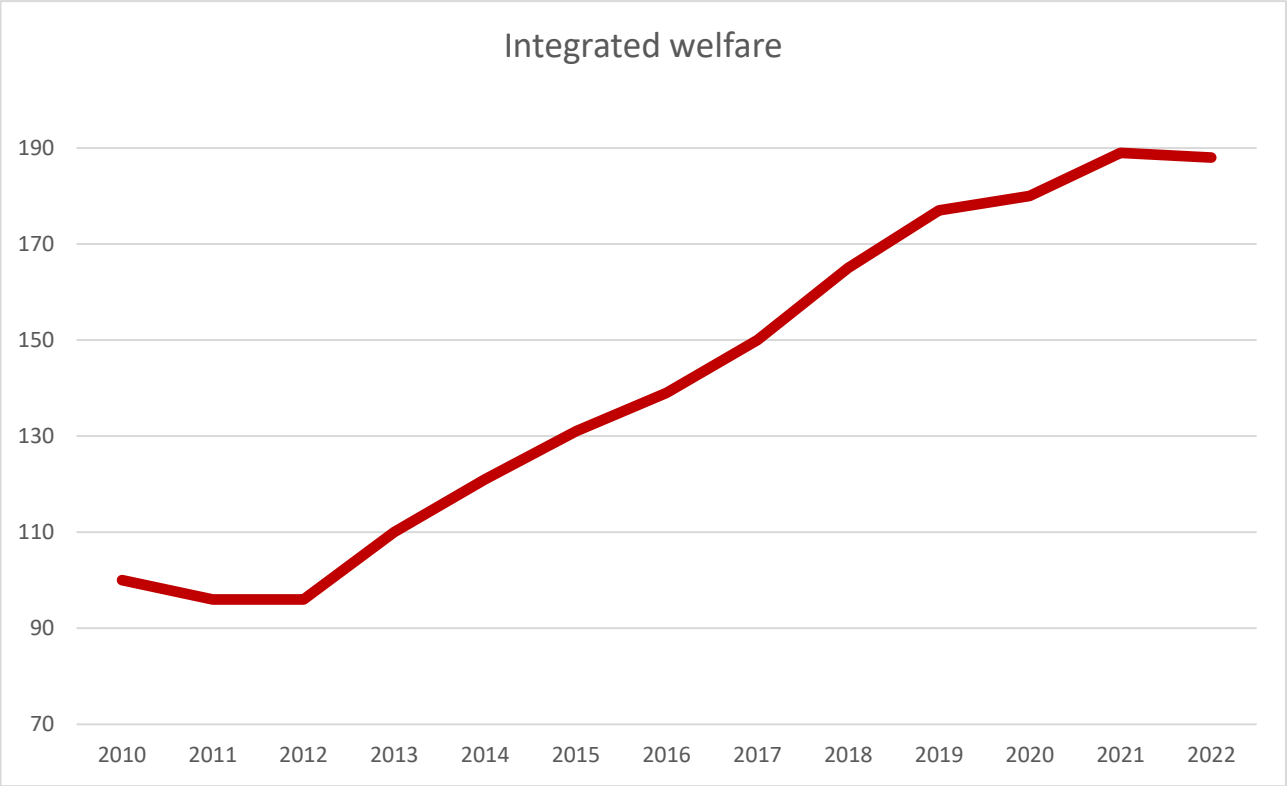

Figure 36 - Integrated welfare Domain: General Trend

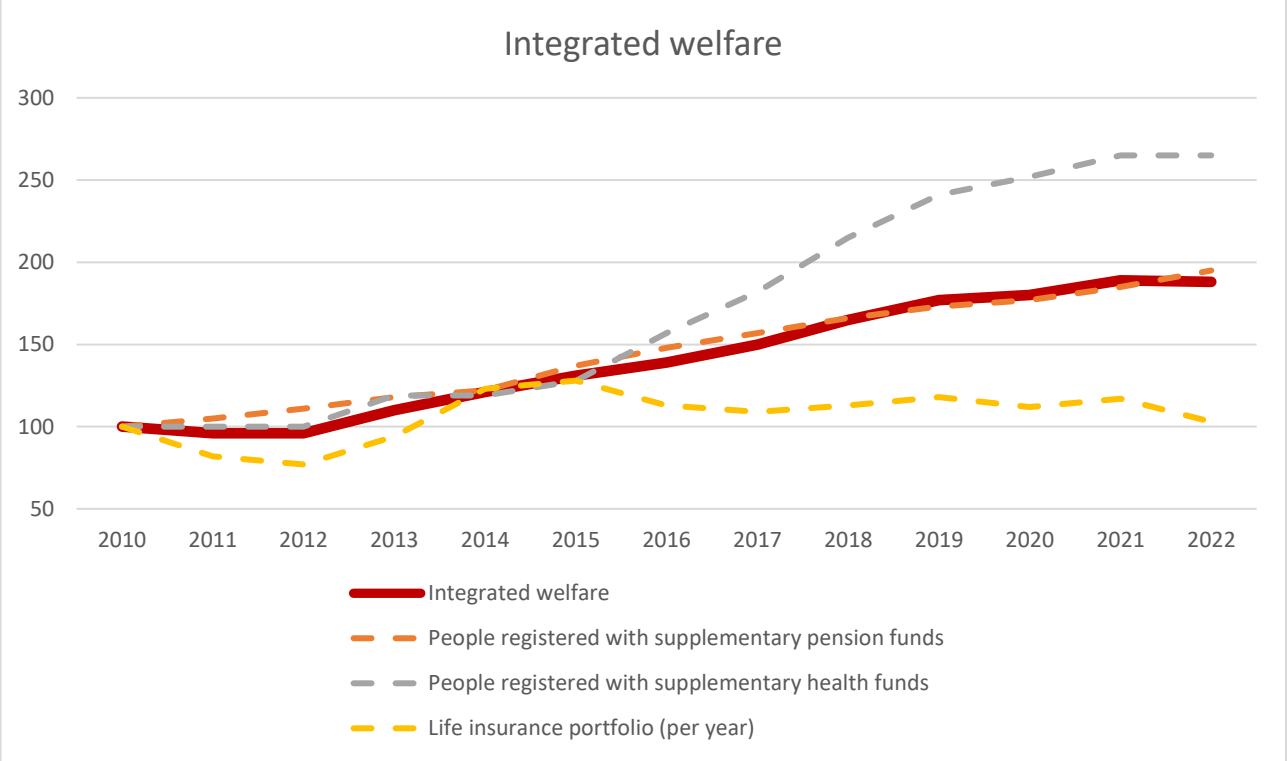

Figure 37 - Integrated welfare Domain: Detail of Indicators

The domain under examination describes an overall strong growth trend until 2021, marking a value of 189 points, and a slight decline in the following year, with 188 points. This underlines the role of forms of integrated health and pension welfare in increasing Health Nearness.

In the dynamics of the Indicators underlying the Domain, two contrasting forces are highlighted. On one hand, the “Life insurance portfolio (per year)” indicator shows fluctuations over the years, and a recent descent that brings it from a value of 117 in 2021 to 103 in 2022. On the other hand, “People registered with supplementary health funds” partially halts its ascent, maintaining the same values as the previous year. “People registered with supplementary pension funds” then increases by 10 percentage points compared to 2021.

5.3.7. Sustainability

Within the framework of the Health Nearness Index, the domain under study refers to the sustainability of the healthcare system. Specifically, it aims to monitor whether there is an adequate socio-demographic and economic balance between the system's resources that allows for meeting the health and care needs of individuals not only at present but also predictably and continuously in the near future. In such a balance, not only the economic and financial dimensions play a crucial role, but also and above all the inequalities and generational variations of the population and the workforce on the supply side, and the evolution of health consumption on the demand side.

Four indicators were used to measure sustainability: Number of doctors and nurses on behalf of public service (public + private); Old-age dependency ratio; Aging index; People who have taken medications in the last two days (over 55).

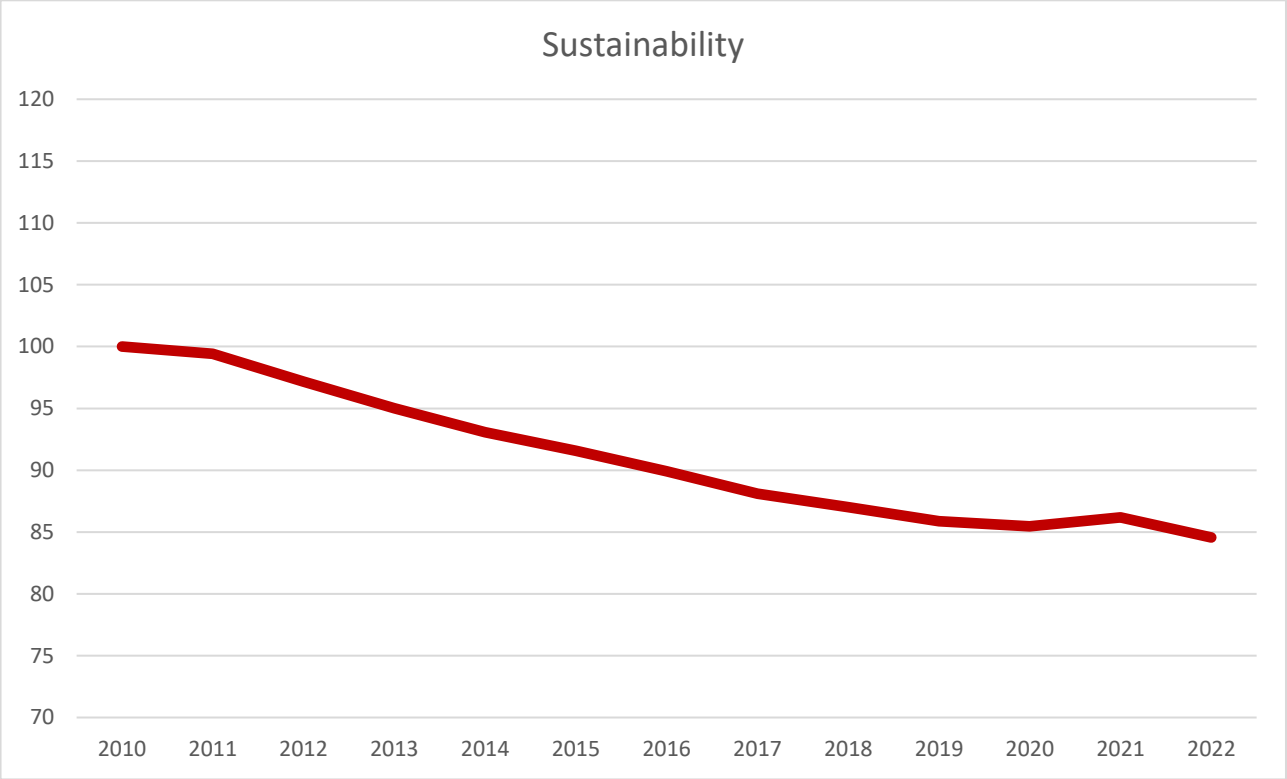

Figure 38 - Sustainability Domain: General Trend

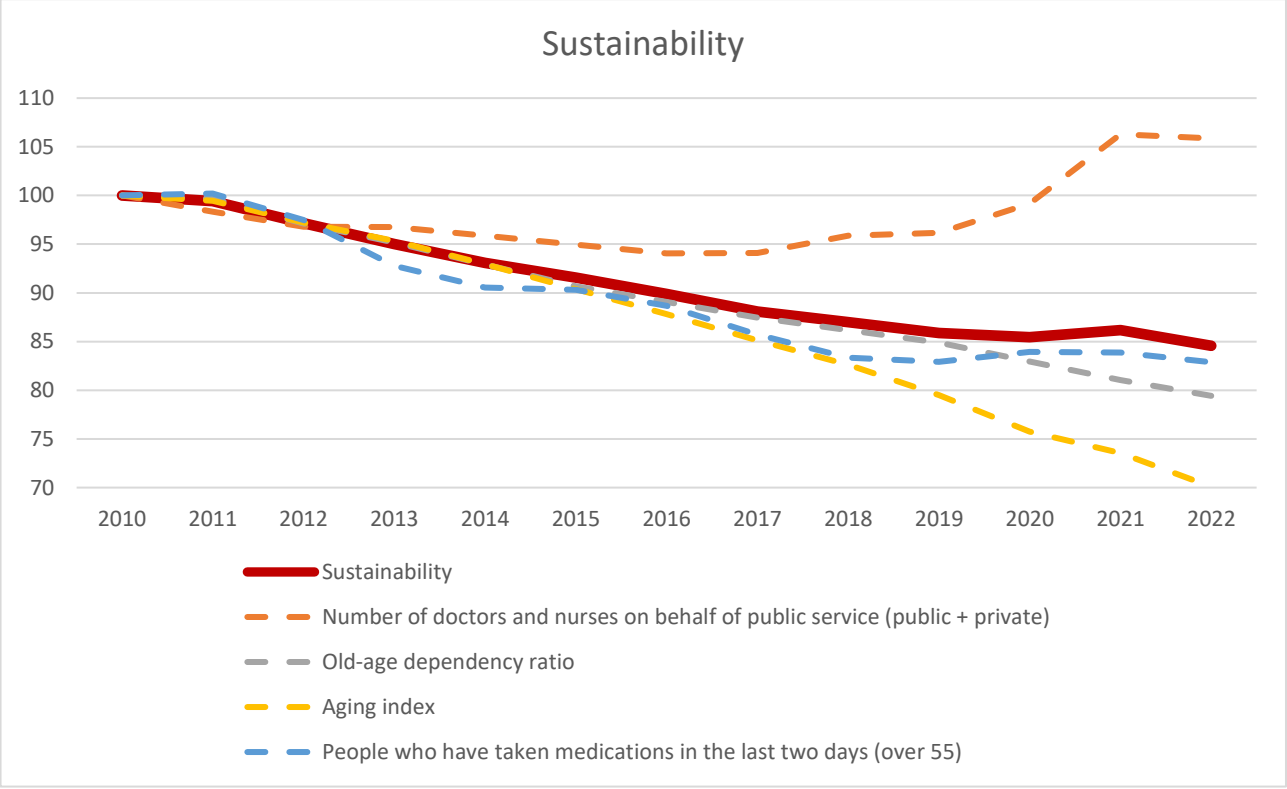

Figure 39 - Sustainability Domain: Detail of Indicators

The domain under study describes a constant and significant decline, reaching a score of 85 in 2022.

In the dynamics of the Indicators underlying the Domain, there is a substantial decline in the “Aging index” to 70 points and the “Old-age dependency ratio” to 79 points. It is highlighted that these two indicators have a negative polarity. However, the “Number of doctors and nurses on behalf of public service (public + private)” remains unchanged from 2021 with a value of 106, although it has increased compared to the value of 99 in 2020.

5.3.8. Territorial homogeneity

Within the theoretical framework of the composite Index, the concept of Territorial homogeneity refers to the goal of developing and aiming for complete equity, equality, and hence greater cohesion among all areas of our country to ensure that Health Nearness is uniformly distributed across the entire national territory.

Specifically, this Domain intends to observe the possible issues inherent in the inequalities in distribution and efficiency of services and performances provided throughout our territory; among these, the increasingly widespread tendency of citizens to move from one region to another—typically from the South to the North—to meet health needs. This phenomenon is measured by the indicator of hospital migration to another region, which analyzes the relationship between the health mobility of the various areas of the country. The indicator related to the “Personal income tax per capita by macro area” is highlighted in a separate box, which, resulting in an accentuated but constant gap over the years, would not have made a fair contribution if included in the index as a trend because it would have been "flat."

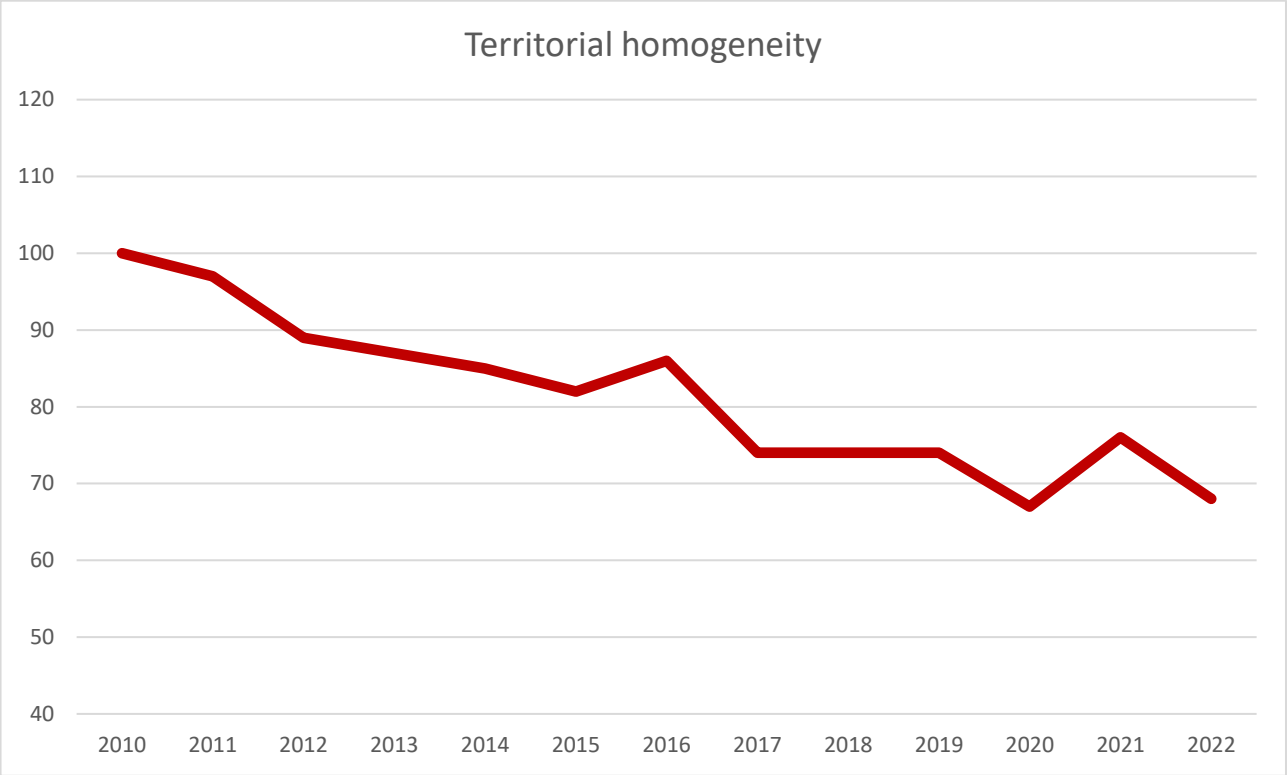

Figure 40 - Territorial homogeneity Domain: General Trend

The domain under examination describes an oscillating and downward trend, which in 2022 marks 68 points, a value significantly lower than those recorded in the first years considered.

In the dynamics of the Indicators underlying the Domain, the indicator Hospital migration to another region is highlighted, which with a negative polarity and a decreasing trend indicates a distancing from the concept of Health Nearness and an increase in the phenomenon of hospital migration from the regions of the South to those of the North.

Personal income tax per capita by macro area

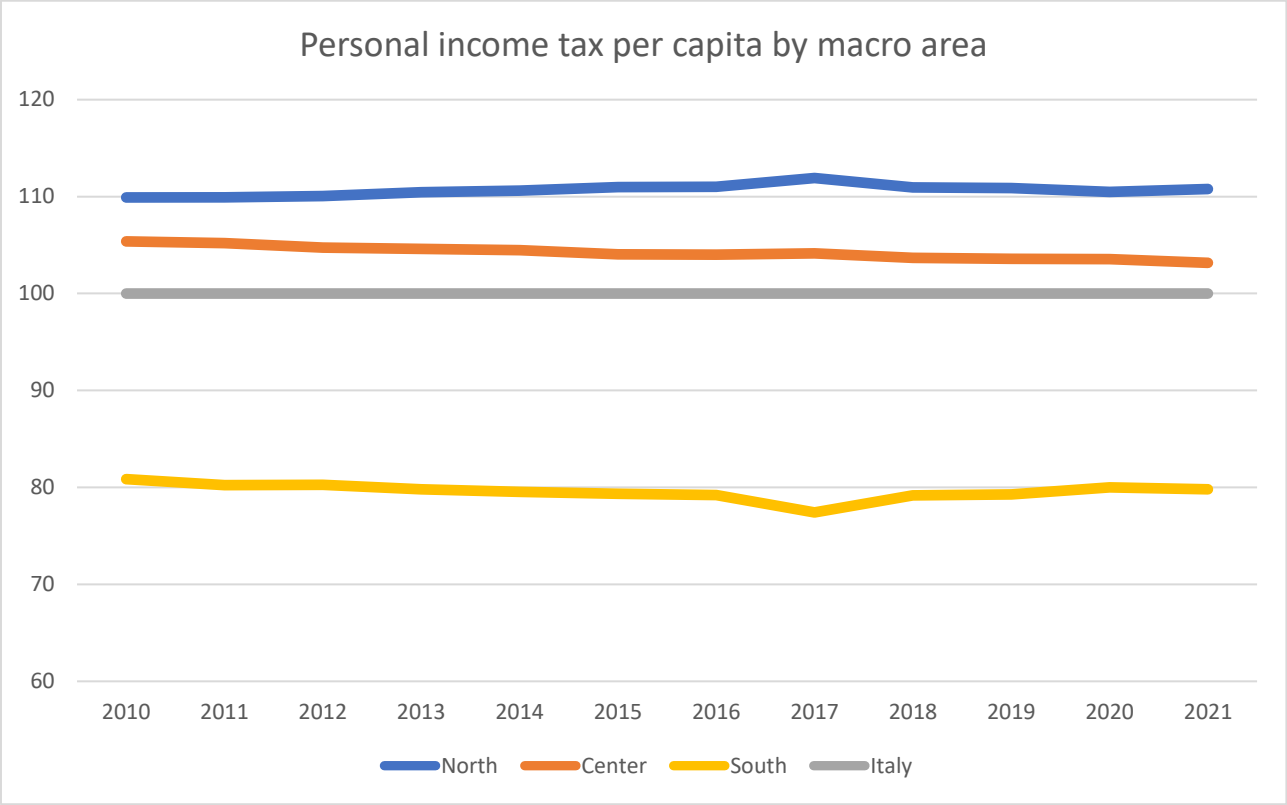

Figure 41 - Gross IRPEF per capita by macro area

Although it is not part of the indicators that make up the IVS, the elaboration of the Personal income tax per capita (carried out on the MEF 2023 database) attests a constant income disparity between the various macro areas of the country. This condition, which in light of the measurements made, can be defined as "chronic," confirms and amplifies the scope of what was detected by the "Territorial homogeneity" Domain, leaving no room for predictions of an immediate recovery of the gaps accumulated by the regions of the South compared to the rest of Italy.

5.3.9. Forgoing healthcare services

The Forgoing healthcare services has become a central theme in the national debate: long waiting lists and economic difficulties for a contingent part of the population lead more and more people to renounce or postpone treatments, with serious repercussions on their health.

Already before the pandemic crisis, in 2019, there was an increase in requests for private services: in 28 out of 100 cases, people chose to turn to private facilities upon learning of excessive waiting times or finding lists closed, with the percentage varying

depending on the geographical area: 22.6% in the Northwest, 20.7% in the Northeast, 31.6% in the Centre, and 33.2% in the South[70].

Also, in 2019, the National Observatory on Waiting Lists was established at the Directorate General for Health Planning and composed of representatives of the Ministry of Health, Agenas, all the Regions and Autonomous Provinces, the Higher Institute of Health, and civil organizations for the protection of the right to health.

The Observatory has monitored activities and held the task of supporting the Regions and Autonomous Provinces in the implementation of the provisions contained in the National Plan for the Management of Waiting Lists (PNGLA 2019-2021) [71]. This Plan aims to identify elements of protection and guarantee to increase the degree of equity of access to the available services; in addition to intervening on the level of efficiency and organization of the public health system.

However, the governance of waiting lists is strongly interconnected with other processes and phenomena contingent on the demand-supply relationship of services. Among these, the management and care of chronic patients, which deeply affects the reorganization of health facilities[72].

Over the years, the phenomenon of forgoing visits and health checks has followed two different developments across the national territory: there has always been a significant difference between the South and the North, specifically placing the South at a severe disadvantage, but it was the pandemic crisis that made this issue homogeneous across the territory.

In recent years, to existing management and organizational problems has been added the suspension of organized screening programs, which has led to significant slowdowns, with thousands of missed diagnoses and waiting lists to be cleared. From 2020, a significant drop in coverage from organized screening was recorded, especially mammographic, which only partially seems to have been converted into an increase in recourse to spontaneous screening tests. The delays accumulated by the suspended screening programs must be added to those in their reactivation, which took place in May 2020 but with different timings, intensity, and methods throughout the national territory[73].

In this regard, the National Screening Observatory (ONS), which aimed to monitor the progress of screening programs during the Coronavirus epidemic, has highlighted in its reports an average diagnostic delay in continuous increase, equal to about 5 months for the various types of screening[74]. All of this is confirmed by the most recent data available in the report on Fair and Sustainable Well-being (Bes) published by ISTAT: in 2021, 11% of people (about 6 million) were forced to renounce specialist visits or

[70] (CENSIS, 2019)
[71] (Ministry of Health, National Observatory on Waiting Lists, 2019)
[72] (Ministry of Health, National Waiting List Management Plan 2019-2021, 2019)
[73] Italy's National Institute of Health, Cancer Screenings and the Impact of the Pandemic: Data from the PASSI Surveillance, 2022
[74] (National Screening Observatory (ONS), 2020)

diagnostic exams they needed, due to economic problems or difficulties accessing the service.

Thanks to an elaboration of data collected by the National Agency for Regional Health Services (Agenas), it can be observed that compared to 2019, in 2020 and 2021, there were over 12.8 million fewer first visits and 17.1 million fewer control visits. Regarding exams, 1.3 million abdominal ultrasounds were lost, and 3.1 million electrocardiograms and more than half a million mammograms were missed[75]. It is stated that "*at least one out of five outpatient services was postponed.*"

It can be seen how the renunciation of health services has thus followed an increasing trend until 2021. The reasons why this phenomenon was characterized by such growth must be sought in the organizational difficulties and planning of health facilities further accentuated by the pandemic and aggravated by structural staff shortages.

2022, on the contrary, shows comforting data: the phenomenon seems to have reversed its growth trend, returning to pre-pandemic values.

The strategy to recover the accumulated delay currently passes through increased funding of the budget allocated to resorting to services provided by accredited private entities and a greater economic incentive to the extraordinary activity carried out by medical and health professionals of the SSN.

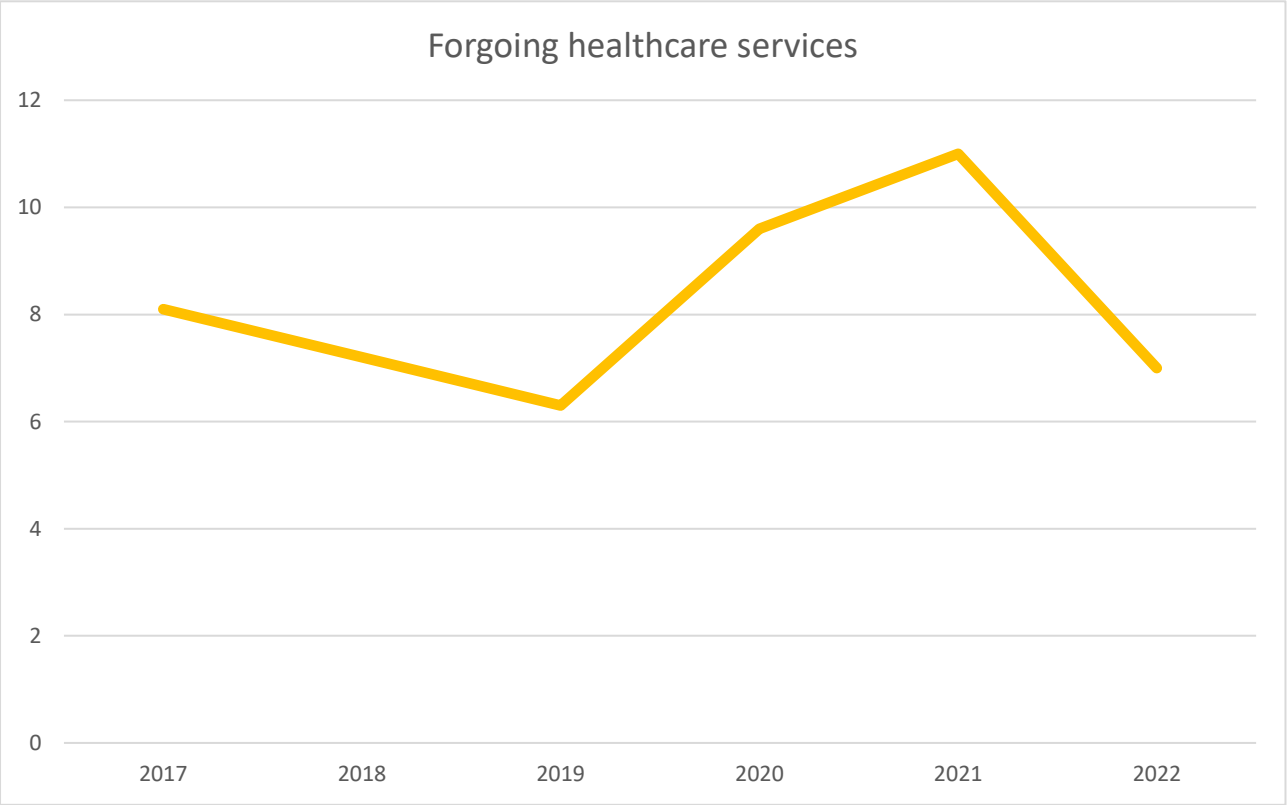

Figure 42 - Forgoing healthcare services

[75] (Gabanelli & Ravizza, 2023)

The graph does not follow the normalization to the fixed base of 2010 adopted for the other indicators selected for the Health Nearness Index but reports the actual values of the percentage of the population that has foregone health services.

The observed values represented in the graph therefore indicate the percentages of people who, in the last 12 months, stated that they had foregone some specialist visit or diagnostic examination (e.g., X-rays, ultrasounds, MRI, CT, echodoppler, or other types of testing, etc.) even though they needed it, for one of the following reasons: could not afford it, it was too expensive; inconvenience (distant facility, lack of transport, inconvenient hours); long waiting list[76].

5.4. Environment and living places Context

The Environment and living places Context is composed of six domains: Housing conditions; Urban health; Polluting emissions; Antimicrobial resistance; Meteorological and climatic events; Eco-anxiety.

Given its components, this Context represents the most external area of investigation: it observes phenomena and conditions that change over a broader time frame and may not be conditioned solely by the action and will of human beings.

Given its composition, the Context intersects with the objectives of Mission 2 – Green Revolution and Ecological Transition, Mission 6 – Health, Mission 7 – RePowerEU.

[76] Istat, Equitable and Sustainable Well-being in Italy 2021, 2022) (Istat, Il Benessere Equo e Sostenibile in Italia 2021, 2022)

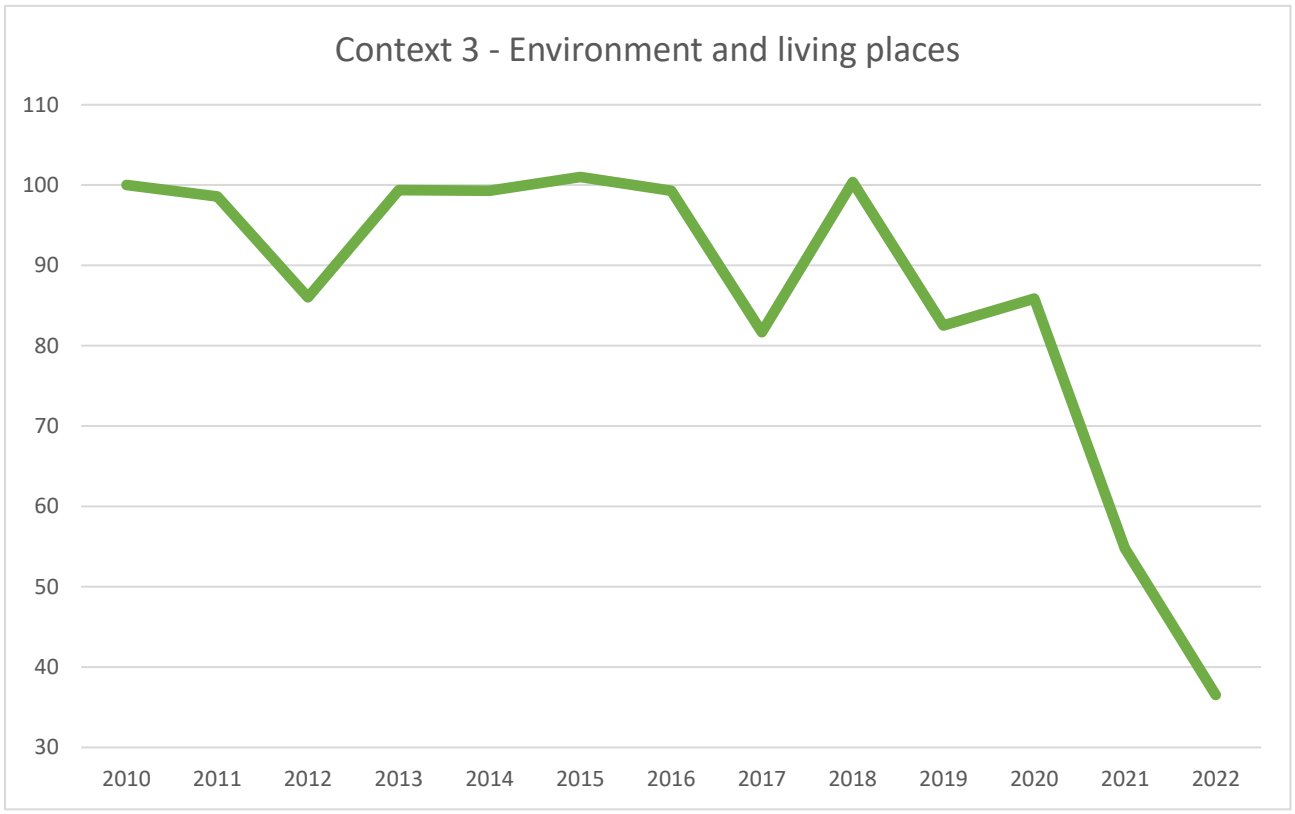

Figure 43 - Environment and living places Context: General Trend

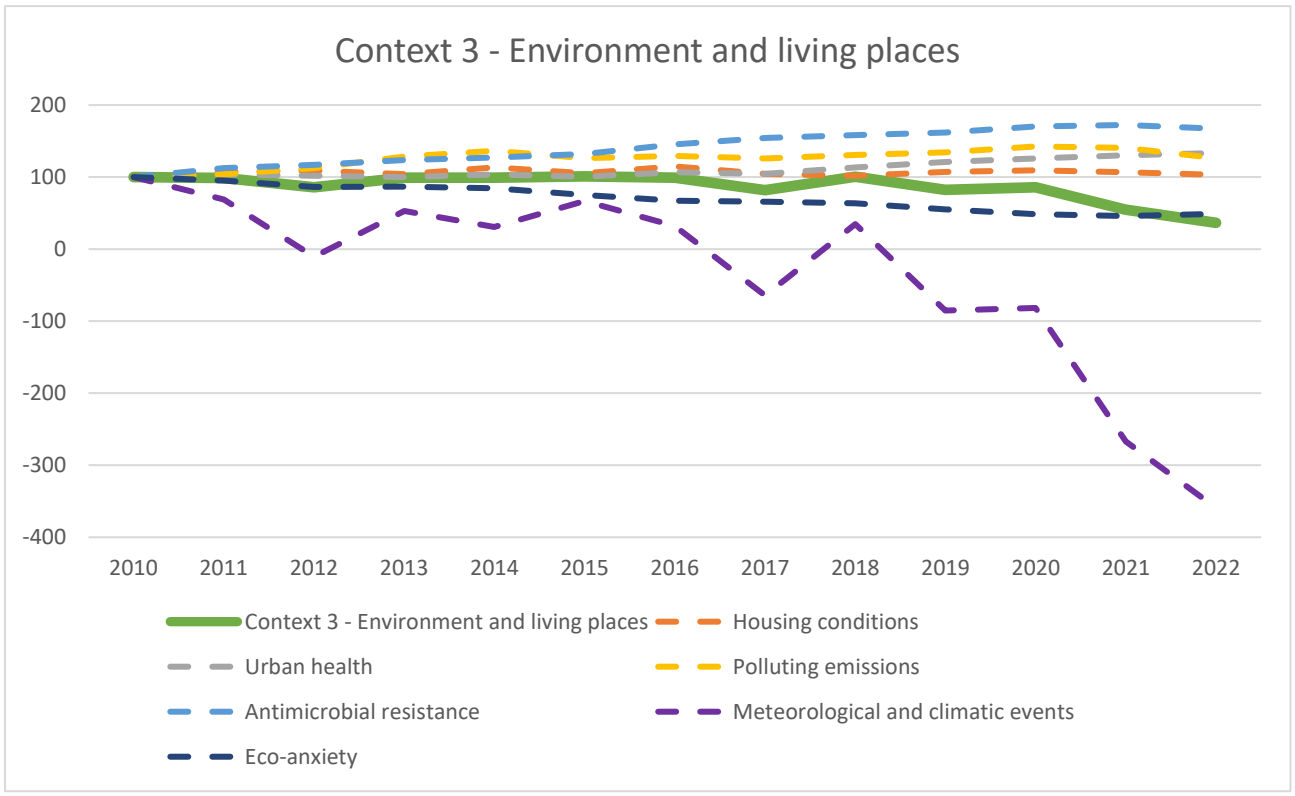

Figure 44 - Environment and living places Context: Domain Details

The first graph of the Environment and living places Context shows the general trend of the Context, which represents the synthesis of the trends of the six Domains that compose it.

Starting from the standard value of 100 points in 2010 and along the historical series under examination, there is first a stable trend around the standard value of 100 until 2018, and then a sudden decrease that leads to the value of 37 for the year 2022.

In the second graph, the trends of the individual Domains belonging to the Context can be observed, and the trend of the domain “Meteorological and climatic events” followed by the domain related to Eco-anxiety, which influence the trend of the entire Context, is immediately highlighted.

The Domains that make up the Context are described individually below.

5.4.1. Housing conditions

Housing conditions refers to places designated for dwelling (now with teleworking increasingly also hybrid places of work and with the NRRP even "Home as a first place of care") which, given their conformation, structure, and availability of services, inevitably affect the health and well-being of individuals. Thus, with this Domain, several living conditions of people are examined, including various issues and discomforts related to the provision of primary goods such as water and electricity. This is because living in accommodation that is adequate for essential and individual needs represents a basic right for everyone.

The domain under study is composed of three indicators: At least one problem in the house; Electrical interruptions per consumer (average number); Households with irregularities in water supply.

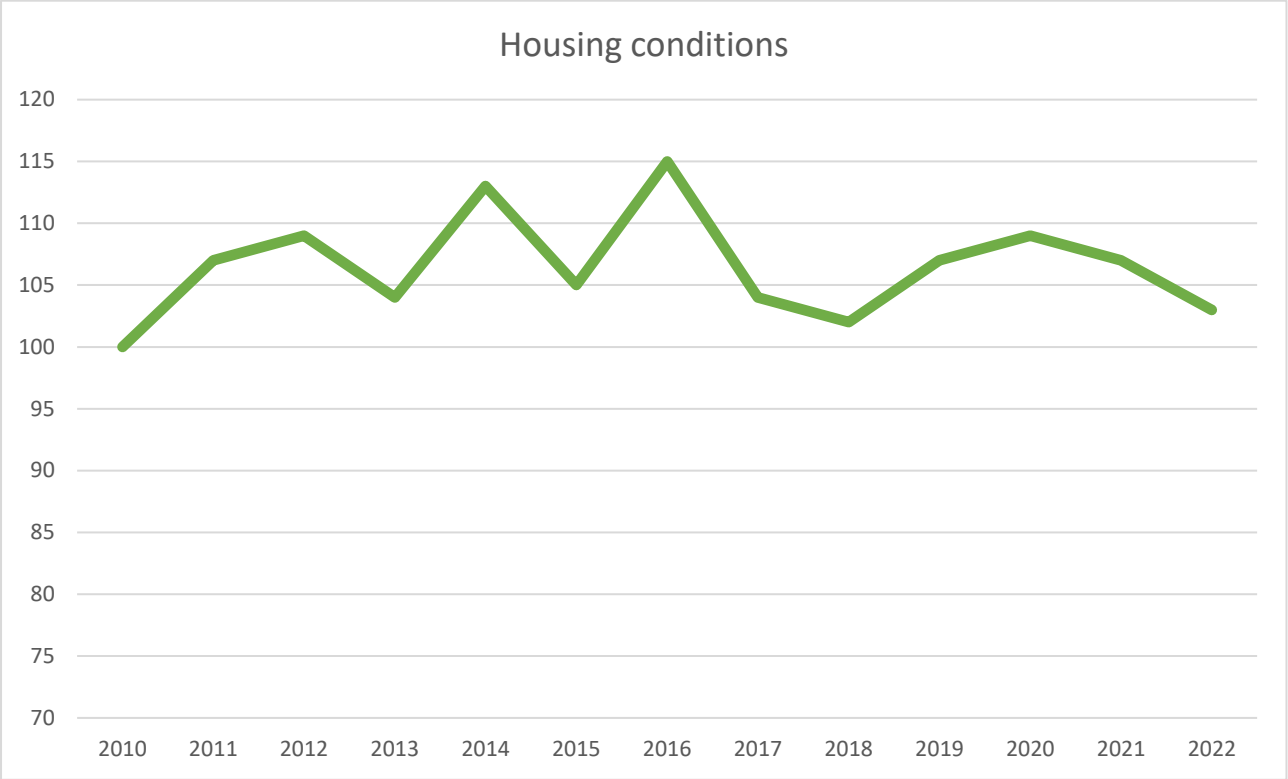

Figure 45 - Housing conditions Domain: General Trend

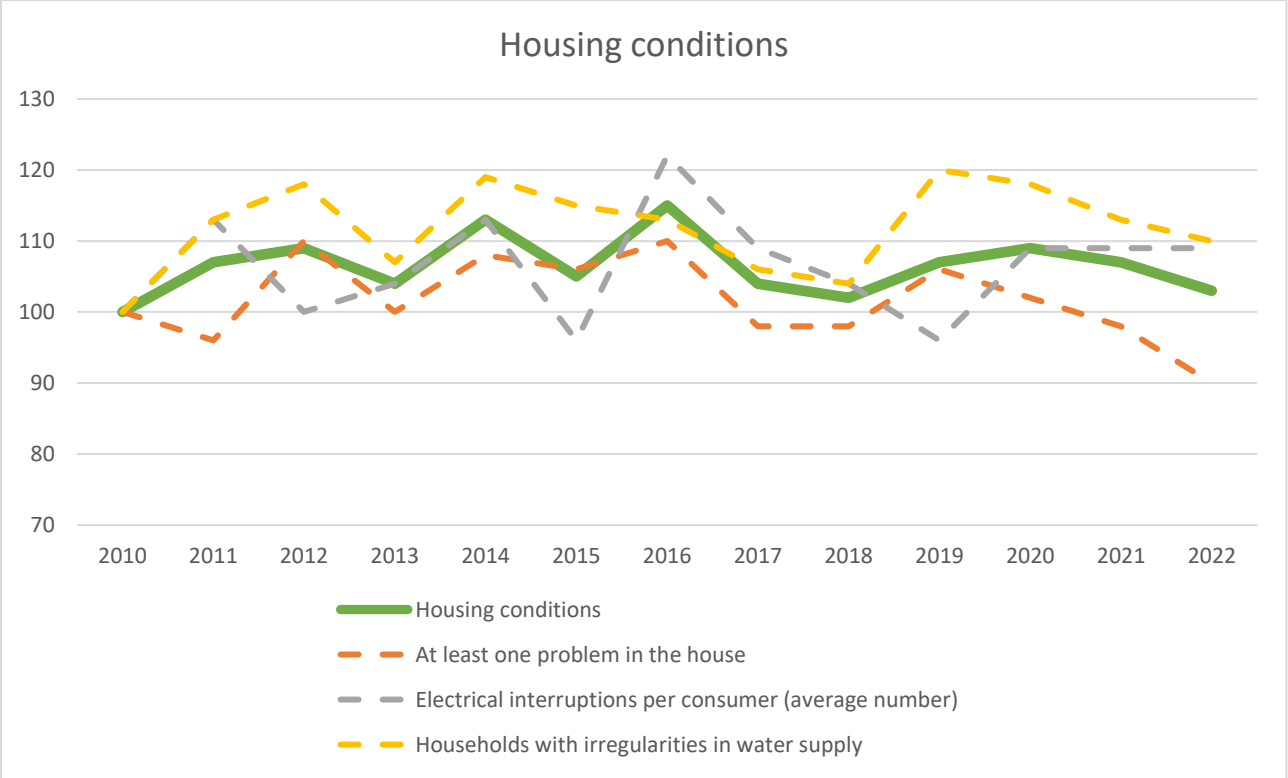

Figure 46 - Housing conditions Domain: Detail of Indicators

The domain under study describes an uneven trend throughout the period, with an improvement in 2022 in which a value of 103 points is recorded.

In the dynamics of the Indicators underlying the Domain, a discontinuity is noted in the trend of all the considered indicators, which affects the general trend and makes it difficult to formulate reliable forecasts for the subsequent period. The absence of continuous improvement in the regularity of the electrical service and water distribution profoundly influences the formulation of policies related to housing well-being. The decreasing trend of the last years related to the " At least one problem in the house " rings an alarm bell about the actual conditions of the homes, which are even candidates to become "first place of care".

5.4.2. Urban health

Urban health refers to a strategic approach that integrates health protection and promotion actions into territorial design, fostering forward-looking and sustainable processes of urban regeneration[77]. The development of healthy and favourable environments is an important element for collective well-being: urban structure, safety, service offerings, public transportation, and the availability and usability of walkable paths strongly impact life quality.

With this in mind, the characteristics and conformation of open and confined spaces where life activities or simply leisure activities take place (parks, public spaces, etc.) are examined, thus underlining the strong dependence between physical, mental, and social well-being and the place of residence. In this perspective, collaboration between the environmental and health sectors is fundamental to protect human health from risks arising from a dangerous or harmful environment and to create optimal physical and social environments.

The Urban health Domain consists of five indicators: Urban green space availability; Perception of safety walking alone at night; Public transport satisfaction; Waste sorting; Social perception of urban decay.

[77] (Ministry of Health, 2021)

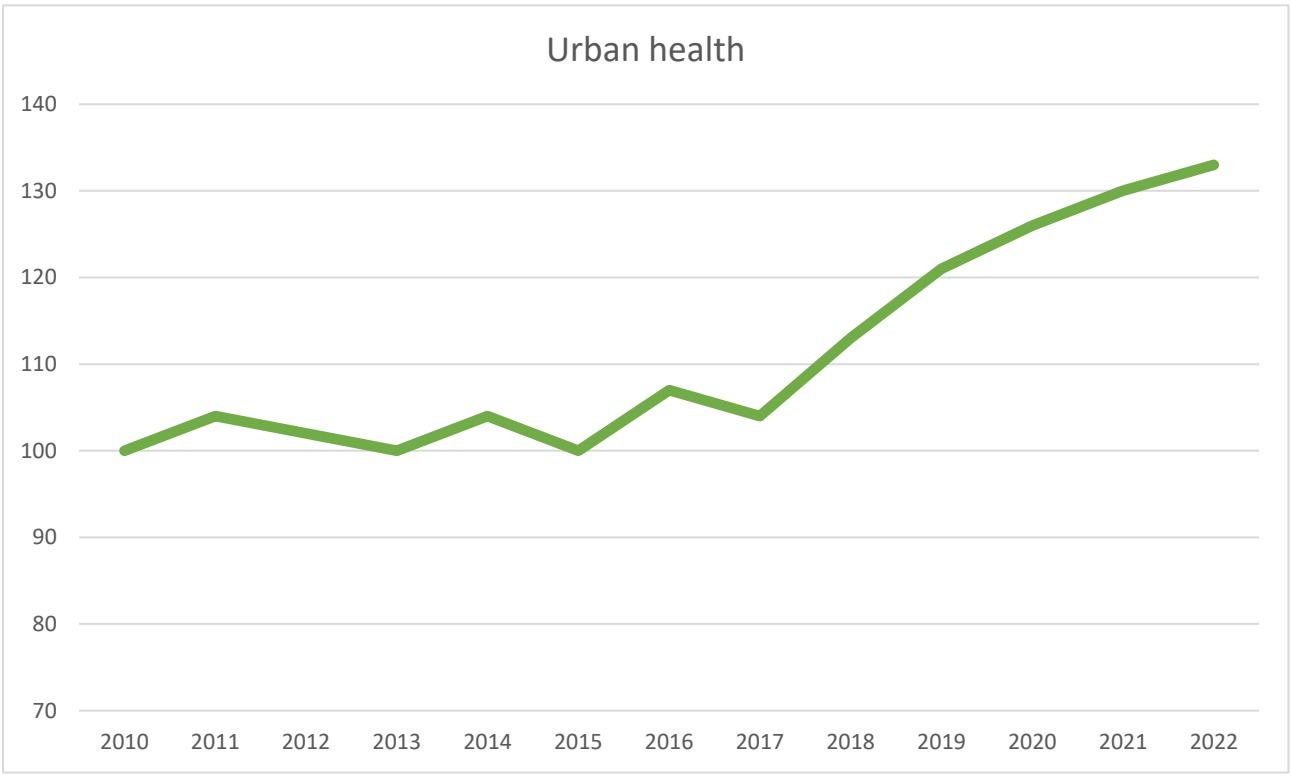

Figure 47 - Urban health Domain: General Trend

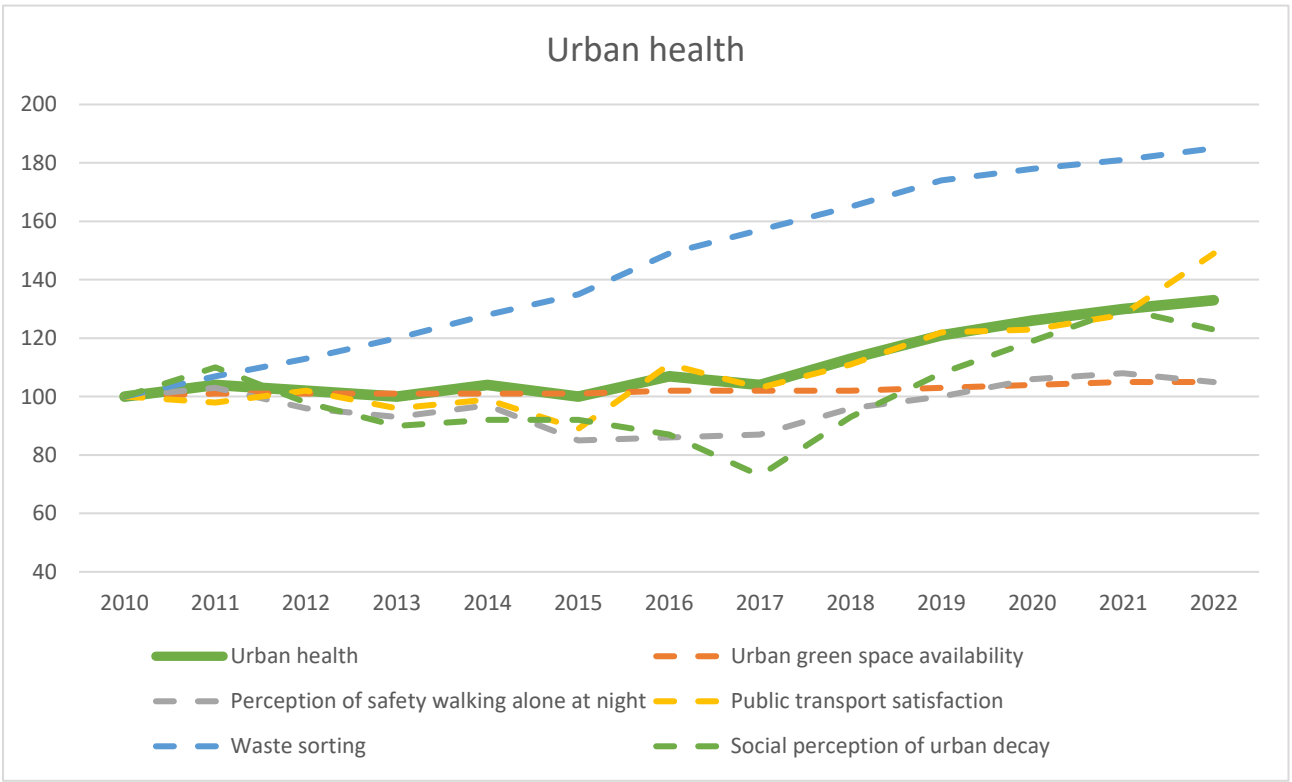

Figure 48 – Urban health Domain: Detail of Indicators

The domain under study shows a positive trend, with a steady increase culminating in the last year with a maximum value of 131 points.

In the dynamics of the Indicators underlying the Domain, there is a significant increase in the value of the "Public transport satisfaction" indicator compared to 2021, moving from a score of 128 to 149 points. It also emerges that the indicator for "Waste sorting" has been continuously improving since 2010. However, although the "Social perception of urban decay" showed signs of recovery starting from 2017, in the last year it stands at 123 points, contrasting with the 130 of the previous year.

5.4.3. Polluting emissions

In keeping with the One Health approach, the Polluting emissions Domain aims to provide a snapshot of the state of air quality and the use of renewable energies in our country.

Air quality and the use of renewable sources are two interdependent and crucial themes for the health and well-being of people, as well as for the environment. Climate and energy policies have undergone a phase of profound revision following the signing of the Paris Agreement in 2015, and it is in this context that the Energy and Climate Plan (PNIEC) was defined, which establishes national objectives for 2030 on energy efficiency, renewable sources, and the reduction of greenhouse gas emissions, as well as objectives regarding the single energy market and competitiveness, development, and sustainable mobility[78].

Therefore, it is fundamental to monitor the quantities of greenhouse gases and pollutants released into the atmosphere, thanks to the measurements of the Institute for Environmental Protection and Research (ISPRA) and the consumption of electric energy from renewable sources, thanks to the official statistical elaborations of the entire national electrical sector produced by Terna.

The Polluting Emissions Domain consists of two indicators: Electricity from renewable sources; Air pollution - PM2.5.

[78] ISPRA & National System for Environmental Protection, 2022

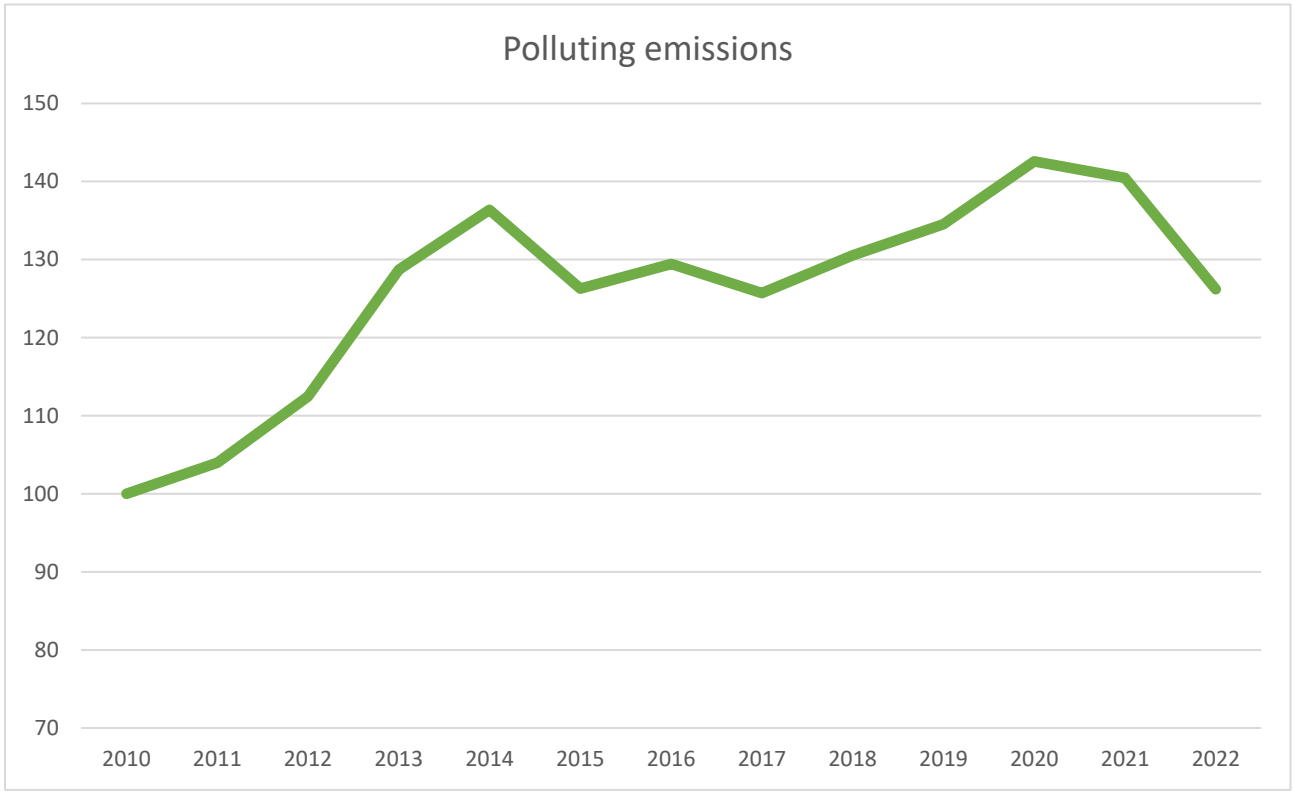

Figure 49 - Polluting emissions Domain: General Trend

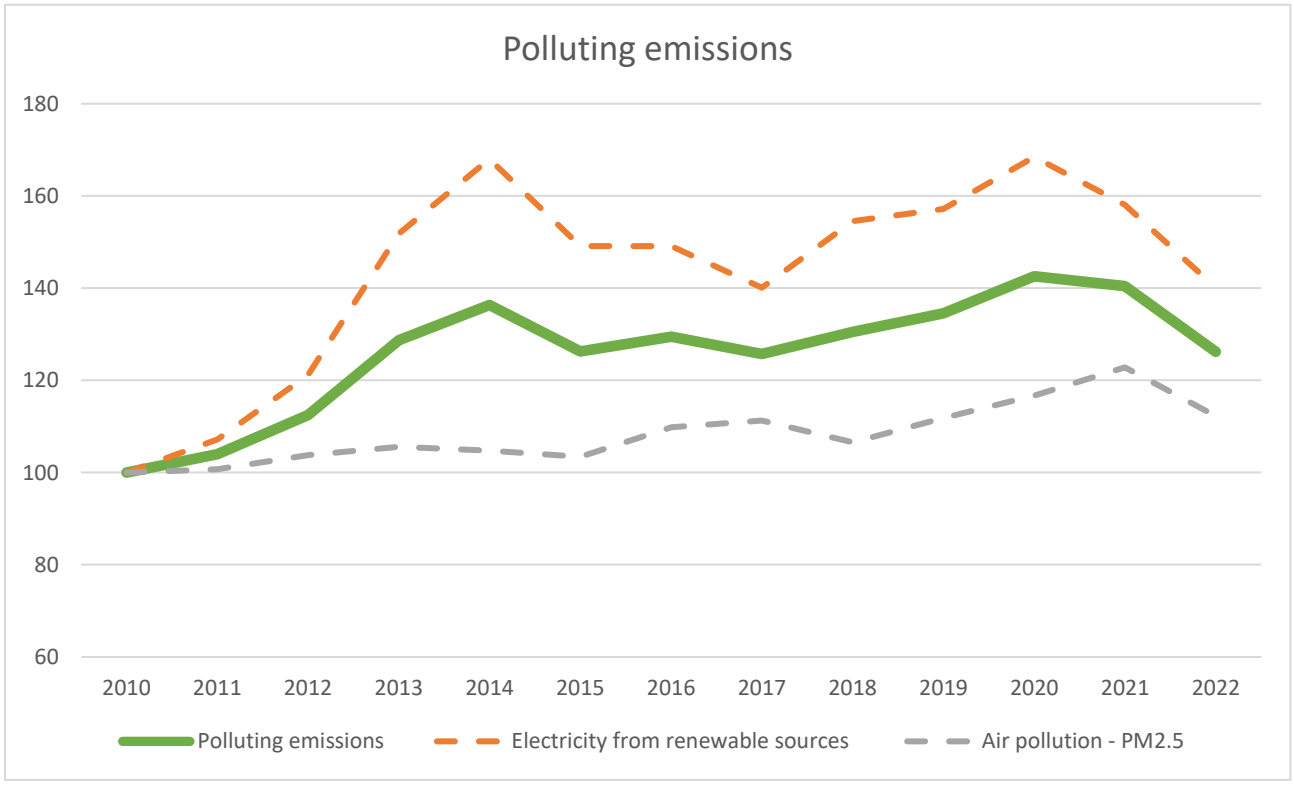

Figure 50 - Polluting emissions Domain: Detail of Indicators

The domain under study describes an overall increasing trend, recording a first peak in 2014 with a value of 136 points. In the year 2020, it reaches the maximum score of 143 points. It maintains a stable level in the following year, but in 2022 records a substantial drop to 126 points.

In the dynamics of the Indicators underlying the Domain, there is an overall increase for both, although in the last year the indicator "Electricity from renewable sources" stands at a value of 140, compared to 158 of the previous year. The "Air pollution - PM2.5" indicator, which had reached its maximum value of 123 points in 2021, shows a decrease and records a value of 112 points.

5.4.4. Antimicrobial resistance

Antimicrobial resistance, or antimicrobial resistance, is a biological phenomenon of adaptation by some microorganisms that acquire the ability to survive or grow in the presence of a concentration of an antibacterial agent that is generally sufficient to inhibit or kill microorganisms of the same species[79].

There are two types of resistances: intrinsic, when it is due to the very nature of the microorganism; acquired, when the microorganism develops resistance subsequently. Therefore, excessive or incorrect use of antibiotics favors the emergence and spread of bacterial strains resistant to certain drugs, making the therapy of many infections problematic. The phenomenon of antimicrobial resistance is a complex problem and can present numerous pitfalls, thus requiring careful evaluation.

The Domain is composed of two indicators: Sale of veterinary drugs containing antimicrobial agents; Total use of antimicrobial drugs in DDD/1000 inhabitants per day.

[79] (Ministry of Health, 2022)

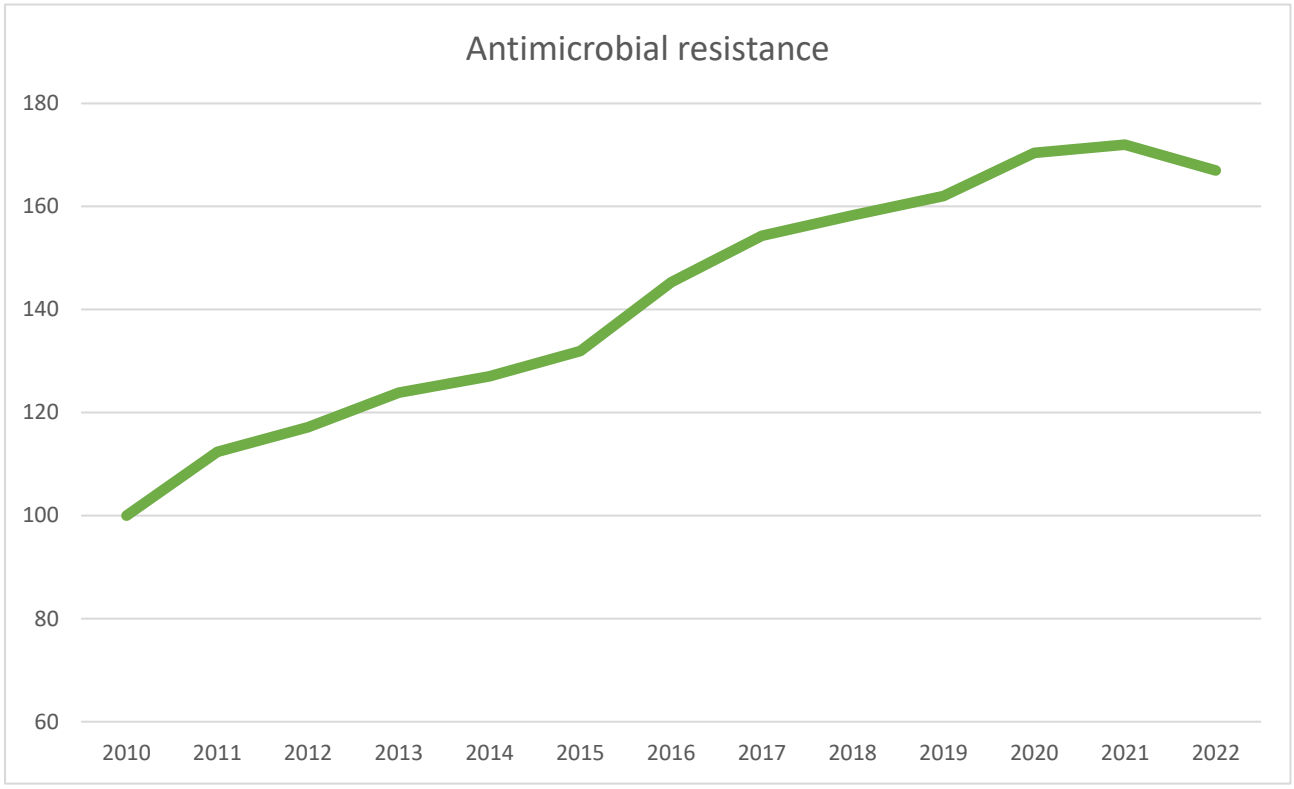

Figure 51 - Antimicrobial resistance Domain: General Trend

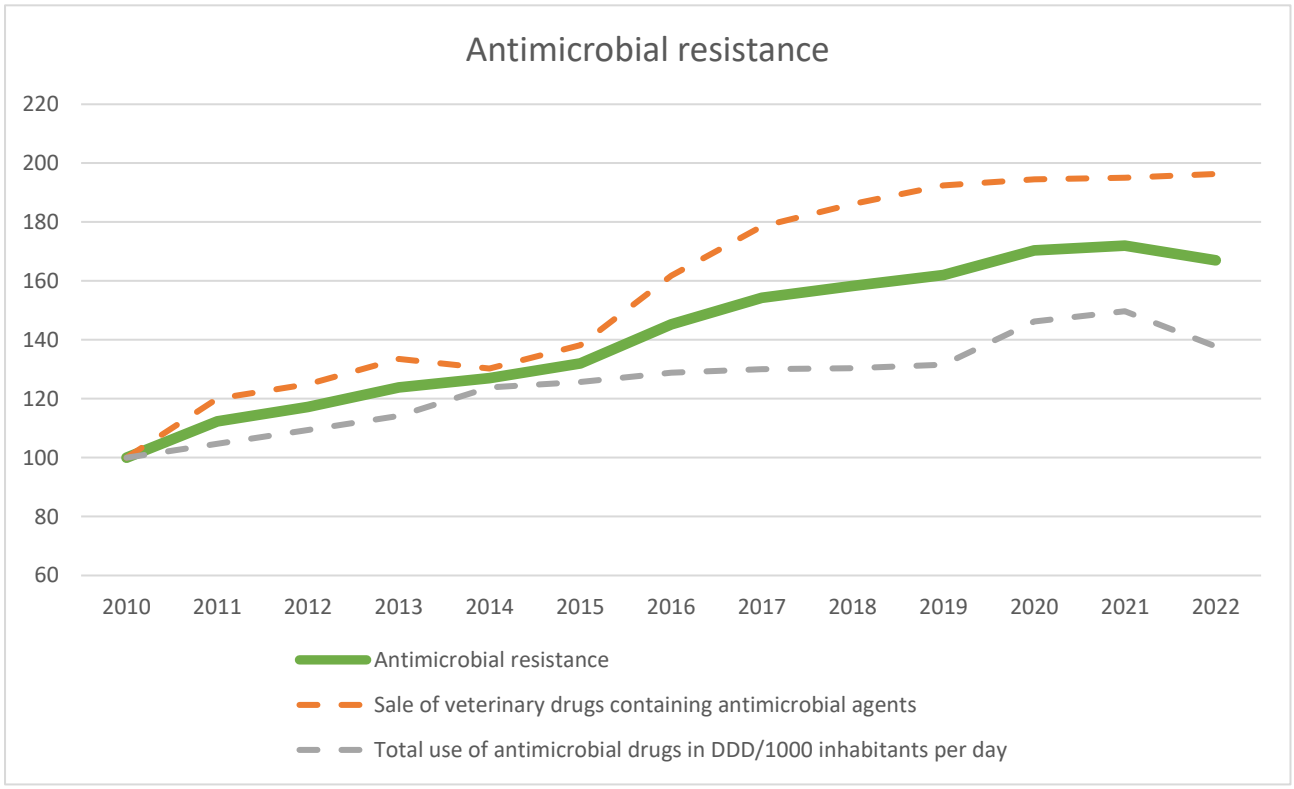

Figure 52 - Antimicrobial resistance Domain: Detail of Indicators

The domain under examination presents a generally positive picture, with a slight decrease for the last year, in which a value of 167 is recorded.

In the dynamics of the Indicators underlying the Domain, a decrease is observed for the indicator “Total use of antimicrobial drugs in DDD/1000 inhabitants per day”, which drops from a value of 150 in the year 2021 to 138 in the following year. On the contrary, the values of the indicator “Sale of veterinary drugs containing antimicrobial agents” continue to grow from 2010, reaching a score of 196 in 2022. The two indicators have a negative polarity, so an increase in values corresponds to a lower use of antimicrobial agents for veterinary use and reduced consumption for human use and vice versa.

5.4.5. Meteorological and climatic events

The Meteorological and climatic events Domain observes severe meteorological phenomena, whose increase represents the signal of the so-called "climate change," with the relative impact on health and well-being. Particularly violent and intense meteorological phenomena are monitored, capable of causing severe damage both to the territory where they occur and to the population, such as: floods, prolonged droughts, landslides from intense rains, extreme temperatures, water crises, hurricanes, cyclones, etc. Not all extreme weather events are caused or linked to climate change, but in recent years it has been found that these can be traced more and more to the consequences of global temperature increases. The emergency of extreme events requires continuous and constant monitoring at a planetary level and even more so in the Mediterranean area: according to the 2022 report of the Intergovernmental Panel on Climate Change (IPCC), the Mediterranean is a hotspot of climate change, and temperatures in the Mediterranean area are increasing about 20% faster than the global average. The domain consists of two indicators: Number of severe/extreme weather events and Forest fires impact.

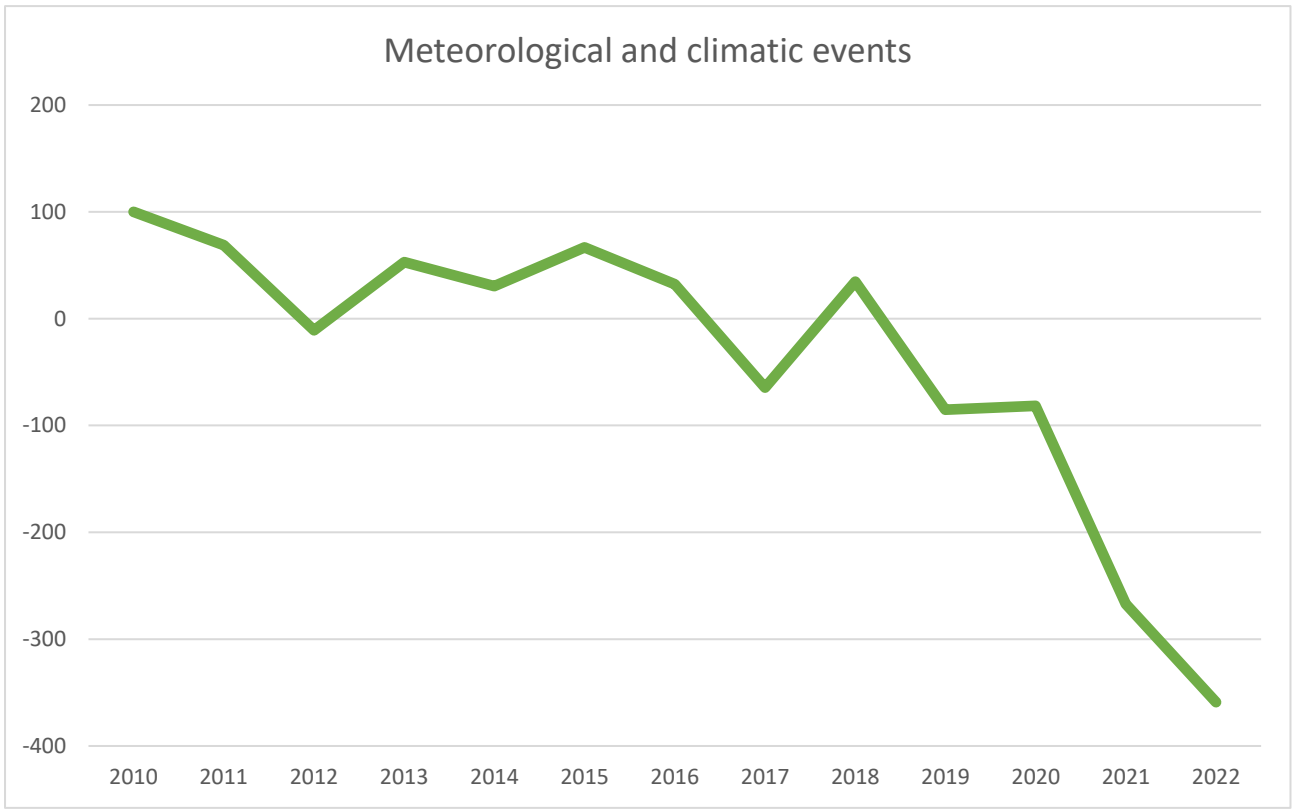

Figure 53 - Meteorological and climatic events Domain: General Trend

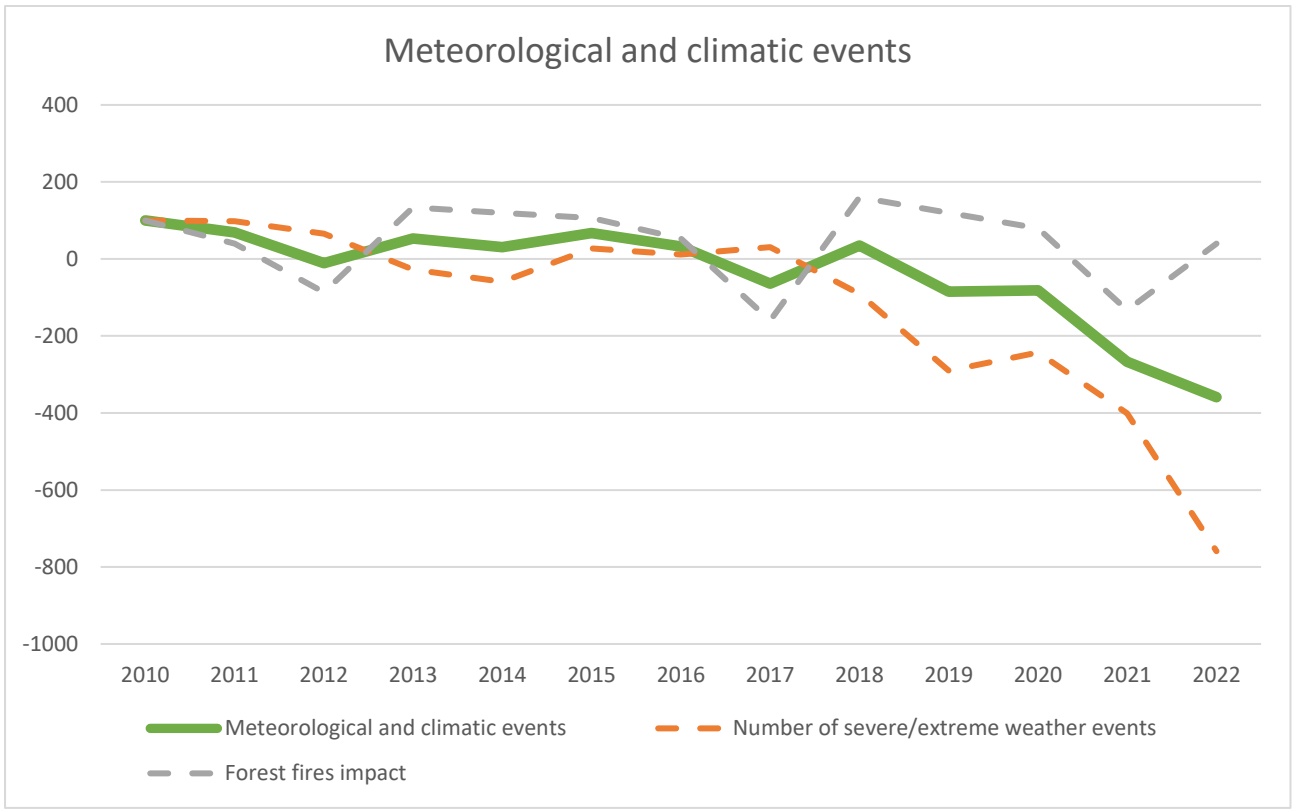

Figure 54 - Meteorological and climatic events Domain: indicators detail

The domain under consideration paints a descending picture, highlighting a sharp fall in recent years, going from a value of 35 points in 2018 to a minimum of 359 points in 2022.

From the analysis of the Domain's Indicators, it emerges that the indicator related to the “Number of severe/extreme weather events” has amplified its negative trend that began in 2017. At the same time, the value of the indicator “Forest fires impact” is on the rise, reaching 40 points in 2022, compared to a collapse in the previous year to a value of -133 points.

Both Indicators in question present a negative polarity. Consequently, the decrease in the recorded values translates into growth in the monitored phenomena.

5.4.6. Eco-anxiety

Eco-anxiety is defined as *"the generalized feeling that the ecological foundations of existence are about to collapse"* [80]. This term identifies the experiences of anxiety and concern related to the environmental crisis, the most widespread forms of which are related to climate change, global warming, sea-level rise, including the extinction of animals, global pollution, and deforestation.

This form of anxiety and fear can lead to daily episodes of discomfort, insomnia, and depression.

Such symptoms and issues highlight the close relationship that persists between the health of the environmental ecosystem and human health.

To describe Eco-anxiety, two indicators were used: People who are concerned about biodiversity loss and People who are concerned about climate change.

[80] Definition by environmental philosopher Glenn Albrecht, 2019.

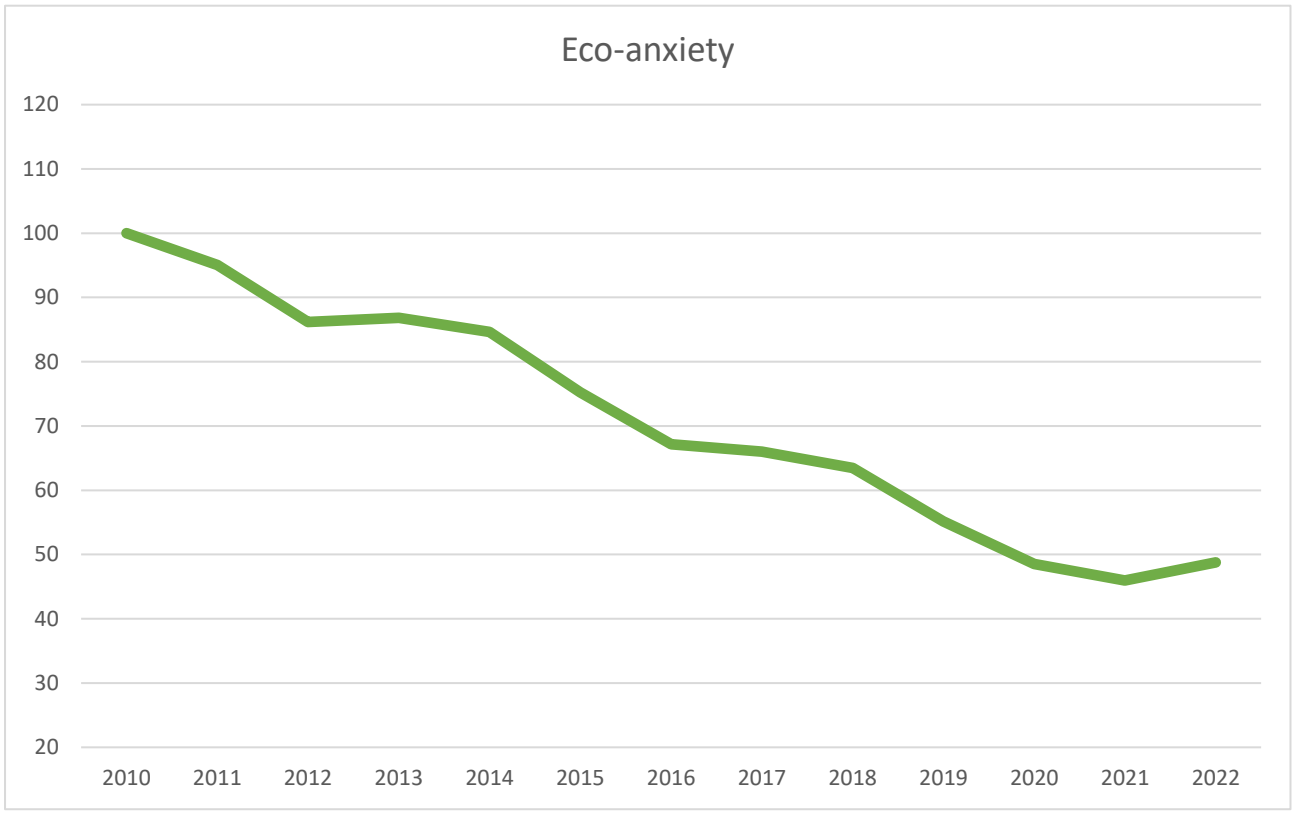

Figure 55 - Eco-anxiety Domain: General Trend

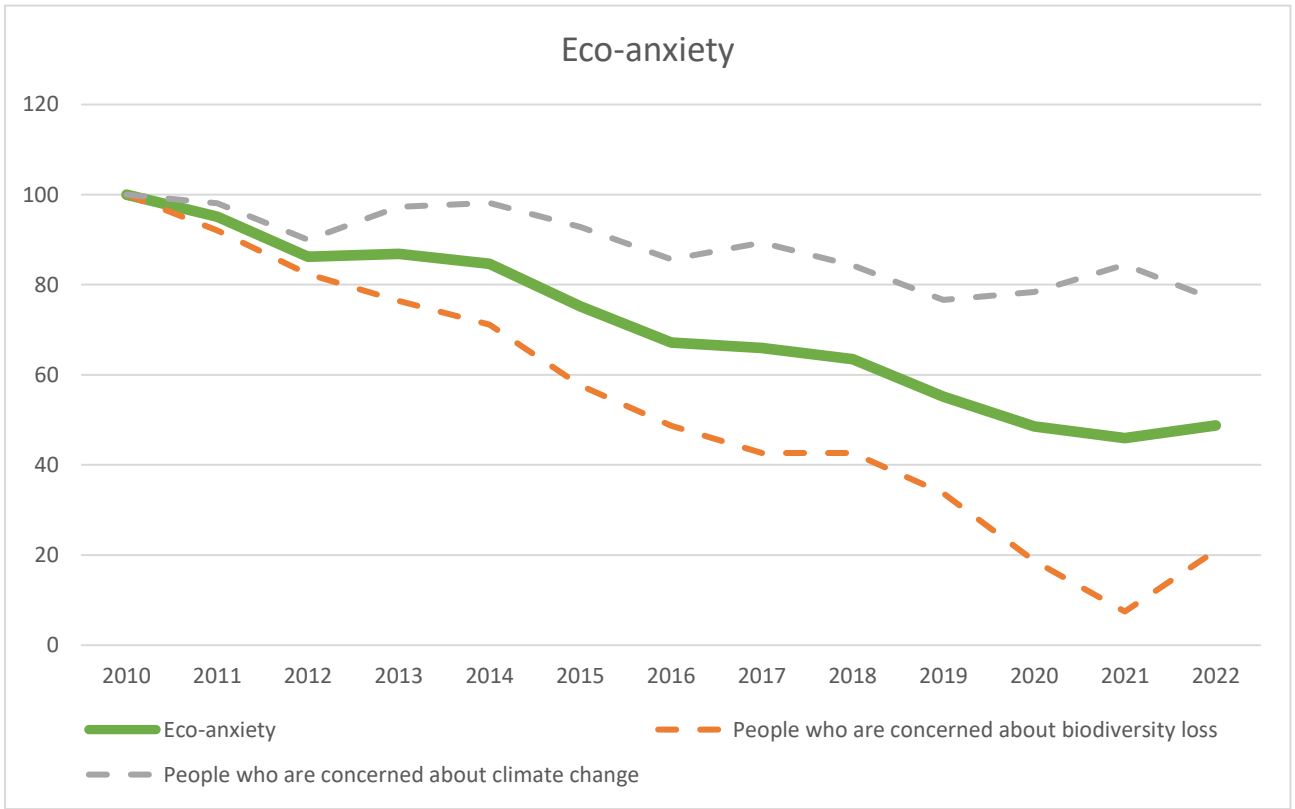

Figure 56 - Eco-anxiety Domain: indicators detail

The domain under examination describes a trend that is consistently and markedly decreasing until 2021, the year in which it reaches a historical minimum. The trend only reverses in the last year, rising to a score of 49.

In the dynamics of the Indicators underlying the Domain, it is evident that both indicators showed a decreasing trend until 2021, albeit with different slopes.

In 2022, the positive trend of the Domain is influenced by the performance of the indicator “People who are concerned about biodiversity loss”, which rises to 21 points. This last registers thus a threefold increase in the score of the previous year. On the contrary, the indicator “People who are concerned about climate change” continues its decrease, again recording a score of 77, as in 2019.

6. Digitalization

The revision of the NRRP (National Recovery and Resilience Plan), approved by the Commission in accordance with set goals and timelines, includes 145 new measures aimed at strengthening various reforms, particularly those focused on green and digital transitions. This enhancement encourages the development of innovative technologies, supports startups, and fosters the country's overall development.

Notably, the Plan has been augmented by the introduction of the REPowerEU chapter, which increases the total number of Missions from six to seven. This change marks a significant shift toward the modernization and adaptation of Italy to new European standards in energy, environment, and innovation. The Commission has emphasized that the amendments proposed by the Italian Government reflect a clear ambition to invest in digitalization and innovation, promoting the development of new technologies, supporting innovative startups, and allocating resources for research.

The Country 2025[81] Strategy for technological innovation and digitalization was created to integrate innovation and digitalization into the structural reform of the State, outlining a clear path to addressing the challenge of 'Inclusive and sustainable development." The main goal has remained that of promoting ethical, inclusive, transparent, and sustainable innovation to improve societal well-being. Its main guidelines include the enhancement of people's digital skills, technological development, and continuous training of citizens to prepare them for future jobs. At the center of this strategy is the project of a Digital Republic, with the goal of combating the digital divide and educating on the technologies of the future.

It is clear that digital skills are central to social and economic growth, where three conditions for sustainable evolution must be met: increasing digital awareness in the population, improving public and private services for users, and aligning the education system to address the demand for digital skill development[82].

The National Coalition for digital skills and professions[83], promoted by AGID already in 2013 and adhering to the Grand Coalition for Digital Skills and Jobs of the European Commission[84], has in fact represented a decisive step in this direction, which wants and must be pursued by the reforms of the NRRP.

Since the digital transition in healthcare is ongoing, it was not possible to access specific statistical indicators to precisely trace its evolution or monitor its development. The time frame for sufficient, precise, and reliable data does not yet meet the criteria for inclusion in the Health Nearness Index, which requires a historical data series starting from 2010.

However, it was possible to conduct a general contextual analysis, studying various factors pertaining to the broader concept of digitalization, which has been investing our

[81] (Agency for Digital Italy)
[82] Ibid
[83] Ibid
[84] (European Commission)

society for several years. The rapid development of the phenomenon of digitalization has affected various areas, especially at the infrastructure and service level, and it is in this interconnected and technological context that telehealth services must be anchored.

Therefore, it becomes essential to investigate the state of the art of the main aspects of digitalization, enclosed in an analysis specifically dedicated to this phenomenon.

Among the various factors studied are: Households with broadband access (fixed or mobile); Household availability of at least one computer and internet connection; Internet regular users; Municipalities that offer at least one online service.

All four identified indicators trace a positive trend in continuous growth since 2010, registering over the period a growth of the phenomenon of more than 100%, reaching a value of 208 points in the year 2022. Thus, a favorable picture is outlined for the implementation and development of further digital systems that can also improve other aspects of people's lives, primarily that of healthcare.

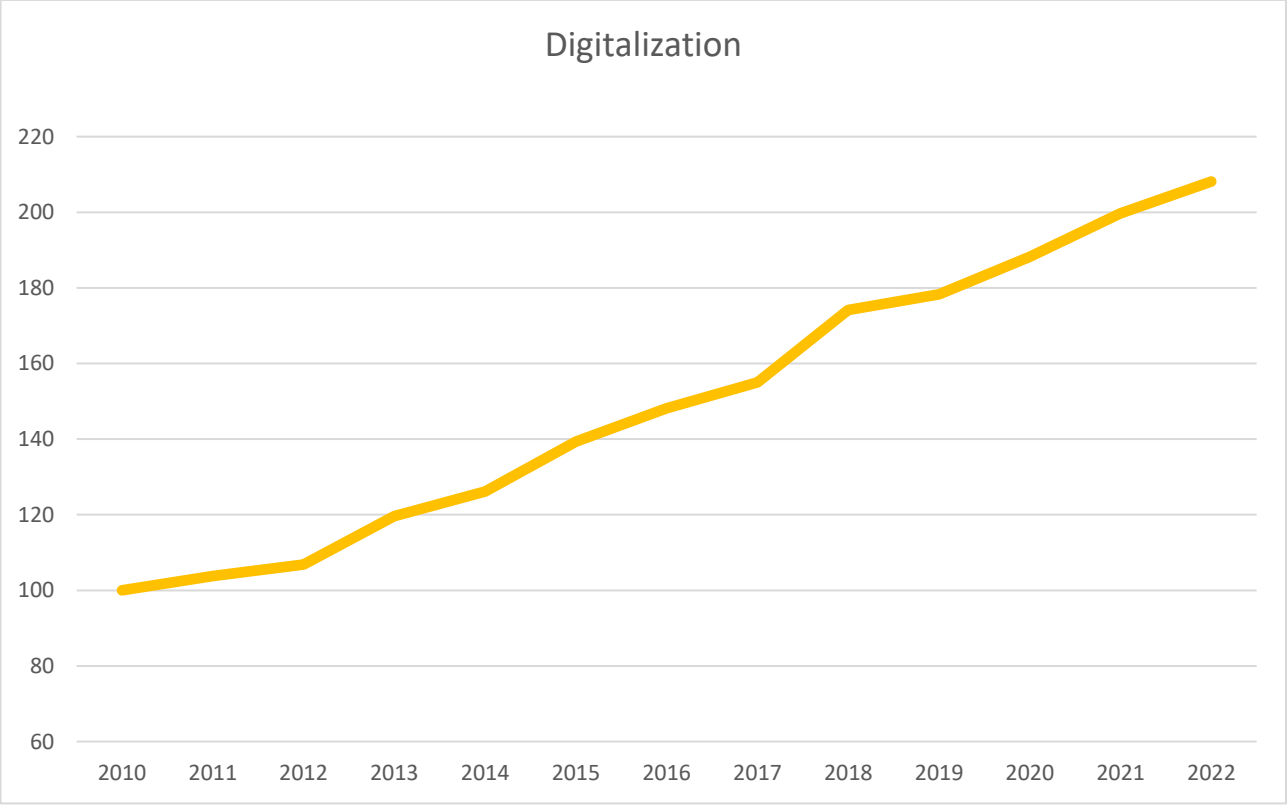

Figure 57 - Digitalization: General Trend

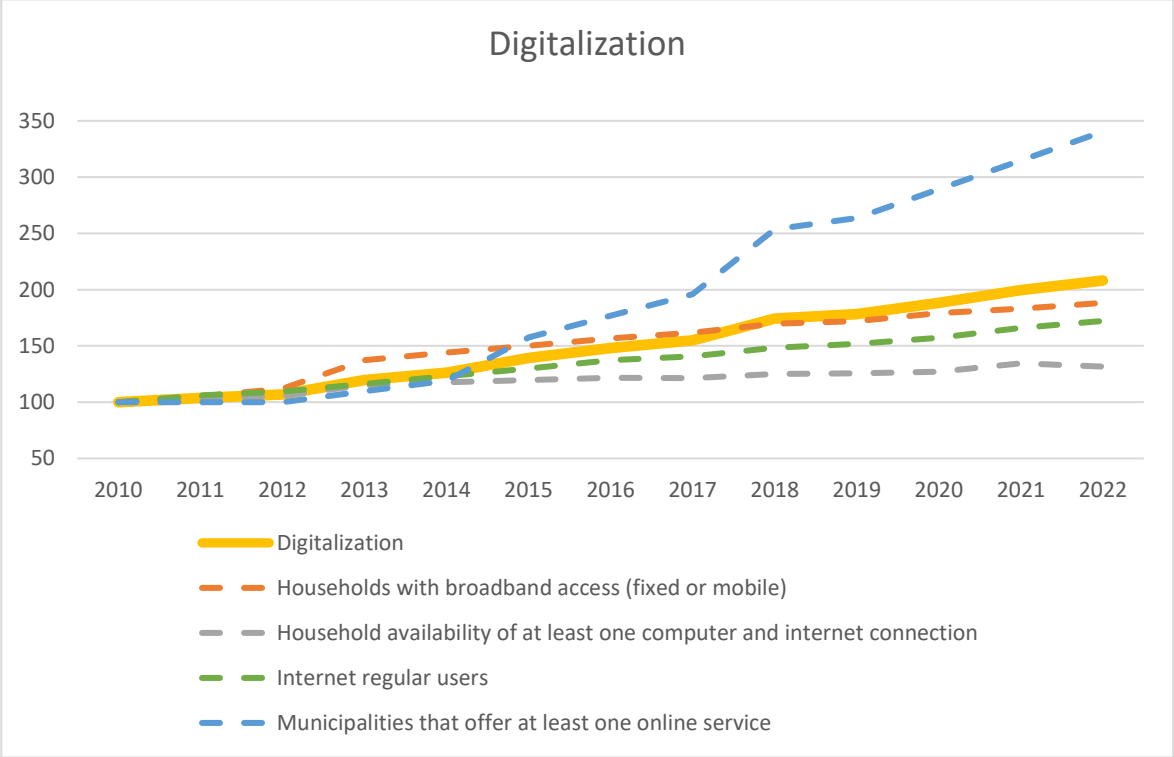

Figure 58 - Digitalization: indicators detail

6.1. Digital health

In the broader framework traced by European and national reforms, digital transformation is a fundamental piece, especially for the uniform delivery of health services and performances across the entire national territory.

In fact, through *Digital health*, a new cornerstone tool for the protection and exercise of the right to health is to be created: its refinement and dissemination aims first and foremost to guarantee immediate and more accessible care, through the use of a wide range of technologies used to treat patients and collect, share, and monitor information on their health status[85].

The digital transformation, with the digitalization of processes and the adoption of new technological solutions, presents a cross-cutting challenge to the various issues that the Health system is currently facing, such as the shortage of skills and competencies; the shortage and aging of healthcare personnel; territorial disparity; the constant aging of the population and the growing demand for personalization of health services.

[85] (Santoro)

Both territorial disparity and the request for personalization of health services find their direct solution in the adoption of digital solutions: think of how the adoption of such tools facilitates the booking of services, promotes the accessibility of care, reducing waiting times, and how Telemedicine allows offering better usability of care, diagnostic services, and medical consultation remotely, as well as constant monitoring of vital parameters.

The adoption of new models of prevention, care, and monitoring according to the Connected Health approach ensures that the Health System revolutionizes through the use of digital and innovative services, modifying the patient's experience as well as the role and competencies of operators and health professionals.

The adoption of new technologies is inevitably accompanied by organizational restructuring, and following the introduction of DM77, specifically of territorial assistance, health and social services on the territory are about to undergo a radical transformation.

Being halfway through the project cycle envisaged by the NRRP, the initial phase of issuing decrees and guidelines necessary to standardize procedures at the national level and the objectives to be pursued has been surpassed.

The main obstacle to the proper implementation of the planned reforms and the efficient use of digital tools is the lack of trust and awareness towards telemedicine by healthcare operators and a lack of digital competencies by citizens. This is what emerges from the 1st Survey on Telemedicine in the private outpatient sector, conducted by the Health Well-being and Resilience Observatory with the intention of outlining an initial picture of the state of telemedicine services on the national territory, and of which full details will be provided in the dedicated Appendix.

Digital health thus represents a strategic objective for Mission 6 - Health of the NRRP, of which the development of telemedicine is a fundamental pillar.

With the new Plan, an additional 750 million euros are indeed allocated for Integrated home care and telemedicine, to strengthen territorial assistance and the innovative approach to health protection and with the goal, by 2025, to reach 300,000 people[86].

It is on this objective that Agendas intends to invest about 200 million[87] for the necessary devices and to start a training course on new care modalities. With the aim of promoting greater implementation in telemedicine pathways across the national territory, and in this sense, the National Telemedicine Platform will facilitate patient care and improve the accessibility of services.

[86] (The new Italian NRRP, 2023)
[87] (Il Sole 24 Ore, 2023)

Access to certain tools is certainly a fundamental aspect, but just as important is that citizens have the ability to correctly use the services and to orient themselves among the quantity of information available and among the providers of services[88].

We are, therefore, not only talking not about the digitalization of health but also about digital health literacy, that complex set of knowledge and competencies that allow people to make appropriate use of digital services, where the enabling factor of Health Nearness resides precisely in being able to correctly use health services.

Digital health literacy is thus an essential element for the success of the spread of eHealth.

The individual, as the responsible and primary actor for their own health, remains the reference point on which to calibrate the implementation and development of such organizational arrangements, always aiming more on the personalization of care. This system and approach, however, find greater difficulties in their fine-tuning when they clash with a low level of Health literacy and Digital literacy widespread in the population, particularly in the elderly. The lack of one or both contributes to a lower level of patient care, as well as contributing to the increase in costs for the healthcare system. In fact, there is a direct link between levels of digital health literacy, socio-economic inequalities, and the quality of lifestyle. Therefore, the rapid digitalization of health and social services must take into account the different levels of Health literacy and Digital literacy.

While the adoption of digital solutions offers greater accessibility for all, it risks widening health inequalities, as not everyone has the same capacity for digital health literacy and preventing the spread of misinformation and fake news. It is then essential to adopt a multidisciplinary approach that empowers citizens and helps create the necessary competencies so that all users can access health and social services and benefit from them.

This approach implies improving collaboration and the relationship between the patient and the healthcare provider and, more specifically, helping people develop greater confidence in the services provided by digital health. Closely related to health literacy is digital literacy, the lack of one or both contributes to a lower level of patient care, as well as contributing to the increase in costs for the healthcare system.

6.2. Literacy and digital skills

Since 2014, the European Commission has been monitoring the progress of Member States in the digital field by publishing reports on the Digital Economy and Society Index (DESI) [89]. The Index provides an analysis framework on the main areas of European digital policy, helping to identify, for various Member States, the priority

[88] (Euro Health Net, 2021)
[89] (European Commission, 2022)

areas for intervention. DESI actually creates a ranking of States based on their level of digitalization and monitors their progress over five years.

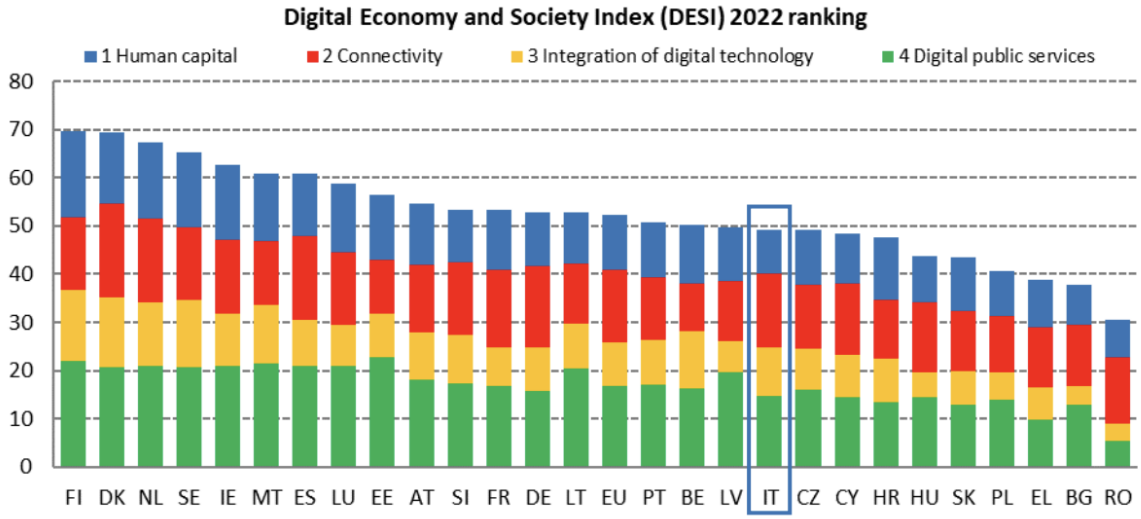

Figure 59 - Digital Economy and Society Index (DESI), Ranking 2022

	Italy		EU
	rank	score	score
DESI 2022	18	49.3	52.3

Figure 60 - Italy's position in the European DESI ranking

In the 2022 edition of DESI, Italy is ranked 18th out of the 27 Member States, because the digital transformation in our country proceeds at a slower pace compared to other European realities.

As evident from the graph, the difficulties in developing and implementing such a transformation derive primarily from human capital, and therefore, from the training and competencies of people. Such a condition has consequential effects on the integration of new technologies in the work and private lives of citizens.

More recently, the Commission has updated and aligned DESI with the four directions identified in the strategic program Path to the Digital Decade[90]*:* Skills; Digital Transformation of Businesses; Secure and Sustainable Digital Infrastructures; Digitalization of Public Services.

[90] (European Commission)

The program is based on an annual cooperation mechanism that involves the Commission and the Member States. This mechanism includes a structured, transparent, and joint monitoring system based on DESI to measure progress on each of the goals for 2030.

In addition, an annual report by the Commission is foreseen to assess the various stages of progress and express any recommendations. In September of this year, the first report on the state of the digital decade was published[91], highlighting how the success of the EU's Digital Decade will indeed be fundamental for the future prosperity of the EU. The realization of the EU's Digital Decade agenda could unlock economic value of over 2.8 trillion euros, equivalent to 21% of Europe's current economy.

In the specific report published for Italy[92], it emerges that only 45.6% of people possess basic or higher digital skills. This percentage is significantly below the European average of 54%, according to Eurostat data published on the Digitalization in Europe platform[93].

Also significant are the data related to professionals and graduates in ICT, reported in the annual report. The number of ICT graduates in Italy remains significantly below the ambitions of the EU's Digital Decade, inevitably leading to an unmet demand for qualified professionals by businesses. Although the training offer is evolving and has been expanded by new offerings focused on STEM, the share of ICT graduates remains at 1.5%, insufficient and significantly lower than the EU average of 4.2%[94].

In our country, as in other European countries, the diffusion of digital skills is closely related to the sociocultural aspects of the population. Eurostat[95] data shows a difference of 11 percentage points in the spread of digital skills between Italian and European youth.

Even more interesting is the national detection of digital skills stratified by age, where there is a substantial gap of points (44 percentage points) between the age groups 20-24 and 75-74 regarding basic digital skills at least.

In this light, the domain of High digital skills, elaborated ad hoc by the Observatory to support the Health Nearness Index, aims to provide a contextual analysis of the trend of this phenomenon both nationally and especially for the over 60 population, comparing the general trend with the age groups 60-64 and 65-74. It is evident how the development of high digital skills is closely linked to new generations and therefore, conversely, which part of the population needs more attention and specific support measures.

[91] (European Commission)
[92] (European Commission)
[93] (Eurostat, 2023)
[94] (European Commission)
[95] (Eurostat, 2023)

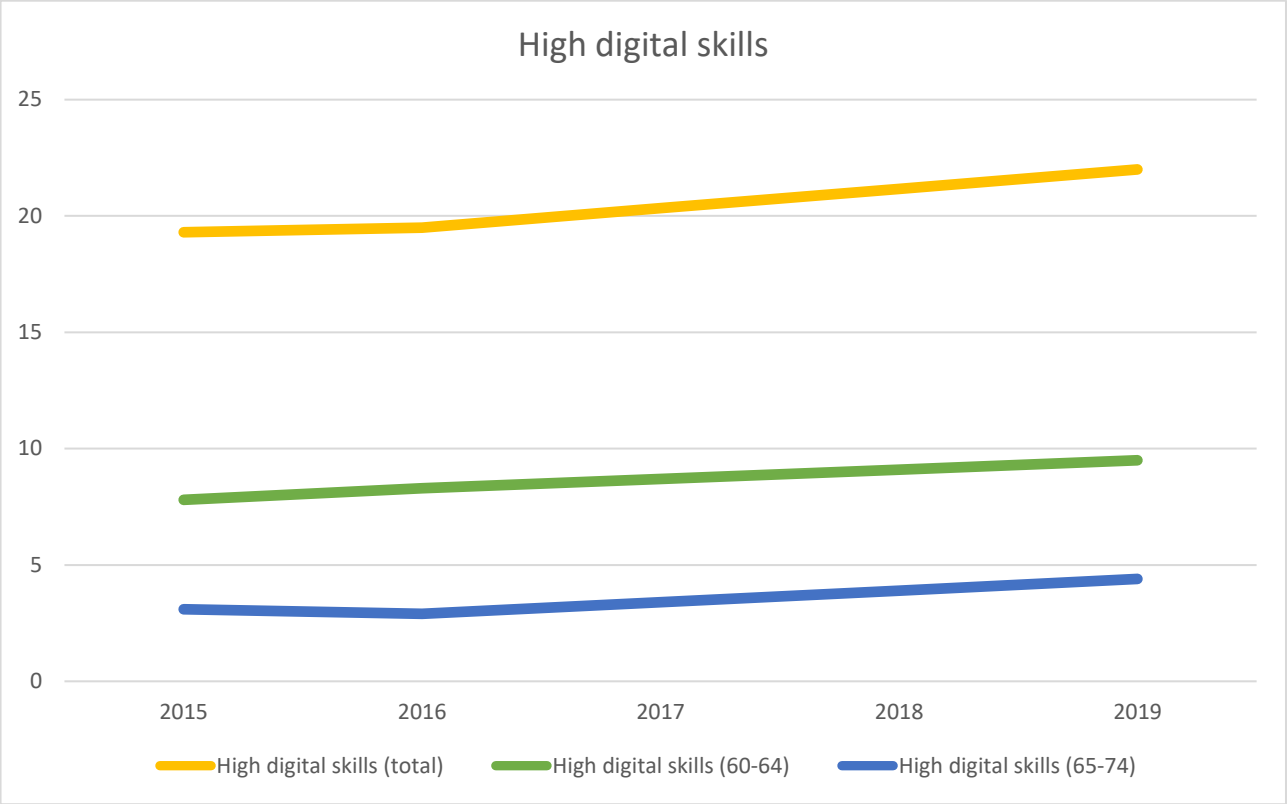

Figure 61 - High digital skills

Considering the demographic change leading to a progressively aging population, action should be taken quickly. This applies to health policies for the elderly and for the over-65, who are constitutionally the first recipients of home care and chronic care, which is intended to be primarily addressed through digital health tools.

Furthermore, considering that Italy is the third-largest economy in the EU in size, the wide margin of progress identified for our country becomes decisive in order to achieve the objectives of the Digital Decade by 2030 for the entire European Union. Decisive interventions are required to fill the various gaps identified and the NRRP provides the funds and tools necessary to accelerate this process.

6.3. Aging and skills

Over the next decade, the numerical reduction and constant aging of the European population could have negative impacts on the long-term competitiveness of the continent. This demographic trend represents a significant global phenomenon, as the world population is expected to continue to grow during the 21st century, with

increasingly evident general aging. Demographic dynamics vary among countries, but it is estimated that most of the global growth will occur in low-income nations[96].

These trends will influence the EU's share of the world population, reducing it from the current 6% to less than 4% by 2070.

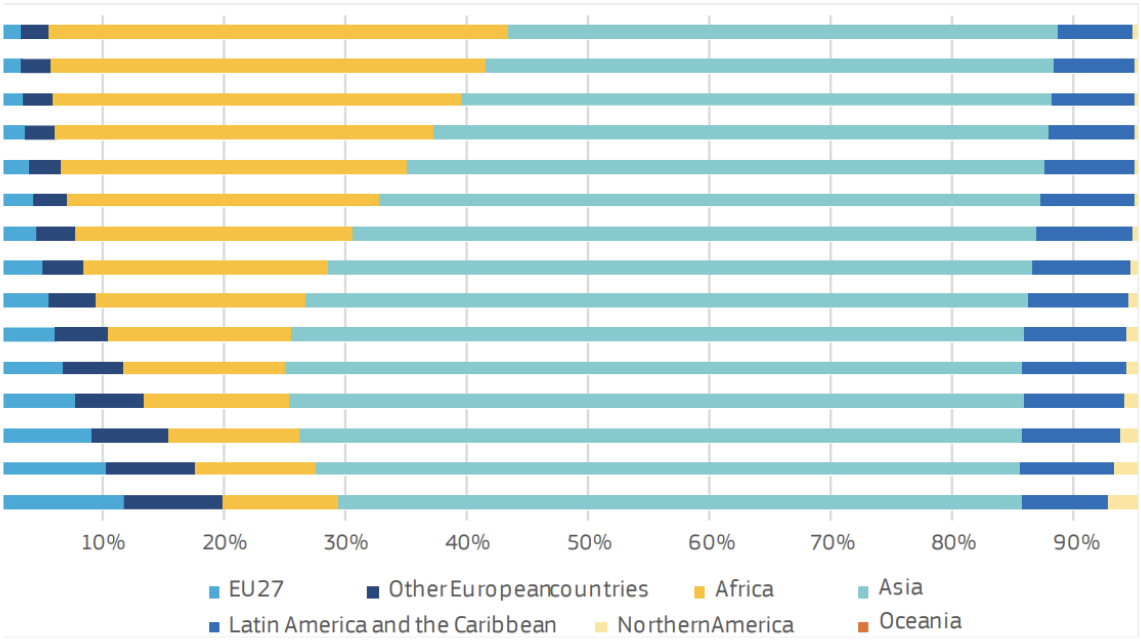

Figure 62 - Estimated and projected share of world population by Continent, 1960 -2100. European Commission

Within the European Union, aging and a decrease in births will bring the population to peak around 2026, followed by a gradual decrease in subsequent decades.

Forecasts indicate a decrease in the EU's working-age population with a consequent increase in the elderly dependency ratio, which will rise from 33% to 60% by 2100[97]. This could lead to a decrease in the relative weight of the European single market in the global economy, with a consequent downsizing of Europe's geopolitical role.

The aging of the population is an undeniable trend and represents a challenge, not only for Italy but for all Member States, particularly due to the repercussions it will have on health and pension systems. Therefore, it is crucial to enable older adults to remain active in the labour market and to invest in maintaining and developing their skills. To formulate policies aimed at responding to the challenges arising from the aging of the population, it becomes essential to acquire a deep understanding of the processes that influence the evolution and decline of skills at different ages[98].

Demographic transformation intertwines with other important global trends, such as green and digital transitions. In this historical context, technology offers many

[96] (European Commission, 2023)
[97] Ibid
[98] (OECD, 2019)

opportunities in terms of Health Nearness, that is, to make the "good health" truly usable and available for people throughout the national territory.

However, the presence of insufficient digital infrastructures and low levels of digital skills can contribute to widening inequalities between regions, demographic groups, and generations.

Hence arises the need to address such deficiencies and inefficiencies, beginning with a rapid implementation of the new territorial and organizational model of our health system, promoted primarily by DM77. This reform is mainly based on more widespread service delivery across the territory, thanks especially to the development and adoption of Telemedicine tools.

It is essential to monitor and measure the spread of this innovative modality to be able to timely identify and solve the critical issues encountered not only by citizens but also by structures and health professionals.

7. Conclusions

"In light of the observed results, the first necessary step to enhance Health Nearness is to define a new national strategic health planning document: a National Health Plan. This Plan would incorporate contributions from all involved components and health actors, coordinating them through a stewardship model capable of concretely implementing a One Health approach (also mentioned in the NRRP), and transforming the synergy between the various sectors and health pillars into a new instrument of national preparedness."

This is how we concluded the previous 2022 Report, "Orienting in Transformation," which analysed the data available up to 2021. Given the results from this subsequent year of research, we are even more convinced of the need for a national health planning tool. This conviction is so deeply rooted that it has inspired the title of this 2023 II Report: "Connecting the Dots: Towards a National Health Plan."

From the analysis of the latest available values of the indicators that make up the Health Nearness Index, it emerges that only a partial recovery occurred during 2022, which only partially mitigated the losses incurred during the pandemic. This situation cannot be addressed with a multitude of individual ad hoc interventions; rather, it requires a broader and more integrated intervention plan across multiple dimensions.

One of the most common scenarios identified across most domains is a trend of recovery in Health Nearness, but with levels that fall short of pre-pandemic values, remaining variously below them. In other words, where a decline in certain phenomena was already observed in previous years, including the further setbacks of the annus horribilis 2021, we see in 2022 a continuation of this decreasing trend in terms of Health Nearness.

Clearly, despite various regulatory interventions, the year 2022 was insufficient to reverse the negative trends that worsened during the previous year, and the numerous initiatives envisaged by the NRRP (many of which remain merely on paper) have yet to fully arrive at improving the state of Health Nearness for Italian citizens.

The phenomenon of incomplete recovery primarily affects the health sphere but is not confined to it. Within the "Organizational System" context, it was predictable that the exceptional burdens imposed by the pandemic would make recovery in just one year impossible. In this area, the physiological recovery times from fatigue and "burnout" experienced by understaffed healthcare personnel, along with the ongoing efforts to restore health services that the pandemic disrupted, have resulted not only in a partial recovery compared to pre-pandemic values but also in a reversal of trends in historically positive domains such as healthcare assistance and prevention. This last data point is extremely alarming and, when read in combination with the negative trends affecting the Sustainability and Territorial Homogeneity domains, helps to define a picture of a health system whose previously perceived "superficial" cracks now threaten its foundations.

Beyond the health sphere, the effects of this "half rebound" are significantly observed in the "Individual and Social Relations" context, revealing that domains such as Isolation, Social Cohesion, Economic Fragility, and Literacy, to name a few, have been substantially and systemically impacted by the pandemic shock, failing to return to previous levels. In contrast, other domains like Lifestyle and Chronicity have shown negative reversals in their trends.

In this context, the timelines for resilience appear longer than optimistic expectations, indicating a latency in the recovery of behaviours that align with the pre-pandemic "normality." For instance, "Social Participation" and the frequency of people meeting friends during their free time have not returned to prior levels following the cessation of movement restrictions and social distancing measures. Alongside these phenomena, there has also been an increase in symptoms of depression and issues related to the Mental Health domain, suggesting a possible structural change in the post-pandemic psychological landscape and overall life experience.

Regarding the "Environment and Living Places" context, the year 2022 witnessed a deterioration in several phenomena, notably reflected in the domain concerning Polluting Emissions and, concerningly, the domain related to Antimicrobial Resistance, which worsened due to increased usage of antimicrobial drugs.

In contrast, some domains have mitigated this general negative trend, such as Integrated Welfare and Urban Health, which continue to show a positive trajectory. Initiatives aimed at improving health in urban contexts and the effectiveness of interventions linked to the second pillar contribute favourably to Health Nearness, representing an exception in a landscape where the overall performance of the Health Nearness Index has declined compared to the previous year.

The multidimensionality and interrelation of the causes behind this widespread deterioration, coupled with the multiplicity and heterogeneity of the components at play, form the basis of an appeal for addressing health issues on a national scale. This approach should aim to identify all components (including new ones) that constitute the national health ecosystem and must synergistically come together under a coordinated stewardship model capable of reversing the current trend toward declining Health Nearness in the country.

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List of figures

"Connecting the Dots: Towards a National Health Plan" is the second Annual Report of the Health Well-being and Resilience Observatory of the RiES Foundation ETS (formerly known as the Bruno Visentini Foundation).

The Report centres around the update of the Health Nearness Index for the year 2022. The new concept of *Nearness* developed as a result of the analysis and research activities conducted by the Observatory, is defined as the relationship in space and time that exists between the individual, the availability of the health resource, and the ability and capacity to access and benefit from it. The measurement results presented in the Report reflect a drastically changed and constantly evolving historical-social period, characterized by syndemic shocks that have demonstrated the need for the development of solid, sustainable, and resilient production and economic systems, as well as healthcare and welfare systems focused on a One Health approach capable of offering the best possible preparedness for adverse events.

In line with the principle of synergy in thought and collaboration among different actors and sectors of society, the research and analysis activities presented also include the active contribution of various institutes and organizations, collaborating to outline best practices for implementing a new cultural transfer within the health system.

The Report serves as a guide and reference tool for identifying the essential components and characteristics necessary for the development of a National Health Plan. It is crucial to redefine the boundaries of the concept of health and well-being and to explore how to implement the constitutional mandate of "safeguarding health."