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Original Article

Artificial intelligence as a social phenomenon: A bibliometric reading through the lenses of structural violence, intersectionality, and surveillance

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Abstract
This study investigates how social vulnerabilities associated with the use of artificial intelligence (AI) in medicine are reflected in recent biomedical literature and how these patterns correlate with central theoretical directions in sociology and social work. Through a bibliometric analysis of 2,589 meta-analyses and systematic reviews published between 2020 and 2025 in PubMed, the research maps the conceptual structure of the field using co-occurrence networks at two thresholds (5 and 20). The results show a concentration of discussions on the technical and clinical aspects of AI (diagnosis, predictive modelling, electronic health records, large language models), while terms expressing social and ethical concerns (equity, algorithmic bias, privacy, ethics, health disparities, clinical competence) occupy semi-peripheral positions in the network. Interpreting these structures through theoretical lenses such as structural violence, social determinants of health, intersectionality, algorithmic oppression, surveillance capitalism, and care ethics reveals that AI risks reproducing and intensifying pre-existing inequalities. The analysis emphasises that algorithmic bias, unequal data infrastructures, model opacity, and changes in the distribution of clinical work are not isolated phenomena, but manifestations of broader social processes that shape vulnerability and exclusion. Therefore, the study argues for the need to integrate sociological and social work perspectives into the development and evaluation of medical AI and advocates for interdisciplinary approaches that place equity, transparency, and the experiences of marginalised populations at the centre. Such an orientation is essential for AI in medicine to contribute to reducing — rather than amplifying — social inequalities in health.

Keywords: *artificial intelligence, health equity, algorithmic bias, structural violence, social determinants of health, intersectionality, surveillance capitalism, ethics of care, digital health, bibliometric analysis, medical sociology, social work and health disparities.*

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Introduction

Artificial intelligence promises efficiency, faster diagnosis and expanded access to medical services. However, if implemented without caution, AI can exacerbate inequalities, create risks to patient safety and erode public trust. The World Health Organisation (WHO) and key regulators (EU, FDA) explicitly call for governance, transparency and rigorous assessments throughout the life cycle of systems, precisely to prevent adverse social effects (World Health Organisation, 2025).

The social vulnerabilities identified in the application of AI in medicine can be directly anchored in several major theoretical traditions in sociology, social work, and the humanities. The idea that AI models amplify health disparities and structural disadvantages refers to the concept of structural violence, whereby political and economic structures located "far" from the clinic systematically produce illness and avoidable death for certain groups (Farmer, et al., 2006b), including through insufficient or selective medical infrastructure. This ties in with the framework of social determinants of health, which shows that the distribution of disease follows the distribution of social resources (income, education, work, housing), and that technological policies (including AI) can either reduce or deepen these inequalities (Marmot, 2005; Serban, 2025). The fact that AI systems perform differently on the basis of race, gender, age or class can be understood through the lens of intersectionality (Kimberlé W. Crenshaw, 1991), which explains why the effects of a technology cannot be understood separately on isolated "axes" (race or gender), but at their intersection, where disadvantages accumulate (Kimberlé W. Crenshaw, 1989). Works on algorithmic discrimination and the "digital dragnet" (Eubanks, 2018; Noble, 2019) show that data and automatic scoring infrastructures tend to monitor, profile and penalise poor, racialised or already marginalised people in particular, continuing old logics of social control in the form of a "New Jim Code" (algorithms that are apparently neutral but anchored in histories of racism and poverty) (Benjamin, 2019). AI systems tend, at least at this point, to use stereotypes because of biases in training data and algorithms. These biases manifest themselves in various personnel recruitment tools, image generation and decision-making processes, perpetuating pre-existing stereotypes in the real world. Real-world cases highlight the seriousness of the problem and the ongoing legal challenges, some of which are even more sensitive in the case of medical practice. In the same way, gender gaps can also be perpetuated. The dimensions of confidentiality, consent and digital surveillance in medical AI resonate with the analysis of surveillance capitalism, in which human experience is treated as raw material for data extraction and commercial predictions, with risks of expropriation of autonomy and exploitation of vulnerable groups (Zuboff, 2019). Concerns about the doctor-patient relationship, care work and the deskilling of professionals can be read through the lens of care ethics, which insists that care is a deeply relational activity, unevenly distributed across social and gender groups. introducing AI without paying attention to "who bears the burden of caring for and supervising algorithms" risks reproducing the same devaluation of care work that critical ethics criticises (Tronto, 1993). In this way, bibliometric maps can be read not only as keyword structures, but as meeting points between medical AI and the major theories of inequality, power, surveillance and care in the social sciences.

Recent academic literature indexed in PubMed on the application of artificial intelligence in medicine highlights a coherent set of social vulnerabilities that recur in meta-analyses and systematic reviews published in recent years. The first are vulnerabilities generated by algorithmic inequalities, which include the perpetuation of

demographic biases and the differentiated performance of models across social, racial, age or gender groups. A second category concerns decision dependency and "automation bias", whereby AI models can reorient clinical decisions in a way that is difficult to challenge or oversee, with disproportionate effects on vulnerable patients. At the same time, the literature points to systemic risks related to confidentiality, data reuse and digital surveillance, especially with the expansion of generative models and access to massive sets of sensitive data. Other vulnerabilities stem from the opacity of AI models and the phenomenon of hallucinations, which complicate professional accountability and can produce errors that are difficult to detect in practice. A significant body of work analyses the impact of AI on clinical work, on the autonomy of professionals and on the quality of the doctor-patient relationship. These types of vulnerabilities appear consistently in the research synthesised in PubMed and constitute the analytical framework for the further interpretation of bibliometric results.

Algorithmic inequality and the perpetuation of structural biases

Models trained on historical clinical data or general texts can learn and amplify existing inequalities, affecting underrepresented patient groups in particular. Recent literature shows demographic biases in both clinical decision support systems and uses of LLMs for mental health: lower accuracy for patients of colour, different recommendations based on racial criteria, and the perpetuation of racist medical myths in general chatbot responses (Cross, Choma, & Onofrey, 2024). The social consequences are significant: unequal access to diagnosis, suboptimal triage, and erosion of trust in the system for already disadvantaged communities. The WHO emphasises that multimodal models „can improve health only if risks are identified and managed to overcome persistent inequities" (World Health Organization, 2024).

Overinvestment in AI and the risk of "automation bias"

When an AI system makes a recommendation, clinicians tend to follow it even when it contradicts clinical evidence, an effect called automation bias. Studies from 2024–2025 show that non-specialist doctors are more vulnerable, and AI assistance in chest pain triage can alter decisions in a way that accentuates demographic differences. Socially, this means unequal distribution of time and resources in emergency departments (Kücking et al., 2024). Cases of detection failures (e.g., sepsis models) show that poor performance, unrecognised in time, can persist in practice until independent evaluations, with high social costs due to delays in treatment (Papareddy et al., 2025).

Security, confidentiality and consent for data reuse

Medical AI relies on vast sets of sensitive data. Risks include re-identification, data triangulation, secondary sharing, and lack of patient control over future uses of data (including for training LLMs). Recent studies map global challenges (such as GDPR, CCPA) and highlight real barriers to obtaining informed consent for secondary uses of data in AI. Socially, perceptions of "digital surveillance" can decrease healthcare attendance and accentuate distrust (Conduah, Ofoe, & Siaw-Marfo, 2025).

Opaque design, "hallucinations" and diffuse responsibility

LLMs can produce plausible, but erroneous ("hallucinations"), including under adversarial attacks (a false or misleading output generated by an AI model, caused by an adversarial input, i.e. a question or image specifically designed to exploit weaknesses in the model and cause it to produce incorrect information); in clinical settings, these translate into direct risks for patients and diffuse responsibility between the provider, hospital, and developer. Research from 2025 proposes safety assessment frameworks and shows multi-

model vulnerabilities to adversarial hallucinations, highlighting the need for human verification and traceability. Socially, patients may be disproportionately affected where resources for a "second pair of eyes" are lacking (Asgari et al., 2025).

Impact on the doctor–patient relationship and clinical work

The integration of AI may change the roles of professionals, increase oversight and audit work and risk long-term "deskilling" (less practice for rare skills). The WHO calls for governance that protects clinician autonomy and ensures context-appropriate disclosure; otherwise, professional agency and the quality of patient interaction may be eroded (World Health Organisation, 2025).

Governance and regulation: what the "latest" frameworks say

In the European Union, the AI Act considers AI systems that are part of medical devices to be high-risk, with strict requirements for risk management, data quality, human oversight, and post-market monitoring; recent technical documents clarify the interaction with the medical device regime. Socially, this may reduce discrepancies between hospitals through common minimum standards (Aboy, Minssen, & Vayena, 2024). In the US, from 2024–2025, the FDA issued (and updated) guidance on transparency, predetermined change plans (PCCPs), and full life cycle management for AI/ML software devices. The emphasis on transparency and controlled updates is crucial for maintaining public trust (Food and Drug Administration, 2025). The WHO, with regard to LMM in health, recommends pre- and post-implementation assessments, documentation of limitations, bias audits, and the involvement of affected parties (including vulnerable communities) in design (World Health Organization, 2024).

Recommendations for mitigating social risks

A series of recommendations to mitigate the risks of including AI in medicine have begun to appear in academic medical literature and in various documents from international organisations. Patient-centred data governance is envisaged, through clear policies on consent for reuse, opt-out options and the introduction of data usage logs and re-identification audits (Conduah et al., 2025). Equity by design is a trend that requires diverse data sets, standardised performance reporting by subgroups (gender, age, ethnicity, socio-economic status) and continuous real-life monitoring (Cross et al., 2024). Automation bias can be controlled through interfaces that display uncertainty, the requirement for independent clinical justification, and regular staff training (Kücking et al., 2024). Safety assessment for LLM will need to include hallucination testing, red teaming, and double-check usage policies for high-risk tasks (Asgari et al., 2025). When we talk about transparency and traceability, we refer to compliance with AI Act/FDA requirements for documentation, PCCP, and post-market surveillance, but also to public reporting of incidents (Aboy et al., 2024). Last but not least, when we refer to inclusion and co-design, we must move towards involving affected communities in defining the objectives of models and success metrics, in order to prevent solutions that "work" technically but produce injustices (World Health Organization, 2024).

AI in medicine can be an accelerator of equity or, conversely, a multiplier of inequities. Recent data show concrete risks, from bias and automation bias to confidentiality and hallucinations, but also an emerging framework of solutions: strict governance (WHO, EU, FDA), robust evaluations, and equity-centred design. The social direction depends on how institutions and developers translate these standards into clinical practice. Observing how these vulnerabilities are reflected and constructed in academic medical language can provide valuable information, and by repeating the questions, we can

identify emerging issues or trends, observe the inclusion of AI systems in routine practice, and see how a whole range of inequalities are managed, resolved, or even accentuated.

Objectives

The aim of this research is to explore how the social vulnerabilities of applying artificial intelligence in medicine are articulated in recent academic medical literature, through a bibliometric analysis of meta-analyses and systematic reviews from 2020–2025. We aim to map the thematic landscape of AI applications in medicine by analysing the co-occurrence of keywords and identifying major clusters of concepts (clinical, technical, social, and ethical) in the synthesis literature published in the last five years. By identifying and describing how social vulnerabilities (such as inequality and health disparities, algorithmic bias, data privacy and security, impact on clinical work and the doctor-patient relationship) we want to see how these are reflected in thematic clusters and connected to technical nodes (artificial intelligence, machine learning, large language models, etc.). Comparing conceptual structures at two co-occurrence thresholds (5 and 20 occurrences) serves to distinguish between emerging or niche themes and the stable conceptual core of the field, and to assess the extent to which social-ethical terms (such as *"equity"*, *"bias"*, *"privacy"*, *"ethics"*, *"governance"*) are integrated into the mainstream of medical AI research. The analysis of the positioning and connectivity of social-ethical terms in the network aims to assess whether the discourse on social vulnerabilities (equity, transparency, trust, governance) is organically integrated into applied research, or remains relatively peripheral and segmented from the technical-clinical core.

Methodology

To investigate the social vulnerabilities of applying artificial intelligence in medicine, we conducted a PubMed database query; the query combined terms for artificial intelligence, terms for medicine and healthcare, terms for social/ethical/equity dimensions, and was limited to recent publications (from the last 5 years).

The query formula used is shown below:

((“artificial intelligence”[MeSH Terms] OR “artificial intelligence”[Title/Abstract] OR “machine learning”[Title/Abstract] OR “large language model*”[Title/Abstract] OR “deep learning”[Title/Abstract]) AND (“medicine”[MeSH Terms] OR “healthcare”[Title/Abstract] OR “clinical practice”[Title/Abstract] OR “medical applications”[Title/Abstract]) AND (“social vulnerability”[Title/Abstract] OR “health equity”[MeSH Terms] OR “inequity”[Title/Abstract] OR “bias”[Title/Abstract] OR “ethics”[MeSH Terms] OR “ethical”[Title/Abstract] OR “governance”[Title/Abstract] OR “privacy”[Title/Abstract] OR “consent”[Title/Abstract] OR “automation bias”[Title/Abstract] OR “trust”[Title/Abstract] OR “public perception”[Title/Abstract])) AND (“2019/01/01”[Date - Publication] : “3000”[Date - Publication])

The query yielded a total of 2,701 results; for the period 2020-2025, 2,589 results were filtered by meta-analysis, review, scoping/systematic review. In these papers, a total of 5,287 keywords (full count) were identified, 563 at a co-occurrence threshold of 5 and 120 at a threshold of 20. For these two thresholds, bibliometric maps (VOSviewer) of keyword co-occurrence were created.

Results

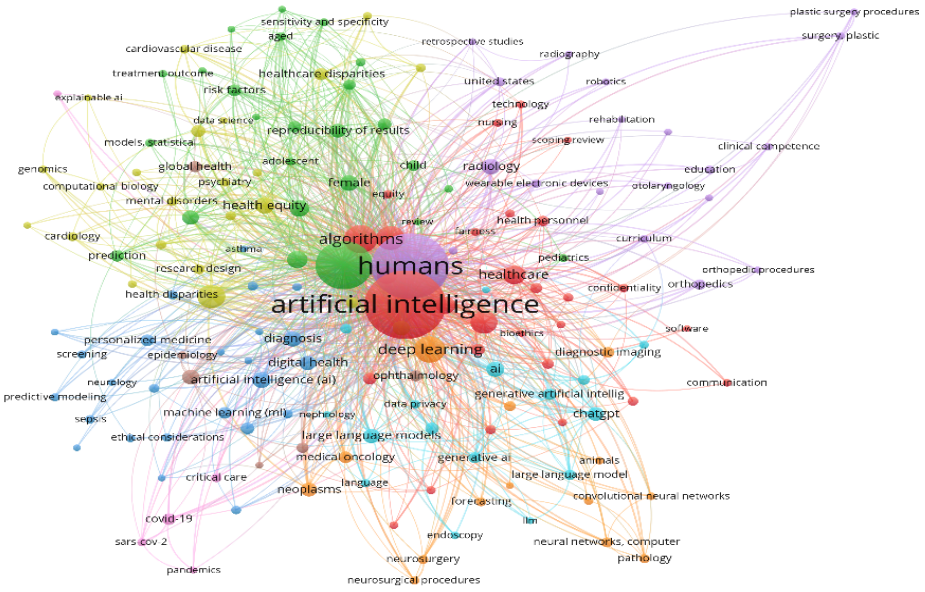
Bibliometric analysis of the literature on AI in medicine (2020–2025) - Context and method of analysis

This analysis is based on bibliometric maps generated with VOSviewer, using the co-occurrence of keywords from 2,589 articles published between 2020 and 2025. The dataset exclusively includes meta-analyses, systematic reviews, and scoping reviews focused on the application of artificial intelligence (AI) in medicine, with an emphasis on social and ethical dimensions.

The PubMed query included terms such as *"artificial intelligence"*, *"healthcare"*, *"ethics"*, *"equity"*, *"bias"*, *"trust"*, *"privacy"*, etc., to highlight concerns related to the social aspects of AI in health. A total of 5,287 terms (full count) were identified, of which 563 have at least 5 occurrences, and 120 keywords exceed the threshold of 20 occurrences. The co-occurrence analysis of these terms revealed the thematic structure of recent literature, highlighting clusters of topics and the links between them.

1. **Thematic clusters identified in the co-occurrence map at a co-occurrence threshold of 5**

The bibliometric map at the threshold of 5 (Figure 1) suggests the existence of several distinct thematic clusters, reflecting the main directions in which AI has been applied in medicine in recent years. Each cluster groups closely related terms, indicated by the same colour on the VOSviewer map. Based on similar literature and frequent keywords in the sample, the composition of the dominant clusters and the links between them can be interpreted.



- *Figure 1: The expanded landscape of artificial intelligence in medicine: themes, conceptual networks, and emerging vulnerabilities*

- **General structure.** The largest nodes, "*humans"* and "*artificial intelligence"*, followed by *"deep learning"*, *"algorithms"*, *"healthcare"* and *"health equity"*, show that the discussion about social vulnerabilities is anchored simultaneously in people, technology and equity. From the centre, links extend to specialised clusters: *"health disparities"*, *"health equity"*, *"digital health"*, *"personalised medicine"*, *"predictive modelling"*, *"covid-19"*, *"critical care"*, *"large language models"*, *"chatgpt"*, *"data privacy"*, *"education"*, *"clinical competence",* and *"nursing"*.
- **Red cluster: clinical AI core and governance.** The main (large/central) nodes are *"artificial intelligence"*, *"deep learning"*, *"algorithms"*, *"healthcare"*, *"humans"* (partially green, but strongly connected here)*;* social-normative terms are directly linked: *"fairness", "equity", "bioethics", "confidentiality"*. Organisational and implementation terms are *"nursing", "health personnel", "technology", "software", "diagnostic imaging", "wearable electronic devices",* and *"scoping review"*. This is the cluster in which AI is explicitly anchored in *healthcare* and in the actual work *of health personnel* and *nursing*. The simultaneous presence of *"fairness", "equity", "bioethics",* and *"confidentiality"* in the same cluster as *"algorithms"* and *"software"* suggests that the literature treats social vulnerabilities as part of the design and implementation of systems. We can identify links to social vulnerabilities through the presence of *"fairness", "equity",* and *"healthcare",* which reflect concerns that algorithms may generate different treatment for different groups; here, they are directly linked to *"algorithms"* and specialties such as *"radiology"* and *"diagnostic imaging"*. *"Confidentiality"* and its connections to *"software", "wearable electronic devices"*, and *"digital health"* (through edges that cross over to the blue cluster) show the dimension related to confidentiality and data security. The nodes *"nursing", "health personnel",* and *"scoping review"* suggest that the literature discusses the impact on clinical work (task redistribution, need for supervision).
- **Green cluster*:* equity, populations and outcomes*.*** The main nodes are *"health equity"* (large, highly connected node), *"healthcare disparities"* and *"health disparities"*. The demographic variables are *"female"*, *"child"*, *"adolescent"* and *"aged"*. We find terms related to methods and outcomes*,* such as *"treatment outcome"*, *"risk factors", "reproducibility of results", "prediction", "sensitivity and specificity"* and *"research design"*; diseases and clinical areas are represented by *"cardiovascular disease", "asthma", "psychiatry", "mental disorders",* and *"global health"*. The cluster groups dimensions of *"health equity"* and *"disparities"* with demographic variables and method terms. The strong connection to *"humans"* and *"artificial intelligence"* indicates that equity studies are central, not peripheral. Social vulnerabilities are also reflected in various forms. The combination *of "health equity" – "health disparities" – "healthcare disparities"* with *"female"*, *"child'*, *"adolescent"* and *"aged"* suggests a focus on the differentiated performance of algorithms between age groups and genders. Links to *"cardiology"*, *"cardiovascular disease"*, *"asthma"*, *"psychiatry",* and *"mental disorders"* show that equity is being discussed in specific pathologies, where a model may triage or diagnose differently. *"Reproducibility of results"* and *"research design"* related to *"health equity"* suggest concern about the lack of reproducibility that can accentuate *"healthcare disparities"*.

- **Yellow cluster: data science, genomics and disparities.** The nodes are represented by *"data science"*, *"models"* and *"statistical"*, which are related to scientific fields such as *"genomics"* and *"computational biology"* and to socio-clinical terms such as *"global health", "health disparities", "mental disorders", "psychiatry"* and *"cardiology"*. In terms of content, the cluster links the area of *"genomics" – "computational biology"* and *"data science"* to social terms such as *"global health"* and *"health disparities*". It is placed between the green cluster (equity) and the blue cluster (clinical applications), acting as a transition area. The link to social vulnerabilities is found in the combination of *"genomics" – "health disparities" – "global health"*, which suggests a concern for how molecular data sets (often dominated by certain populations) can perpetuate global disparities. Links to *"mental disorders"* and *"psychiatry"* indicate that social vulnerabilities also arise in the field of mental health, where *data science* can be used to predict or classify patients.
- **The blue cluster: screening, predictive modelling and clinical specialties.** The main nodes are *"digital health"*, *"diagnosis"*, *"artificial intelligence (AI)"* and *"machine learning (ML)"*, which are related to *"personalised medicine"*, *"predictive modelling"* and *"screening*". Several medical specialties are evident, namely *"neurology"*, *"nephrology"*, *"sepsis"*, *"critical care",* and *"epidemiology"*, in connection with a social-normative term: *"ethical considerations"*. This is a cluster oriented towards concrete clinical applications of AI: *"screening"*, *"diagnosis"*, *"predictive modelling"* for *"sepsis"*, *"critical care"*, *"neurology"* and *"nephrology". "Digital health"* and *"personalized medicine"* connect these applications to broader digital infrastructures. Social vulnerabilities are highlighted by the presence of *"ethical considerations"* in the same cluster as *"predictive modelling"*, *"screening",* and *"critical care"*, suggesting discussions about the effects of automated decisions in critical situations, about who receives treatment or screening. The strong links between *"personalised medicine"*, *"predictive modelling",* and equity nodes (*"health equity"*, through connections to the green cluster) indicate concerns that personalisation based on *"machine learning (ML)"* may amplify *"health disparities"*.
- **Purple cluster: pandemics, COVID-19 and critical care.** The main nodes, *"COVID-19"*, *"SARS-CoV-2"* and *"pandemics"*, are strongly connected to *"critical care"*, *"sepsis"*, *"ethical considerations"* and *"digital health*". This is where AI intersects with *"pandemics"* and *"critical care"*, suggesting the use of algorithms for triage, prognosis, or resource allocation during COVID-19. The link to *"ethical considerations"* reinforces the idea that, in the context of *"pandemics"*, social vulnerabilities related to limited resources and *"health disparities"* are centrally discussed.
- **The turquoise cluster: large language models, data privacy, and chatgpt.** The main nodes, *"large language models"*, *"language models"*, *"language"*, *"generative ai"*, *"ai"*, and *"chatgpt"*, are connected to social protection nodes, such as *"data privacy"*, and have clinical links: *"endoscopy"*, *"neurosurgery"*, *"forecasting"*, *"animals"*, *"neural networks"*, *"computer"* and *"pathology"*. The cluster is centred on *"large language models"* and *"chatgpt"*, connected to *"data privacy"* and clinical terms (e.g. *"endoscopy"*, *"pathology"* and *"forecasting"*). It is closely linked to the red cluster through *"artificial intelligence"*, *"deep*

learning", and *"healthcare",* and to the brown cluster through *"medical oncology"* and *"ophthalmology"*. Social vulnerabilities are revealed by the fact that *"data privacy"* is within the same cluster as *"chatgpt"*, *"generative ai"*, and *"language models",* showing recognition of the tension between the use of LLM and data protection. Links to *"endoscopy"*, *"neurosurgery"*, and *"pathology"* suggest concerns about the use of LLMs and *"generative AI"* in high-risk specialties, where language errors or „hallucinations" can directly affect patients. The connection to *"forecasting"* suggests the role of generative AI in clinical predictions, which can influence resource allocation and, implicitly, *"equity"*.

- **Brown cluster: oncology and ophthalmology specialties in the LLM era.** The nodes *"medical oncology"*, *"neoplasms"*, *"ophthalmology"*, *"neurosurgery"* and *"neurosurgical procedures"* are linked to IA terms: *"large language models"*, *"deep learning"* and *"forecasting"*. The cluster shows a focus on AI applications (including large language models) in various medical specialties. Social vulnerabilities here relate to unequal access to advanced technologies; these specialties are often concentrated in large centres. Links to *"health equity"* and *"global health"* (through edges originating from central nodes) suggest discussions about *"healthcare disparities"* in the treatment of *"neoplasms"*.
- **The education–competence–surgical specialties cluster (purple to the right).** The nodes *"education"*, *"curriculum",* and *"clinical competence"* are connected to various specialties: *"orthopaedics"*, *"orthopaedic procedures"*, *"otolaryngology"*, *"plastic surgery procedures"*, *"plastic surgery"*, *"rehabilitation"*, *"radiology"*, *"nursing"*, *"health personnel"*, *"technology"* and *"wearable electronic devices"*. The cluster explicitly links *"education"* and *"curriculum"* to *"clinical competence"* in various surgical specialties and to *"technology" – "wearable electronic devices"*. It is connected to the central nodes *"artificial intelligence"*, *"healthcare"* and *"algorithms"*. In terms of social vulnerabilities, the link between *"education" – "curriculum" – "clinical competence" – "technology"* suggests concern about the unequal training of *"health personnel"* and *"nursing"* in the use of AI. This leads to differences in *"clinical competence"*, and therefore to *"healthcare disparities"* between hospitals or regions. The presence of procedural specialities (*"orthopaedic procedures"*, *"plastic surgery procedures"*) indicates the risk of deskilling or dependence on AI in surgical decisions.
- **Links between clusters and the overall picture of social vulnerabilities. Equity and disparities.** The terms *"health equity"*, *"equity"*, *"fairness"*, *"health disparities"*, *"healthcare disparities",* and *"global health"* are widespread among the green, yellow, and red clusters. Their strong connections to *"artificial intelligence"*, *"deep learning"*, *"digital health",* and *"personalised medicine"* show that inequalities are discussed in direct relation to models and clinical applications. **Confidentiality and data.** *"Confidentiality"* (red) is strongly connected to *"healthcare"*, *"diagnostic imaging"*, *"software",* and the LLM cluster with *"data privacy"*. From there, it links to *"digital health"*, *"wearable electronic devices"*, and *"large language models"*, suggesting vulnerabilities related to extensive data collection and its reuse in *"language models"* and *"chatgpt"*. **Ethics and bioethics.** *"Bioethics"* (red) is close to *"deep learning"* and *"diagnostic imaging"*; *"ethical considerations"* (blue) appears next *to*

"sepsis", *"critical care"*, and *"predictive modelling"*. Ethics is placed precisely in high-risk areas: critical care, pandemics, diagnostic imaging. **Clinical work and competence.** The terms *"nursing"*, *"health personnel", "education"*, *"curriculum"*, and *"clinical competence"* are positioned at the intersection of the red and purple clusters. Social vulnerabilities also refer to how AI is changing the roles of professionals and the skills required, with the risk of differences between groups of *"health personnel"*. **Crises and special contexts.** The cluster *"covid-19"* / *"pandemics"* / *"critical care"* / *"sepsis"* is connected to *"ethical considerations"* and *"digital health"*, and the central nodes show that crisis situations highlight inequalities and ethical tensions in the use of AI. **Emerging technologies – LLM and generative AI.** The cluster *"large language models"* / *"generative AI"* / *"chatgpt"* / *"data privacy"* is closely linked to *"deep learning"*, *"healthcare"*, but also to specialties such as *"endoscopy"*, *"ophthalmology"*, *"medical oncology"*. Recent social vulnerabilities (hallucinations, confidentiality, impact on communication with *"humans"*) are incorporated into the network, not separated.

The detailed map of terms shows that social vulnerabilities (equity, *"health disparities"*, "*confidentiality"*, *"data privacy"*, *"bioethics"*, *"ethical considerations"*, *"clinical competence"*) are intertwined and scattered around technical nodes (*"artificial intelligence"*, *"deep learning"*, *"large language models"*, *"algorithms"*) and clinical specialties. *"Health equity"*, *"fairness",* and *"equity"* are directly connected either to demographic variables (*"female"*, *"child"*, *"adolescent"*, *"aged"*) or to domains (*"global health"*, *"healthcare disparities"*, *"cardiology"*, *"mental disorders"*), which supports the idea of algorithmic inequalities and *"automation bias"*. *"Confidentiality"* and *"data privacy"* are linked to *"digital health"*, *"wearable electronic devices"*, *"large language models"* and *"chatgpt"*, which supports the discussion on consent, digital surveillance and data reuse. The nodes related to *"education"*, *"curriculum"*, *"clinical competence"*, *"nursing"*, and *"health personnel"* show concern for how AI is changing the doctor-patient relationship and professional work. In other words, just by looking at the words in the network, the size of the nodes and the connections, it is clear that the literature on AI in medicine articulates social vulnerabilities along three main axes: equity/disparities, confidentiality/data privacy, and clinical work/competence, all in direct contact with core technologies (*"deep learning"*, *"large language models"*, *"chatgpt"*, *"digital health"*, *"personalised medicine"*).

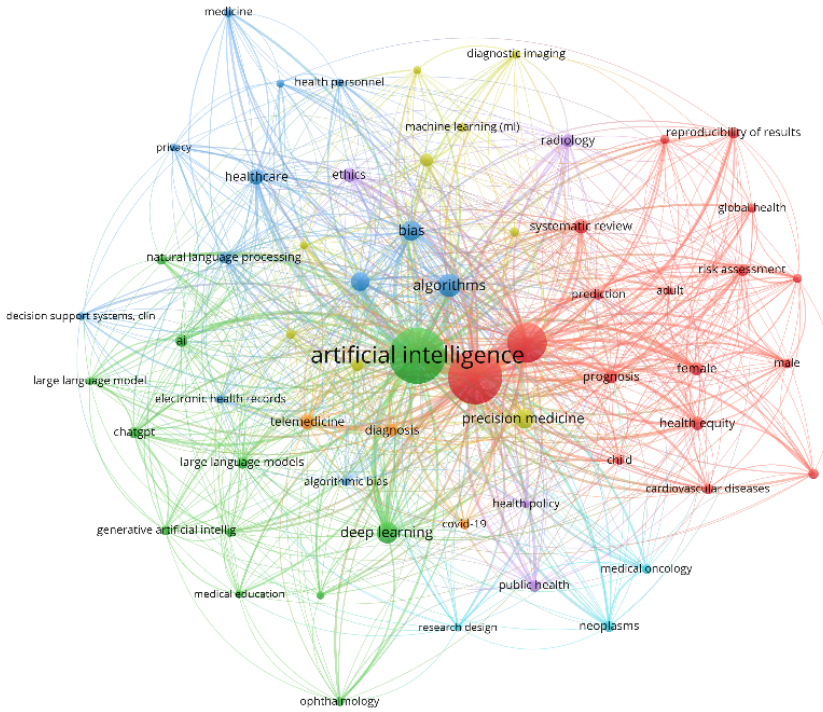
2. Thematic clusters identified in the co-occurrence map at a co-occurrence threshold of 20

The co-occurrence map at threshold 20 (Figure 2) represents the „hard skeleton" of the field, i.e. those concepts that not only appear frequently in the literature on artificial intelligence in medicine, but are sufficiently central that they tend to be associated with each other repeatedly and systematically. While the threshold 5 map provides a very rich picture with many ramifications, including emerging or niche topics, the threshold 20 map reduces complexity and brings to the fore the stable conceptual structure of the domain. In practice, we move from a granular, highly detailed picture to an 'epistemic core' of the literature, where it becomes clearer which themes are truly dominant and how academic discourse is organised around them.

Compared to the threshold 5 map, where social vulnerabilities – *„bias"*, *„equity"*, *„privacy"*, *„disparities"* – were scattered across several peripheral and intermediate

clusters, the threshold 20 map allows for a more accurate identification of how these concepts are integrated into the mainstream of the discussion on clinical AI. The remaining nodes have passed the frequency and relevance filter, so the relationships between them have stronger conceptual significance: if two ideas constantly co-appear in the analysis at a high threshold, it means that the literature considers them structurally related, not incidental.

In addition, the threshold 20 map helps to understand conceptual „polarisation": which themes cluster around artificial intelligence, which themes are located on the periphery, which relationships are robust enough to pass the strict co-occurrence filter. In the context of social vulnerabilities, this map shows not only where terms such as *„bias"*, *„health equity"*, or *„privacy"* appear, but also how central their role is in the conceptual architecture of AI in medicine. Thus, the threshold 20 analysis not only simplifies the map, but also reveals where the „heavy nodes" of the discussion on social risks are and, by absence, which topics are not yet sufficiently consolidated in the current literature.



- *Figure 2: The conceptual core of artificial intelligence in medicine: robust relationships and dominant themes*

- **Red cluster: equity, demographics, and clinical outcomes.** The main nodes are *"female"*, *"male"*, *"adult"* and *"child"*, connected to *"health equity"*, *"cardiovascular diseases"*, *"global health"*, *"risk assessment"*, *"prediction"*, *"prognosis"*, *"reproducibility of results"* and *"systematic review"*. Structurally,

the cluster is very dense, with close links between demographic variables (*"female"*, *"male"*, *"adult"*, *"child"*) and terms related to model performance and validation (*"prediction"*, *"prognosis"*, *"reproducibility of results"*). *"Health equity"* appears integrated into this core, not marginal, indicating that the literature treats equity as a constituent part of AI evaluation. Strong connections to *"cardiovascular diseases"* and *"global health"* show that demographic differences are discussed in pathologies and contexts with a high population impact. Implications for social vulnerabilities become evident; the relationships between *"female", "male", "adult", "child",* and *"health equity"* show that algorithmic inequalities are conceptually anchored in demographic differences. *"Reproducibility of results"* is connected to *"prediction"* and *"risk assessment"*, suggesting that lack of reproducibility is perceived as a structural factor of inequity. The link to *"global health"* indicates concern for differences between health systems and populations, not just between individuals.

- **Green cluster: LLM, generative AI, clinical data, and digital infrastructure.** The main nodes are: *"large language models"*, *"natural language processing"*, *"chatgpt",* connected to *"generative artificial intelligence"*, *"AI"*, *"deep learning", "electronic health records"*, *"telemedicine"*, *"diagnosis", "algorithmic bias"*, *"decision support systems"* and *"clinical"*. Structural observations may be related to the fact that this cluster is centred on recent technologies (*"LLM"*, *"chatgpt"*, *"generative AI"*), which shows the maturation of technological discourse in medical literature. The connection of these nodes to *"electronic health records"*, *"diagnosis"* and *"decision support systems"* suggests the integration of LLMs into concrete clinical processes. *"Algorithmic bias"* appears within the cluster, indicating that bias is discussed directly in the context of digital infrastructure and automated clinical systems. *"Algorithmic bias"* connected to *"decision support systems"* and *"diagnosis"* indicates concern about automated errors affecting patient triage and assessment. The strong connection between *"electronic health records"* and LLMs suggests concerns about data reuse and the potential for amplifying existing bias in EHRs. *"Telemedicine"* linked to LLMs and AI shows the discussion about unequal access to technology and digital health services.
- **Blue cluster: clinical medicine, ethics, and healthcare professionals.** The main nodes are: *"healthcare"*, *"medicine"*, *"health personnel",* connected to *"ethics"*, *"privacy", "diagnostic imaging"*, *"radiology"*, and *"machine learning (ml)"*. This is the cluster where terms describing the broader clinical environment, medical professionals and ethical tensions appear. *"Health personnel"* is simultaneously connected to *"medicine"*, *"healthcare"* and *"ethics"*, suggesting that the literature analyses the impact of AI on clinical work and professional responsibility. *"Privacy"* is positioned in the cluster but oriented towards technical nodes, indicating that data protection is perceived as a structural problem of digital clinical systems. From a social implications' perspective, the connections between *"privacy"*, *"health personnel",* and *"medicine"* show that data vulnerabilities are understood as part of everyday clinical work, not as a purely technical element. The presence *of "ethics"* alongside *"machine learning (ml)"* and *"diagnostic imaging"* suggests concern about the use of AI in high-risk procedures. The link to *"radiology"* reflects the specialty in which AI is already widely implemented, and therefore where tensions related to responsibility and quality are most evident.

- **The purple–turquoise cluster (intermediate): oncology, public health and pandemics.** The visible nodes are represented by *"medical oncology"*, *"neoplasms", "public health"*, *"health policy", "covid-19"* and *"research design"*. This cluster connects two sub-themes: cancer (where AI is very active) and public health (where AI is used in policy, prediction, and epidemiological surveillance). *"Covid-19"* and *"research design"* are transition nodes, suggesting the role of the pandemic in accelerating the use of AI and the methodological re-evaluation of its tools. The presence of *"health policy"* and *"public health"* indicates the systemic discussion about the impact of AI at the population level. *"Covid-19"* remains a central example of a context in which AI can create or amplify inequalities, depending on the quality of the models.
- **Yellow cluster: technical validation and predictive performance.** The visible nodes are *"algorithms"*, *"machine learning (ml)", "bias", "systematic review"* (connected to the red cluster), *"reproducibility of results", "diagnosis"*, *"prediction"*. Although small in number of words, the cluster brings together terms that are essential to the discussion of vulnerabilities: *"bias"*, reproducibility, algorithmic performance. The simultaneous connection to the red cluster (*"fairness"*), the green cluster (*"LLM"*), and the blue cluster (*"ethics"*) shows that *„bias"* is a bridge node between technical, social, and clinical topics. *"Bias"* is not marginal but positioned almost centrally, indicating that the issue of algorithmic inequities is recognised as fundamental, not secondary. *"Prediction"* and *"diagnosis"* are simultaneously linked to *"algorithms"* and demographics, clearly suggesting that the literature discusses the differentiated performance of AI for different groups.

"Health equity", *"bias",* and *"privacy"* are integrated into the central clusters of the map, not on the periphery; social vulnerabilities are considered a structural part of the discussion about AI in medicine. The red cluster shows a focus on demographics and clinical outcomes, the green cluster on emerging technologies and digital infrastructure, blue on clinical practice and ethics, and yellow on technical validation and reproducibility. The links between these clusters outline the chain of social vulnerabilities: data → models → equity → clinical practice → population outcomes. The threshold 20 map confirms what the threshold 5 map showed diffusely: social vulnerabilities are omnipresent and articulated in the fundamental thematic cores of AI research in medicine.

Discussions

The position and connectivity of social-ethical terms in the network

Analysing the positions of nodes representing social and ethical terms (such as *"ethics", "bias", "equity", "trust", "privacy",* etc.), it can be observed that these concepts are often on the edge of the network or grouped in a dedicated cluster, rather than scattered centrally among technical terms. Terms such as *"privacy"* and *"security"* form a well-connected internal cluster (focused on data security), but their links to clinical or technical clusters are limited to a few connections (e.g., *"privacy"* with *"data/big data"*, *"security"* with *"IoT"*). Similarly, *"ethics"* and *"governance"* appear connected to each other and to terms such as *"policy"*, but less so to *"deep learning"* or *"radiology"*, suggesting that the ethical discussion takes place in a somewhat parallel framework to applied research. This peripheral nature is confirmed by the lower weight of these nodes: in bibliometric examples, *"ethics"* had a much lower link score than the central AI nodes (Torun, 2022),

and *"political economics"* or *"governance"* appear as isolated or secondary nodes. *"Equity"* and algorithmic bias are terms that are present but not among the 20 most frequent; however, their appearance above the threshold of 20 suggests growing attention. *"Equity"* is often discussed in the context of fairness in access to technology and the impact on health disparities, but in the network, it may be relatively far from the technological core, closer to terms such as *"disparities"* or *"public health"*. Bias, on the other hand, appears to be more closely connected to technical language; for example, the phrase *"algorithmic bias"* links the concept of bias to *"machine learning"*, indicating awareness in the technical community of the problem of algorithmic bias. Thus, *"bias"* acts partly as a bridge between the technological and ethical clusters; it is a technical subject (mitigating bias in models) with social implications (inequity).

Other social terms have specific connections with clinical topics. *"Trust"*, for example, links discussions about the acceptance of AI by medical staff and patients with the need for transparency and explainability of models. The word *"transparency"* connects with both *"ethics/accountability"* and *"explainable AI (XAI)"* in the technology cluster. The presence of these links suggests that, although social-ethical terms are largely grouped separately, there are interactions between technical and ethical discourse. However, the intensity of these interactions is low; the maps show that elements of ethics and social responsibility have, on the whole, a lower degree of connectivity, indicating partial rather than full integration into mainstream medical AI research. In the literature as a whole, it has been noted that most research has focused on AI performance, and aspects of fairness, trustworthiness, legality, and ethics have received attention but remain secondary to (Steerling et al., 2023). This reality is also reflected on the map: ethics and fairness issues do not appear as central themes, but as complementary components.

An indication of the peripheral position of these themes is also given by the language used in the articles analysed. Many ethical terms (e.g. *"autonomy", "beneficence", "justice"*, *"accountability"*) appear in titles or conceptual discussions rather than as dominant keywords. Similarly, terms such as *"guidelines"*, *"regulation",* or *"governance framework"* rarely appear in the main network, suggesting that the governance dimension of AI in health is still emerging and not strongly integrated into practical discussions. There are exceptions: the concept of „AI governance" is addressed in some health policy studies, but these works do not constitute a critical mass in the body of reviews analysed, so they do not form central nodes on the map. Thus, the discourse on AI governance and implementation policies remains marginal in our network, signalling a possible gap.

Integration vs. marginalisation of discourse on social vulnerabilities

The connectivity assessment shows that discourse on the social vulnerabilities and implications of AI is present but partially marginalised in the literature. Topics such as fairness, bias and transparency are well represented as subjects of interest (especially in the ethics cluster), but are not centralised in the overall map. In other words, the scientific community recognises the importance of these topics, but they are often treated in dedicated sections (e.g. sections on „Ethical considerations" in reviews) or in articles specifically focused on ethics, rather than being organically integrated into most applied studies. For example, ethical considerations related to data confidentiality and bias are explicitly mentioned as challenges in research (Abdulsalam et al., 2025), which shows awareness of the issues. However, these considerations usually appear at the end of the

papers (in the form of ethical discussions) and are not part of the main objective of many technically oriented studies.

On the bibliometric map, social and ethical nodes tend to be peripheral, indicating a degree of insularity in the discourse on social vulnerabilities in relation to the technological and clinical core. Terms such as *"accountability"* or *"bias"* are connected to few other concepts, a sign that only a subset of the literature addresses them directly. For example, *"bias"* could be connected to *"algorithm"* and *"data"*, but it does not appear in connection with *"oncology"* or *"diagnostic accuracy"*, suggesting that not all clinical studies take the issue of bias into account. Equity is also treated more theoretically; the idea that AI should be equitable is promoted, but practical implementation (e.g., studies evaluating the impact of AI on health inequalities) is rare, which explains the peripheral position of the term. In addition, the fact that *"governance"* and *"regulation"* are weak nodes indicates that concrete approaches to public policy and regulation of medical AI have not yet been widely discussed in the articles in our sample.

This relative marginalisation does not mean that social issues are completely neglected, but that they are still a specialised discourse carried out by a segment of the scientific community. In fact, a review of the literature highlights that ethical dilemmas related to confidentiality, trust and transparency are major obstacles to the implementation of AI in the healthcare system (Ahmed et al., 2023). The fact that they are perceived as practical barriers indicates the need for their closer integration: for AI to be widely adopted, these vulnerabilities must be addressed (e.g., lack of transparency creates mistrust among clinicians and patients (Ahmed et al., 2023)). In our map, this idea is reflected in the modest connection between the ethical cluster and the others: interaction exists (through terms such as *"trust"* or *"bias"* that partially link the clusters), but it is not strong enough, suggesting that the discourse on social vulnerabilities is still in an early stage of integration.

Connections between bibliometric findings and sociological and humanistic theoretical frameworks

Bibliometric maps reveal a conceptual landscape in which technical terms related to artificial intelligence (*"artificial intelligence"*, *"deep learning"*, *"algorithms"*, *"large language models"*, *"predictive modelling"*) are linked to socio-ethical terms (*health equity*, *bias*, *privacy*, *ethics*). These relationships visible in the network can be read through the lens of solid theoretical traditions in sociology, social work, and the humanities, which provide a framework for interpreting social vulnerabilities. The green cluster (equity, demographics, clinical outcomes), identified at both thresholds 5 and 20, resonates with the theory of social determinants of health, which states that health status is structurally shaped by the social, economic, and political factors of the population. The dense connection between *"health equity"*, demographic variables (*"female"*, *"child"*, *"aged"*), major diseases (*"cardiovascular diseases"*) and algorithmic performance indicators (*"prediction"*, *"prognosis"*, *"reproducibility of results"*) suggests that algorithmic bias not just a technical flaw, but a form of reproduction of existing social inequalities, a phenomenon anticipated in the theory of structural violence (Farmer et al., 2006a), which shows that health systems and public policies can, through seemingly neutral mechanisms, cause systematic harm to vulnerable groups.

The cluster dedicated to the terms *"algorithmic bias"*, *"decision support systems"*, *"electronic health records"*, *"LLM"*, *"telemedicine"* aligns with the literature in the

humanities on algorithmic discrimination (Noble, 2019; Benjamin, 2019; Eubanks, 2018). The map shows that *"bias"* functions as a bridge node between technical and social clusters, confirming the central thesis of these works: digital technologies can operate as extensions of power structures and historical prejudices. For example, the connectivity between *"algorithmic bias"* and *"diagnosis"*, visible especially in threshold map 20, is consistent with Ruha Benjamin's analysis of the „New Jim Code," technological mechanisms that produce exclusion under the guise of objectivity. At the same time, the association between *"electronic health* records*"*, *"LLM",* and *"data privacy"* reflects central themes in „surveillance capitalism" (Zuboff, 2019), where massive data aggregation becomes an infrastructure that can disadvantage the underrepresented, either through disproportionate surveillance or through the unauthorised reuse of their data.

Bibliometric maps also highlight an intersectional structure of vulnerabilities: demographic nodes (*"female"*, *"male"*, *"child"*, *"aged"*) are positioned in proximity to terms of equity and algorithmic performance. This proximity is explained theoretically by intersectionality (Kimberlé Williams Crenshaw, 1991), which shows that the effects of discrimination are not one-dimensional, but manifest themselves at the intersection of race, gender, age and social class. In the network, the connections between demographics, *"health disparities"*, *"prediction",* and *"global health"* signal that AI models can disproportionately affect people at the intersection of multiple forms of vulnerability (e.g., elderly women with comorbidities), which transforms technical analysis into a social one par excellence.

Terms related to professionals (*"health personnel"*, *"nursing"*, *"clinical competence"*, *"education"*) are connected to *"ethics"* and *"technology"*, a pattern that can be interpreted through the ethics of care (Tronto, 1993). This theory emphasises the relational and distributed nature of care. On the map, the presence of clusters linking AI to education, curriculum and professional competence suggests a tension: AI can redistribute tasks, intensify monitoring and generate „deskilling", disproportionately affecting already overburdened professionals — often women in nursing or caregiving roles. From the perspective of care ethics, this is not just an organisational problem, but a moral vulnerability, as it erodes the quality of the doctor-patient relationship and affects subjects who have little power in the design of technology.

The cluster associated with pandemics (*"COVID-19"*, *"critical care"*, *"ethical considerations"*) can be linked to sociological literature on inequalities in crisis conditions, where technologies tend to amplify pre-existing vulnerabilities. The connections visible on the map show that predictive models and automated triage systems are frequently associated with the context of the pandemic, a situation in which algorithmic decisions can have acute consequences, and in which the theory of structural violence becomes relevant for understanding differences in access to treatment.

Overall, bibliometric maps not only chart the dominant themes in medical AI research, but also reflect, through their topology, the tensions identified by major sociological theories: the unequal distribution of risks (structural violence), the social determinants of health, the intersection of vulnerabilities, systemic bias in technological infrastructures, and the precarious nature of care work. This dialogue between bibliometric data and social theory shows that AI vulnerabilities are not add-ons, but are closely interconnected with the dynamics of power, social stratification and surveillance, making the integration of social dimensions an essential condition for the responsible implementation of AI in medicine.

Conclusions

The bibliometric analysis of the literature on artificial intelligence in medicine (2020–2025), integrated with sociological and humanistic theoretical perspectives, highlights a complex conceptual landscape in which technological advances coexist with subtle but persistent forms of social vulnerability. Co-occurrence maps show that the discourse on AI in health is dominated by technical and clinical themes such as *"deep learning"*, *"diagnosis"*, *"predictive modelling"* and *"large language models"* — while dimensions related to equity, bias, ethics, privacy and care work appear integrated, but often on the margins of the technological core. This distribution is not random; it reproduces social structures well documented by health sociology theories. At the centre of the network are nodes associated with algorithmic performance and model validation, while social terms are connected pointwise or function as bridges between technical and clinical clusters, suggesting that social reflection is present but insufficiently absorbed into dominant practice.

Rereading the maps through the lens of structural violence theory (Farmer) clarifies that AI, in the form in which it is implemented today, can act as a medium for amplifying existing inequalities. The consistent presence of the terms *"health equity"*, *"health disparities"*, *"female"*, *"child"*, *"aged"* in proximity to the concepts of *"prediction"*, *"risk assessment"* and *"prognosis"* shows that algorithmic performance is not uniformly distributed, but follows the lines of vulnerability of the social system. Thus, AI not only reflects but can also intensify the social determinants of health, confirming the position of the „social determinants of health" theory that the risks of disease and, in this case, the risks generated by technological tools are structurally shaped.

The cluster structure also supports the link with the literature on algorithmic discrimination and algorithmic oppression (Benjamin, Noble, Eubanks). The *"algorithmic bias"* node, connected to both *"diagnosis"* and *"electronic health records"* and *"LLM"*, indicates that bias is not a marginal defect, but an emergent property of data infrastructures and the way models are designed and trained. The technical bibliography only partially captures these effects, but when recontextualised sociologically, they become expressions of broader structures of exclusion, in which populations differentiated on the basis of race, the elderly, patients with comorbidities, or those from disadvantaged backgrounds are the most vulnerable.

The phenomenon of *"data privacy"* and its proximity to *"LLM"* and *"generative AI"* reflects another fundamental theoretical dimension: surveillance capitalism (Zuboff). The structure of the network indicates the permanent tension between the clinical need for data and its exploitation as a resource for prediction, optimisation or the development of generative models. From this perspective, vulnerabilities related to privacy, consent, and data reuse are not anomalies, but structural elements of a digital economy in which the patient becomes an involuntary supplier of informational raw material. Bibliometrics confirms this interpretation: confidentiality terms are linked to emerging technologies, not to solid ethical structures, signalling the insufficient integration of the regulatory framework into technological development.

Another important tension concerns the changing distribution of clinical work, reflected in the education–competence–professionals cluster (*"education"*, *"curriculum"*, *"clinical competence"*, *"nursing"*). From the perspective of care ethics (Tronto, 1993), this network suggests a tacit redistribution of responsibility, in which medical staff become guardians of AI, bearing the burden of supervising and verifying models. The phenomenon

of „deskilling" identified in the literature is thus part of a broader ethical issue: technology risks undermining the very care relationships on which medicine is fundamentally based.

Overall, the bibliometric conclusions show that the social vulnerabilities of AI in medicine are not conceptual accidents, but manifestations of structural dynamics described by:

- structural violence (unequal distribution of technological risks);
- social determinants of health (differentiated AI performance across groups);
- intersectionality (accumulation of vulnerabilities at the intersection of social identities);
- algorithmic discrimination (systemic bias in data infrastructures);
- surveillance capitalism (exploitation of patient data as an economic resource);
- the ethics of care (erosion of the therapeutic relationship and clinical skills).

On this basis, the paper shows that the discussion about AI vulnerabilities needs to shift from the technical realm (where it is treated as an „add-on") to a structural, interdisciplinary approach capable of explaining not only how vulnerabilities arise, but why certain groups are disproportionately affected. A real integration of social dimensions into AI development requires a shift from models focused on technical performance to models oriented towards equity, transparency, redistribution of responsibility and protection of patient autonomy. Only in this way can AI become, not a multiplier of inequalities, but a tool for reducing them and strengthening a health system that works for everyone.

Authors contributions

R.M.D. was involved in research design, the literature review, data collection, analysis and interpretation, and drafting conclusions. A.N.D. was involved in the literature review, data analysis and interpretation, and drafting of conclusions.

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Original Article

Security and Perceived Security in Terni: A Sociological Analysis

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Abstract
This article examines the gap between objective and subjective security in Terni (Umbria, Italy) in the light of the current debates on risk society, moral panics and the culture of fear. Using the methodology worked out by Niccolò Cusano University (2023-2025), mixing deep analysis of the available data, surveys, interviews and direct observation, it points out that, in spite of the declining of criminal activities after the recent pandemic period, the fear of crime remains high, though unevenly distributed.
Qualitative findings attribute the persistence of fear to: (1) environmental outbreaks of disorder; (2) their amplification by mass media and social media, which increases their perception; (3) low trust in institutions, which incresases the demand for visible police control; and (4) advanced marginality, which erodes social cohesion. Private video surveillance is widely accepted, but it helps increase concerns about security. The authors advocate a participatory model of security integrating municipal police, urban regeneration, youth engagement and the use of digital tools with safeguards against exclusion and vigilantism. Their recommendations include clear and objective reporting of crime data, media literacy initiatives, improved public lighting and intersectoral coordination between police activities, social services, housing and education. Terni's experience shows how aligning objective security with its perceived need requires interventions addressed to structural inequalities and institutional trust, which could offer good lessons to other medium-sized European cities undergoing post-industrial change.

Keywords: *Terni, security, urban policies, sociological analysys, risk society.*

Introduction

The distinction between objective and subjective security has become an increasingly prominent focus within urban sociology, particularly as scholars recognize that crime

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statistics alone fail to capture the full complexity of how safety is experienced in urban environments. Objective security refers to quantifiable measures such as crime rates and police reports, whereas subjective security involves the perceptions, emotions and social meanings individuals and communities attach to their sense of safety. As Ulrich Beck (1986) argued in his theory of the *risk society*, modern life is increasingly organized around perceived rather than actual threats, leading to new forms of anxiety and insecurity that are socially produced rather than directly tied to material danger.

The city of Terni, in central Italy's Umbria region, offers a compelling empirical case for examining this phenomenon. According to findings from an academic study carried out by the University Cusano of Rome from 2023 to 2025, Terni has not witnessed a notable rise in crime and institutional interventions have remained consistent throughout the period. Yet, a considerable portion of residents report heightened fear and a diminished sense of public safety. As Stanley Cohen (1972) noted in his classic analysis of *moral panics*, public anxieties often become decoupled from statistical realities, shaped instead by media representations, political rhetoric and symbolic interpretations of risk.

This article adopts a sociological lens to explore the multidimensional nature of urban security in Terni, integrating quantitative data with an interpretive analysis of public sentiment and institutional narratives. As Barry Glassner (1999) pointed out, modern societies frequently construct exaggerated threats that obscure more statistically relevant dangers, thereby distorting public priorities and deepening social divisions. In line with this perspective, the persistence of fear in Terni is examined not merely as a psychological state but as a socially embedded condition influenced by spatial inequality, trust in institutions, community cohesion and other factors.

Drawing on these theoretical insights, the paper seeks to answer a central question: Why does fear persist even in the absence of increasing crime? By unpacking this question, it contributes to broader sociological debates about the disjuncture between perception and reality in urban settings, while offering practical insights into how local governance and public policy might address both the measurable and perceived dimensions of security.

1. Terni. Industrial heritage, urban transformation and social challenges

Terni is a city with a complex modern history, making it an interesting social laboratory and, owing to its specific characteristics, a consolidated and privileged object of numerous historical and socio-political studies, focused on labour, trade unionism and politics (Bonelli, 1975; Canali, 2004; Covino and Papuli, 1998; Saltalippi, 2022). The major works of Portelli (2017) and Giustinelli (2022) are indicative of such attention. The testimonies collected by Portelli are not only an extraordinary example of oral history, almost concerning the entire twentieth century, but also a valuable archive documenting the voices of generations of Terni residents. In the transition from a rural world to a post-industrial one, they experienced the fragmentation of the city's industrial dream and, along with it, the political and labour cultures tied to that dream.

Terni was one of the key players in the country's industrial development, to the point of being nicknamed the "Italian Manchester"—an expression that reflects both the strategic centrality attributed to it by the State and the pride of the local community in this supposed centrality, in spite of its objective peripherality, or even satelliteness, in respect with both the regional capital, Perugia, and the nearby national capital, Rome. The "city of steel", another of its nicknames, underlines the dual identity underlying both the

representation and self-representation of Terni on the official website of its municipal authority (Vivi Terni, 2023).

Despite the deindustrialisation process of recent decades, steel still exerts a major impact on the area: Acciai Speciali Terni produces 37% of Umbria's regional GDP and 67% of Terni's provincial GDP. The city's industrial development was accompanied by remarkable building expansion and the definition of specific settlement patterns (Giorgini, 1998). Over the decades, this was matched by careful urban planning: from the 1962 Public Housing Plans to innovative interventions in the 1970s, aimed at controlling the growth of new suburbs, managing industrial areas and regenerating historic centres and disused industrial zones (Muratore, 2015: 13). However, a "widespread cultural subordination to the logic of expansion reproduced the models of the construction boom years, which often allowed mediocrity to prevail, sweeping away many of the quality elements that were nonetheless widely present" (Tarquini, 2015). As Muratore rightly pointed out, Terni was a place of experimentation, "where a certain left-wing politics in government succeeded in leaving a recognisable mark on the physical face of the built city" through a comprehensive vision of the territory and its dynamics (Muratore, 2015: 15). Over time, the city has seen modifications, substitutions, adaptations and the regeneration of large portions of its territory, accompanying both its industrial growth and the difficult and contested process of deindustrialisation.

The city's deindustrialisation was particularly dramatic for its social effects in the decade 1981-1991, when Terni lost around 35% of jobs in the entire industrial sector (Patalocco, 2013). Post-industrial Terni is a city shaken by an unwanted and resisted transformation, which has yet to find a balance or a strong project on which to build its identity. Since the 1980s, there has been an interesting attempt to visually narrate this transformation and to combine the memory of an industrial history based on steel with the expectations of a post-industrial present, seeking to embrace the postmodern culture of adaptive reuse, urban beautification and tourism, through art and museums. A good example is the 1993 relocation, to the station square, of the massive 12,000-ton press used in one of the city's steelworks from 1935 to 1993. Other examples include large steel artworks dominating the squares opening onto the city's outer boulevards—almost transitional spaces between the urban core and the popular neighbourhoods due to industrial expansion—such as Arnaldo Pomodoro's "Lancia di Luce" obelisk (1985-1995) and Giuseppe Maraniello's "E-terni" sculpture, not to mention the CAOS (Centro Arti Opificio Siri), the cultural hub housing the Archaeological Museum and the Museum of Modern and Contemporary Art, created from the former SIRI chemical factory and inaugurated in 2001.

While these interventions have made the urban space more interesting and demonstrated the city administration's post-industrial awareness, they have not succeeded in addressing the city's social fabric or the quality of life of its citizens, both heavily affected by deindustrialisation. The were some efforts to integrate the CAOS into the city's fabric, with cultural activities organised within the neighbourhood (Tarquini, 2015), but, as our interviews have brought to light, even two decades after its inauguration, the community still does not perceive it as an integral part of its experiential space.

Equally significant is the case of the Papigno industrial plants, which were founded in 1902 by SICCAG (Società Italiana per il Carburo di Calcio Acetilene e Altri Gas) and absorbed in 1922 by the Società degli Alti Forni, Fonderie e Acciaierie di Terni, which closed in 1973. Afterwards, in the late 1990s, they were acquired by the

Municipality of Terni to be transformed into a film production centre, where, among other things, Roberto Benigni shot scenes from his *Life is Beautiful* (1997), which received three Oscar awards in 1999, and *Pinocchio* (2002). Benigni invested in these studios, hoping they could become a kind of anti-Cinecittà (Giulivi, 2010), and some began to speak of a "Hollywood on the Nera". But this dream, merging industry and post-industrial imagery, lived a short life: after the commercial failure of *Pinocchio* (2002), Benigni sold the studios to Cinecittà, which eventually abandoned them.

Post-industrial Terni remains a complex reality, as numerous studies have shown. Cristofori (2009) explored the processes of re-signification linked to the new post-industrial dimension, in which workers—now part of a "global factory"—find themselves in a context that has moved beyond, or ignores, the class paradigm, though the factory continues to be a strong identity marker, where meaningful relationships take shape. Cristofori (2014) worked out an interesting comparison with Bilbao, another steel city that was heavily affected by deindustrialisation. Bilbao, thanks to an extensive process of urban renewal and regeneration centred on the opening of the Guggenheim Museum, designed by Frank Gehry, one of the most creative starchitects, and inaugurated in 1997, has managed to transform its image from a declining industrial city into one of the hubs of new European cultural (and youth) tourism. In contrast, Terni remains firmly anchored to its identity as a factory city, despite significant investment in culture, innovation and the knowledge-based economy. Since 1974, the University of Perugia has been present in Terni, with a Science and Teaching Hub opened in 1997. However, according to Portelli (2017: 304–305), the University remains a "separate space" that struggles to identify with the city, which seems reluctant to acknowledge this new reality.

Guercio (2020), in a study conducted for the University of Perugia, examined the social effects of deindustrialisation, analysing drug use in the Terni area and the relationship between security, fears and urban policies. Saltalippi (2022), in an ethnographic analysis starting from the city's last two major strikes (in 2004 and 2014), recounted the transformations of the local working-class culture and the difficulties in identifying new forms of struggle in the face of a profoundly changed scenario, including altered relationships between workers, trade unions and political representations. Saltalippi also analysed the effects of the pandemic on the city: the plant, which had continued to operate even during the bombings of World War II, was closed for the first time in March 2020, prompting fears among the workers that it might never reopen, owing to the effects of globalization. Striking appeared to be the only possible reaction.

Portelli (2023) narrated the recent endpoint of the city's long process of deindustrialisation, linking its cultural and identity disorientation to politics' inability to respond to the community's new fears. In this sense, Terni—a working-class city shifting from "red" to "black"—becomes a kind of privileged "laboratory" for understanding the cultural and political dynamics accompanying the rise of new populisms as a response to a crisis in a national context of social, political and cultural impoverishment. Portelli's interviews portrayed a fragile city, with an ageing population and young people navigating between anti-politics and post-politics in what he called a "cultural apocalypse", with widespread problems of violence and drug use (which the community perceives not as internal issues but as "manifestations of an alien threat"). The loss of a factory- and labour-based identity, according to him, turned into a kind of refusal, in which, for decades, local elites have sought to replace the memories of the turbulent twentieth-century with the purity and nobility of more ancient history and myth. Thus Tacitus (actually without connection with the city) and Saint Valentine became tools of a new

myth-making that conceals the lack of a genuine project to reactivate the city's identity and economy.

In this light, we can read the attempt to make Terni a tourist city. Its area, already appreciated at the time of the Grand Tour, is suitable for the development of an experiential kind of tourism based on nature and sport, easily integrable with the cultural tourism already present in the region and, particularly, in some nearby towns, such as Narni. For Portelli (2023), however, this ambition confirmed the inability of the city to conceive a "solid" future. More generally, in Italy tourism has been often considered an activity capable of compensating, in an almost magical way, for territorial weaknesses, ensuring well-being to many people, even if it often entails environmental degradation and changes in the social and cultural context, which could cause a deterioration in quality of life. Anyhow, tourism development could help reposition and re-centre the city, enabling it to overcome its double peripherality. It should be remarked, however, that—at least in its self-presentation for tourism purposes—the city does not deny its industrial past and even seeks to enhance it in terms of industrial archaeology (Vivi Terni, 2023).

Greco and Panico (2025) offer an interesting comparison between Terni and Taranto, the other Italian steel hub, which, like Terni, suffers a serious economic and social crisis. They underline that the environmental and health impacts of the industrial activities in Terni are largely overlooked by political and media narratives, which, in contrast, stress these problems in the case of Taranto. For these two authors, Terni—at least in terms of ecological transition—represents a remarkable model, for its ability to transform "from within" its economic structure. In the absence of a strong public player, it is the production system itself (led by Confindustria Umbria) that has managed to initiate a market-oriented transition toward sustainability, through an adaptation of the industrial system, in which sustainability operates as a lever of industrial competitiveness.

The picture outlined above might suggest a community in crisis. Recent data, however, offer a more complex picture (Sole 24 Ore, 2025, based on ISTAT 2022-2024 data). For the quality of life of children aged 0-14, Terni ranks 44th (behind several central Italian municipalities, with Perugia in 37th place). topFor the quality of life of young people, it is 36th (in a ranking where top 20 positions are almost exclusively occupied by northern cities and Perugia is in 26th place), although it ranks 54th for youth unemployment, 69th for perceived insecurity and 71st for youth entrepreneurship. For the quality of life of the elderly, however, it is 101st, near the bottom of the ranking, alongside a dozen southern cities, with a position of 105th for users of municipal social services and 107th for the average amount of old-age persons. This reflects a "median" quality of life, but—as our interviews have confirmed— with a series of critical issues affecting the most vulnerable groups and forming the basis of fears and insecurity.

2. Conceptual framework: actual security vs. perceived security

Within the field of urban sociology, the concept of security transcends the mere statistical absence of crime. It is increasingly conceptualized as a multidimensional and socially embedded condition, encompassing individuals' subjective feelings of safety, their trust in public institutions and their broader sense of well-being in urban contexts. The analytical distinction between *objective* and *subjective* security—often framed as the difference between *actual safety* and *perceived safety*—has become a cornerstone of critical debates concerning urban governance and public space (Beck, 1986; Glassner, 1999).

Objective security has some quantifiable indicators, such as crime rates, arrest figures and emergency service reports, which are grounded in empirical data, often used by public authorities to assess safety levels. Instead, subjective security refers to individuals' perceptions, beliefs and emotions related to exposure to potential harm. These perceptions are influenced not solely by personal experiences but also by collective imaginaries, cultural narratives, environmental cues and institutional interactions (Glassner, 1999). This distinction is vital, as subjective insecurity can persist even in the absence of actual threats and can shape behaviour and policy in significant ways.

Our recent research conducted in Terni foregrounds this conceptual divergence. The research asserts that "security is an inherently relational and social construct", shaped by dynamic interrelations between media representation, neighbourhood cohesion and the perceived legitimacy and efficiency of institutional actors. Importantly, it reveals that fear of crime often emerges not from direct experiences of victimization but from broader socio-symbolic processes, such as the visibility of disorder (e.g., graffiti and public loitering), socioeconomic precarity and urban decay. These elements function as *signals* that trigger heightened insecurity, particularly in marginalized areas.

Drawing on Emile Durkheim's (1894) notion of *social facts*, subjective security may be viewed as an external, coercive force that influences individual and collective conduct, regardless of whether the underlying perceptions are empirically accurate. Stanley Cohen's (1972) work on *moral panic* is particularly pertinent in this context. Cohen illustrates how media amplification and moralized political discourse can generate disproportionate public reactions to localized or isolated criminal events. In Terni, as in other European urban contexts, such dynamics have contributed to a pervasive narrative of decline, despite the relative stability of crime rates. This supports the argument that urban insecurity is often more discursively produced and symbolically mediated than due to actual and measurable threats.

Ulrich Beck's (1986) theory of the *risk society* further elucidates the modern shift from managing concrete dangers to anticipating abstract and uncertain risks. In such contexts, perceived security increasingly depends on institutional trust and the management of symbolic order. When public institutions—such as the police and the municipal authorities—are perceived as ineffective, unresponsive or biased, even minimal incidents may provoke anxiety disproportionate to their real significance. This is quite evident in Terni, where resident narratives reflect a dual concern: not only with the occurrence of crime, but also with the perceived inefficacy and inconsistency of institutional responses.

The social distribution of subjective insecurity is also profoundly unequal. As numerous studies indicate, vulnerability to fear does not map neatly onto actual crime exposure. Rather, certain social groups—including women, older adults, ethnic minorities and economically disadvantaged populations—consistently report higher levels of perceived insecurity (Glassner, 1999; Innes and Roberts, 2008). This phenomenon is due in part to the *culture of fear*, which in public discourse exaggerates or distorts the risk faced by some specific groups, reinforcing social divisions and symbolic boundaries. In Terni, our survey shows that residents in peripheral neighbourhoods—often characterized by infrastructural neglect, poor lighting, abandoned spaces and limited social services—experience greater fear, regardless of the local crime data.

The role of the built environment in shaping perceptions of safety is also of paramount importance. Sociologists and urban theorists, drawing on Jane Jacobs' theory "eyes on the street" (1961), have argued that socially vibrant, well-maintained and

interconnected public spaces can promote informal surveillance and community engagement, thus improving both real and perceived safety. In contrast, urban fragmentation, deindustrialization and spatial isolation erode social capital and increase insecurity. In Terni, areas affected by post-industrial decline show the effects of physical degradation and socio-economic marginalization on the perceptions of safety. Institutional trust—particularly in the police, local governance and public services—emerges as an additional factor affecting subjective security. Innes and Roberts (2008) introduced the concept of *signal crimes* to describe how certain events or visible markers (some forms of disorders, such as broken windows) are, for the residents, signs of broader systemic failure. This can induce amplified responses to fear and widespread requests for intensified police actions. In Terni, the research has singled out a cyclical pattern: perceived disorder fuels demand for security interventions, which can disproportionately affect marginalized groups. This, in turn, intensifies social tensions, compromising the outcomes of long-term security actions. From a policy perspective, the disjunction between objective and subjective security challenges the effectiveness of strategies mainly relying on surveillance and law enforcement. Over-emphasis on punitive or securitarian measures risks neglecting the deeper social, spatial and symbolic factors of insecurity. As the Terni report highlights, effective responses require a more holistic approach—one that integrates community engagement, spatial regeneration, equitable access to services and transparent governance mechanisms. Such interventions address both the material and immaterial dimensions of security and are more likely to foster sustained perceptions of safety.

Therefore, the conceptual differentiation between objective and subjective security is not merely theoretical but has tangible implications for urban policy and sociological research. Understanding why fear persists in statistically safe environments requires attending to the complex interplay of structural inequality, symbolic cues, institutional legitimacy and collective memory. By foregrounding these dynamics, sociologists and urban practitioners can better navigate the tensions between crime control and social justice and develop interventions that enhance both real and perceived security in contemporary cities.

3. Crime statistics in Terni: a mixed picture

Empirical data collected during the 2023-2025 research carried out by our team offers a nuanced view of crime trends in Terni. While overall crime rates have declined in the post-pandemic period, the findings indicate a complex landscape marked by divergent patterns across crime categories. Quantitative analyses, based on official police reports and longitudinal data sets, reveal that total reported crimes in Terni decreased in 2022 compared to pre-pandemic baselines. In particular, property-related offenses such as theft, robbery and vandalism saw notable reductions, echoing broader national trends of declining petty crime in medium-sized Italian cities (ISTAT, 2023).

However, this overall decline masks increases in some categories of crime, especially drug-related offenses and domestic violence. Our study has identified a statistically significant uptick in incidents involving narcotics, particularly among younger people in urban peripheries. Similarly, domestic violence reports have increased, a trend attributed both to heightened awareness and reporting mechanisms and to pandemic-era stressors that have persisted in the aftermath of lockdowns. These findings suggest that,

while street-level crime may be waning, more concealed and relational forms of violence are becoming increasingly salient in the urban security discourse.

Despite the reduction in certain types of crime, public anxiety about safety remains conspicuously high. This persistent fear, as articulated in survey responses and focus group data, does not correlate neatly with statistical evidence, thus reinforcing the core argument that perception of insecurity often diverges from objective measures. This phenomenon aligns with criminological literature emphasizing the "paradox of fear," wherein feelings of unsafety endure even in relatively secure contexts (Farrall et. al. 2000). As Beck (1986) noted in his well-known work on the risk society, such disconnections are symptomatic of modern urban life, where risk is increasingly managed through affective and symbolic registers rather than through practical rationality.

It is essential, therefore, to interpret crime data not as such but in their broader sociocultural context. The presence of low-level disorder, visible drug use and marginalization in specific neighbourhoods may amplify perceptions of insecurity far beyond what the actual risk would suggest. Moreover, our research stresses the interpretive flexibility of crime statistics themselves, which are not neutral reflections of reality but are shaped by reporting practices, policing strategies and institutional priorities. As Garland (2001) argued, the politics of crime data are embedded within broader frameworks. Our research places significant emphasis on the affective and experiential dimensions of urban security. Through a mixed-methods approach including structured surveys, in-depth interviews and participatory observation, the study explored how residents of Terni experience and narrate their relationship to safety in their urban environment. The findings point to a critical disjuncture between statistical trends and public sentiment, a phenomenon that confirms the theoretical insights presented in the first section of this paper.

4. Quantitative data collected during the research

The perception of security among Terni's residents emerges as a multifaceted phenomenon, deeply rooted in both subjective experiences and observable social indicators. Quantitative data from a recent empirical study involving 27 residents—stratified by age, gender, education and geographic location—reveal significant disparities in how security is experienced across different social groups. Women, particularly those aged 51-65 and 18-25, reported the highest levels of perceived insecurity, especially during nighttime hours, with 87.5% expressing fear or discomfort when moving through certain urban areas after dark. This sense of vulnerability is closely related to structural conditions, such as inadequate public lighting, the visible presence of drug dealing in public parks and signs of urban decay—factors frequently cited by our interviewees as amplifiers of perceived danger.

The analysis of reported crimes further contextualizes these perceptions. Among the 62 incidents recorded during the study, drug trafficking emerged as the most reported concern (41.9%), followed by acts of vandalism (25.8%) and incidents of bullying or harassment (17.7%). More traditional forms of crime, such as theft (9.7%) and robbery or assault (4.8%), were reported less frequently, suggesting that the most impactful contributors to insecurity are those that are both visible and socially disruptive. For instance, despite the relatively low number of thefts, the city reports 266.8 incidents of theft from dwellings per 100,000 inhabitants—significantly above the national average of 206.3—underscoring the gap between official statistics and personal experiences.

Demographic data from the sample also reveal that educational level and place of residence significantly influence security perceptions. Respondents with higher educational attainment tended to interpret risks through broader socio-political lenses, whereas those with less formal education emphasized direct, tangible experiences. Similarly, residents in peripheral areas—who made up the majority of the sample (16 out of 27)—reported heightened feelings of insecurity compared to those in the historic centre. This spatial disparity aligns with theories of urban marginality and perceived disorder, particularly those articulated by Wilson and Kelling's (1982) "broken windows" theory, which posits that visible neglect and disrepair contribute to heightened fear, even in the absence of major crimes.

Perceptions of insecurity among residents of Terni appear to be shaped less by objective crime rates and more by subjective feelings of vulnerability and mistrust in institutional efficacy. Over 60% of respondents reported feeling unsafe when walking alone at night—a sentiment particularly acute among women and elderly citizens, who expressed heightened fear even in areas statistically considered low-risk. This disconnection between actual crime trends and public perception is further highlighted by the widespread belief that criminal activity in Terni has increased, despite official data indicating a decline in most categories. Such findings echo the broader sociological insight that fear of crime is often socially constructed, influenced by personal experiences, media narratives and neighbourhood conditions rather than empirical realities. Furthermore, the moderate level of trust expressed in local institutions—especially the police and municipal authorities—points to a deficit in perceived institutional responsiveness. While residents did not report outright hostility toward these entities, there was a consistent call for greater police visibility and a more active, relational presence in local communities. This suggests that beyond enforcement, what many residents seek is reassurance: a visible commitment from authorities to fostering safety, order and dialogue within the urban fabric.

5. Public perception: fear beyond the numbers. A qualitative analysis

These patterns mirror those observed in other European urban contexts, where fear of crime tends to be socially stratified and spatially uneven (Pain, 2000). Women's heightened fear, for instance, is not necessarily indicative of higher victimization rates, but reflects gendered socialization, experiences of harassment and structural exclusion from certain public spaces (Stanko, 1990). Similarly, the elderly often report fear due to perceived physical vulnerability and diminished capacity to respond to threats, rather than from direct experience with crime. These insights complicate the assumption that fear is a straightforward function of risk and instead highlight its embeddedness in broader social inequalities.

Media representations also play a decisive role in shaping perceptions. As Cohen (1972) argued in his seminal work on moral panics, the media's framing of deviance often amplifies fear by focusing on sensational incidents and symbolic threats. In Terni, respondents frequently cited news reports and social media posts as sources of concern, even when they had not personally experienced crime. This aligns with the notion that urban fear is mediated and affectively charged, sustained by a constant flow of information that often prioritizes dramatic narrative over proportionality or statistical realism (Glassner, 1999).

Institutional trust—or lack thereof—is another key variable influencing public perception. Our research found that residents who reported low confidence in local authorities also tended to perceive their neighbourhoods as more dangerous. This finding supports the mentioned theory of "signal crimes" (Innes and Roberts, 2008), wherein certain events (or non-events) are viewed as indicators of broader social breakdown. For example, the presence of loitering youths, neglected infrastructure or visible signs of drug use were commonly cited by respondents in our research as evidence of insecurity, regardless of actual occurrence of criminal facts.

Moreover, spatial and socioeconomic contexts deeply mediate fear responses. Residents of peripheral neighbourhoods in Terni, often characterized by deindustrialization, high unemployment and limited public services, reported the highest levels of anxiety. These areas, marked by physical degradation—broken streetlights, abandoned buildings, neglected public spaces—embody what Wacquant (2008) defined as "advanced marginality", where material deprivation converges with symbolic exclusion. The result is an environment in which fear becomes normalized, routinized and internalized as a feature of daily life.

At the same time, calls for increased security are often framed in exclusionary terms. Some respondents advocated for greater surveillance, policing, or even the removal of perceived "undesirables", such as immigrants or unhoused individuals. These discourses raise important ethical questions about how fear can be used to justify repressive or discriminatory urban policies. As Foucault (1975) suggested, regimes of security operate not only through control of space and population, but also through the production of normative distinctions between the "safe" and the "dangerous".

Our research therefore underscores the importance of addressing urban fear as a multidimensional and socially embedded phenomenon. Rather than focusing exclusively on crime suppression, policymakers should consider the symbolic economy of security—the ways in which people interpret their environments, assign meaning to space and relate to institutions. Therefore, efforts to improve public safety in Terni ought to be as attentive to subjective perceptions as to objective indicators, recognizing that safety is co-produced through the interaction of people, places and power.

5.1. The role of the urban environment

The physical and spatial configuration of urban areas is a critical determinant in shaping residents' perceptions of safety. Urban design, encompassing elements such as street lighting, the maintenance of public spaces and the presence or absence of abandoned structures, profoundly influences subjective security. Our research corroborates a robust body of sociological literature that links the quality of the built environment to fear of crime (Newman, 1972; Jacobs, 1961).

In Terni, neighbourhoods characterized by poor lighting, neglected infrastructures and visible signs of decay—including abandoned buildings and graffiti—were consistently associated with heightened fear among residents. This phenomenon aligns with Wilson and Kelling's (1982) "broken windows" theory, which posits that visible signs of disorder can foster an environment conducive to both actual crime and the perception thereof. The presence of urban decay functions as a symbolic cue, signalling neglect, lack of social control and diminished safety, thus reinforcing residents' vulnerability.

Conversely, areas that benefit from targeted urban revitalization—characterized by well-maintained parks, pedestrian streets and active community spaces—tend to increase a

sense of security. Jacobs' (1961) argument that "eyes on the street" contribute to informal social control is particularly salient here. Public spaces that facilitate social interaction and community engagement not only discourage criminal behaviour but also reassure residents, reducing anxiety and promoting a sense of belonging. Furthermore, the spatial distribution of services and conveniences significantly impacts the perception of safety. Our research highlights that Terni's peripheral parts, often neglected as concerns urban investment and service provision, are the areas where fear is more reported. This confirms the effects of "urban divide" (Soja, 2010), which tends to concentrate economic and social marginalization in some areas, exacerbating feelings of exclusion and insecurity. It is important to emphasize that the urban environment also interacts with social identities and inequalities. For example, women and the elderly may perceive spaces differently, owing to concerns about physical vulnerability, visibility and escape routes. Such differentiated experiences point out the need to adopt a more comprehensive approach to urban planning and security policy (Valentine, 1989). Therefore, urban design should pay attention not only to the physical environment but also to the different needs and perceptions of the community.

5.2. The influence of media and social discourse

Mass media and social media emerge as powerful factors in the construction and perpetuation of fear in urban contexts. Our qualitative data reveal that perceptions of insecurity of many residents in Terni is based less on their personal experiences than on mediated narratives circulated through the traditional media and the new social media. This observation aligns with Glassner's (1999) concept of the "culture of fear", wherein media selectively highlight and amplify threats, often disproportionately to their actual prevalence.

The amplification effect is particularly visible in crime reporting. News stories frequently focus on sensational or violent crimes, reinforcing a narrative of urban decline and disorder that does not reflect what statistical data suggest (Ericson and Haggerty, 1997). Residents often cited specific crime stories encountered in the media as sources of anxiety, even if they have no direct experience of victimization. This underscores the social transmission of fear, which appears a form of collective emotion transcending individual experience (Garland, 2008).

Social media platforms further complicate this dynamic by enabling rapid and wide dissemination of information, rumours and subjective interpretations of crime incidents. The participatory nature of these platforms allows for the co-construction of fear narratives, often blending fact and speculation, and sometimes fostering moral panics (Cohen, 1972). In Terni, as in many contemporary cities, digital environments have become central arenas where perceptions of urban safety are negotiated and contested.

Additionally, public discourse on security is often commixed with broader social anxieties, including concerns about immigration, economic instability and social cohesion. These themes, frequently intertwined with crime narratives, contribute to the stigmatization of some groups and neighbourhoods, reinforcing social divisions (Fassin, 2013). Our research highlights how media representations influence not only individual fear but also collective attitudes and demands, shaping the security policy in the city.

From a policy perspective, these findings suggest that addressing urban insecurity requires engagement not only with material conditions but also with the symbolic and communicative dimensions of fear. Efforts to improve media literacy, promote balanced

reporting and foster inclusive public dialogue may be as important as the traditional forms of crime prevention in mitigating fear and enhancing community trust.

5.3. Vulnerable groups and disproportionate fear

Urban insecurity and fear of crime are not experienced uniformly across populations as well as vulnerability and subjective insecurity are distributed unevenly, along social, demographic and spatial lines. Our research highlights that certain groups—particularly women, elderly persons, young people and immigrants—demonstrate heightened perceptions of insecurity that far exceed objective rates of victimization.

Women, for example, report significantly greater fear, especially related to gender-based violence, such as harassment, assault and domestic abuse. This aligns with broader sociological findings on the gendered nature of urban fear, with women's concerns deeply linked to everyday spatial practices and power relations (Farrall et al., 2000).

Similarly, elderly persons express heightened anxiety about crime, partly due to their physical vulnerability, often increased by social isolation and reduced mobility. Their fear is also amplified by perceptions of declining social cohesion and inadequate institutional support (Farrall et al., 2000).

Perceptions of insecurity among young people are often linked to concerns about gang activity, territorial disputes and social exclusion. Urban youth living in deprived neighbourhoods often confront both real and perceived threats from peer violence, while simultaneously face societal stigmatization (Bursik and Grasmick,1993). This creates a complex dynamic where young people are both feared and fearful, complicating policy responses.

In Terni, immigrant populations face some challenges, but immigration is not regarded as a major issue. While sometimes immigrants may be less likely to be victimized, they may report feelings of fear related to social exclusion, discrimination and mistrust toward authorities. Marginalized groups occasionally experience compounded insecurity, due to structural disadvantages and symbolic stigmatization (Wacquant, 2008). However, these dynamics are less pronounced in Terni compared to larger urban centres, where ethnic minorities and migrants often feel more vulnerable both inside and outside their communities and, particularly, in their interactions with policemen responsible for law enforcement.

Collectively, these findings show that fear of crime is shaped not only by actual risks but by social identities and inequalities, reinforcing Glassner's (1999) idea that the "culture of fear" disproportionately affects marginalized populations. Recognizing these different situations is critical for developing targeted and equitable security policies.

6. Institutional responses, policy gaps and the role of private surveillance

Our research reveals that institutional responses to urban insecurity in Terni have primarily focused on reactive measures, such as increased policing and surveillance, while interviewees also call for more pro-active prevention strategies and greater community engagement. This approach, as Tyler (2006) stated, risks undermining public trust and fails to address the deeper social factors of crime and fear. The emphasis on visible vigilance aims primarily to reassure the public through symbolic gestures of security, rather than addressing the roots of insecurity through structural interventions.

This trend towards the securitization of urban governance often results in uneven enforcement and may exacerbate social tensions, especially in marginalized

neighbourhoods. Garland (2001) criticized this "culture of control", arguing that an over-reliance on surveillance and punishment can alienate communities and further entrench insecurity. Consequently, there is a pressing need to move beyond reactive policing towards more comprehensive urban policies.

A significant policy gap identified in our research is the insufficient integration between security measures and urban regeneration strategies. As Newman (1972) asserted, the design and maintenance of urban spaces profoundly influence both actual crime rates and residents' perceptions of safety. Neglected urban areas characterized by poor lighting, abandoned buildings and spatial fragmentation contribute to heightened fear and vulnerability. In contrast, revitalization efforts—through, for example, improved public lighting, mixed-use development and active public spaces—can enhance informal social control and foster a stronger sense of community safety.

6.1. Private surveillance in Terni: a contested but accepted reality

An increasingly visible aspect of security in Terni is the growing use of private surveillance technologies, such as CCTV cameras installed by business plants and residential complexes. Generally, this private surveillance is well received by most citizens, who view it as an important complement to public security efforts. Residents appreciate the increased visibility and deterrence these measures provide, which help create a sense of safety in public and semi-public spaces.

However, certain community members emphasize that security should primarily remain the responsibility of public institutions to guarantee accountability and protect civil liberties. They warn against over-reliance on private security mechanisms that may lack transparency and operate without adequate oversight (Tyler, 2006). Nevertheless, there is a shared consensus that an effective security framework requires an open dialogue and interconnection between private surveillance and public security agencies. This collaboration should balance individual privacy rights with collective safety needs, ensuring data protection and preventing misuse (Meijer and Thaens, 2013).

In this regard, Terni stands at an important crossroads, where integrating private surveillance into a broader participatory security model can enhance community safety while safeguarding democratic principles. Transparent policies regulating the use of private surveillance, along with community input and oversight, are essential to maintaining trust and legitimacy (Chermak et al., 2006).

6.2 Trust and institutional legitimacy

Trust in law enforcement agencies and broader public institutions is a basic element of urban security and public confidence. Sociological and criminological literature consistently stresses that the legitimacy of institutions, particularly the police, critically shapes residents' perceptions of safety and their willingness to cooperate with authorities. As Tyler (2006) stated, institutional legitimacy rests on the perceived fairness and justice of organizational actions, fostering voluntary compliance and deeper civic engagement. When institutions are seen as legitimate, citizens are more likely to trust that their rights will be protected and that social order will be effectively maintained.

Our research highlights that in Terni there is a moderate level of trust in institutions, but a significant deficit remains.

This deficit contributes to persistent fear and insecurity despite stable or declining crime rates. Distrust in law enforcement often engenders feelings of vulnerability, social

isolation and civic disengagement—conditions that undermine social cohesion and impede crime prevention efforts that rely on community cooperation and information sharing.

Institutional distrust frequently stems from perceived inconsistencies in policing practices, lack of transparency and experiences of discrimination or neglect. Wacquant (2008), elaborating on these points, observed that marginalized communities often experience police actions that are more punitive than protective and increase alienation and fear. These facts can engender a vicious cycle: distrust reduces cooperation with police, which undermines law enforcement and further entrenches public perceptions of insecurity.

Effective communication strategies are essential to fostering institutional legitimacy. Transparent, consistent and responsive communication reduces uncertainty, demonstrates reliability and builds trust. In contrast, opaque or contradictory messages can generate rumours, misinformation and anxiety, fuelling fear beyond the level justified by the real risks of crimes. Chermak et al. (2006) emphasized the critical role of careful media and official communications in maintaining public confidence and avoiding fear amplification.

Community policing offers a practical means to rebuild trust and enhance legitimacy. Innes and Roberts (2008) argued that police officers embedded within communities, actively engaged in dialogue, can cultivate relational trust—a more durable form of trust than that based merely on occasional presence. This relational trust enhances perceptions of fairness and procedural justice, reduces fear and increases residents' willingness to report crimes and cooperate with investigators.

Institutional legitimacy extends beyond policing to include local governments, social services and judicial bodies. Coordination among these institutions, combined with transparent governance and equitable service delivery, strengthens collective trust in urban governance. Garland (2001) cautioned, however, that a "culture of control" focused solely on surveillance and punishment risks alienating citizens and delegitimizing institutions, if it neglects underlying social issues.

Importantly, trust is unevenly distributed across social groups. Vulnerable populations—including ethnic minorities, immigrants and economically marginalized residents—often report lower institutional trust due to historical and ongoing experiences of discrimination and exclusion. This unevenness contributes to social and spatial fragmentation, complicating the development of comprehensive and inclusive security policies.

Therefore, trust and institutional legitimacy are indispensable for bridging the gap between objective security and subjective perceptions of safety. Enhancing legitimacy requires a multifaceted approach that prioritizes fairness, transparency, community participation, institutional coordination and the reduction of structural inequalities. Only by fostering robust institutional trust, urban centres like Terni could reduce fear, strengthen social cohesion and promote sustainable urban security.

7. Participatory security: toward a community-based model

Community policing emerges as a particularly promising alternative, fostering partnerships between law enforcement and residents. Innes and Roberts (2008) emphasized that this model promotes institutional trust through dialogue, transparency and inclusive engagement. However, an effective community policing requires sustained

institutional commitment, including comprehensive training and genuine responsiveness to diverse community needs.

Collaboration between social services, housing authorities, education and health providers is crucial to tackle the socioeconomic factors underpinning insecurity. Ericson and Haggerty (1997) highlighted the complexity of contemporary urban risk, stressing that effective policy responses must transcend traditional law enforcement limitations and address issues such as economic inequality, social exclusion and public health.

Finally, public awareness campaigns that disseminate accurate crime data, promote safety practices and combat discrimination can recalibrate public perceptions and mitigate unjustified fear. Chermak et al. (2006) stressed that balanced media coverage and enhanced media literacy are vital to counteract sensationalism and its amplification of fear.

Thus, our research proposes a paradigm shift: moving away from punitive, visibility-driven security measures toward integrated, preventive and participatory actions that acknowledge the social complexity of urban insecurity and prioritize the needs of vulnerable populations.

The concept of *participatory security* introduces a significant shift in urban governance, emphasizing the active role of residents in shaping and sustaining security within their communities. Unlike traditional top-down policing models, participatory security advocates for a collaborative approach in which citizens are empowered to become co-producers of security alongside institutional actors. This model not only addresses crime prevention but also tackles the deeper social and relational factors that influence perceptions of safety (Rosenbaum, 1988; Skogan, 2006).

At its core, participatory security is rooted in the recognition that security is not solely a product of formal law enforcement but also depends on the social fabric and collective efficacy of neighbourhoods. Collective efficacy refers to the capacity of community members to control public space, intervene in problematic situations and maintain shared norms (Sampson et al. 1997). When residents feel connected, supported and responsible for their environment, informal social control mechanisms become effective deterrents against crime and disorder.

Our research highlights the potential of participatory security initiatives in enhancing both objective safety and perceived security. As Rosenbaum (1988) noted, residents who engage in neighbourhood watch programs, community patrols or local forums report a greater sense of empowerment and reduced fear of crime, even when statistical crime rates remain unchanged. This underlines that a safety policy implies not only the reduction of criminal incidents, but also the promotion of a sense of belonging and active participation.

Neighbourhood watch schemes are among the most established forms of participatory security, where residents organize to monitor their local environment and report suspicious activities to authorities. According to Skogan (2006), such programmes can increase informal surveillance and strengthen communication between police and the community. However, their success depends heavily on sustained resident participation, trust in law enforcement and inclusivity.

For instance, in Glasgow, Scotland, Community Safety Partnerships have integrated neighbourhood watch efforts within broader multi-agency frameworks to enhance social cohesion and crime prevention in economically disadvantaged areas (Skogan, 2006). Similarly, in Cape Town, South Africa, informal neighbourhood patrols

have emerged as vital community-led responses to high crime rates, where formal formal policing is, or is perceived to be, insufficient (Wacquant, 2008). These groups provide critical vigilance and build local solidarity, although they must be carefully managed to avoid vigilantism and exclusion.

In Terni, neighbourhoods with active watch groups show higher levels of social cohesion and trust, as well as improved cooperation with police efforts. These programs not only act as deterrents, but also serve a symbolic role, signaling that residents are vigilant and concerned about community welfare. This visibility can discourage potential offenders and reassure residents, thereby reducing anxiety associated with perceived insecurity. However, it is crucial to avoid potential pitfalls, such as vigilantism, exclusion of marginalized groups or reinforced social divides. Community patrols must be based on principles of fairness, transparency and collaboration with official agencies to prevent abuses and build legitimacy (Innes and Roberts, 2008).

Another critical dimension of participatory security involves educating and engaging youth as stakeholders in community safety. School-based civic education programmes that incorporate themes of social responsibility, conflict resolution and crime prevention can foster early awareness and positive attitudes towards lawfulness and cooperation (Wilson, 2004). Such initiatives equip young people with skills to manage disputes peacefully, recognize signs of criminal behaviour and actively contribute to neighbourhood well-being.

In Bogotá, Colombia, Citizens' Security Councils have successfully involved young people in community discussions and interventions to reduce youth violence and social exclusion, promoting a sense of ownership of local safety challenges (Garland, 2001). In Terni, pilot programs that link schools, families and local authorities have reported promising outcomes, including reduced youth delinquency, improved school attendance and greater youth participation in community projects. These programmes help counter social exclusion—a known factor in fostering insecurity—by creating supportive networks and alternative pathways for at-risk youth (Sampson, 2012).

In the contemporary urban landscape, participatory security increasingly leverages digital technologies to facilitate communication, coordination and community mobilization. Social media platforms and mobile applications provide real-time alerts, foster neighbourhood dialogue and allow residents to report concerns efficiently. According to Meijer and Thaens (2013), such digital tools can democratize security governance by enhancing transparency and broadening civic participation.

For example, Chicago's "Nextdoor" platform enables residents to share information about suspicious activities, community events and safety resources, effectively enhancing informal social control and trust (Meijer and Thaens, 2013). The Terni case reflects this trend, where online neighbourhood groups serve as forums for sharing safety tips, organizing joint patrols and coordinating with local police. However, challenges such as misinformation, privacy concerns and digital divides must be managed carefully to maximize benefits and minimize harms.

8. Institutional support and policy integration

Participatory security, to be effective and sustainable, requires strong institutional support and integration into broader urban security policies. Our research highlights that fragmented or symbolic engagement initiatives lacking resources and clear mandates often fail to deliver lasting impact. In contrast, institutional frameworks that formalize citizen participation, provide training and support, and allocate adequate resources to create

conditions conducive to meaningful involvement (as Ericson and Haggerty already noted in 1997).

Moreover, cross-sector collaboration is essential to address the multifaceted nature of insecurity. Social services, education and urban planning sectors should coordinate closely with law enforcement to support community initiatives, address the root causes of crime and foster inclusive environments. Garland's (2001) vision of holistic urban governance emphasizes that integrative policy approaches ensure that participatory security complements rather than replaces formal policing efforts.

While participatory security holds significant promise, challenges remain. One major concern is the uneven capacity of communities to engage fully, owing to socioeconomic disparities, cultural differences or prior experiences of marginalization. Vulnerable groups often lack the time, resources or trust needed to participate. This can lead to exclusion or reinforce existing inequalities (Wacquant, 2008).

Furthermore, an excessive reliance on community-based security risks shifting responsibility away from the state onto citizens, potentially obscuring institutional accountability and diverting attention from necessary systemic reforms. Balancing community engagement with state responsibility is imperative to ensure equitable protection and uphold the rule of law.

Finally, the effectiveness of participatory security is closely related to the quality of relationships between communities and law enforcement. In contexts where historical distrust exists, building mutual respect and cooperation is a gradual process that requires transparency, cultural sensitivity and genuine empowerment (Tyler, 2006).

Participatory security marks an important evolution in urban security paradigms focusing on residents as active agents in fostering safety and social cohesion. Through neighbourhood watch programs, youth engagement and the use of digital platforms, communities can enhance informal social control, reduce fear and improve relations with institutions. Yet, success depends on inclusive practices, strong institutional support and the integration of participatory models into comprehensive urban governance strategies. Our research suggests that participatory security can bridge the gap between objective crime reduction and subjective perceptions of safety, while empowering citizens and strengthening the social fabric, an essential fact for sustainable urban security.

9. Comparative framework: situating Terni within broader urban security debates

To understand the complex issue of urban security and perceived insecurity in Terni, may be useful to consider the city's experiences in a broader comparative context. Urban insecurity transcends geographical boundaries and is shaped by common social, economic and political processes. Urban sociology and criminology offer valuable insights into the ways in which similar dynamics operate in different contexts, helping us identify the presence of the same basic patterns beyond their specific expressions. In fact, as Wacquant (2008) highlighted, urban insecurity often reflects the existence of structural inequalities and their transformations. Terni shares several characteristics with other medium-sized European cities that have experienced remarkable post-industrial transformation. Like Sheffield in England or Essen in Germany, Terni has faced economic restructuring that affects employment, social cohesion and urban infrastructures. Such shifts influence both objective crime rates and subjective perceptions of security. Research in these cities often reveals a common trend: declining crime rates accompany persistent, or even increasing, fear in certain demographic groups. Farrall and others (2000) observed

that, in Sheffield, despite decreasing violent crime, fear remained high, particularly in its deprived neighbourhoods—exactly as in Terni. This fact recalls Bursik and Grasmick (1993) concept of social disorganization, worked out to define the situations where, owing to the weakening of public institutions and social networks, informal social control decreases and sense of vulnerability increases. Comparative studies also highlight the pivotal role of institutional trust in mediating the relationship between crime and fear. Some northern cities, like Copenhagen and Malmö, where public trust in police and local governance is high, report lower perceived insecurity, even when crime rates are similar to those in other cities. Skogan and Hartnett (1997) argued that institutional legitimacy plays a fundamental role in reducing fear of crime and Tyler (2006) remarked that, when and where citizens perceive institutions as fair and trustworthy, the sense of safety improves. Conversely, cities where trust is eroded by perceived corruption or inefficiency usually experience heightened fear, disproportionate to actual crime levels.

Innes and Roberts (2008) asserted that community policing and transparent governance are essential to rebuilding institutional trust and mitigating urban insecurity. Cross-national research also confirms the powerful role of media in shaping urban fear. While sensationalist crime reporting is a global phenomenon, its impact varies depending on media regulation and journalistic standards. Chermak, McGarrell and Gruenewald (2006) observed that media coverage can distort public perceptions of crime, often exaggerating the threat. In contrast, countries with more accountable media practices present less distortion in public fear.

Italy's complex media landscape and the rise of digital platforms reflect broader European trends, albeit with specific local nuances. Garland (2001) argued that urban insecurity is a product of both social narratives and crime statistics, a point echoed by Young's (1999), in his work on moral panics and securitization. Our research supports these statements, showing how media narratives in Terni intertwine with national debates on immigration and security, intensifying fear beyond what crime realities alone would suggest. Anyhow, the moderate trust of citizens in local institutions in Terni reflects a pattern common to many peripheral urban areas, not only in Italy.

As concerns urban planning, comparative studies emphasize the importance of context-sensitive design. Cities such as Amsterdam and Copenhagen prioritize inclusive, human-scale urban environments that promote safety and social interaction. Gehl (2011) noted that well-designed public spaces enhance both real and perceived security by fostering community engagement. Conversely, cities experiencing rapid or unplanned urbanization encounter challenges similar to those present in Terni, including spatial segregation and neglected public areas. Marcuse and van Kempen (2000) observed that urban marginalization is spatially inscribed, exacerbating social exclusion and insecurity. Participatory urban regeneration efforts that involve residents are advocated as means to strengthen social cohesion and collective efficacy, a model championed by Putnam (2000). These examples offer valuable lessons for Terni's urban planners as they seek to integrate social and physical strategies for enhancing urban security.

In sum, as Wacquant (2008) emphasized, many sociological processes shaping urban insecurity are widespread, but they assume locally specific forms. Economic restructuring, institutional trust, media influence and urban form interact in complex ways across cities facing similar challenges. Comparative analysis enriches understanding by highlighting structural commonalities alongside local particularities, informing more nuanced and contextually tailored interventions. Our research, according to this view,

underlines that integrated strategies addressing economic, social, institutional and spatial dimensions are essential to understand and face urban insecurity.

Conclusions: toward an integrated understanding of urban security

The case of Terni provides a valuable microcosm for examining broader theoretical and practical issues in urban sociology and criminology. It underscores that urban security cannot be adequately captured by crime statistics alone. Instead, perceptions of safety and insecurity emerge from a complex interplay of symbolic signals, environmental factors, media representations, institutional legitimacy and social inequalities, all of which contribute synergically to shape the lived experience of urban residents.

This multifaceted understanding has significant implications for both scholarly inquiry and policy making. Sociologically, it reinforces the necessity to conceive security not as a fixed or purely objective condition but as a relational and culturally mediated phenomenon, dependent on social contexts and collective meanings. This perspective challenges reductive narratives that isolate crime rates from the broader social and spatial dynamics influencing fear and community cohesion.

As concerns policy, the findings from Terni warn against over-reliance on reactive and punitive measures, such as intensified policing and surveillance, which often fail to address underlying structural issues and may unwittingly exacerbate mistrust and social fragmentation. Instead, what is needed is an integrated approach, combining urban regeneration, transparent governance, participatory security models and community engagement. Such a strategy fosters resilience by empowering residents, improving environmental design and enhancing institutional trust.

Importantly, recognizing fear as a structurally conditioned and socially distributed phenomenon—rather than merely an individual psychological response—allows for more humane and effective interventions. Our research exemplifies how efforts to bridge the divide between objective security and its subjective perception must address the social determinants of insecurity, including economic marginalization, spatial segregation and historical experiences of discrimination.

To bridge the gap between perception and reality, it is crucial to ensure data transparency through the dissemination of accurate crime statistics and clear communication by public institutions, which can reduce misinformation and undue fear. Improving urban environments through thoughtful planning and maintenance, with enhanced lighting, mixed-use spaces, the revitalization of neglected areas and other measures, fosters informal social control and community pride. Concurrently, launching media literacy campaigns that educate the public to critically engage with crime reporting and sensationalist narratives helps recalibrate fear and supports balanced public discourse. Moreover, engaging marginalized groups in inclusive dialogue and empowerment initiatives is vital for building institutional legitimacy and cohesive, community-driven safety efforts.

Ultimately, the insights drawn from Terni provide important lessons for urban centres throughout Europe and beyond. They highlight that sustainable urban security depends not only on controlling crime but also on cultivating trust, social inclusion and shared responsibility. These are the pillars on which to build safer and more equitable cities in an era of complex social challenges.

Authors contributions
The manuscript is the result of the joint work of the three authors, who are collectively responsible for the conceptualization and methodological design of the research. Data collection was carried out by Laura Guercio. Fieldwork, including interviews and meetings, was conducted by Marxiano Melotti, together with Vincenzo Mini, in 2023 and 2024, and by Laura Guercio, in 2024 and 2025. All authors have read and agreed to the published version of the manuscript.

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In the interest of transparency, it is disclosed that the current Mayor of the Municipality of Terni is also the Chief Operating Officer of Niccolò Cusano University. This research, funded by the University, was conducted with full academic independence. The scientific findings will be made publicly available to the scholarly community and to the Municipality of Terni.

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Original Article

Sociology of communication processes in current scenarios and the "manipulation of news"

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Abstract
This study examines the sociological processes underlying social influence, beginning with early military psychological operations (PSYOP) involving news manipulation and tracing their development toward contemporary techniques of persuasion. It focuses on the mechanisms through which influence is exerted and on the core principles involved in directing human behavior. The analysis also addresses mass suggestion, crowd psychology, and the erosion of individual identity, drawing on the foundational contributions of Gustav Le Bon and Sigmund Freud. These perspectives provide a framework for introducing eight typologies of the "change process" and for analyzing the corresponding reduction of individual volitional capacity.

Keywords: *social influences; sociology of communication; manipulation news; social influences; military psychological operations (PSYOP);* crowd psychology*; human behavior*

1.Introduction. From Early Military Psychological Operations of News Manipulation ("Psyop") to Current "Brainwashing"

Never before in recent years have PSYOPs, short for "psychological operations," become fundamental strategies of significant importance from a military and diplomatic perspective.

PSYOPs, military psychological operations, have effectively always been the winning tactics of valiant military theorists and commanders, from Sun Tzu, the Chinese General (dating back to the 5th century B.C.), to the present day. Every strategist, to achieve their assigned objective and obtain maximum effectiveness with a minimum expenditure of losses

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and forces, necessarily values psychological operations, making them a cornerstone of success and considered, to all intents and purposes, a weapon of war.

History, moreover, helps us better understand how Psychological Operations (PSYOP) immediately played a decisive role. In particular, in World War II, they found their maximum expression in the most powerful communication medium of the era, the radio: an immediate tool for propaganda against the enemy. An example of this was the radio programs broadcast by the famous Japanese station "Tokyo Rose," which spread music and messages of blatant, fierce, and pungent criticism towards the Americans and their allies. But the most innovative example of how psychological operations were used is owed to the English radio programs of the "British Broadcasting Corporation" (BBC) in 1940. The latter used this medium specially to disseminate messages lacking veracity, with the aim of intimidating the Germans, should they invade the English Channel, claiming to be able to set fire to a large part of the channel thanks to sophisticated weaponry systems.

In 1950, Korea, in addition to employing the same radio communication method, already consolidated by previous experiences, added the use of loudspeakers and the distribution of posters and leaflets as further, more persuasive means of information. The purpose of the posters and leaflets was evident: to persuade by attracting the reader's attention with impactful phrases and images, composed of words, figures, and white spaces. This required the use of particularly simple and precise writing to be easily understandable. Among the now well-known elements capable of "piloting" human behavior, as highlighted by several Authors (Gaskell & Sealy, 1980; Poicheler, 1987; Cialdini, 2010, and others), the following six principles emerge:

1. **Commitment and Consistency**
2. **Reciprocity**
3. **Social Proof (or Imitation)**
4. **Authority**
5. **Liking**
6. **Scarcity (or the fear of running out of something)**

Speaking of the first of the six principles: **commitment and consistency** represents one of the strategies of "subtle persuasion" employed in Chinese concentration camps during the Korean War against several American prisoners, who, without the intervention of physical coercion or threats, found themselves transformed into genuine "convinced collaborators" of the Chinese themselves. The technique, defined by Edward Hunter Jr. (1950) as *brain-washing*, subsequently found its validation in the research of Freedman & Fraser (1966) and consisted of first obtaining trivial and completely inoffensive written anti-American and/or pro-communist statements such as: "The United States is not perfect"; "Unemployment is not a problem in a communist country." Subsequently, in a gradually imperceptible manner, the statements became increasingly substantial; for example: a) "some concrete examples of why the United States is not perfect"; and then again: b) discussing their list of "America's problems" with other prisoners, and so on until the physiological self-conviction that everything they had written was nothing more than the real product of their own "mental labor" was determined. The next step (without hesitation, therefore) then consisted of granting authorization to use their name and written text in a radio broadcast airing throughout North and South Korea, thereby obtaining a sort of "gradual collective social influence" that naturally spread like wildfire.

According to the canons of social psychology, Cialdini (2010) writes in this regard: "If I can get you to make a commitment (take a position, say something publicly), I will have

prepared the ground for your automatic and unthinking behavior, consistent with that initial commitment." (cf. also Schein, 1956 and Di Fiorino et al., 1989).

As communication technology evolved, with the 1st Gulf War, psychological operations changed their mode of communication, while maintaining the already tested tools: radio broadcasts, television programs, leaflet drops, and the dissemination of news through loudspeakers. In this case, too, the means employed proved effective for a faster propagation of messages, such as Arab brotherhood and independence from the Islamic world. Within 24 hours, approximately 29 million leaflets were scattered over a specific Unit, informing the members that they would be attacked if they did not declare surrender.

In short, "PSYOPs have been part of military strategy throughout history. Although neither the definition nor the purpose of the same have significantly changed since the end of the Cold War, the nature of conflicts, the technologies available today, the socio-political context, and the type of operations in which the Armed Forces are engaged have totally changed" (Fontana, 2003).

According to a NATO definition, PSYOPs represent "planned psychological activities, conducted in peace and war, directed at an audience, whether friendly, hostile, or neutral, in order to influence attitudes and behaviors that might otherwise compromise the achievement of political and military objectives. They include strategic psychological activities, consolidation psychological operations, and battlefield psychological activities" (Fontana, 2003). With the advent of new technologies and the birth of new means of communication, such as the internet with social networks, news becomes increasingly smart, faster, and closer to real-time (Calderaro et al., 2025a). This suggests that the faster the dissemination of a piece of news, the greater the margin of error regarding its "authenticity" (Șerban, 2022). In this regard, the consideration that *giving, or withholding, information is a source of enormous power* (Fontana, 2003) proves precise and timely. If, on the one hand, military operations, consciously employed, can contribute (as General Sun Tzu asserted) to "breaking the enemy's resistance without fighting!!!", today we are witnessing an evolution of military operations of a terrorist nature, developed not only through words but above all through powerful video-images, such as the decapitation of innocent people and images portraying episodes of war carried out and then broadcast by ISIS (Islamic State of Iraq and al-Sham) that violently shake the viewer's sensibility (Mastronardi, 2013).

If, up to this point, we have confined the term PSYOP to relatively military matters, it is necessary to broaden the concept of the same in another equally important aspect. Before further delving into this topic, it is essential to open a small parenthesis regarding the acronym PSYOP, attributing to it an additional definition: *manipulation of people's minds, whether antagonist or enemy, through acute methods of disinformation that propagate non-facts, non-events, and non-cited quotes by skillfully piloting sensations that everyone can perceive, thereby conditioning adverse reactions.*

Alerting news, in fact, can distract attention from dangerous attacks, often of devastating proportions.

Psychological terrorism, which is now also distributed with a few written or spoken words such as "BOMB ALERT," creates negative effects in our daily lives, causing disruptions in the fields of transport, work, and IT (intimidating emails and viruses), never considered before in previous eras.

From the website of "ilGiornale.it" by Biloslavo (2006), it is learned that different forms of psyops have recently also been used by our military in a rather original way.

The distribution of a sheet-sized newspaper by female soldiers attracted the attention not only of young people but also of adults, including illiterates. In this way, the NATO

mission in Afghanistan was made public, using both English and the two local languages (Dari and Pashto).

This "operational communication" (PSYOPS for Americans) would therefore represent the most important strategy for winning the hearts and minds of the Afghans.
The ethnologist Gianfranco Manchia therefore used a drawing to represent the union of Italy with Afghanistan, symbolizing the geographical map of the two countries with daisy petals.

Furthermore, numerous posters were affixed in bazaars and shops, with photos of structures built by the Italians, of useful public interest (bridges, schools, clinics), alongside images of previous dilapidated and deserted places.

Another tactical stratagem of PSYOPS developed is that of *close contact*. That is, immersing oneself in the daily local reality: "eating rice and mutton with their hands, sitting on the ground, barefoot, and cross-legged" (Biloslavo, 2006).

Giving away *gadgets* (plastic shopping bags with the Italian tricolor flag depicted, pens, pencils, tricolor backpacks, notebooks with images of European monuments) and giving away tricolor kites (symbolizing freedom) have been the latest novelties that even our armed forces have used within the framework of *PSYCHOLOGICAL OPERATIONS (PSYOP).*

In conclusion, PSYOPs, of significant and undisputed importance, now represent an effective, modern, and ever-evolving weapon with effects and implications that are not always positively successful, but which can also guarantee, if knowingly used, better common relations between peoples.

The importance of *mass media* in current society is supported by their ability to transmit information with maximum speed, clarity, and variety, to reach a vast audience at the same time, and to convey educational and training messages in addition to merely informative ones.

Given the influence that the media exert on the individual in particular and, more broadly, on society, to address this theme it is necessary to delve into some specific mechanisms found in situations of aggregation and interpersonal exchange, such as "pathological group conformity".

If it is true that communication requires a continuous reciprocal exchange between multiple interlocutors, it is equally true that an individual involved in this relationship can be influenced by it (Calderaro et al., 2025b), even reaching a complete identification with the group itself. In this sense, the individual and the group are in a relationship of *reciprocity and dependence* which, in certain cases, can generate *pathological conformity* in which there is a *decrease in the personal responsibility of each individual*, which is thus distributed within the group, and a *diminution of the ability to take personal initiatives and autonomously evaluate different situations*, whose judgments are based exclusively on the observation of the behavior of others (Calderaro et al., 2025c).

An immediate consequence of this process is "brainwashing" (Hunter, 1950; Taylor 2004), which occurs in a context of *lack of external reference points* that generate a *weakening of the Ego* and a *lack of defenses* such as to allow messages, especially those linked to fear or threat, to penetrate coercively and powerfully into the individual's mind, becoming absolute and imperative: it is from these mechanisms that the *gradual collective social influence* is generated, in which each member of the group loses critical and objective contact with reality, thus proposing attitudes and behaviors that are entirely automatic and unreflective, lacking precisely that rationality that is at the service of a truthful and objective knowledge of the surrounding world.

The result is a *reality deformed by the media*, which is no longer interpreted by the eyes of the individual who loses their critical power at the expense of a *passive assimilation and reception of information.*

Referring specifically to the role of the press in this suggestive process, Walter Lippman, the main exponent of the theory of the function of the press in the construction of meaning (DeFleur & Ball Rokeach, 1995), states that the media often transmit untruthful information, thus influencing the behaviors of individuals who are supported by partial and distorted judgments of reality. In this way, people act not on the basis of what actually happened but by thinking about the real situation as conveyed by the information provided to them by the press, which carries out a fine selection of news, the language with which it is transmitted, the images connected to it, and the priority and salience of the information, in order to direct public attention to a predefined set of themes.

This latter aspect relating to the priority of information is well explained by the *agenda-setting function theory of the press* (DeFleur & Ball Rokeach, 1995; Cheli, 1994; McQuail, 1993) according to which the media produce a kind of "priority agenda" by transmitting news based on its importance, following a previous selection and valorization. The latter, the cornerstone of the theory, consists of *emphasizing a particular piece of news* thanks also to specific measures which, in the case of the press, may concern publication on the front page, the lexicon used (for example, impactful phrases), and the judgments more or less explicitly expressed by the journalist, resulting in the immediate effect of involving and concentrating public opinion on that precise identified theme.

In addition to bringing about changes related to perceptions, ideas, beliefs, and attitudes, the media can also act at a linguistic level by intervening on the lexicon and the attribution of meanings, for example by introducing new words (neologisms), expanding existing meanings, or attributing others. The *dual intervention of the media on communication* is therefore evident: one purely aimed at the vocabulary and the choice of words to use, the other at ways of speaking, pronunciation, and syntax (DeFleur & Ball Rokeach, 1995).

It is also known that the media assume the role of an instrument of culture but also of *social conditioning and control* which can be exercised through the transmission of information, sometimes *distorted* thanks to the mechanisms of *amplification or focal deformation*, which constitute "reality" for the receiving public, often absorbed without any critical filter or benefit of the doubt; what emerges is a real process of *construction of credibility* that makes it difficult for the public to verify the truthfulness of the news and, therefore, the possibility of creating an objective and personal point of view of the facts.
This process takes place thanks to the use of what Kapferer (1982) calls "communication variables," such as the quality of the source and the message, the characteristics of the channel and the recipient, all elements that the journalist carefully analyzes to produce and *orient public opinion* towards a specific piece of news.

Overall, McQuail (1986) concludes that the media have their effect at *multiple, strongly interconnected levels*, such as the individual level, weakening personal beliefs and opinions and therefore exposing the individual more to mechanisms of persuasion, then extending to the level of social institutions and reaching society in general, causing deliberate or non-cognitive, emotional, and behavioral changes whose effects can be immediate or prolonged long-term.

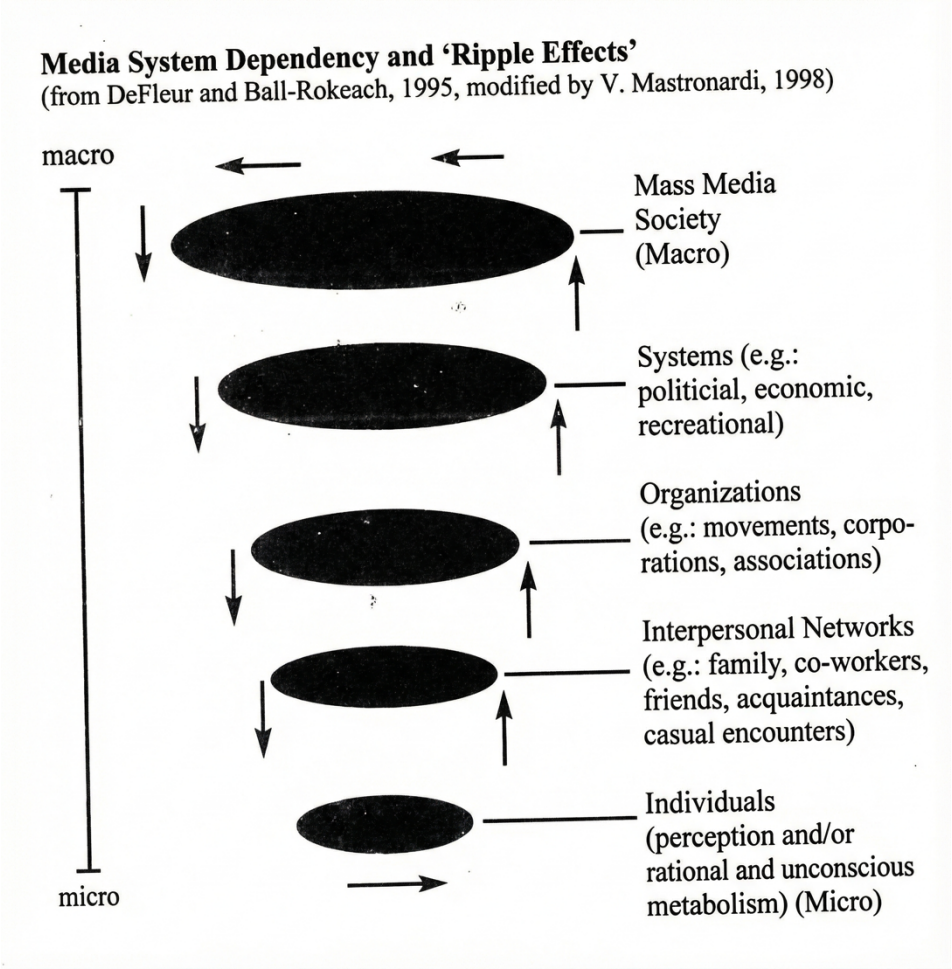

Figure 1. From DeFleur, M. & Ball Rokeach, S.J., (1995). Teorie delle comunicazioni di massa, Il Mulino, Bologna. Modified by V. Mastranoardi in 1998.

Thus, the *media dependence theory* (Figure 1) considers the media as an integral part of society, as a group inserted within it that relates to the other components at different levels (systems, organizations, interpersonal networks, and individuals).

The dependence that is created is based on the media's ability to draw and create information, process it, and distribute it to the public, and their applicability at the macro and micro levels is explained by the fact that, through media information, useful elements can be provided for the pursuit of specific objectives, including *understanding (of self/society), orientation towards action and interaction, and leisure*, and stimulating individual and collective activities, strengthening public interest. Furthermore, since the media play a fundamental role in society, it is also appropriate to consider their *educational potential*, i.e., the ability to broaden the horizons of recipients and raise awareness on important topics capable of favoring the evolution of the individual (Ilie & Serban, 2018). Let us not forget the lesson of an exponent of the psychoanalytic current of Jacques Lacan,

the psychiatrist Massimo Recalcati: "An hour of lesson can change life," which we could thus borrow in journalistic terms: "A good article by a keen journalist can change life."

Far from being merely a neutral means of exposing information, we cannot conceal from ourselves how, conversely, the media have the *real power, if piloted ad hoc, to distort reality*, for example by highlighting superficial news at the expense of important ones, to persuade the individual and thus provoke a change in attitudes implemented in society, to propose models, and to orient public opinion.

In conclusion, it would be necessary to be more aware of the *persuasive power that the media have,* of their usefulness when considered in educational terms, of the essential part they play in society, and of the sometimes devastating effects they produce on individuals, being their "victims—who—tend to see in their acquiescence the effect of natural forces, rather than the designs of those who take advantage of them" (Cialdini, 2010, p.21).

2. Mass Suggestion, Crowd Psychology, and the Loss of Personal Identity: The Contributions of Gustav Le Bon and Sigmund Freud

Considering what has been previously stated about the media's ability to invade daily space, to mark people's days, becoming an integral part of society, it is appropriate to consider that in order to carry out their action, communication tools require the existence of one or more interlocutors who form *public opinion*.

What Scipio Sighele wrote in 1903 in *L'intelligenza della Folla* (The Intelligence of the Crowd) about Public Opinion is interesting:

"It is in the world what God is in heaven; an invisible, impersonal, and feared judge; it is, like religion, an arcane power in whose name the most sublime heroism and the most abject iniquities have been accomplished; it is, like law, invoked and interpreted wrongly or rightly at every moment of life; it is, like force, sometimes supporting right, more often error; it is, finally, like a flag, disposed to turn always to the side whence the wind blows" (Sighele, 1903 p. 69).

From this valuable definition, one can already well understand the *fickle and influenceable nature of the interlocutors*. But what characteristics must a crowd have to be defined as such?

Le Bon (2013) describes it, connoting it from a psychological point of view as an agglomeration of individuals who, upon gathering in predetermined circumstances, assume well-defined characters and characteristics as well as a common identity.

The fact that they are part of a *collective soul* makes them nevertheless "vulnerable to the influences of the group and fashions" and, at the same time, ready to give in to the temptation to indulge in their instinctual reactions which, conversely, if not conditioned by the "pack" or simply by the "reactive group," would be individually self-managed with the right balance. Conversely, the "Superego," the so-called "moral conscience," "the internal judge," is lost, transforming from an individualized to a "massified Superego." This means that belonging to a crowd, which by its nature is anonymous, is capable of granting individuals (fortunately not all) the power to let themselves go, bringing out the most primitive instinctuality, losing the self-determination of the sense of responsibility which is alas redistributed and downsized within the group. In this context, the thresholds of rationality and the individual's defenses are lowered, and the individual becomes highly *suggestible* and thus easily exposed to *mental contagion*: Le Bon (2013: 19), taking an extreme view with the acquisitions of the time, writes: "the individual, finding himself in a fermenting crowd, falls as a result of the influences emanating from it […] into a particular state, similar to that

ascertained in the hypnotized person under the influence of their hypnotist. The psychic faculties being soothed in the former, they become a slave to all the unconscious activities that the latter moves at will. The conscious personality is annulled, the will and discernment aborted."

How is a crowd constituted from a psychological point of view? - A large agglomeration of individuals is not enough to form a crowd, as it is only a crowd if it is united by particular psychological characteristics. - The crowd, through easy psychic contagion, can be easily heroic as well as criminal.

Thus, by means of a reciprocal influence and dependence of the members, a crowd oriented towards *mediocrity* is created, in which the individual's intelligence is thinned and set aside, and in which the most primitive instincts dominate, to the point that the individual becomes "a grain of sand in the midst of other grains of sand that the wind lifts up at its whim" (Le Bon, 2013, p. 20).

Following the theory of crowd psychology formulated by Le Bon, Freud, in the work *Group Psychology and the Analysis of the Ego* from 1921, attempts an analysis starting from the consideration that the study of individual psychology cannot disregard the examination of social psychology, as the individual, from the beginning of their life, influences and is influenced by the context in which they are inserted (family), in which they grow and establish themselves.

Specifically, the Author (1975) explains the individual propensity for aggregation by assuming the existence of a *social drive* at the service of the individual's psychic life, in which the other is regularly present as a *model, as an object, and as a supporter of the relationship itself.*

The maintenance of relationships and thus the survival of the identity of the mass itself is then made possible by the *limitation of the narcissism of each member* for the benefit of the *exaltation of the other*, supported by the presence of a force that Freud sees in the particular bond with others capable of orienting behavior towards *homogeneity*.

In this sense, the mass remains united and survives because *every member has invested in the same object placed in the position of their own Ego ideal*, neglecting any individual interest or need to conform to the group, sharing and accepting norms, objectives, ideas, and behaviors that make the mass a unique and integrated identity.

Thus, *suggestibility and regression to a state of primitive psychic activity* are traced back by Freud to the *primeval horde*, i.e., an original form of human society subject to the unlimited domination of a powerful leader: in this case, "the will of the individual was too weak, he did not dare to decide on action. No impulses were acted upon unless they were collective; there was only a common will, there were no individual wills. The representation did not dare to convert into will unless it drew strength from the perception of how widespread it was" (Freud, 1975: 72).

In general, Freud's conception of the mass is *negative*, similar to Le Bon's, emphasizing how its influence generates in the individual the *disappearance of the impossible*, so all individual inhibitions collapse and impulses find free vent, and the appearance of a *regression from an integral and unique entity to a collective individual*, suggested and moralized by common thought, stripped of any personal integrity and faculty to make way for a *total adherence to the mass* that molds and shapes it at its will.

"The mass meeting is necessary …….the individual……..if he leaves his small shop or large company for the first time, where he feels very small, to enter the mass meeting, where he now feels surrounded by thousands and thousands of individuals who have his same

conviction…….he too succumbs to the magical influence of what we call mass suggestion," Adolf Hitler alas decreed in *Mein Kampf*.

3. Conclusions.

The "Change Process" and the Decrease of "Volitional Power"

According to the list provided by Spaltro - De Vito Piscicelli (1990), 'change' in Organizations, in relation to the individual interaction processes, can be of 8 types:

1. **"Planned and Participated Change,"** which involves: a) reciprocal determination of the goal by both interacting parties and b) equal distribution of power.
2. **"Indoctrinating Change,"** which involves: a) intentional reciprocal determination of the goal and b) unbalanced distribution of power in a monocratic sense (e.g., schools, prisons, psychiatric hospitals, or other total Institutions).
3. **"Change from Spontaneous Interaction,"** with a) reciprocal and unpremeditated interaction of the goal, b) almost balanced distribution of power (policratic type) (e.g., Changes between good friends with a will for mutual assistance and in all unpremeditated transactions in general). Change in this case produces beneficial effects, but without defined or pre-planned roles.
4. **"Change from Socialization or Social Pressure"** in direct relation to interdependent hierarchical dependence (e.g., relationships between parents and children or between teachers and students). If premeditation is added to this, then "participated change" and "indoctrination" are achieved.
5. **"Technocratic Change,"** on the other hand, solely presumes the simple awareness in overcoming the ignorance of the subjects. Conversely, in programmed change, which includes planning and participation, "the goal is established by involvement and changing of those interested in the process of change; The technocrat does not accept being 'one' of the protagonists; he feels he is 'the protagonist'**.**"
6. **"Coercive Change,"** with a) non-reciprocal determination of the goal, b) unbalanced power relationship in a monocratic sense with unilateral premeditation. It is the change of "people who generate and realize change on the backs of others." It is important, although difficult, to make a distinction between *indoctrinating change and coercive change*: compare a patient in a psychiatric hospital with a prisoner of war in a prison camp. The latter has, compared to the former, the fact that he is not legally subdued: the result is that the former is encouraged to express feelings and dissent if this can lead to his discharge. His removal from the hospital is well received. The situation in the prison camp is completely the opposite. “Indoctrination requires consent, even if manipulated, while coercive change overrides consent, and relies only on power relationships**"** (Spaltro-De Vito Piscicelli, 1990).
7. **"Natural or Casual Change":** change induced without premeditation and without reciprocal determination of the goal; it includes everything that our knowledge is capable of reaching.
8. **"Emulative Change,"** typical of formal institutions, occurs where there is a clear hierarchical-charismatic relationship between superior and subordinate. Innovation and change through the identification of subordinates with mythical and charismatic figures of superiors. "This innovative form is more frequent than is believed, such is the number of institutions of this type" (Spaltro-De Vito Piscicelli, 1990).

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Original Article

Psycho-affective immaturity as a cause for marriage nullity: an interdisciplinary analysis of law, sociology and emotions

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Abstract
In the context of post-modern socio-relational and affective dynamics, marriage emerges as an institution that is still fundamental to social and family organization. However, the recent news that psycho-affective immaturity is considered the main cause of nullity of marriages in the regions of Abruzzo and Molise (*Tribunale Ecclesiastico Interdiocesano Abruzzese-Molisano* - TEIAM, 2025) raising important questions regarding the sociological and legal implications of this emerging interpretation. The essay, focuses, therefore, on the concept of "psycho-affective immaturity" not only from a legal point of view, but also and especially from an emotional macro sociological point of view to understand the reasons that influence the stability and legitimacy of marriage unions. The connections between socio-psycho-affective immaturity and the sociology of emotions will be explored more specifically, with reference to consistent legal developments.

Keywords: *Psycho-affective immaturity; marriage nullity; law; sociology; emotions.*

1. The European context: the role of the ECtHR and EU Regulations in the Italian legal framework

The European context has played a fundamental role in shaping the protection of individual rights, including those related to marriage. The European Court of Human Rights (ECtHR) has had a significant impact - despite not issuing binding legislation in the manner of a supranational legislator - on various legal matters, contributing to the definition and

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safeguarding of individual rights, especially in cases concerning the validity of marriage, including those grounded in psycho-affective immaturity.

The ECtHR has addressed the issue of freedom and awareness in matrimonial consent, particularly in relation to Article 12 of the *European Convention on Human Rights*, which protects the right to marry. The article enshrines the right to marry and to found a family, recognizing individuals' freedom to choose their spouse. The article states: "Men and women of marriageable age have the right to marry and to found a family, according to the national laws governing the exercise of this right".

This provision constitutes a fundamental element in safeguarding the freedom and protection of private and family life for citizens of the EU Member States (European Court of Human Rights, CoE – Council of Europe)[1].

European jurisprudence has underscored that, although States enjoy a wide margin of appreciation in regulating marriage, they must ensure that consent reflects a genuine and informed decision[2].

The ECtHR's case has thus recognized the importance of ensuring that individuals possess the necessary awareness, will, and maturity to decide as significant as marriage, failing which the act may be deemed null and void.

It should be noted that European Union law does not directly regulate marriage nullity, leaving this matter to national legal systems (the criteria for the validity of marriage remain under the competence of individual States). However, Regulation (EU) No. 2201/2003 (Brussels II bis)[3], now replaced by Regulation (EU) 2019/1111 (Brussels II ter)[4], establishes rules for the recognition of decisions on marriage nullity among Member States, thereby promoting a degree of harmonization in the evaluation of valid consent.

Within the broader European legal framework, Italian jurisprudence has progressively refined the criteria for assessing psycho-affective immaturity as grounds for marriage nullity.

Article 122 of the *Italian Civil Code* (*Chapter on Marriage*) already establishes that a marriage is null if consent is vitiated by error, coercion, fraud, or if one party is incapable of understanding or willing[5].

Furthermore, Law No. 218 of 1995 (*Reform of the System of Private International Law*) introduced specific rules for handling marriage nullity in cases involving international elements, thus fostering cohesion between domestic law and European legal standards.

In addition, the Italian Court of Cassation has issued rulings emphasizing the necessity of psychological assessments in cases of suspected psycho-affective immaturity, which are often decisive in determining the invalidity of a marriage.

These assessments aim to establish whether either party could exercise full and informed consent at the time of the marriage.

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[1] In https://www.echr.coe.int/documents/d/echr/convention_ita, p. 13. See also the judgment of the European Court of Human Rights – *Application no. 34848/07*, *O'Donoghue v. the United Kingdom* (2010).

[2] See the Sentence - Application no. 34848/07, O'Donoghue vs United Kingdom (2010).

[3] *Regulation (EC) No 2201/2003* (*Brussels II bis*) governs jurisdiction, recognition, and enforcement of decisions, as well as the protection of minors. It was later amended by Regulation (EU) No 1259/2010 to cover divorce and legal separation for couples of different Member State nationalities.

[4] *Regulation (EU) 2019/1111* (*Brussels II ter*) is a revision of the previous *Brussels II bis* and concerns jurisdiction, recognition, and enforcement of decisions in matters of parental responsibility and maintenance obligations.

[5] *Psycho-affective immaturity* is not explicitly defined in law but has emerged through case law. Notably, the *Italian Supreme Court* clarified this in *Cass. Civ. No. 25730/2013*, emphasizing that a spouse's capacity for self-determination is essential for valid matrimonial consent.

It is crucial to highlight that, in line with European principles, the balance between individual autonomy and the protection of the vulnerable spouse has been a guiding thread in the decisions of the Court of Cassation, which has consistently emphasized the right of every individual to be protected from potential abuse and situations of vulnerability.

2. The underpinnings of psycho-affective immaturity in marriage nullity: a legal, multi-, inter-, and transdisciplinary reading

The "issue" of psycho-affective immaturity as a ground for marriage nullity represents an interdisciplinary field of analysis involving law, general sociology, the sociology of emotions and the family, as well as psychological sciences.

In an era marked by profound transformations in family relationships and affective models (Donati, 1994, 1998; Saraceno, 1975, 2017, 2025; Scabini & Cigoli, 2012), the very concept of emotional maturity appears elusive and subject to contextual redefinition.

It is important to clarify that the notion of the "natural family" does not exist in an absolute sense (Saraceno, 2025), but is rather the result of social, historical, and cultural constructions: there is no single, universally valid family model, as the structures and functions of the family vary according to socio-economic contexts and historical periods. Family forms have always been in flux, influenced by factors such as economic conditions, changes in gender roles, social (and welfare) policies, and legal norms. The increasing pluralization of family configurations (cohabitation, blended families, same-sex couples with children, single-parent families) further demonstrates that the concept of family is evolving (ibid.).

In this sense, society's role should not be to defend a single ideal model - whether based on a secular or religious marital contract - but rather to ensure rights and protection for all family configurations, recognizing their dignity and social value.

Marriage, according to the Italian Civil code, is effectively defined as a conjugal contract that requires the free and informed consent of the parties and includes specific conditions that may lead to annulment.

In Italy, marriage is a legally recognized institution safeguarded by the Civil Code and the Constitution, which acknowledges its social importance (Art. 29). It may be celebrated as a civil marriage under state law or as a religious marriage with civil effects, provided it follows rites recognized by the State under the Concordat with the Catholic Church. According to Article 119 of the Civil Code, a marriage can be annulled if one of the spouses lacks the capacity to consent due to "insufficient discernment" or "mental infirmity".

In particular, the article 119 allows the annulment of marriages involving individuals legally incapacitated due to mental illness. Challenges may be brought by the guardian, the public prosecutor, or any party with a legitimate interest if the incapacity existed at the time of marriage, even if formal interdiction was pronounced later. After interdiction is revoked, the formerly incapacitated individual may also contest the marriage, unless the couple has cohabited for at least one year following revocation.

More specifically, the inability to assume marital responsibilities may be equated with the natural inability to act, as outlined in Article 428 of the Civil code, and may therefore constitute grounds for annulment.

Jurisprudence, by integrating principles of personal autonomy and individual protection, has progressively recognized that the ability to understand and to will (*capacità di intendere e di volere*) is a fundamental prerequisite for the validity of the marital bond.

Marriage nullity due to psycho-affective immaturity also finds foundation in Canon 1095 of the *Code of Canon Law* (*Pontifical Council for Legislative Texts*, 1983), which states: «are incapable to contract marriage those who lack sufficient use of reason, those who suffer from a grave defect of discretion of judgment concerning the essential rights and duties of marriage, and those who, due to psychological causes, are unable to assume the essential marriage obligations, are incapable of contracting marriage»[6].

This canonical provision reflects the Church's awareness of the need for an adequate level of maturity to ensure the stability and validity of the conjugal union (Amati, 2009).

Within this framework, psycho-affective immaturity may be considered a form of incapacity to manage personal and intimate relationships, arising from a lack of awareness and constituting, in effect, a ground for relative nullity of marriage. For these reasons, the courts have often relied on social and psychological assessments and expert testimonies to evaluate the extent to which the emotional and cognitive state of one of the spouses at the time of giving consent may have compromised full awareness of the meaning and implications of the marital bond.

The absence of such capacity, as evidenced by expert evaluation, justifies the intervention of the legislator through the rigorous application of principles aimed at protecting the individual, recognizing the imperative of shielding individuals from decisions that, due to their psycho-affective condition, are not fully autonomous.

Psycho-affective immaturity, therefore, entails a lack of emotional and relational maturity, and may be viewed as a form of incapacity in managing personal and intimate relationships, interpreted as a lack of awareness or an inability to adequately fulfill conjugal responsibilities—responsibilities that are fundamental to the institution of marriage (*Tribunale Ecclesiastico Interdiocesano Abruzzese-Molisano* – TEIAM, 2025).

The trend toward recognizing this type of immaturity as grounds for nullity fits within a complex legal context striving to adapt to contemporary social changes and affective-relational dynamics (Beck & Beck-Gernsheim, 1995; Giddens, 1995; Bauman, 2003; Saraceno, 2003).

3. Sociology and the reflection on psycho-affective maturity within the couple and family. Changes in relational dynamics and new social implications.

The value of a family does not depend on its form but rather on the quality of effective and caregiving relationships developed within it. This critical sociological perspective encourages moving beyond ideological and naturalistic interpretations of the family to grasp its complexity and ongoing evolution (Ibidem). Accordingly, the issue of psycho-affective maturity should be addressed through an integrated approach - ideally preliminary to the marital contract - engaging legal, sociological, and psychological perspectives to understand the real implications of affective immaturity on conjugal relationships as well as the broader social consequences.

The assessment of psycho-affective maturity is, unsurprisingly, a highly complex undertaking, necessitating contributions from diverse disciplines, including psychology, psychiatry (Llobell, 2007), and sociology. The concept of psycho-affective maturity is shaped from the earliest stages of social development, evolving in parallel with

[6] See: https://www.vatican.va/archive/cod-iuris-canonici/ita/documents/cic_libroIV_1095-1107_it.html

contemporary societal and family-relational models marked by complex and often contradictory transitions into adulthood (Arnett, 2000; 2015).

Traditionally, marriage has played a central role in family formation and stability, regulating sexual and reproductive relationships and contributing to social order. However, in the twenty-first century, factors such as gender equality, growing acceptance of non-traditional families - including single-parent and LGBTQI+ families - economic and social changes, evolving emotional and affective expectations, and increased social mobility have contributed to further transformations of family models. The so-called "family of choice" (Giddens, 1992) has emerged as a new paradigm in which personal satisfaction and self-realization have become primary criteria for forming and sustaining familial relationships.

Marriage is thus no longer conceived solely as a traditional, collective institution but rather as a relational contract embodying personal fulfillment, emancipation, and individual growth. It is no longer perceived as a mandatory rite of passage into adulthood but as a flexible, personal choice, subject to contextual and subjective changes (Beck & Beck-Gernsheim, 1995). Today, young people and young adults are often engaged in identity construction processes characterized by prolonged adolescence (Arnett, 2000; Ammaniti, 2015), which can influence their ability to establish mature and enduring affective relationships.

Therefore, the evaluation of emotional and psychological capacity at the time of consent cannot be reduced to a purely technical analysis but must be situated within a broader discourse on "emotional socialization" and the relational and individual development trajectories demanded by (post)modernity.

Affective immaturity in couples and families manifests as difficulties in managing emotions, relational dynamics, and constructing stable, satisfying bonds. So, socialization plays a pivotal role: family of origin, peer groups, digital media, and personal experiences shape individuals' relational expectations and skills. In societies marked by instability and crisis, as well as extensive exposure to idealized affective models, dysfunctional relational patterns may be internalized, fostering passive-aggressive behaviors, lack of empathy, irresponsibility, and an inability to adequately address problems (Gottman, 1999).

Consider the growing difficulty in deploying emotional intelligence (Goleman, 1995) - the ability to recognize, understand, and manage one's own emotions as well as those of others - which is an essential tool for analyzing how emotional dynamics within families affect the stability and quality of family relationships. Social intelligence (Goleman, 2006) also appears threatened: a diminished capacity to comprehend, manage, and effectively influence interpersonal relations, including efforts to achieve emotional harmony, can lead to misunderstandings, impulsive reactions, and difficulties in crisis management.

Narcissism - as both a societal trait and an individual personality disorder (or cluster of character traits)[7] - alongside difficulties in recognizing or responding to the emotional needs of others, may further impair empathic resonance (APA, 2013)[8].

Within conjugal (and other) relationships, this lack of empathic attunement obstructs healthy affective communication and reciprocal listening, creating an emotional

[7] The social narcissism describes the collective tendency of groups or societies to develop an exaggerated sense of superiority, uniqueness, and centrality compared to other groups (Golec de Zavala et al., 2019; Federico, et al., 2021; Lyons, et al., 2021).

[8] Narcissism is a personality trait characterized by grandiosity, a need for admiration, and deficits in empathy (American Psychiatric Association, 2013).

void and provoking difficulties in showing vulnerability, which may manifest as psycho-affective immaturity.

Moreover, it is not uncommon to observe a deficiency in the sense of responsibility toward one's commitments and roles. In some cases, this is accompanied by uncertainty, defensive mechanisms, doubts, difficulty in making crucial decisions, and a reliance on external support and validation.

Thus, one can describe narcissistic relationships in which one or both partners instrumentalize the other for personal gain, characterized by avoidance of intimacy, fear of commitment, and reluctance to assume long-term responsibilities, all alongside pervasive vulnerability. An affectively immature individual may avoid conflict or respond excessively and impulsively to emotional stress, lacking the capacity for a more reflective and mature approach. Emotional dependency combined with volatility can trap couples in cycles of need and rejection, with affective immaturity hindering the development of relational balance.

Regarding commitment, Hirschi's (1969) social bond theory - applied to affective immaturity - can offer a useful framework. Psycho-affective immaturity, manifested as difficulties in managing emotions, empathy, and emotional responsibility, can be seen as a weakening of the affective bonds between partners. When one or both members of a couple cannot form mature bonds or adequately respond to the partner's emotional needs, the social connection weakens, rendering the relationship more vulnerable.

Specifically, attachment involves forming affective ties to family and others that create a sense of responsibility and care; commitment entails investing time and resources in productive and meaningful activities, which is also reflected in the construction of solid relationships; involvement refers to active participation in shared activities; and belief pertains to the sharing of values and norms that bind individuals within society—both as partners and as parents.

Conversely, psycho-affective awareness within the couple and family system enables healthy and constructive management of daily challenges, alongside emotional self-regulation, which is fundamental for handling frustrations and conflicts that may arise within the couple and between parents and children.

Emotional management in conjugal relationships, therefore, cannot be reduced to a private matter but must also be understood as a response to ongoing social and cultural transformations that continuously reshape expectations and meanings attributed to intimacy and affection. Thus, affective immaturity in couples is a socially embedded phenomenon.

4. The sociology of emotions and the exploration of psycho-affective maturity as a social construction

From a sociological perspective, psycho-affective immaturity can be understood as a social construct because emotions themselves are not exclusively individual phenomena but are influenced and shaped by the social context in which they develop (Hochschild, 1983; 2013). In fact, emotions are shaped by social norms and expectations that regulate not only how they should be expressed but also how they are expected to be experienced. When one spouse lacks emotional maturity or struggles to regulate and interpret their own feelings, the relationship may become unstable not solely because of individual psychological vulnerabilities, but also because of broader social pressures that prescribe normative models of what it means to "properly" live marriage and intimacy.

The historical transformation of romantic love into an intimate and personalized good - rather than a primarily strategic or institutional alliance - presupposes a high level of emotional competence. Individuals are increasingly expected to recognize, manage, and make sense of the complexity of their emotional lives, thereby turning emotional self-regulation into a central condition for relational stability.

Many individuals today enter couple relationships with immature emotional management, exhibiting difficulties in emotion regulation, communication, and the construction of a stable bond, especially when emotional socialization has not been adequately shared (Turner & Stets, 2005). These are increasingly *emotionalized* modern relationships (Illouz, 1997), based on a constant pursuit of intense emotional experiences rather than long-term commitment, which in turn reduces tolerance for dissatisfaction or frustration.

In other words, through *emotional labor* - including within family and couple contexts - individuals are socially called upon to regulate their emotions in accordance with the demands of social relationships, including marriage. Hence, emotions are not merely natural or spontaneous reactions but are also the outcome of a socialization process that prescribes socially acceptable ways of expressing - and consequently experiencing - them. The concept of *emotional labor* (Hochschild, 1983) refers specifically to the management and regulation of emotions in line with social expectations and relational norms. Although originally developed to analyze workplace dynamics, the concept has subsequently been extended to intimate and private spheres, including couple and family relationships (Ibidem).

In romantic relationships, emotional labor involves the modulation of emotional expressions and the adjustment of affective responses to maintain relational harmony and stability (Erickson, 2005).

Nevertheless, the asymmetric distribution of emotional labor and the challenges posed by modernity call for critical reflection on how emotions are socially constructed and regulated. A more balanced and conscious socio-affective education could certainly foster more stable and satisfying relationships, reducing tensions related to emotional management within couples (Duncombe & Marsden, 1993).

So, incapacity or "immaturity" refers to difficulties in recognizing and regulating one's emotional states in relation to social expectations and conjugal roles, creating a cycle of misunderstanding and frustration that undermines the stability of the couple. Within marriage, therefore, consent is not simply a formal act but the expression of the capacity to engage in a relationship that requires a delicate balance between reason and emotion.

The decision to declare a marriage null due to psycho-affective immaturity thus represents not only the application of legal norms but also a socio-cultural signal reaffirming the importance of emotional well-being and commitment within interpersonal relationships (Hirschi, 1969).

5. Law, society and emotions: provisional concluding reflections

Psycho-affective immaturity as a ground for marriage nullity represents a significant evolution in family law and social dynamics, warranting critical reflection. The sociological implications of this phenomenon suggest that the growth and management of emotions within a relationship, particularly a marital one, depend not solely on individual capacities but also on social norms and the emotional socialization received, especially during childhood.

When emotional and affective maturity is lacking, as appears increasingly common in contemporary society, it becomes crucial to understand how the law, in harmony with evolving social expectations, can protect individuals' intimate spheres while simultaneously ensuring the autonomy and overall well-being of the couple.

Furthermore, it calls for exploring how individuals come to understand themselves and others within social and emotional dimensions - as a comprehensive expression of relationships, behaviors, and actions aimed at engagement and, when possible, at profound sharing.

Couple and family relational contexts operate as interacting and interdependent systems within broader social systems, implying that any change in one may affect the others. The judicial decision in question does not merely constitute a normative exception but marks a significant shift in how society conceives of couple and marital commitment.

It emphasizes the centrality of the emotional socialization process and the capacity to regulate one's own and others' emotions in a society characterized by deeply dissonant and ever-changing traits.

Authors contributions

The article is the result of a joint effort by the authors. However, paragraphs 1 and 2 were written by Professor Davide Barba, while paragraphs 3 and 4 are attributed to Dr. Mariangela D'Ambrosio. The conclusions (paragraph 5) were co-authored.

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Original Article

Probation practice and addiction management: A case study of the Dolj Probation Service

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Abstract
This study examines probation practice and addiction management within the Dolj Probation Service (Romania) using a mixed-method case study design. Data were collected through statistical analysis of active cases (n = 2544), document analysis of seven "My choice" relapse-prevention programs, a survey of all probation counselors (n = 32), and an illustrative case study. Results indicate that 50.07% of supervised cases involve offences related to alcohol or drug use. Although only a limited number of individuals have formal diagnoses, probation counselors estimate a substantially higher prevalence of substance use disorders (13.31%). The "My choice" program showed high effectiveness and user satisfaction, while counselors reported limited confidence in identifying addiction and emphasized the need for additional assessment tools and specialized training. The findings highlight a gap between addiction-related needs and formal recognition within probation practice, underscoring the importance of standardized screening, enhanced professional training and stronger community-based interventions.

Keywords*: probation; Romania; Dolj probation service; addiction; statistical and sociological research.*

1. Introduction

Addictions constitute a major risk factor for criminal behavior and recidivism, posing significant challenges to criminal justice systems and probation services worldwide. Recent European and national data indicate a continuous increase in both alcohol and illicit drug consumption, with direct implications for public safety and social reintegration processes (NIPH, 2022; GD 344/2022).

Contemporary probation practice is confronted with multiple and interrelated challenges, including the growing prevalence of substance use disorders among supervised individuals (Brooker et al., 2022; Sirdifield et al., 2000; Ilie, Serban and Dan, 2024;

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Brooker et al., 2009; Geelan et al., 2000; Calderaro, Mastronardi and Serban, 2025), increased social vulnerability (Tidmarsh, 2025; Lorvick, Comfort, Krebs and Kral, 2015, Pricina and Motoi Ilie, 2014), mental health problems (Brooker, Sirdifield and Marples, 2020; Pârvu and Niță, 2021, Dolfi et. al, 2025), violent probationers (O'Beirne, Denney and Gabe, 2004), labor and cross-border migration (Ilie, 2024, Ilie 2023), limited access to specialized treatment services, and insufficient interinstitutional coordination. These dynamics place probation counselors in a complex professional position that requires not only the fulfillment of control and monitoring functions, but also the adoption of a strong pro-social role (Ilie, 2022; Poledna, 2020) focused on motivation, support, mediation, and social reintegration (Șerban, 2022), within an increasingly dynamic and resource-constrained socio-legal context. Collectively, these responsibilities generate significant strain on probation service personnel, particularly in Romania, where high caseloads further intensify professional demands (Ilie, Ionașcu and Niță, 2005).

In Romania, probation services increasingly supervise individuals convicted for offences directly or indirectly linked to substance use, particularly driving under the influence of alcohol or psychoactive substances and drug-related crimes. International research consistently shows that individuals under probation supervision display higher rates of substance use disorders than the general population (Brooker et al., 2009; Sirdifield et al., 2020).

The present study builds on the author's professional research conducted in 2024 within the Dolj Probation Service, developed as part of a graduation thesis in probation practice. The findings obtained at county level are further supported by a broader national study conducted in the same year, in collaboration with colleagues from University of Craiova and University of Bucharest (Ilie, Serban and Dan, 2024), which revealed similar patterns regarding the prevalence of substance use disorders, challenges in case management, and the need for specialized intervention within probation services. These convergent results underline the relevance of the topic at both local and national levels and support the analytical framework adopted in the present paper.

In their work with individuals affected by substance use disorders, probation services worldwide employ a range of intervention methods, including: cognitive-behavioral interventions, motivational interviewing, structured supervision and monitoring, referral to treatment services, relapse prevention programs, the use of multiple assessment instruments aimed at identifying problematic substance use is a common practice in probation services worldwide (among the most frequently applied tools are the AUDIT and CAGE questionnaires for alcohol use, the DAST-10 and DAST-20 for drug use, and the UNCOPE screening tool for both alcohol and drug consumption, or various tools specifically designed by probation specialists to identify addictive behaviors (Ilie, Serban and Dan, 2024; McHugh et al., 2010; Miller, Rollnick, 2013; Belenko et al., 2018; Brooker, Sirdifield and Parkhouse, 2022) (See article Appendix).

2. Probation counselors' activity within the Dolj Probation Service in supervising and assisting probationers with substance use disorders

2.1. Research methodology

Rationale for selecting the research topic

This research highlights the challenges faced by probation counselors when supervising and assisting individuals with addictions, with a specific focus on alcohol- and drug-related disorders. The topic is particularly salient given the alarming increase in

drug use in Romania in recent years, the persistently concerning levels of alcohol consumption, and the fact that more than 50% of persons supervised by probation services are convicted for offences associated with alcohol or drug use.

Conceptual framework

The conceptual framework of the study is structured around key concepts such as substance use disorders, criminal behavior and recidivism, probation practice, social vulnerability, and pro-social intervention within contemporary probation systems. These concepts are examined through an integrated use of international theoretical and empirical literature, policy and normative documents, validated assessment tools, and practice-based evidence derived from professional research conducted within the Romanian probation system.

Hypotheses

The first hypothesis was that probation staff use all available instruments and actions when working with criminally convicted persons who experience substance-use-related disorders.

The second hypothesis was that probation staff require additional, specialized training for working with individuals who present substance-use-related disorders.

The third hypothesis was that probation staff need access to new instruments and institutions to support case management for individuals with addictions.

Research methods and sampling

The empirical analysis uses multiple research methods and techniques:

– First, statistical research was used to analyze the situation within the Dolj Probation Service by identifying the number of offences involving drug use and alcohol consumption.

– Second, a social document analysis was conducted by examining seven case files from the "My Choice" (Alegerea mea) program implemented within the Dolj Probation Service during 2018–2023; in addition, interviews were conducted with the counselors who deliver the "My choice" program within the Dolj Probation Service.

– Third, a questionnaire-based sociological survey was used to collect probation counselors' opinions regarding the difficulties encountered in working with supervised persons who have substance-use-related disorders. The sample was representative at service level: all 32 employed counselors were surveyed in 2024.

– Finally, a case study method was used to illustrate concrete ways in which the case-managing probation counselor works with criminally convicted persons under supervision who suffer from addictions.

2.2. A statistical analysis conducted within the Dolj Probation Service

Statistical research was used to analyze the situation within the Dolj Probation Service by identifying the number of offences that involve drug use and alcohol consumption.

On April 26, 2024, the Dolj Probation Service had 2,544 active supervision files, with an average of 80 supervision files per counselor (n = 32).

Table no. 1. Active supervision files within the Dolj Probation Service as of 26.04.2024, by offence type involving alcohol/drug use

Offence type	Number of active files	Share of active files (N=2,544)
Art. 336 Criminal Code (Driving a vehicle under the influence of alcohol or psychoactive substances)	1002	38.39%
Art. 337 Criminal Code (Avoidance or refusal of mandatory biological testing for alcohol or psychoactive substances)	116	4.56%
Art. 2, Law 143/2000 (Illegal production, distribution, and possession of risk drugs)	50	1.97%
Art. 3, Law 143/2000 (Illicit cross-border import/export of risk and high-risk drugs)	7	0.28%
Art. 4, Law 143/2000 (Possession and use of drugs for personal consumption)	112	4.4%
Others articles under law 143/2000	12	0.47%
TOTAL		50.07%

Source: Dolj Probation Service database as of 26.04.2024

As shown in Table 1, 50.07% of supervision files within the Dolj Probation Service are opened for offences that directly involve alcohol and/or drug use. For these offence categories, we consider there is a higher risk that convicted persons may present substance-use-related disorders.

Table no. 2. The obligation "to comply with control measures, treatment, and medical care" in active files within the Dolj Probation Service as of 26.04.2024

Art. 336 Criminal Code – single offence	2
Art. 2, Law 143/2000 – single offence	3
Art. 3, Law 143/2000 – single offence	1
Art. 4, Law 143/2000 – single offence	8
Art 336 Criminal Code + Art.2, Law 143/2000	1
Art 336 Criminal Code + Art.3, Law 143/2000	2
Art 336 Criminal Code + Art.4, Law 143/2000	17
Art.4, Legea 143/2000+ Art.2, Law 143/2000	7
Art.4, Law 143/2000+ Art.3, Law 143/2000	1

Art.4, Law 143/2000+ Art.337 Criminal Code	1
Other offences	7
TOTAL	50

Source: Dolj Probation Service database as of 26.04.2024

Table no. 2 shows that the obligation "to comply with control measures, treatment, and medical care" appears 50 times in active files as of 26.04.2024. In 34 of these cases, the obligation was imposed by the court for the offence of drug possession for personal use under Art. 4 of Law no. 143/2000, either as a standalone offence or in conjunction with other offences. The same obligation appears 22 times in files involving the offence of driving under the influence of alcohol or other substances (Art. 336 Criminal Code): in only two cases was this the sole offence, while in 20 cases it co-occurred with offences under Art. 2, Art. 3, or Art. 4 of Law no. 143/2000. In the remaining seven files where the obligation was imposed, the supervised persons were convicted for offences such as public indecency, driving without a license, violation of private life, or child pornography.

Table no. 3. Trend in Dolj Probation Service files involving Art. 4 of Law 143/2000- possession and use of drugs for personal consumption- (2018–2023)

Year of file registration	Number of files	Files including the obligation "to comply with control measures, treatment, and medical care"
2018	8	1
2019	6	1
2020	20	3
2021	29	5
2022	32	10
2023	59	14

Source: Dolj Probation Service database

Table no 4. Trend in Dolj Probation Service files involving Art. 336 Criminal Code - Driving a vehicle under the influence of alcohol or psychoactive substances - (2018–2023)

Year of file registration	Number of files	Files including the obligation "to comply with control measures, treatment, and medical care"
2018	270	2
2019	333	-
2020	310	3
2021	415	1
2022	488	8
2023	511	9

Source: Dolj Probation Service database

A constant increase can be observed during 2018–2023 in files where supervised persons were convicted for offences under Art. 336 Criminal Code and Art. 4 of Law 143/2000. An increase is also visible for other articles under Law 143/2000: for Art. 2, from 12 files in 2018 to 24 files in 2023, and for Art. 3, from no files in 2018 to four files in 2023; however, these increases are less pronounced. For the offence under Art. 337 Criminal Code (refusal or evasion of biological sample collection), the number of files remained relatively constant, with an annual average of 61 files.

2.3. Analysis of the "My Choice" (Alegerea mea) program implemented within the Dolj Probation Service

In 2017, three counselors from the Dolj Probation Service were trained to deliver the "Alegerea mea" (My Choice) program for alcohol/drug users under supervision. Since then, no additional counselors have been trained for this program. "My Choice" program's goal is "the reduction or cessation of the consumption of psychoactive substances (alcohol, drugs), as well as awareness and reduction of the associated negative consequences." It is "a Relapse Prevention Program (Marlatt and Donovan, 2005) consisting of a series of cognitive-behavioral-inspired modules".The program is modular (can be implemented in its entirety or in sections), consisting of 12 group or individual sessions and an optional group session with family members.

Table no. 5. Types of use reported by participants in the "My choice" program (Dolj Probation Service, 2018–2023)

No.	Program period	Number of beneficiaries	Type of substances used (as reported)
1	February-March 2018	7	7 alcohol
2	September-October 2018	19	18 alcohol; 1 drugs (new psychoactive substances)
3	October-November 2019	11	9 alcohol; 2 drugs (1 new psychoactive substances, 1 cocaine)
4	November-December 2021	6	1 alcohol; 5 drugs (4 cannabis, 1 new psychoactive substances)
5	August-September 2022	7	7 drugs (7 cannabis; incl. one cannabis + DMT + hallucinogenic mushrooms; one cannabis + Xanax)
6	January-February 2023	10	1 alcohol; 9 drugs (7 cannabis, 2 new psychoactive substances)
7	September-October 2023	11	11 drugs (8 cannabis, 2 new psychoactive substances, 1 cocaine)
TOTAL	7 Programs	71	36 alcohol + 35 drugs

Source: Program files of the Dolj Probation Service.

Between 2018 and 2023, the "My choice" program was delivered seven times to 71 beneficiaries: 36 with alcohol-related problems and 35 with drug-related problems. Among the 35 drug users, 26 reported cannabis use, seven reported new psychoactive substances, and two reported cocaine; some beneficiaries reported polysubstance use, such as cannabis with DMT and hallucinogenic mushrooms, or cannabis with Xanax.

Table no. 6. Age distribution of program participants

Age / Total	18-25 years	26-35 years	36-45 years	46-55 years	56-65 years	Over 65
71	12	31	14	8	4	2

Of the 71 participants, 43.66% were aged 26–35, 19.71% were aged 36–45, and 16.9% were aged 18–25.

Table no. 7. Correlation between age category and type of declared consumption

Age / Total	18-25 years	26-35 years	36-45 years	46-55 years	56-65 years	Over 65
Alcohol	2	12	9	7	4	2
Drugs	10	19	5	1	-	-
Total	12	31	14	8	4	2

Overall, 50.7% of participants reported alcohol-related disorders and 49.3% reported drug-related disorders. Most participants who had problems related to drug and alcohol use were in the 26-35 age group (19 – drugs and 12 – alcohol).

Table no. 8. Gender of program participants

Gender	Male	Female
Total - 71	67	4

Male participants accounted for 94.37% of the sample, and female participants for 5.63%.

Table no. 9. The residential environment of the program participants

Area	Urban	Rural
Total - 71	59	12

Urban residents represented 83.1% of participants, while 16.9% came from rural areas. Notably, all 12 rural participants reported alcohol-related addictions

Table no. 10. Educational level

Educational level	5 - 8 grades	9 - 12 grades	University studies
Total - 71	4	51	16

A total of 5.63% had lower secondary education (5–8 grades), 71.83% completed grades IX–XII (not necessarily finishing 12th grade, some of them only graduating from 9th, 10th or 11th grade), and 22.54% completed or were pursuing university studies.

Table no. 11. Multiple offending

Offending pattern	One offence	Two or more offences
Total 71	61	10

Most participants (85.92%) among the 71 persons, were sanctioned with non-custodial measures for a single offence, while 14.08% were sanctioned for two or more offences.

Table no. 12 Offences committed by program participants

Art. 336 Criminal Code – single offence	32
Art. 337 Criminal Code – single offence	2
Art. 2, Law 143/2000 – single offence	1
Art. 4, Law 143/2000 – single offence	24
Art. 336 Criminal Code + Art. 4, Law 143/2000	9
Art. 2, Law 143/2000 + Art. 4, Law 143/2000	1
Other offences	2
TOTAL	71

Most offences committed by participants were directly related to alcohol or drug use; only two participants committed other offences, namely destruction (Art. 253 Criminal Code) and assault or other violence (Art. 193 Criminal Code).

Table no. 13. Participants' satisfaction with the "My choice" program

1.	I consider it was useful for me to participate in the My Choice program.			
	Strongly agree □ 68	Agree □ 3	Disagree □ -	Strongly disagree □ -
2.	M I felt accepted and understood by the program facilitators.			
	Strongly agree □ 65	Agree □ 6	Disagree □ -	Strongly disagree □ -
3.	The venue where the program took place was pleasant.			
	Strongly agree □ 59	Agree □ 12	Disagree □ -	Strongly disagree □ -
4.	My participation in the program brought positive changes for me.			
	Strongly agree □ 69	Agree □ 2	Disagree □ -	Strongly disagree □ -
5.	If the program were repeated and another supervised person asked my opinion, I would recommend participation.			
	Strongly agree □ 69	Agree □ 2	Disagree □ -	Strongly disagree □ -

	Average 66	Average 5	Average -	Average -

By equating "strongly agree" with "very high satisfaction" and "agree" with "high satisfaction," and averaging across items, 92.96% of participants reported very high satisfaction and 7.04% reported high satisfaction.

Overall, most program participants were men who, in more than 97% of cases, committed offences directly related to alcohol and/or drug use. More than 80% came from urban areas and more than 80% were aged 18–45. Over 71% completed grades IX–XII, and more than 22% completed or were pursuing university studies. All participants reported high or very high satisfaction, emphasizing the program's usefulness and perceived positive changes.

Moreover, based on interviews with the three Dolj counselors delivering the program, they noted that "participants are very pleased with the information received and with learning how to cope with various situations and psychological states associated with consumption, which could pose a relapse risk" (V.I.). Counselors described "Alegerea mea" as "the most complex and effective social reintegration program provided by probation services" (L.S.), and as having "the potential to change participants' thinking patterns and to bring real benefits" (C.G.C.).

2.4. Challenges faced by probation counselors when working with supervised persons with substance-use-related disorders identified through sociological survey and case study

2.4.1. Questionnaire-based sociological survey among Dolj probation counselors

This section presents the results of the sociological survey conducted within the Dolj Probation Service using a questionnaire. The sample is representative at service level: all probation counselors employed by the Dolj Probation Service (N=32) responded to the questionnaire

1. In recent years, how do you assess the trend in the number of cases involving persons with addictions?

Response	Decreased	Unchanged	Increased	Cannot assess
Percent	-	3%	94%	3%

A total of 94% of probation counselors reported that the number of cases involving persons with addictions has increased in recent years.

2. How many persons with a formal diagnosis of "substance use disorder" do you currently supervise?

Response	None	One	Two	Three	Four	Five
Number of counselors	13	10	3	-	1	1
Number of diagnosed supervised persons	-	10	6	-	4	5

Within the Dolj Probation Service, in April 2024, 25 cases were identified in which supervised persons had a formal diagnosis of alcohol- or drug-related disorders.

3. On average, what percentage of your caseload do you estimate has substance-use-related addictions (alcohol/drugs)?

Counselors' estimates varied between 4% and 30%. The most common estimate (18.75% of respondents) was 10%. Averaging across responses indicates that approximately 13.31% of supervised persons are estimated to have a substance-use-related addiction.

4. What instruments do you use to determine whether an assessed person may be categorized as suffering of an addiction?

Counselors reported categorizing dependence through in-person assessment in presentence reports, through the assessment conducted at the first meeting during supervision, and throughout supervision during periodic meetings or when informed about special situations directly related to the assessed person's dependence. Some counselors also identified dependence when completing the assessment form for referral to the "My Choice" program or the "Drink & Drive" program.

5. Would other assessment and working instruments (beyond those currently used) help you manage cases involving addictions?

Response	Yes	No	Cannot assess
Percent	94%	3%	3%

A total of 94% of respondents indicated that additional assessment and working tools would be useful in their work with persons with addictions.

6. Do you recognize the signs of "addiction"?

Response	Yes, partially	Yes, fully	No
Percent	100%	-	-

All respondents reported that they recognize addiction signs only partially.

7. Which community institutions do you collaborate with when managing a case involving substance dependence?

All counselors reported ongoing collaboration with the Centre for Drug Prevention, Evaluation and Counseling and with the psychiatric hospital.

8. How could case management for persons with addiction be improved?

Most respondents identified as a primary solution the creation of a robust community network by mapping and engaging institutions that can effectively contribute to managing addiction cases. Others proposed more concrete actions, such as concluding cooperation protocols with psychological practices accredited in addictions; establishing partnerships with centers providing residential detoxification programs or outpatient treatment; collaborating with integrated addiction care centers that can provide substitution treatment; and concluding cooperation protocols with coordinators of mutual-help groups such as Alcoholics Anonymous or Narcotics Anonymous. Respondents also emphasized the need for specialized training through professional development courses

(e.g., "addictions counselor") and for training more counselors to deliver the "My choice" program.

2.4.2. Case study

V.M., 36 years old, a high-school graduate (12 grades), married and father of three, entered supervision within the Dolj Probation Service in October 2021 following conviction for driving a vehicle under the influence of alcohol (Art. 336 Criminal Code). The sentence was 1 year and 6 months' imprisonment suspended under supervision, with a supervision period of 3 years. The convicted person was required to perform unpaid community work and to attend a social reintegration program. At the first (assessment) meeting, the supervised person did not acknowledge problems related to excessive alcohol consumption. At subsequent periodic meetings, the client either arrived late (after being contacted by the case manager by phone) or attended smelling of alcohol; on one occasion, the client arrived intoxicated and was sent home and rescheduled for the following morning. The client completed the unpaid community work within the first four months of the supervision period. In the fifth month, the case manager was informed by the client's mother that the client had been placed in pre-trial detention because, under the influence of alcohol, he had entered into conflict with and physically assaulted his grandfather, who filed a complaint. V.M. was detained for 30 days and later released; the grandfather withdrew the complaint. Given these events, the case manager discussed with V.M. the possibility of an alcohol-related problem and how alcohol use was affecting his life and social relations. The client acknowledged the problem and stated he was willing to seek treatment but did not know where. The case manager identified treatment centers in the area and provided the client with a list.

In June 2022, the client was hospitalized for three weeks at the "Laura Catană" Medical Center, a private psychiatric hospital, for alcohol dependence syndrome; the center is located in Pianu de Jos (Sibiu County). After returning to the community, the client relapsed after approximately three months. The case manager advised a new treatment episode; accordingly, the client was hospitalized again for 30 days at the same center. After discharge, the client was enrolled in the "My choice" social reintegration program in January 2023. Following the second inpatient treatment episode and participation in "My choice" the client reported abstaining from alcohol, and the supervision process and the counselor–client relationship proceeded without further difficulties from that point onward.

2.5. Research conclusions

All hypotheses assumed in the empirical research were confirmed.

The first hypothesis—that probation staff use all available instruments and actions when working with convicted persons who experience addictions—was confirmed. Counselors reported using the risk/needs assessment scale, providing assistance during periodic meetings, collaborating with the psychiatric hospital and with the Centre for Drug Prevention, Evaluation and Counseling, and using motivational interviewing and the "My choice" program.

The second hypothesis—that probation staff need additional specialized training for working with persons who present substance-use-related disorders—was confirmed. The findings indicate both the necessity for such training and counselors' openness to professional development through instruction and training courses such as "addictions

counselor", as well as through training more counselors to deliver the "My choice" program.

The third hypothesis—that probation staff require access to new instruments and institutions to support work with persons with addictions—was confirmed. Dolj probation counselors stated that additional assessment and working tools beyond those currently used would support addiction-related case management.

Conclusions

Substance-related offending constitutes a structural component of probation caseloads in Dolj and also of all Romanian Probation system. The case study shows that offences directly involving alcohol or drugs account for 50.07% of active supervision files (n=2,544), indicating that addiction-related needs are not marginal but embedded in routine probation work, particularly in relation to driving under the influence of drugs or alcoohol (Art. 336 Criminal Code) and drug possession for personal use (Law 143/2000, Art. 4).

A consistent "recognition gap" emerges between documented diagnoses and practice-based estimates. While counselors identified only 25 individuals with formal diagnoses recorded in probation files, they estimated that, on average, 13.31% of their caseload involves substance use disorders. This discrepancy suggests that addiction-related problems are frequently present but insufficiently captured by formal medical documentation available in probation records, which may limit tailored intervention planning and monitoring.

Evidence-informed relapse-prevention programming appears feasible and well received in probation settings. The "My Choice" program was delivered repeatedly (2018–2023) and reached a balanced group of beneficiaries with alcohol- and drug-related problems (n=71). Participant feedback indicates very high satisfaction, and staff evaluations converge in rating the program as effective. Together, these findings support the role of structured relapse-prevention interventions as a practical component of probation-based addiction management.

Professional capacity constraints are recognized by staff and point to actionable priorities. All counselors reported only partial confidence in recognizing addiction signs and expressed strong support for enhanced tools and skills development (including additional assessment instruments and the possibility of rapid testing). This pattern suggests that strengthening probation responses to substance use disorders requires institutional investment in specialized training, the dissemination of validated screening tools, and scaling up staff qualifications to deliver targeted programs.

The Dolj findings align with national-level evidence, reinforcing their broader relevance. The results are consistent with the author's complementary national research conducted in 2024 with academic partners, which documented similar challenges regarding prevalence, case-management complexity, and the need for specialized interventions in Romanian probation services (Ilie, Serban and Dan, 2024). This convergence supports the generalizability of the identified patterns beyond the county level.

Taken together, the findings argue for a standardized screening and documentation pathways, an expanded access to community-based treatment and psychosocial services through formal protocols, and a consolidation of the probation counselor's pro-social role

(motivation, mediation, reintegration support) alongside control functions, in a context also shaped by social vulnerability and labor migration.

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Supplementary Materials
Appendix of the article
The screening instruments (tests) proposed for use within the probation system to identify individuals with addictions were compiled by the author and integrated into a single document (in both English and Romanian). This document is included in the Appendix of the article and is openly accessible via the Open Science Framework (OSF.io) at:
https://osf.io/n495w/overview?view_only=6e62d7ff64084e63b4f43b122f2aeca6

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Original Article

The risk of addictive antisocial behavior in the context of information sources

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Abstract

Drug trafficking and illicit drug use are a major global problem, due to their multiple negative effects, particularly in medical, criminological and national security terms. This article presents the risks of developing addictive antisocial behavior in the context of problematic information source management. Insufficient education regarding the risks of accessing unfiltered information sources, the ease of interacting with a much larger set of information than the user can control, and the indiscriminate receptivity of the value systems of the group of affiliation represent risk factors for developing antisocial behavior in multiple forms, including addictive antisocial behavior.

Keywords*: illicit drugs, deviance, delinquency, criminality, antisocial behavior, sources of information.*

Introduction

Of all the deviant, delinquent or criminal social phenomena, antisocial acts in the area of illicit drug trafficking and consumption are at the top of the statistics regarding the severity and complex, multidisciplinary effects that hit any society that is confronted with this dramatic reality. The multiple effects of illicit drug trafficking target the criminality associated with this phenomenon as well as the use of financial resources resulting from illicit drug trafficking to finance cross-border organized crime networks that commit other crimes. Illicit drug consumption also has multiple effects, such as health problems for consumers, the risk of antisocial behavior (especially through crimes associated with consumption), risks regarding national security, economic problems, both for the consumer and for society.

Activities to prevent and combat illicit drug trafficking are correlated with activities to prevent and combat illicit drug consumption, within complex, multidisciplinary

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interventions, regulated by regulatory acts and organized according to the vision of national and international strategies in this field.

In recent times, new methods have been added to the specific operating methods, both in terms of trafficking and consumption. Technological progress and the shift of many criminal activities to the virtual environment have also significantly influenced the field of illicit drug trafficking and consumption, especially by facilitating access to orders, by ensuring anonymity on a large scale, and by new payment methods.

In this context, the sources of information that can be accessed and the typology of communication to the profiled individuals configure a new field of operation in the area of organized crime associated with drug trafficking and illicit consumption. Education and prevention related to accessing information sources, the ability to choose and filter them, and the development of a personality strongly built on prosocial values become very important, so that there is a rapid identification of the risks related to information from unreliable sources, which transmit antisocial behavior patterns and a resistance to their effects, the user accessing the information maintaining his prosocial behavior.

1. A brief overview of the main types of illicit drugs and their effects on social behavior

Both the concept of drugs and drug use have existed since ancient times, in most societies, over time, having numerous names and the same euphoric, narcosis effect, under different forms of administration, but also of complex impact on the human body, constituting the basis for which individuals resort to such behavior.

In the past, some societies, especially traditional ones, were quite tolerant regarding substance use, compared to contemporary society, where various methods of condemnation were tried to counteract the entire phenomenon, which is still growing today. “The public reaction to the drug, but also religious beliefs are the ones that, at different stages of history, defined the drug as good or bad. Thus, the drug was accepted, or not, depending on the public reaction to it and its definition by society” (Rădoi 2015: p. 9).

The illicit nature associated with the notion of "drug" is determined by the legislative framework of each state. Substance trafficking and their consumption are analyzed worldwide as a dynamic process, having numerous influences in several sectors of social life.

The phenomenon of illicit drug trafficking and use is studied from numerous perspectives, the most common being the public health perspective and the criminological perspective.

"Approached from a public health perspective, illicit drug use, especially addiction, is defined as a pathology that significantly affects the health of individuals, communities, regions or society as a whole, with subsequent repercussions on the fields of education, the labor market, etc. ”(National Drug Strategy 2022-2026). Studies reveal both strictly medical aspects and the complex palette of effects and risks that extend to other areas. "From a criminological perspective, drug consumption and trafficking are deviant social behaviors, often associated with other types of crime, emerging from the specific way of organizing and functioning of society, multifactorially determined by a series of threats, risks and vulnerabilities located at the level of the global external environment or originating in structural or functional deficiencies of the social body. Seen in this way, the drug phenomenon can be approached with specific tools for controlling organized crime

or risk management tactics available to specialized national and international law enforcement structures" (National Strategy on Drugs 2022-2026).

According to 2025 statistics by EUDA (European Union Drugs Agency), the drug market indicates the availability and much wider variety of offers for all categories of substances (including new ones), which can increase the risks to the individual's health through their effects.

The availability of drugs on the European market has also benefited from the particularities of globalization, which has significantly impacted consumption, as perpetrators optimize the opportunities to expand the trafficking of illicit substances provided by interconnected communication networks, more precisely trade, but also transport.

A classification of the main types of illicit drugs is carried out through the wide variety of consumption criteria, the dual effects they have on the human body, the social availability, but also the legislation of drugs. Thus, we can list several categories of illicit drugs:

Cannabis - known since the early dynasties, under the name hemp, with two branches: cannabis indica, whose seeds, flowers and leaves are rich in cannabinol, which produce an exciting and euphoric effect on the consumer, and cannabis sativa, which has a textile purpose, cultivated in the Carpathian-Danubian area and used by the Thracians in making clothes (Oișteanu, 2014).

It is currently the best-known illicit drug in Europe, being cultivated, traded and transported across the globe, with derivatives obtained from it such as marijuana and hashish, but also a psychoactive component known today as THC-tetrahydrocannabinol (Prelipceanu, 2018).

"Consumption of cannabis (marijuana) under different conditions acts differently: it can be a stimulant, sedative, analgesic or moderate hallucinogen. Although it does not directly cause mental disorders, it can aggravate existing ones" (Rădoi 2015: p. 17).

According to the National Report on the Drug Situation in Romania, from 2024, for the year 2023, at the national level, cannabis use (single or polyconsumption) "was mentioned in 1127 cases out of the total cases of medical emergencies due to drug use. In the overall case history recorded in specialized units at the national level, cannabis was mentioned in 36.5% of the cases" (National Report on the Drug Situation in Romania 2024: p. 39).

Cocaine – is considered the second most consumed and frequented drug in Europe (EUDA, 2025), being part of the stimulant group along with amphetamine-derived substances (methamphetamine, MDMA/Ecstasy), with addictive use which, consumed in relatively high doses, produce the same effect as amphetamine (Prelipceanu, 2018). For Europe, the use of MDMA, a synthetic drug similar in chemical structure to amphetamine, has been associated with episodic use, particularly in bars, nightclubs, entertainment venues and occasional use (European Drug Report, 2025).

The availability of cocaine in Europe is found in two main categories, the most well-known is in the form of cocaine powder, and the second, less available form is crack cocaine (a free form that can be smoked), produced from the coca plant, cultivated mainly in South America.

The effects of cocaine after consumption in large doses can cause the individual hallucinations, depression, but also paranoid crises, which is why it is consumed more occasionally.

Synthetic stimulants – previously mentioned as amphetamine, methamphetamine, but also synthetic cathinones are considered to be synthetic stimulants for the nervous system, more precisely the central nervous system, having availability on the illicit drug market, especially in the European one.

Regarding the history of synthetic stimulants, amphetamine has always been the most frequently used illicit drug, followed by methamphetamine and synthetic cathinones, with a limited prevalence of use in most countries with a predisposition to use, in contradiction with the current moment where the predisposition to use has increased, more precisely of synthetic cathinones, a wide range of stimulants, with a much greater availability in Europe, with unprecedented seizures and imports being recorded according to the European Union Drugs Agency.

Opioids and related drugs

- The set of opiates that includes natural substances such as opium, codeine and morphine.
- The set of opioids that includes semi-synthetic drugs such as oxycodone and heroin, but also synthetic drugs such as methadone, meperidine, demerol and other related substances (Prelipceanu, 2018).

New psychoactive substances (NPS)

Currently, the characterization of new substances that have appeared on the drug market is provided by the large number of substances appearing from year to year, detecting new components of them (semisynthetic/synthetic cannabinoids, plants with psychoactive effects, stimulants, etc.), and the term NPS is due to the wide range and typology that are not under the classic international regulations of drug trafficking and control.

Other drug categories

In addition to the drugs mentioned above, there are substances with increased availability on the illicit drug market in Europe, which are based on stimulant, anesthetic, hallucinogenic, depressive or dissociative properties and effects, these being khat leaves, LSD which is known as lysergic acid diethylamide, hallucinogenic mushrooms, GHB (gamma-hydroxybutyrate) and ketamine, quite well known in certain countries and cities, but having a relatively low prevalence compared to other much better known illicit drugs. Psychedelic substances, which are now recognized as hallucinogens that impair consciousness and generate confusion, both auditory and visual hallucinations in the consumer, inducing risks regarding potential violent behavior, can cause acute intoxication, perceptual disorders, dysfunctional behavior. Overdose can cause various medical complications (stroke, coma, hyperthermia, cerebral edema, etc.) (Prelipceanu, 2018).

Specialized institutions aim to prevent and combat addictive risk situations, which are increasingly common, especially for adolescent groups. Their sources of information are the media, their social environment, social networks or other online platforms, which often influence their conduct, leading to antisocial behaviors. "The factors that determine juvenile delinquency can be divided into two large categories: internal, individual factors and external, social factors. The first category of factors includes the neuropsychic particularities and structure, particularities of the personality in formation. The second category includes the socio-cultural, economic, socio-affective and educational factors within the micro and macro human groups into which the child and young person must gradually integrate, starting with the family" (Rădulescu, Banciu 1990: p. 59, apud Rădoi 2015: p. 89).

It is worrying that the number of consumers among young people is very high, with numerous risks such as: intoxications, deaths caused by substance use and the adoption of criminal behavior in society.

2. The risk of forming illicit addictive social behavior in the context of the negative effects of information sources

The use of illicit drugs is determined by multiple motivations, an increasingly important role in recent times being played by accessing more and more information sources that promote and facilitate integration into the addictive universe generating antisocial behavior. The elements on which such a marketization of illicit substances and addictive behavior is based are multiple, targeting the most important motivational resources specific to social groups.

There is sometimes a risk of antisocial behavior promoted as an element of customary social values within different social typologies. ”In societies characterized by a varied structure of intersecting socio-cultural typologies, there is often a difficulty in managing different social behaviors, formed according to different socio-cultural models”(Fîrțală, Cristea 2023 : p.299).

The imperative of respecting legal norms is the common element to which it is necessary to align the social conduct of members of social communities on the territory of the same state, regardless of the specific social customs to which members of society may relate. However, if in classical societies this ideal was not always easy to achieve, currently the situation is even more complicated, in the context of access to unfiltered sources of information that do not always relate to prosocial principles and values. So, currently there is a risk that people on the territory of a state will move from different socio-cultural models to a common model, but which represents a vector of influence for antisocial conduct.

This risk factor becomes all the more serious since in some social environments the integration of different social values into a harmony of prosocial conduct does not represent a primary objective, the social attitudinal reaction being on the contrary, negative, antisocial, focused more on stigmatization, labeling, marginalization.

”So it seems that marginalization of groups of any nature, and in particular of the emigrant communities, can lead to an increased risk of radicalization.” (Ilie Goga, 2019).

In such a social context, the sources of information accessed by non-integrated members of society are often motivational towards antisocial responses, in the form of criminal acts, addictive behavior, radicalization with increased risk regarding social order and national security.

Some works also refer to the behavioral perspective of addiction, which claims that some people become addicted not to a chemical substance, but to an experience (Ilie, Șerban, Dan, 2024). In these situations, the dissociation between the substance and group membership is very difficult to achieve, the two components mutually supporting each other and also determining increased risks of associative antisocial behavior. The sources of information are predominantly those agreed upon by the entire membership group, the social behavior promoted by these information channels being selected including on the criterion of validating a certain social behavior, including the marketization of addictive behavior.

An important component in the mechanism of accessing information sources and receiving messages that promote antisocial behavior, including addictive behavior, is the ability of the information receiver to choose, select and correctly interpret the information.

”A special problem related to understanding the fake news issue is related to the comparison with previously used concepts: political propaganda, rumour, etc. Of course, new digital and global media have left their mark on the concept, but the content is not far from the other two mentioned. Which brings us to another problem, classic in substance but extremely current in the era of fakenews: fakenews through the eyes of the sender vs. fakenews through the eyes of the receiver. Of course, it is not only important what the sender does in the media, but, nowadays, especially what the receiver does. There is now a huge paradox of the receiver: if the receiver of classical propaganda or rumour did not have access to knowledge (and information was at stake in the plunge into a dubious cognitive environment), nowadays, anyone with a smartphone is flooded with information. It is not receiving information that is at stake today, but analysing it and, right from the start, selecting relevant information” (Cristea, Fîrțală 2023 : p.291).

Capturing the attention of the user of social platforms (through priority and allocated time) represents the initial element of the construction of a true "partnership" in communication and social interaction between the sender and the receiver, the adhesion and maintenance of this partnership becoming the fundamental motivational element, by virtue of which the receiver ends up executing exactly the recommendations for social conduct received from the sender. Gradually, these recommendations, suggestions or even imperatives can deviate towards incitement to antisocial acts of deviance, delinquency or criminality.

Regarding awareness of particularities, in the context of assimilating the digital environment as merged with everyday life, it was found that ” high participation in social networks is related to a lower level of privacy awareness, which is connected to the cultivation of concern with human-readable presentation of self rather than machine-readable personal data flows, and also through the paradox of control”(Rughiniș, Rughiniș, Vulpe, Rosner 2021: p.11).

Most of the time, the projection related to the multitude of personal information provided through social networks is that it will be analyzed by a human factor, who will use it in a specifically human management way. Currently, the analysis of the information flow by AI tools radically changes the perspective of using information, with various possibilities of profiling, manipulation and control, including by transmitting ideas that can determine antisocial behavior, to target groups.

The use of algorithmic profiling tools through AI technologies can change the perspective of the person's interaction with the digital environment. For example, elements related to the valorization of performance, success, which are emerging as characteristics in the profiling of the person, can be used to send him offers to purchase substances such as illicit substances, doping substances, etc. The search for information in the online environment is increasingly competing with the search for the person in the target group by vectors of dissemination of information in the online environment. Thus, along with the need for good preparation in order to select quality, filtered, safe information sources, the user of the online environment must be prepared and know how to manage the information that comes to him from the online environment, sometimes these being random, but increasingly, these being sent to people from well-selected target groups. The interaction between the user and the databases, in the form of query-response, presupposes the possibility of mutual knowledge, with easy possibilities of profiling.

The need for group membership (an essential element, especially during adolescence) prioritizes alignment with the specificity and value system of the group of affiliation. Even if initially the group of affiliation was centered on prosocial or neutral values, the gradual and sometimes imperceptible departure from it towards another value system does not significantly influence the structure and membership of the group, this being more important than changing the value system of the group, even if it can be substantially modified, including regarding the promotion of addictive antisocial behavior.

Conclusions

In the field of antisocial behavior in the form of illicit drug trafficking and consumption, alongside the classic ways in which the consumer sought the prohibited substance or through which traffickers brought illicit drugs to the consumer, an increasingly important component is currently the one related to accessing online information sources. The path to accessing illicit substances can be direct or gradually built through motivational narratives coming from various unfiltered information sources and which are not approached with critical thinking. Experiencing sensational experiences, acquiring superpowers or escaping from everyday life are just a few of the narratives marketed in information sources that promote the consumption of illicit substances to achieve these goals. In order to increase the effects of these messages, undesirable elements related to the effects of illicit substance consumption are avoided, fake news motivational narratives are constructed and easy ways to procure illicit substances are presented. The composition of the message to the target group is based on profiling the person, the message having forms that are as well-structured as possible to be accepted. Messages that promote the consumption of illicit substances are more effective if the person accessing such messages imitates the addictive behavior of other members of the group, the imperative of belonging to the group being a stronger motivation than the risk of slipping into the world of addictions. Good education regarding the criteria for accessing information sources, their filtering and their approach with critical thinking are essential elements for effective resistance to information that promotes addictive, deviant, delinquent or criminal antisocial behavior.

Authors contributions

V.F. was involved in the literature review, wrote the second paragraph, and drafted the conclusions. V.D.I. was involved in the literature review and wrote the first paragraph.

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Original Article

Life-Course and Physical Activity in Self-Perceived Health in Aging

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Abstract

Lifestyle is a determinant of health and promotes the perception, and more, of improved subjective condition. It is a determinant that can be usefully considered with the life course approach since it is well known that health risk factors sometimes originate and accumulate in a time before its manifestation. Analysis of SHARE data-with the use of some variables that take into account socioeconomic status-will be conducted to capture whether increased physical activity (and the timing of this change) is correlated with better perceived health among subjects of different age groups, with reference to the elderly.

Keywords: *Aging; lifestyles; life course; physical activity; SHARE.*

1. Introduction

Improving the quality of life and physical and mental well-being of older adults represent some of the most significant social and cultural challenges of our time, just as it is important for each individual to increase their life expectancy and quality of life.

Achieving these goals requires both subjective and objective factors that, in an interdependent manner, involve individual choices, environmental quality, and public policies that promote and protect health (Narimatsu and Feng, 2024).

Individuals are called upon to take greater responsibility for their life stages and biographical experiences (Fong and Chiu, 2024), as public policies and medicine alone cannot promote the achievement of the aforementioned goals.

This study aims to analyze, using SHARE data and through a life-course perspective, the relationship between physical activity and perceived health among subjects of different age groups, with particular reference to older adults. The analysis will also focus on the importance of when lifestyle changes are implemented as a factor in the success or failure of improvement and will be conducted using a model that considers various indicators such as age, socioeconomic status (SES), gender, and so on, which will

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allow for a greater understanding of the relevance or otherwise of physical activity for achieving well-being and good health.

2. Determinants of health: lifestyle and physical activity

Increased public interest in health justifies the attention social actors pay to social practices aimed at achieving well-being. Among those that promote health is physical activity. Indeed, the consensus among scientists is that among the various interventions aimed at optimizing well-being—for all age groups—the role and opportunities offered by physical activity represent an essential component of a healthy lifestyle (Grignoli and Șerban, 2018).

A wealth of international scientific literature has highlighted the positive correlation between physical activity and the benefits of individual and community health. For example, for older adults, it has been highlighted: increased life expectancy and a reduction in cardiovascular disease (Cockerham, 2017); improved anxiety management (Paluska and Schwenk, 2000); the development of immune function and the prevention of chronic disease (Gronek et al., 2020); improved self-esteem, cognitive function, and mood (Biddle, 2016); improved clinical outcomes in the treatment of somatic and mental illnesses caused by emotional stress (Ghosh and Datta, 2012); reduced institutionalization and hospitalization, both of which are a result of worsening health conditions due to a sedentary lifestyle (Scheerman et al., 2018); and others.

The case studies reported represent only a partial sample of the much broader and more varied scientific evidence demonstrating this positive correlation, which, however, needs to be better analyzed when distinguishing the population based on the different characteristics of social groups.

According to Weber (1974), socioeconomic status (SES), derived from material wealth, occupation, and education, determines lifestyle behaviors (Lebensführung) that can be conducive to a healthy lifestyle (Lebensstil) (Weber, 1974; Cockerham, 2017). The relationship between social class and lifestyle is well-known, as French sociologist Bourdieu (1983) proposed a new definition of habitus, understood as a system of dispositions that indicates a way of being, a habitual state, and a predisposition, tendency, propensity, or inclination that endures over time.

Other scholars, more recently, have analyzed the influence of certain variables—age, gender, health practices, ethnicity, employment status, and so on—on lifestyle choices (Petev, 2013; Missinne et al., 2015; Cockerham, 2017). Finally, it should also be remembered that a healthy lifestyle may depend on the cultural and institutional environment of the historical period in which one lives (Lakomy, 2021); on the micro-macro interaction of subjective and structural limitations (Depedri and Gubert, 2019); on inclusion/participation in social and relational activities (Sapranaviciute et al., 2022).

3. Life courses, health determinants, and health trajectories

As mentioned in the Introduction, the empirical analysis will utilize the static approach of the life course perspective (see below, section 5). From a conceptual and theoretical perspective, it should be noted that the life course perspective posits that risk factors are significant not only in late life or adulthood (Lynch and Smith, 2005; Braveman et al., 2011; Clemente and Pereiro, 2020), but may have begun to exert a negative influence on health even earlier and may have accumulated over time. For the authors of the Marmot Review of social determinants and the health divide in the European region (Marmot et al., 2012), the life course is a very useful approach for planning actions on the social

determinants of health throughout the lifespan, in broader social and economic contexts, and could help identify when interventions should occur in people's lives (Elder, 1985, p. 5).

The life course connects an individual's biography with its temporal context (Clemente et. al., 2025). This is made possible by identifying the ways in which certain transformations can influence individuals' lives. These effects can be of three types: cohort effect, period effect, or age effect. Elder (1994, p. 8) explains the differences between each of these types: historical effects on the life course take the form of a cohort effect, in which social change differentiates the life patterns of successive cohorts; history also takes the form of a period effect, when the effect of change is relatively uniform across successive birth cohorts; a third type of effect occurs through aging.

The specific and theoretical reference—recalled briefly here for the sake of brevity—to the relationship between individual biography and temporal context with the aforementioned effects (cohort-period-age) is closely linked to the two research questions posed by this study (section 4) and their respective methodological implications. For this same reason, another principle of the life course theoretical perspective of connected lives was also taken into account, which highlights the importance of:

- the direct and indirect relationships of individuals with their social, economic, cultural, and institutional contexts.
- the complex network of social relationships (family ties, friendships, occupational/professional ties) through which individuals' lives unfold.

4 Lifestyle changes and health trajectories

The aim of this study is to assess whether and how health status varies with changes in physical activity levels over the lifespan and when these changes occurred. Using data from the SHARE survey, we analyzed the relationship between self-reported health status and changes in various parameters of physical activity. The main independent variables of interest are:

1. whether respondents increased their level of physical activity to improve their health and whether this increase is associated with better health;
2. at what stage of the lifespan (childhood, youth, adulthood, old age) this change occurred and to identify at which stage of life changes in physical activity have the greatest impact on health.

In addition to the direct effects of physical activity on health, the study aims to control for the influence of sociodemographic (age, gender, marital status), economic (education level, family income), and health variables (presence of chronic diseases, dietary habits, smoking, alcohol consumption) on the association between physical activity and self-perceived health.

5 Data, variables and methods

Data are drawn from the first and third waves of the Survey of Health, Ageing and Retirement in Europe (SHARE-ERIC, 2024a, 2024b). SHARE is a longitudinal study that collects information on various aspects of individuals' biographies, from demographic, social, and economic characteristics to health variables. The questionnaire included retrospective information on various aspects of respondents' life courses, including detailed questions about health and healthcare (Börsch-Supan et al., 2011; Börsch-Supan et al., 2013). Wave three was the only wave of the SHARE survey that included

information on whether and when (over the life course) respondents changed their physical activity levels.

After data cleaning, the final sample includes respondents with information on their self-reported general health (n=16,597). The SHARELIFE microdata were merged with the baseline study microdata (Wave 1) to control for other known determinants of health in empirical analyses that were collected only once (Schröder, 2011).

The life-course approach allows us to assess (as per the objective of this study) whether and how respondents' self-reported health status varies based on changes in their physical activity levels and the timing of such changes. The empirical analyses are based on ordered logistic regression models in which the dependent variable is respondents' self-reported health status at the time of the survey (how is your health in general? on a scale of 1 to 5, poor/excellent).

To test the influence of health prevention across the life course, the following questions were used as independent variables of interest: 1) Have you increased your level of physical activity (for at least one year) to improve your health? This was transformed into a binary variable coded 1 if the respondent committed to the change and 0 otherwise. 2) At what stage of the life course did this change occur? This was transformed into a variable with 5 categories: 0 if the respondents did not increase their levels of physical activity, 1 if the increase occurred during childhood (0-15 years), adolescence, or adulthood (16-40 years), 2 during late adulthood (41-65 years), and 3 during old age (after the 65th birthday). Separate models were built for each of these questions, while controlling for other known determinants of health (individual characteristics, social determinants (proxies), current health and habits, and welfare system). To analyze individuals' life paths, it is necessary to collect specific information regarding experienced events and their temporal placement in biographies, thus enabling dynamic interpretation of this data. Furthermore, events must be identified in time (with explicit reference to both start dates) to establish their timing and the possible connections between them and other events (linked events). By considering individuals' prior history, it is possible to study how a future event (following the previous one in chronological order) depends on a past event.

The longitudinal information analyzed was obtained using retrospective observation (a static approach), in which data were collected after the events of interest occurred, and the biographical event under study is reconstructed after their occurrence. The indexed reconstruction procedure was therefore used, in which the identification of events of interest is performed by referring, first, to a specific event and, second, to a specific time point (Clemente and García-Pereiro, 2020). Separate estimates were performed for the three main independent variables of interest, and two estimates (models) were calculated for each (Table 1). The first is a null model that considers the main variable of interest as the only independent variable in the estimate. The second is a full model that adds to the first the rest of the covariates considered to be important determinants of an individual's self-reported health status. For interpretive reasons and to facilitate comparisons between model estimates, the adjusted forecast for prototypical cases was calculated, and the results of the null and full models were plotted for each variable of interest (Figures 1 and 2). The goodness of fit of the models was assessed by reading the pseudo R2 and log pseudolikelihood values, while Wald statistics were used to test the significance of the covariates.

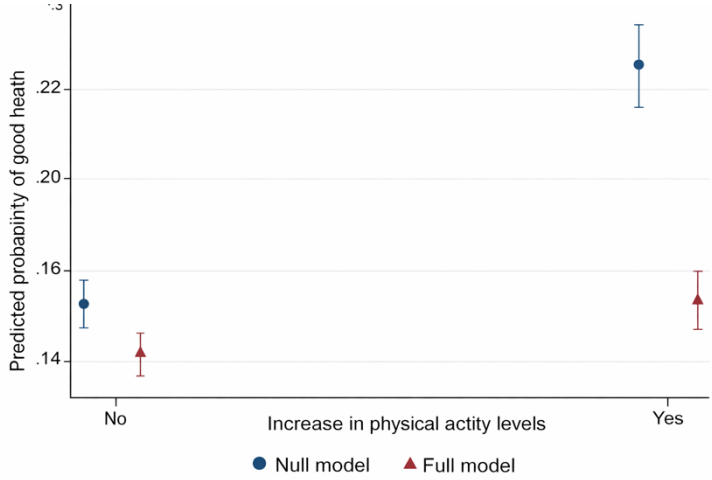
Statistical tests were performed to meet the probability of proportionality assumption of ordinal logistic regression (Harrell, 2015). According to the descriptive

statistics of the final sample, the mean self-reported health status was 2.8, with the majority of respondents reporting fair health (37.6%). The average age of both men and women was approximately 69, with a slightly higher share of women (55.6%). Approximately 12% of respondents were born abroad; nearly 73% of respondents were living with a partner at the time of the survey; nearly 15% were widowed. 18.6% of respondents had completed tertiary education, and the mean net household income (annual) was approximately €30,000, in a family with an average of 2.2 people. The values for our main independent variables of interest show that only 13.5% of respondents changed their lifestyle by increasing their physical activity levels, and most made this change in late adulthood.

6. Results: The importance of physical activity for self-reported health status among individuals aged 50 years and older

Regarding lifestyle changes, Figure 1 shows the adjusted predictions of increased physical activity for reporting good general health. The results of the null model indicate that individuals with better health are those who increased their physical activity levels for at least a year (compared to those whose levels remained unchanged). However, as shown in the full model, the inclusion of all the independent variables considered significantly reduced the health differences between these groups (from 15% and 20.5% to 13.8% and 15.2%, respectively).

Fig. 1- Adjusted predictions of increased physical activity with 95% confidence intervals for good general health

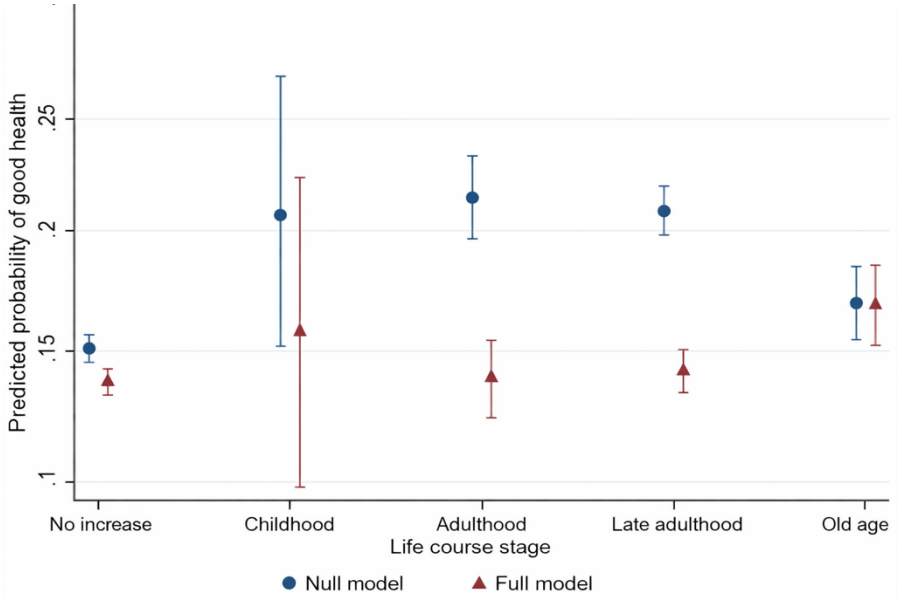


Source: data processing based on SHARE

Regarding the timing of change, that is, the life course stage at which increased physical activity occurred, Figure 2 plots the adjusted predictions of the life course stage at which physical activity was increased for respondents who reported good general health. As illustrated, the results of the null model are consistent with those in the previous section, as the probability of reporting good health is systematically higher for those who increased their physical activity levels. This is also reflected in the odds ratio in Table 1.

Somewhat surprisingly, after adding other determinants, the positive effects differ depending on the life course stage at which increased physical activity levels occurred (Figure 2 and Table 1). In fact, the only signs that did not change after including controls in the multivariate analyses are those corresponding to the last life course stage considered: old age. This means that, as confirmed by the full model, increasing physical activity levels is particularly important for reporting better health for those respondents who made this change later in life (after their 65th birthday). The full model also provides significant results for the late adulthood category, but the differences are less pronounced.

Fig. 2 - Adjusted predictions of life course stage of increased physical activity with 95% confidence intervals for good general health



Fonte: data processing based on SHARE

Finally, Table 1 shows the odds ratio of ordinal logistic regression models that consider individual characteristics, proxies for social determinants, current health and habits, and the welfare system.

Tab. 1 - Results of ordinal regression models (Null and Full) on self-reported health status (odds ratio). Main independent variable of interest: increased physical activity and life course stage at which increased physical activity occurred

	Physical activity		Life stage	
Variable	None	Complete	None	Complete
Increased level of physical activity	1.60***	1.13***	-	-
Life course stage				
(No increase)				
Childhood	-	-	1.65***	1.24

Adulthood/Young Adulthood	-	-	1.75***	1.05
Late Adulthood	-	-	1.68***	1.08**
Old Age	-	-	1.18**	1.32***
Individual Characteristics				
Age in 2009	-	0.97***	-	0.97***
Female	-	0.92***	-	0.92***
Foreign-Born	-	0.78***	-	0.78***
Marital Status (Lives with partner)				
Never Married	-	0.79***	-	0.79***
Separated/Divorced	-	0.91	-	0.91
Widowed	-	0.94	-	0.94
Educational Level (Primary or less)				
Secondary School	-	1.33***	-	1.33***
Secondary School	-	1.38***	-	1.38***
University	-	1.77***	-	1.77***
Net Household Income	-	1.00***	-	1.00***
Household Size	-	0.96**	-	0.96**
Social Determinants				
Involved in Social Activities	-	1.12***	-	1.12***
Help Given	-	0.98	-	0.98
Current Health and Habits				
Limited in Daily Activities	-	0.29***	-	0.29***
2+ Chronic Diseases	-	0.46***	-	0.46***
Body Mass Index (BMI)	-	0.98***	-	0.98***
Currently Smokes	-	0.77***	-	0.77***
Currently Drinks Alcohol	-	0.99	-	0.99
Welfare System (Mediterranean)				
Conservative	-	1.04	-	1.04
Social Democrat	-	1.70***	-	1.70***
Israel	-	1.99	-	1.99
N	16,546	16,546	16,546	16,546
Pseudo-R2	0.00	0.11	0.00	0.11
Log-likelihood	-24095.431	-21,574	-24,087	-21,574

Note: *** p<0.01, ** p<0.05, * p<0.1. Reference category in brackets

The results show that women and foreigners tend to report lower levels of health than men and natives. As expected, the likelihood of feeling healthier decreases with increasing age, confirming the importance of socioeconomic and cultural status as main determinants of health (Clemente and García-Pereiro, 2020), given that the likelihood of reporting better general health increases significantly with increasing educational level.

Regarding current health and habits, the results are consistent with expectations. There is a strong negative association between reporting better general health and limitations in usual activities and suffering from more than two chronic diseases. Body mass index (BMI) and the variable identifying smokers are also negatively correlated with health status, both reducing self-perceived general health.

7. Concluding remarks

The analysis conducted with a life course perspective proved useful for understanding how variables that influence health accumulate and interact over the course of individuals' lives. Life course changes were particularly evident when focusing on people who increased their levels of physical activity. Overall, a positive effect of physical activity on the health of the population emerged, even when practiced at an older age (after age 65).

Furthermore, the data showed that the relationship between lifestyle and well-being can vary significantly among different groups of individuals. Women and people with a high level of education tend to benefit more from healthier eating habits than men and individuals with a lower level of education. This is consistent with numerous findings in the literature suggesting a direct relationship between education and good health. Indeed, several studies over the years have demonstrated that educated individuals have the ability to acquire and process health information favorably, developing a more appropriate capacity for aging in terms of well-being (Carter et al., 2019).

This variability indicates that health promotion policies must be sensitive to sociodemographic differences to be effective. Furthermore, the analyzed data also reveal a correlation between the limitation of social activities, due to impediments related to certain conditions and diseases, and health status.

In summary, the SHARE analysis suggests that individuals tend to add and remove healthy behaviors throughout their lives. However, not all changes are sustained long-term, which can reduce their potential impact on health. Therefore, it is essential to promote strategies that foster the maintenance of long-term healthy habits and ensure the pursuit of mental and physical well-being.

Authors contributions

C.C. was involved in the literature review, wrote the second, third, fourth and sixth paragraphs, and drafted the conclusions. P.C. was involved in the literature review and wrote the first, fifth and seventh paragraph.

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