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Communicating medical science in the digital age: culture, knowledge, expertise, practices

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Book of Abstracts

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Introduction

Jerome Tessuto

University of Campania *Luigi Vanvitelli* – ITALY

The rapid development of the Internet and social media platforms in the last decades has transformed the landscape of medical science communication in response to the knowledge shifts that a variety of societal stakeholders, including the research academy, healthcare professionals, policymakers, and patients, increasingly take on board through the readily usable functionalities of online information and knowledge platforms. These transformations, accelerated by the fast spread of ICTs for modern knowledge societies, have had a significant impact on digital communications within the medical academy and the healthcare sector as a whole.

As modern digital technologies show no signs of abating in medical scholarly communication, there are now more opportunities and challenges than ever before to produce and disseminate a much wider array of research outputs and to provide the broader public with the means of navigating this knowledge space. Such opportunities are spawning an increasingly diverse digital ecosystem of less formal practices of medical scholarly communication on web and social media platforms (e.g. research blogs, twitters, articles in magazines and newspapers, interviews with the press, participation in radio and TV programmes, ResearchGate, WikiPathways, info-graphics and video-abstracts), and are intensified by emerging trends in Science 2.0 or Open Science practices in making the scientific process more democratic and responsive to societal needs and fostering 'open', rapid scientific communications between researchers, citizens, and other societal actors.

While adoption of these alternative digital modes has facilitated the sharing of new scientific knowledge by including diverse voices in global scientific conversations, it has brought with it the recognition of a new scholarly culture that sits along the constantly changing spectrum of digital scholarly identities and expertise among user communities. The immediate effect of the increased uptake of digital technologies in communicating scientific knowledge is that it has altered traditional research and scholarship practices that underpin the epistemic, and discursively enacted processes of knowledge-building inquiry in the medical discipline, shifting and blurring the boundaries between the scientific community and the public along the way.

Discoursal boundaries are also being broken down in the wider healthcare ecosystem, with new and emerging communication technologies transforming medicine, health, and biomedical science. Digital advances such as cloud computing, blockchain, digitally mediated diagnostics and treatment, including electronic health records, e-pharmacy and tele-medicine, alongside consumer-facing health portals in self-management/self-care service platforms, are gaining a foothold in the digital ecosystem of social networks, websites, and mobile devices, and provide collection as well as monitoring of patient information from a variety of sources like hospitals and digitized systems of medical practices and institutional bodies. By offering the potential to democratise access to care around patient centricity, this transformative impact of digital technologies has fostered public participation in healthcare decision-making, health policy, and health research, and enabled health consumer communities to act as producers of health information in the digital footprint of medical science communication.

The 2nd international CIRL*a*M 2023 conference aims to provide a stage for an extensive exploration of medical science communication as it evolves in the digital age. We therefore bring together academics and practitioners from the area of linguistics and other fields to critically discuss and rethink emerging trends and variations in medical science communication models where culture, knowledge, expertise, and identity are played out, contributing to the discursive study of texts and genres that matter to internal and external processes and practices of medical science communication.

Keynote presentations

Richard Ashcroft

City Law School, University of London – UK

The functions of a professional school in an AI-disrupted world

Since early this year many commentators have been reflecting on the impact of ChatGPT and other "Large Language Models" (LLMs) which can generate seemingly high quality answers to free-text questions, which on first reading and sometimes more appear to be competent, human-authored, answers to those questions. This has caused a lot of unease in universities (focussing on the integrity of written examinations and coursework) and in the wider professions (focussing on the potential significant disruption to professional services industries, including medicine and the allied health professions, and the impact on pay, job and career-security, and status). In my lecture I want to think in a more open-minded way about what this disruption may do to the role of universities, the purpose and function of humanities education (including education in medical professional practice), and how universities may need to change. At a time when universities are under considerable pressure to ensure that graduates have not only academic knowledge but also "employability and skills", and at a time when the employment market and career trajectories of graduates are likely to change significantly, we should see this as an opportunity and not a threat. There has been a lot of discussion of the applications of Artificial Intelligence in assisting medical research and diagnosis, but there has perhaps been complacency about the central role of the human health professional. I believe that complacency is not warranted; but suitably re-thought the role of human professionals should remain crucial. But this will require ever greater attention to communications, ethics and empathy as core skills for professionals.

Paola Catenaccio

University of Milan – ITALY

Competing interests in online news reporting of scientific information at times of crisis: misinformation in an infodemic

Among the many issues which the COVID-19 pandemic brought to the fore is the difficulty of managing – or even monitoring – information production and dissemination at times of crisis. During the pandemic, the need to share information as soon as it became available, coupled with the inevitable uncertainty surrounding any new announcement and with the equally inevitable proliferation of suspicion and untested hypotheses, made it virtually impossible to ensure that the information passed on to the general public was sound and reliable. Add to this the speed with which such information would spread thanks to social media, and you get a perfect storm of misinformation at best – and disinformation and fake news at worst. This is a well-known problem in scientific popularisation, which has been shown to be occasionally resulting in the reporting of misleading claims despite the best intentions of the reporters. In the case of the COVID-19 pandemic, factors such as pressure to publish only partly verified claims, compounded in some quarters by sensationalism and exaggeration, and exacerbated by the rise in partisanship and bias deriving from a marked opinion polarisation caused a marked increase in the volume, visibility and perceived dangerousness of misinformation. Within this scenario, a growing body of research has been devoted to the study of this phenomenon, much of it with a focus on automatic fake news detection, but relatively little taking adequate stock of pre-existing research on scientific popularisation conducted from a linguistic and discourse-analytical perspective. This presentation aims to redress the balance, advocating a more prominent role for linguists and discourse analysts in the design and implementation of strategies aimed at containing and counteracting misinformation.

Giuliana E. Garzone
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Computer-mediated support groups / online health communities: self-help or tailor-made popularization?

This study focuses on online support groups (also: computer-mediated [health] support communities) which in recent years have been increasingly popular, especially with patients or caregivers. It is a fact that, in spite of the ample availability of informational websites, many people experiencing health problems prefer to rely on social media consultations and debates to obtain information about their condition and share their views / feelings with other patients (Fox & Duggan 2013), as these sites also offer a nonjudgmental space where people can share their thoughts and stories (Walther & Boyd 2002; Neuhauser & Kreps 2003). While sometimes non-specialised networking sites like Facebook, Twitter or even Youtube are used as discussion forums for these purposes (Naslund *et al.* 2016), in most cases users tend to choose specialized platforms (e.g. Inspire, HealthUnlocked, Mayo Clinic, etc.) where they can find information and emotional assistance. In online support groups people with similar health problems seek advice, and in particular "informational support, emotional support, tangible support, and validation" (Wright 2014: 988), in many cases with the possibility of relying on (volunteer) mentors or experts.

The first purpose of the study presented here is to identify the peculiarities of web-mediated exchanges on CM health support platforms about health issues, spanning from mental problems to various kinds of physical conditions in order to avoid the tendency of many of the studies carried out so far to concentrate on support groups dealing with specific specialties (e.g. mental health: Naslund et al. 2016; youngsters' mental health in the COVID1 9 pandemic: Longest & Kang 2022; irritable bowel syndrome: Coulson et al. 2005; cancer: Mikal *et al.* 2019; Petrič *et al.* 2023), thus losing sight of the general characteristics of the communicative environment investigated. A second objective is to describe the dynamic process through which participants in online health communities elicit and provide emotional and informational support, and the language and discourse patterns deployed in a context where, alongside a strong personal and interpersonal component, technical medical information is also handled.

The analytical tools relied on are essentially discourse-analytical, while recourse is also made to the notion of "frame" which makes it possible to determine the actors' perception of "what is it that's going on" in each case (Goffman 1974: 8; cf. Entman 1993) and how participants make sense of the information gathered in the exchanges. For exemplification purposes reliance is made on selected threads of conversational exchanges on three important online health support communities dealing with a variety of different mental and physical health-related topics.

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Trish Greenhalgh
Oxford University – UK
Science in the public eye: communicating and debating research findings in real time in a global public health crisis

The pandemic thrust science and scientists into the spotlight and raised awkward questions about the relationship between scientific research, policymakers and citizens. This lecture will use one worked example – the contested field of research on public masking – to illustrate some theoretical ideas about science and science communication in these post-truth times. It will explore why, more than two years into the pandemic and with hundreds of published studies, some scientists still believe there is "no evidence" that masks work while others view the efficacy of masking as a well-established "fact"—and why debates between the different "camps" of scientists played out more on social media and in the lay press than in scientific journals. To analyse this case study, I will draw on the work of critical social scientists such as Latour, Bourdieu and Foucault, and also philosophers of science including Kuhn and the pragmatists.

Srikant Sarangi
Aalborg University – DENMARK
On 'distributed expertise' in the digital healthcare era

Healthcare delivery – in clinic, community, hospital and public health settings – has traditionally been characterised by knowledge asymmetry, with differential epistemic status attributed to healthcare professionals, patients/families and the general public. In recent years, coinciding with digital life, this scenario has been transmuted. Two distinct, but inter-related, trends – what can be labelled as democratization and technologization – dominantly underpin the notion of 'expertise' in contemporary healthcare delivery in the western societies.

As part of the main argument, I begin with a characterisation of professional expertise very broadly to include scientific, experiential, technological, organisational, legal, ethical and communicative knowledge. This then leads me to the notion of 'distributed expertise', which extends beyond the individual remit and the conventional lay-expert divide, including interprofessional division of expert labour.

In the healthcare domain, a significant development afforded by internet-based technology is the increased level of patients' e-health literacy and, consequently, the democratization of expertise. This form of distributed expertise amounts to accessing not only health information digitally by healthcare professionals and patients alike, but also the phenomenon of patients 'doctoring' themselves in 'the now of its presence', i.e., 'expert patients' becoming instrumental in self-diagnosis and even self-treatment. The notion of 'proto-professionalism' is real and can disrupt – and even reverse – the ubiquitous knowledge asymmetry between healthcare professionals and their patients, thus foregrounding the crisis/death of expertise. I also contend that 'distributed expertise' is constitutive of

'expert systems', e.g., diagnostic and interventionist technologies as well as decision aids mediated by algorithms and templates. This is what I refer to as the technologization of expertise, which has far-reaching implications for how expertise is constituted vis-à-vis expert systems in the delivery of healthcare in the digital age. Access to and use of 'expert systems' in optimal ways inevitably necessitates a reconfiguration of the very conditions and consequences of professional/lay expertise.

In conclusion, I draw attention to the consequences these recent developments have not only for the quality of healthcare outcomes but also for research trajectories surrounding digitalized healthcare communication.

Teri Thompson
University of Dayton – USA
Communicating medical science in the digital age: transactional and theoretical perspectives

Here is the thinking behind the title: most of the submissions on medical/health communication that I receive from scholars who do not have a background in communication science per se ignore the two issues that will be the focus of my presentation. Most of the research is based on a simplistic rather than a transactional perspective of the process of communication. The work does not build upon past research that has articulated the complexity of health communication processes. Additionally, most of the submissions are not grounded in the theory that is necessary to provide understanding of explanatory mechanisms. Atheoretical work is less generalizable across settings and medical conditions. As medical/health communication progresses in the digital age, these concerns have become even more problematic. I would like to encourage scholars to ground their work in communication theory and sophisticated, transactional conceptualizations of communicative processes even as we then involve the public, practitioners, and policy makers in the evolution of this work.

Michael Zerbe / Gabriel Cutrufello / Cristina Hanganu-Bresch
York College of Pennsylvania / York College of Pennsylvania / Saint Joseph's University, Philadelphia – USA
Negotiating ethos in 21st-century health communication: contexts and case studies

Overview
The circulation of medical information in the digital sphere entails ecologies of trust and influence that rely on specific codes and rhetorical techniques. In this three-part address, we propose a general theoretical framework for understanding ethos in digital health communication that draws upon the discovery of the double helix structure of DNA (Zerbe) and we offer two case studies focusing on scientific retractions (Cutrufello) and consumer biohacking (Hanganu-Bresch).

Part I. Historical and Theoretical Contexts (Dr. Michael Zerbe)
Ethos in contemporary medical communication is shifting rapidly and is complicated by new genres, processes, and technologies. Developments such as conflict of interest declarations by authors; the explosive growth of open access journals, preprints, graphics, and big data and analytics; and social media and its contributions to the loss of trust in science have completely transformed the medical communication landscape and blurred once-firm boundaries between (*a*) healthcare provider and scientist peers and the so-called general public non-specialists and (*b*) traditional peer-reviewed reporting of IMRAD in research journals and other forms of media that communicate medical information. These changes can be viewed positively in that they show the rhetorical nature of scientific research and communication more clearly than has been the case in the past; however, the changes also allow for a rhetorical environment in which misinformation can thrive and healthcare providers and scientists must struggle and compete to establish and maintain ethos for certain

audiences. An historical parallel that may have forecasted such complications is the discovery of the structure of DNA published by Watson and Crick in *Nature* in 1953, followed 15 years later by Watson's enormously controversial, behind-the-scenes account of the work in his 1968 autobiography *The Double Helix*. This part of the keynote presentation will explore this precursor episode's links with current practices and trends related to retractions and biohacking.

Part II. Retractions, Circulation, and Trust (Dr. Gabriel Cutrufello)

Trust in complex scientific information is, in part, developed through several ongoing discipline-specific processes, which are not often available to or understood by lay audiences. Retraction notices are used to identify research that does not meet the standards of the disciplinary community for various reasons (errors, plagiarism, image manipulation, and fraud - to name a few reasons given for retracting an article) (Bik et al., 2018; Chen et al., 2021; Nair et al., 2020). Studying retractation notices and their function in the construction of trust in knowledge production in the health field can help us understand the role of these documents in producing and disseminating complex health information that can affect individual health choices (Steen, 2011). Researchers from various medical and scientific disciplines have investigated retractions policies (Resnik et al., 2015) and analyzed large datasets of retracted articles to determine the citation life of these articles post-retraction (Bar-Ilan & Halevi, 2017; Bolboaca et al., 2019). Many of these studies recommend that publishers update and normalize policies and practices concerning retractions (Vuong, 2020).

Communication and Writing Studies scholars have the opportunity to draw on Circulation Studies with its focus on "the spatiotemporal ecologies that sustain contemporary discourse and information" (Smith & Brown, 2018, p. 208) to understand better how retracted articles and their retraction notices circulate within a complex digital information ecology and the effect on the disciplinary discourse and the broader public discourse. Focusing on the ecologies of retraction notices, we can study the complex interplay between various genres as they circulate within specific digital ecologies to produce trust in disciplinary knowledge production practices and maintain discourse community standards.

Part III. Communicating Consumer Biohacking: A Critical Discourse Analysis (Dr. Cristina Hanganu-Bresch)

This portion of the talk explores the medial ecology around the relatively new practice of biohacking, a term that denotes a variety of self-optimization techniques, varying from taking certain combinations of vitamins and supplements all the way to gene editing and neural implants. Biohacking is deeply rooted in scientism, technological optimism, and self-surveillance, and construes wellness somewhere on the spectrum between preventative medicine and transhumanist techniques. As biohacking seeps from the rarefied sphere of Silicon Valley types into everyday praxis for regular consumers, a variety of media, such as podcasts, YouTube channels, social media, and pop science articles interpret old and new science into practical advice for mind and body enhancement; however, such advice is often unvetted or in dire need of finetuning, as it has the potential to cause harm. Taking as a case in point the popular podcast *The Huberman Lab*, which mixes science with the promotion of consumer biohacking and monetizing techniques, the talk will employ critical discourse analysis tools to analyze how the "figured world" (Gee, 2011) of mind-body optimization is communicated by science popularizers to the public.

Lucia Abbamonte
University of Naples Parthenope – ITALY
The impact of infographics in medical communication

When considering the contemporary mediascape and the need for clear, effective medical communication and successful dissemination, two related questions spring to mind: To what extent does the medium shape the message? Is a picture really worth a thousand words?

Due to the 'distinct preference for monomodality in Western culture' (Kress and Van Leeuwen 2001, 1), scientists did not fully perceive the full value of visual representation, partly because the necessary skills were not at the forefront of traditional scientific education and research. Indeed, 'the most highly valued genres of writing (academic/scientific treatises, official reports, novels, …) came entirely without illustration, and had graphically uniform dense pages of print (ivi)'. More recently, this dominance of monomodality has begun to reverse, as Mitchell (1986) made clear. He pointed out how the advent of 'the pictorial turn' drew attention to imagery and non-linguistic symbol systems. Mitchell referred to Charles Peirce's semiotics and Nelson Goodman's 'languages of art,' both of which 'explore the conventions and codes that underlie non-linguistic symbol systems and (more important) do not begin with the assumption that language is paradigmatic for meaning (1994:12)'. In his more recent *Image Science: Iconology, Visual Culture, and Media Aesthetics* (2015), Mitchell promoted an interdisciplinary approach and the acknowledgement of the new 'image science' through the plurality of media.

Indeed, the fast-evolving multimodal affordances of the new digitised channels increasingly widen the scope of visuals and the potential of images to compose/convey meaning, also in synergy with the verbal level of communication (Bateman 2014; O'Halloran et al 2018). Accordingly, the resources of what has been called 'infographic' since the 1970s are increasingly being used to make medical information more accessible to the general public (McCrorie et al. 2016).

In some detail, brightly coloured matrix graphics, charticles, polar area diagram etc. allow medical researchers to visualise data at a glance, and the communication of inductive/deductive reasoning can now utilize arrows, lines, hierarchies, logic diagrams instead of verbal syntax and connections, such as 'since', 'because', following', 'if… then', (Abbamonte 2018:50). Furthermore, infographic can also be utilised to overcome language barriers, poor health literacies and/or to communicate quickly during epidemics. Apparently, articles with infographics are exponentially more cited (Pamplona 2022), and infographics (visual abstracts) resulted in significantly greater Altmetric Attention Score and social media attention in comparison with original research articles of similar topics (Kunze 2021).

These findings and their implications for the training of medical researchers in such a scenario will be discussed in this study.

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Maria Cristina Aiezza

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Life in plastic, not so fantastic: a corpus-assisted discourse analysis of academic and popular science articles on the impacts of microplastics on human health

The proliferation of microplastics, a by-product of the extensive production and utilisation of plastics, has become a global environmental concern. These pollutants have been found virtually everywhere, from our terrestrial and marine ecosystems to the atmosphere. Scientists have already uncovered their harmful effects on the environment and animal health. Alarming evidence suggests that microplastics may also enter the human body through various pathways, including ingestion of contaminated food and water, inhalation, and skin contact. Recent studies have even detected small plastic particles in our tissues, colon, stool, blood, lungs, placenta, and breast milk. Nonetheless, the potential risks associated with exposure to microplastics have yet to be fully understood, and further research is necessary to determine the extent of their impact on human health.

Scientific journalism plays a vital role in transferring and making specialised knowledge accessible to the lay public. Communicating complex concepts without compromising the integrity of the original work is a crucial aspect of science. Nevertheless, popular science raises critical issues, as it can be prone to oversimplification, transforming the hedging and speculations of scientific prose into absolute truths, exploiting sensationalism, scaremongering, providing one-sided interpretations and misrepresentations.

This paper examines a selection of news articles from some of the leading USA popular science magazines that focus on the link between microplastics and human health. The corpus is compared to a collection of the primary academic scientific articles quoted in the news under investigation. The study uses a corpus-assisted discourse analysis perspective to investigate how the two types of publications present the interaction of microplastics with human health, with a specific focus on the popularisation techniques found in scientific journalism, such as the use of general terms, definitions, metaphors, and examples. A significant knowledge gap is still acknowledged in scientific literature regarding microplastic toxicity and epidemiology. Therefore, the study also aims to explore how the uncertainty surrounding the impact of microplastics on humans is re-contextualised in popular science articles.

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Lucia Altucci
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Medical Science & Communication: experience of the editorial level.

In the last decades, the way we make and communicate science has drastically changed.

Not only have new technologies allowed unprecedented discoveries at the single cell level, but the way we write and communicate such discoveries has transformed the interaction between scientists and any type of analyses.

This revolution is certainly linked to the current digital approaches as well as to the need (and often to the requirement) to make more open science.

In addition, the use of tools of artificial intelligence also impacted communication in science. Furthermore, where applicable, the use of metrics in the evaluation of the career of scientists, initially only bound to the editorial evaluation, is deeply influencing the choice of writing and interconnecting science.

These arguments will be critically discussed during the meeting.

Giuseppe Balirano / Maria De Santo
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Sharing medical knowledge on SNSs: a corpus-based investigation of online medical communications supporting families of gender-diverse children

Gender identity has been a topic of increasing interest in recent years (Kara 2017; Castro-Peraza *et al.* 2019; Balirano/Borba 2021; Cover 2022; Zottola/Borba 2022), with a growing number of children and adolescents identifying as gender-diverse (Steensma *et al.* 2013; Diamond 2020; de Abreu *et al.* 2022; Martin/Hadwin 2022). In response, various medical organisations and advocacy groups have developed resources and information for families of gender-diverse youth (Paceley *et al.* 2021). However, there is a need to investigate how this specialised medical communication is being shared and popularised in digital contexts where non-expert laypeople seek to acquire knowledge and become promoters of well-being practices. Therefore, this study aims to explore how specialised medical communication related to gender-variant children and adolescents is shared and communicated on online platforms, such as websites, blogs, and social media. The study seeks to investigate how medical research is 'translated' into more comprehensible language for non-experts and how this information is then shared by individuals who will act as 'prosumers' (Ritzer/Jurgenson 2010), contributing to the dissemination of medical knowledge.

Corpus linguistics methodologies (Baker 2006; Egbert/Baker 2020) will be adopted to examine how specialised medical discourses are 'simplified' and transformed in this process of popularisation. Specifically, the investigation will analyse a corpus of online texts from organisations supporting families of gender-diverse children and adolescents, paediatric associations, and groups focused on promoting the health and positive development of youth who identify as gender-diverse. The corpus will be analysed using Sketch Engine (Kilgarriff *et al.* 2004, 2014), with a focus on identifying the most recurrent features shared by the online texts under investigation, including the use of verbs, adjectives, and other linguistic features underlining specific popularising strategies. In this way, the study's results will contribute to a better understanding of how medical knowledge is disseminated and utilised in online contexts to promote the well-being of gender-diverse youth, contributing to the development of more effective and accessible resources for families of gender-diverse youth.

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"I am one of the alarmists". Critical responses to text generation with Artificial Intelligence: evaluating ChatGPT

This study aims to analyse critical responses to the generation of texts, including scientific and medical articles by means of Artificial Intelligence. It is argued that the affordances of text-generation models using Artificial Intelligence (AI) are increasingly plausible, as the programs reproduce the format of texts memorized for the purposes of producing computer-generated content, mimicking but not replicating human intelligence. The most recent incarnation of such programs, ChatGPT, a Large Language Model (LLM), has been widely adopted in the academic community, not just by novice

writers, since its launch in November 2022, giving rise to considerable alarm as it is evident that the model can replicate essay writing and research articles in a plausible manner, resulting in significant concerns among the editors of scientific journals, including medical journals, dismayed by the large-scale submission of articles drafted not by the purported authors, but by means of ChatGPT. Journal editors are seeking to adopt defence mechanisms to identify and weed out the manuscripts of dubious authorship, but preliminary studies show that they are not readily detectable even by experienced journal editors without adopting AI output detector software. In a critical discourse analysis framework (Bhatia 1993, 2014, 2017) this study examines critical comments from *Nature Briefing*, *Science*, the *New York Times* and the *Financial Times,* in addition to the scientific publications listed in the Bibliography, in which scholars in a range of disciplines express their concern about the impact of AI-generated text not just on undergraduate essay writing, but also on scientific and medical writing, resulting in plausible sounding text that presents fabricated results that are purported to be authentic, a phenomenon known as hallucination. The critical responses are classified according to author stance, with the authors identified as Alarmists, Enthusiasts, Sceptics, Prohibitionists, Philosophers, Ethicists and Pragmatists. The article concludes by arguing that ChatGPT should not be viewed as a matter of concern solely for IT specialists as this disruptive technology is raising questions that need to be addressed by language specialists, discourse analysts and scholars concerned about academic integrity and the quality and reliability of scientific and medical discourse.

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Discursive trends in the scientific community on radical life extension: a systematic review

Background
Over the past fifteen years, the topic of Radical Life Extension (RLE) has reached new heights in the public sphere as well as within the scientific community, where much of the discourse concerned itself with discussing the scientific truthfulness of such processes, e.g. regenerative medicine to counter the aging process, brain preservation techniques, and cryonics (Moshakis 2019).

Aims
The aim of this systematic review is to summarise the evidence available in support of these processes and understand what language is used by the scientific community to talk about and comment on the processes of RLE: do any connotations of RLE by the scientific community emerge? How can the language employed by life extension companies and the scientific community impact on the underlying power imbalance between different actors?

Methods
Guided by the PRISMA statement, we conducted a comprehensive review across four electronic databases, from the first instance of publication in 1973, until 30 January 2023. A total of 120 articles was retrieved. The articles were reviewed for inclusion, and the assessment of methodological quality was based on the Kmet appraisal checklist for both quantitative and qualitative studies.

Expected results
Interesting points worth raising, with respect to the analysis conducted, are Fairclough's (1992) notion of *democratisation of discourse* and van Dijk's (2006) discourse on manipulation, intended here as a communicative and interactional practice, in which a manipulator exercises control over other people, involving abuse of power. These notions are examined in light of the selected theme and the respective corpus. Another interesting point is related to the use of certain words and phrasal constructs as a mean to discredit those practices reducing them to mere science fiction or pseudoscience, in contrast with similar but proven scientific concepts.

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From communication in medical sciences to the mechanism of translation of the genetic code: lessons from cancer

Communication is an integral part of the research of a scientist. Written papers serve as a gauge of scientific productivity and provide a long-lasting body of knowledge from which other scientists can build their research. Writing Scientific Papers will help you select and organize a paper's content, draft it more effectively, and revise it efficiently. Among others, it is useful for using verbs optimally, provides general rules for text mechanics (abbreviations, capitalization, hyphens, and so on), and points out frequent shortcomings for speakers of specific language groups. It is of pivotal importance to exchange information to the other members of the society that include other scientists, medical doctors and general people (patients). The individuals of our society can be compared to the engine gears of our cells: the proteins. The nuclear content is the information that drives proteins that in an ordered network coordinate the different functions of a cell (cytoskeletal organization, movements, immune interactions, production and secretion of substances etc.). Scientific papers represent the information that has to be spread in the scientific community (individuals as researchers) in order to improve the knowledge. In the same manner, it is important for a cell to spread the information contained in the genome (DNA) from the nucleus to the cytoplasm (mRNA) in order to be translated in the proteins in a finely tuned function and network. The regulation of the network is thereafter made possible by the existence of non coding RNAs, including microRNAs and long non coding RNAs, strictly interacting each other and with protein expression. Non correct information, as in the case of a scientific manuscript, can cause dismal effects on the community (the scientific network or protein function, respectively). Here we describe how an incorrect interaction between a microRNA (miR423-5p) and a long non coding RNA (MALAT1) can induce an incorrect regulation of the information within a cell thus inducing a tumour phenotype in multiple cancers, including prostate adenocarcinoma and hepatocellular cancer. This scenario represents a parallelism between a non correct scientific information and an intracellular dismal regulation of the information inducing a cancer phenotype.

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Do medical students improve their language skills while studying through English?

Over the last decades, the internationalization of higher education has led many universities in non-English speaking countries to use English as the medium of instruction (EMI) (Macaro, 2018). Offering EMI programmes has become a successful strategy to attract international students and increase their academic prestige (Dafouz, 2018). Instead, the students who opt for English-mediated education are usually driven by better job opportunities after graduation, by the possibility of creating international relationships and improving their English proficiency (Costa and Mariotti, 2017; Galloway and Ruegg, 2020).

Although previous research has focused on the students' motivations to opt for EMI education, little is known about the role played by English in the students' academic pathway and language

proficiency. To address this gap, this study focuses on a group of students enrolled in an EMI medical school in Italy and verifies whether their English proficiency improves during two academic years. Data were collected from two English language tests, created to measure the students' receptive skills and two questionnaires, administered at the beginning of their first year and at the end of the second. The data were analyzed quantitatively and qualitatively. The findings showed that some degree of language improvement took place, which according to the students was not voluntary but incidental. Taken together, the results may have some implications in the development of language support to be offered to the EMI medical students.

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Digitalization of doctor-patient communication from a cross-cultural perspective - an investigation of posts published by doctors on the Department of Health and Social Care (DHSC) and 'Ministero della salute' Twitter accounts

Health professionals have begun using social media to benefit patients, enhance professional networks, and advance understanding of individual and contextual factors influencing public health. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3863578/). Notwithstanding, some criticism has emerged over time concerning the discussion of the dangers of SM (Social Media) in medicine, which has largely overwhelmed consideration of its potentially positive applications (George and Green 2012) mainly due to the existence of divergent cultures of medicine. In particular, privacy confidentiality and formal conduct in medicine are listed among the top values and priorities according to a traditional cultural perspective. Conversely, Social Media values openess, sharing, connection and informality. Digitalization of medical knowledge and communication has become crucial in the post-Covid era, when the rise of digital health has accelerated, including telemedicine and teleconsultation, remote monitoring, connected devices, digital health platforms (https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690548/EPRS_BRI(2021)690548_EN.pdf). Starting from these assumptions, the study aims to explore doctor-patient communication through social media by the Department of Health and Social Care (DHSC) and Ministero della Salute after the Covid-19 pandemic. In particular, a corpus made up of posts published by doctors on the Twitter accounts of both the English and Italian Departments of Health will be examined in order to scrutinize the strategies employed to disseminate medical information and offer medical services to the British and Italian citizens respectively. Specifically, posts covering different medical issues (e.g medical prevention, offering expert help, etc) will be analysed from CDA and multimodal perspectives with attention towards rhetorical features aimed at enhancing credibility with the audience. Methodology is based on both Critical Discourse Analysis (Van Dijk 2006; Fairclough 2012, 2003; Van Leeuween, Wodak 1999) and a social semiotics approach (Kress &Van Leeuwen 1996, 2006) with the focus on

discourse structures, evaluative choices along with visual arrangements and multimodal vectors, which will be investigated from a cross-cultural viewpoint.

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"Designed for you and others involved in your care": the discursive construction of femininity in online RCOG patient information leaflets

This paper provides a CDA-informed approach to the discursive construction of femininity in a corpus of seventy-five patient information leaflets (212691 tokens, 9377 types, 8633 lemmas) available on the Royal College of Obstetricians and Gynaecologists website (https://www.rcog.org.uk/for-the-public/browse-all-patient-information-leaflets/), with a view to investigating the discursive strategies by means of which female addressees are construed, and notions of female health and well-being are conveyed chiefly to a non-specialist audience. The emphasis on language as a constructive tool is among the core assumptions of CDA and, in the specific case of the RCOG website, it may become an indicator of the way leading players in the healthcare system provide medical guidance and information in order for female subjects to become both fully aware of possible conditions in relation to a wide range of life events (disease, pregnancy, childbirth, menopause, etc.) and actively engaged in online informational communication about self-care. Analysing linguistic modes of communication in these specific samples of the PIL genre, a number of recurrent textual features and discursive strategies emerge, among which "synthetic personalisation" via the pervasive occurrence of the second person pronoun *you* and possessive adjective *your*, aimed at addressing readers directly and creating a relationship of "equality, solidarity [and] intimacy" (Fairclough 2001: 52); terminological simplification (with frequent use of parenthetical lay terms as explanations for medical jargon), which may indicate disparity in the expert-to-layperson interaction, but also text accessibility aimed at reader centredness; recurrence of epistemic modal expressions to convey scientific knowledge in non-peremptory ways. The overall research question this paper aims to address is whether such discursive strategies represent unequal power relations between medical experts and female layreaders, or whether they are effective in constructing text receivers as both informed with regard to typical female (pathological) conditions and reassured about their health state – but most of all as valued members of social communities in which healthcare professionals and laypersons successfully communicate for the sake of well-being.

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Covid-19 'brain fog' narratives in institutional, news media and academic sources

Background

Covid-19-related 'brain fog' is "not a medical term" (Budson 2021) – disseminating sources tell us – but, rather, a set of cognitive symptoms, "which *people* call brain fog" (WHO 2021, emph. added). So careful are these sources in specifying the popular connotation of the phrase, as medical scholars are comfortable in their use of the same expression: the WHO Covid-19 Research Database returns 329 (as of 15 Mar. 2023) studies on Covid-19 mentioning 'brain fog'.

Aims

This paper would like to investigate the definition of the term 'brain fog', in and post Covid-19, at the popular and specialised levels – which thing, to the author's knowledge, has only been tentatively researched medically (cf. Miyake & Martin 2021, McWhirter *et al.* 2022) and not at all thoroughly from a linguistic viewpoint, yet. A more specific research question is: how is this phenomenon *narrated* by those experiencing it, and perceived and reported by different sources?

Methods

Two corpora of news media (919) and research articles (329) (1 Dec. 2019 – 13 Mar. 2023) have been collected for this purpose, to which hand-picked texts from disseminating medical sources (such as the WHO) have been added. A qualitative-quantitative analysis will be conducted on these, following corpus-assisted methods (Baker 2006, McEnery & Brezina 2022), as well as studies in narrative (Toolan 1988/2001) and narrative medicine (Charon et al. 2017).

Expected results and relevance

The study is expected to return a current overview of the definitions and descriptions given of the medical condition by both patients and professionals. The results will inscribe themselves within – and hopefully expand – an ongoing research interest in the linguistic nature of medical definitions based on narratives (Grego & Grego 2021, Grego & Grego forthcoming). They will also expectedly contribute to investigating digital medical communication in times of knowledge shift or, even, knowledge *negotiation*, between professionals and non-professionals.

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Communicating uncertainty in clinical study reports

This article provides a discursive analysis of how uncertainty is constructed in clinical trial reports in a case study concerning the pharmaceutical industry. More specifically, the focus is on linguistic markers of uncertainty and vagueness and how these affect the communication of transparency and the construction of trust (Koskela and Crawford Camiciottoli 2020). Calls have been increasingly made among healthcare professions for authentic disclosure and greater transparency in clinical trials in order to enhance trust among the many stakeholders. Furthermore, the inability to communicate uncertainty may lead to an understatement of the risk factors involved and an overstatement of certainty which can lead to false claims and eventually distrust (Teigen, 1988; Baruch et al., 2014).

This study does not intend to investigate the validity of clinical data results or biased reporting practices, but rather the aim is to uncover lexical-semantic, pragmatic patterns in the language of probability and certainty. For this purpose, the study is conducted from both a quantitative and qualitative research perspective involving register-oriented and corpus-driven analytical procedures (Biber and Conrad, 2009) with the scope of identifying key vocabulary and phraseology, namely key words, lexical bundles/n-grams and phrase frames, prototypical of clinical trial/study reports. The reports are taken from two pharmaceutical companies (Pfizer and Novartis), accessed on the company websites, to form two sub-corpora of approximately 200.000 words each. A third corpus of published Clinical study reports in medical journals will be part of a comparative analysis carried out to capture register variation in the representative texts. The overall purpose is to explore the lexico-phraseological profiles and functions of key linguistic features which contribute to the construction of uncertainty affecting the transparency and veracity of the text types. It is hoped that results from this sort of language analysis may fill the gap in studies of linguistic phraseological variation across English pharmaceutical texts, as well as have implications in lexicography and teaching English for Specific Purposes (ESP), and provide insights for healthcare policy makers.

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MedScape as an informational source of expert perspective: analysing health speeches for metadiscourse patterns

The last decades have witnessed the development of novel and diverse forms of digitized communications and genres which have influenced the ways experts communicate to an audience. Among these, the genre of health blogs is one of the means to communicate knowledge in a personalised way, build online communities of practice, and address a professional as well as a lay audience community (Tessuto 2020, 2021, 2023). Standing alongside this is the newly emerging *MedScape.com* platform, made available to attract healthcare professionals wishing to gain the latest medical news and expert perspectives. Consisting of several sections, *MedScape* content website is comprehensive in scope, ranging from popularizing news articles to peer reviewed journals, including videos of expert talks. However, to the best of our knowledge, the body of linguistic research into this web resource has not yet been covered satisfactorily, despite some linguistic studies dealing with similar online sources, such as TED Talks (e.g. Caliendo/Compagnone 2014) and lectures (Molino 2018). In an attempt to bridge this gap, we rely on a representative corpus of video scripts of interviews and monologic speeches delivered by medical experts for *MedScape* to investigate the use of linguistic and discursive features that are relevant for expressing ideas, and viewpoints by holding a dialogue that is persuasive for the immediate audience. Such features are examined in relation to stance and engagement markers suggested in Hyland's (2005a/b, 2010) taxonomy of metadiscourse. Preliminary findings reveal differences in the use of metadiscursive devices in interviewer-interviewee videos *vis-à-vis* monologic speeches, especially in audience engagement.

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Bridging the web-based health information gap: the case of rare diseases

The increasing digitalisation has had a significant impact on knowledge transmission worldwide by changing and challenging both the amount and quality of web-based information. Nowadays, especially in the medical field, both experts and laypeople have a wide range of digital tools available

to spread and obtain information on health-related topics. Although the dissemination of medical information on the Internet can facilitate knowledge transfer and improve popularisation, the quality and accessibility of information, in terms of reliability, accuracy and intelligibility should also be taken into consideration. Furthermore, in the case of rare diseases, it is essential for patients and their families to gather medical information that is reliable, clear, engaging and easy to understand. This is why medical and healthcare specialised websites play a key role in providing the rare disease community with useful, up-to-date and trusted sources of information. On the basis of these criteria, this study is aimed at exploring both the factual availability, quality and usability of medical information for laypeople through a detailed analysis of some specific rare diseases on two selected websites. Focus is laid on specific lexical and syntactic components, such as vocabulary, register, phrasal structures and lexical phenomena involved the discursive shaping of knowledge. The results of this investigation call for active involvement of medical practitioners and/or professionals in the design and dissemination of web-based health information.

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Parents' narrative about congenital heart diseases: acquiring knowledge and sharing empathy

This paper seeks to describe the narratives of parents with children with heart disease who choose to share their experiences on healthtalk.org in order to identify how information, knowledge (and empathy) are used to help others in a similar situation to bridge a cognitive and emotional gap. The investigation was conducted by detecting the most frequently

recurring discursive patterns in the narratives, followed by an analysis of the most frequently used verb that best represents the parents' cognitive awareness (or lack of it) of their experiences with their children with congenital heart disease: know.

The discourses in these self-reports follow an emotional flow that varies from story to story but has a common thread. This does not follow a precise chronological order, as flashbacks and emotions are prevalent in all stories, but the main points are found in all stories. The analysis carried out with Voyant of the most frequently used verb know reflects the narratives described. The leitmotif underlying all these points is the issue of good parenting: good parents are those who protect their children.

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Does medical science consider Artificial Intelligence without bias? A critical discourse analysis in the field of radiation oncology

In recent years, the growing interest and concern about the use of artificial intelligence (AI) in medicine and healthcare has become the focus of interdisciplinary scientific research, policy debates, and societal engagement (Combi et al. 2022). Some reports identify and explain the main clinical, social, and ethical risks of AI in healthcare, e.g., potential errors and harm to patients, risk of bias and increased health inequalities, lack of transparency and trust, and vulnerability to hacking and data breaches (European Parliamentary Research Service, 2022). According to other studies, however, AI can lead to better attentiveness outcomes and improve care productivity and efficiency. It can also allow healthcare workers to spend more time caring for patients, which in turn increases staff morale and improves retention (Spatharou, Hieronimus, Jenkins, 2020). This study focuses on radiation oncology (RO) because AI could be potentially highly transformative in this area of medicine, as it relies heavily on digital computing and computer software (Huynh et al. 2020). The purpose of the analysis, which assumes that research articles (RAs) are a privileged arena for discussing this conundrum, is to understand radiotherapists' attitudes toward medical AI, so that bias can be identified before it can have dire consequences for patient care. Thus, electronic databases were searched for open access publications on this topic covering a period between 2018 and 2021, and then collected as a corpus of 32 RAs with 265,518 running words. At the micro-discursive level, the attitude markers (Hyland 2005, 2008) chosen to qualify AI within the RO scientific community were manually annotated and then distinguished by positive or negative polarity according to the "good-bad or positive-negative parameter of evaluation" (Thompson / Hunston 2020). And finally, at the macro-discursive level, critical discourse analysis (Fairclough / Wodak 1997; Fairclough 2003) was applied to uncover the possible ideologies underlying the construct of AI and to explore how these choices may affect physicians' adoption and implementation of medical AI, its acceptance and receptivity among patients, as well as public understanding and social construction.

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"Why can't I hold my pee when I laugh or cough?" (Non-)expression of taboo concepts in consultations and social media texts for urological cancer patients

This investigation explores urological cancer patients' mental and physical struggles related to their condition through the language manifestation of taboo, stigma, and silence. As healthcare communication in Hungary was characterized by a hierarchy for centuries, patients might find it difficult to mention taboo concepts during consultations (Jobbágyi 2013). Given that cancer patients are frequently not active participants in the discussion of survival/mortality, treatment options and impacts, opportunities for increasing patient participation in decision-making in urological cancer patients are needed (Song L. 2015). It has also been shown that greater awareness of empowering or disempowering patients' metaphor use can lead to more effective communication about the experience of cancer (Semino et al 2017). Given that we focus on how patients manage social taboos and interact on social media platforms by contrast to consultations, interactional sociolinguistics serves as a theoretical background (Spolsky 1998). Our qualitative analysis combines corpus linguistics tools of concordance, word sketch visualization, keyword extraction, and Theasurues; speech analysis of anxiety levels linked to taboo concepts. The data comprises a corpus of Hungarian blog texts, and Facebook and Twitter posts; 30 oncology consultations recorded in a Hungarian clinic as well as these 30 patients' medical reports. Our aim is to analyze whether the taboo contents verbalized in the informal written text corpora of social media are also referred to in consultations, or mentioned in medical reports. For this purpose, the data also include a corpus of Hungarian blog texts, and Facebook and Twitter posts. The findings reveal that expressing emotions of fear, anxiety, and shame associated with taboo concepts (e.g., death, urination, erectile dysfunction, anxiety, and depression) are much more frequent in social media texts compared to patient-physician interactions. Nevertheless, it has been revealed to be crucial in effective and shared decision-making to minimize the paucity of information. Therefore, clearing taboo concepts during consultations might lead to more efficient communication and therapy.

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Facts or followers? Identifying key variables in medical-related digital communication. A case study from covid-19 tweets

Computer-mediated communication in digital and online environments has become a common practice that involves a growing community on a global scale (Herring and Androutsopoulos, 2015), encompassing discourse-related features in a language-oriented perspective (Leppänen 2017). In particular, Social Media (SM) platforms have provided an unrivalled opportunity to communicate in a twofold direction: on the one hand, people could get information about a specific topic by retrieving both real-time and archived data; likewise, users are given a personal space to share evidence from reliable sources, but also to express their own (and unreliable) views. A possible consequence is the rapid spread of fake news that appeal to an alleged sense of truthfulness (D'Ancona 2018), thus overcoming the range of facts spread via institutional sources, the latter being often attacked by users who undermine the concept of affiliation on the basis of mutual interests (Author, in press). The recent Covid-19 pandemic proved to be an infodemic, too (WHO 2021) and is still far from being over, at least in language and discourse-related terms. Both facts and unverified news are still making the news and are still part of SM interactions, thus shaping the ideological views of people and users. Engagement on such platforms relies massively on the following/follower criterion, thus creating paths of information channelling depending on quantitative metrics and the impact of social "influence" provided by some digital opinion leaders (Locatelli 2020). This presentation aims at providing a case study involving a sampling of random Covid-19 interactions on Twitter in a short timespan. Following a resurgence of Covid-19-related interest due to new revelations concerning the origin of the pandemic and in a one-month timespan (March 2023-April 2023), the hypothesis is that some messages could be more influential and could get more engagement irrespectively of their intrinsic truth but on the basis of the influential user that spread such information. As a result, the popularisation of medical facts may be dramatically hindered by non-objective processes and be preferred to scientific methods. Using a specific retrieval tool (Tweetcatcher, Brooker *et al.* 2016), tweets could be randomly collected, arranged and analysed on the basis of device-specific metrics (e.g. number of following/followers, number of replies) to assess their engagement in relation to their potentially harmful, non-factual meaning.

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Mind your health: a corpus-assisted discourse analysis of mental health blogs in the UK and Australasia

Mental health encompasses a person's emotional, psychological, and social well-being. Although mental disorders are prevalent, they are still surrounded by stigma, social exclusion, and discrimination.

The COVID-19 pandemic has shed light on the importance of mental health and encouraged people to address these issues more openly. The Internet has played a significant role in disseminating information on coping mechanisms for mental health issues, with governmental and charitable organizations, private practitioners, and ordinary individuals sharing resources on their websites and social media accounts.

Mental health care varies greatly across different societies, as it is shaped by a range of factors including cultural history, politics, and the economy. The way in which mental distress is understood and the services that are provided to address it are influenced by the specific cultural knowledge and practices within the relevant systems. These systems, in turn, are embedded within larger social contexts that shape our overall understanding of health and well-being.

The present study examines a collection of blog posts published since the COVID-19 pandemic on the websites of two mental health associations active in distant regions: Mental Health UK and The Australian and New Zealand Mental Health Association. To compare trends in terms of lexico-grammatical features and motifs emerging in the two contexts, the paper employs a corpus-assisted discourse analysis approach. Additionally, the study examines the concept of mental health presented in the texts published on the two organizations' websites.

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Navigating medical lexis: a digital era and shifting patient expertise

Healthcare communication training generally encourages healthcare professionals to minimise the use of scientific lexis in medical consultations and/or to eliminate it completely (Fage-Butler & Nisbeth

Jenson, 2016) for the sake of clarity for the layperson i.e. the patient. Indeed, this usage of laity is orientated towards patient-centred communication (Kwame et al., 2021) with the intention of reducing traditional asymmetrical doctor-patient interactional disparity (Fairclough, 1989; 1992) as previous beliefs were that medical linguistic norms can "alienate and confuse patients" (Wodak, 1996: 61). However, patient literacy in terms of scientific lexical knowledge is constantly shifting, influenced greatly by the digitalised era, and many patients can now be placed on a continuum of those who are "expert patients" to those who are less so (Sarangi, 2001). The interaction which currently takes place in medical encounters would seem to embrace shifting roles and the patient voice is now a recognised component of patient-doctor encounters whereby patients are also active members of shared decision-making treatment choices (Charles, Gafni & Whelan, 1997).

This study aims to investigate the ways in which scientific lexis can delineate patient-doctor identities within medical encounters and how laity and expertise are negotiated. The study will adopt a mixed methods approach (Anguera et al., 2018) drawing on ethnography (with the creation of an online questionnaire) [Sarangi, 2006] as well as corpus-based discourse analysis (Baker, 2006) to investigate a corpus of 22.5 hours of transcribed medical encounters collected in cosmetic surgery consultations in the UK. The analysis will be twofold offering both qualitative and quantitative statistical findings regarding lexical usage. The results are expected to reveal the ways in which patients now demonstrate greater scientific lexical literacy (Fage-Butler & Anesa, 2016) and how this may also influence practitioners' decisions regarding their own lexical choices.

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Online resources on type 2 diabetes in the USA: a sweet and bitter literacy

Diabetes is one of the most widespread diseases worldwide with 422 million adult patients in 2014, and 1.5 million deaths in 2012 (WHO, 2016). There are two types of diabetes: type 1, which consists of deficient insulin production in the body and is treated by daily administration of insulin to regulate the amount of glucose in the patients' blood; and type 2, which is caused by the body inability to use the insulin it produces. While the cause of type 1 diabetes is not known and not preventable, type 2 diabetes appears to be linked to incorrect food habits. The high mortality and morbidity of both diseases are well known, but the impairment in the quality of life of people with diabetes has been neglected to some extent. Patients can get stressed in their social worlds (family, school, work and friendships). This is due, first of all, to the extremely careful self-management of their nutrition, but

also to the need to (self) administer insulin or other hypoglycemic drugs, as well as to control their blood sugar regularly. Additionally, in the United States the cost of insulin is very high and healthcare coverage is not available to all (Sainato, 2022). This makes treatment extremely demanding, and also requires a holistic approach to the disease, based on affect and empathy, in addition to adequate information, training and therapy.

The present study is aimed at analysing diabetes online resources with a view to assessing their potential impact and also contributing to the online health literacy debate (Palumbo, Capolupo & Adinolfi 2022; Robbins & Dunn 2019; van der Vaart & Drossaert 2017). The websites surveyed for this research have been selected on the basis of their authoritativeness and popularity in line with the cyberliteracy criteria outlined by Gurak (2001: 94-96): the US Center for Disease Prevention and Control (https://www.cdc.gov/diabetes/index.html), the American Diabetes Association (www.diabetes.org), the Association of Diabetes Care and Education Specialists (www.diabeteseducator.org), and the National Diabetes Education Program (www.niddk.nih.gov). Furthermore, some of these websites have already been analysed in terms of their interactive features and web usability (Davis, Jiang 2016), which may well integrate our critical linguistic approach.

The research questions we want to answer are :
- Is the information available accurate and accessible to youngsters and adults alike?
- Are the guidelines helpful and do they use effective communicative strategies?
- What differences and similarities can be observed across these online resources according to the age, ethnicity and culture of the targeted groups?

A sample of web pages and leaflets focused on type 2 diabetes prevention will be analysed according to a Critical Discourse Analysis framework (Fairclough 1995 & 2003; Hodge & Kress 1993) that also combines web-mediated genre-analysis, paying special attention to forms of address, lexical chains, patterns of transitivity and granularity (Garzone 2019).

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Blurring the boundaries between discipline's culture and citizens: the 'European Science Association' and the democratisation of scientific and medical knowledge

Over the last decades, the spread of ICTs in disseminating information and the increase in transdisciplinary research have unquestionably facilitated interactions between science and people with the aim of improving societal capacities and developing scientific knowledge. This trend is all the more evident in the field of medicine where the emerging development in Open Science practises make the scientific process more democratic, while encouraging open and rapid scientific communications between researchers and citizens. Rather than separating science and society (Greenwood and Levin 2007; Bhatia 2008; Wicks and Reason 2009; Loorbach 2010; Bhatia 2016), these practices create unique spaces of interaction and discourses via generating more opportunities (and new challenges) to spread research outputs than the traditional specialist/professional discourses of the medical academy, and provide the broader public with the practical means of using this knowledge space. Allowing diverse ways of thinking about and addressing societal problems, such new practices disclose the general public alternative paths to participate actively in medical science and professional scientific knowledge.

The *European Citizens Science Association*-ECSA ([European Citizen Science Association (ECSA) – Engage with us](#)) represents an interesting example of the increasing collaboration of science and society towards addressing real world issues. This research aims at revealing how, and to which extent, ECSA website addresses scientific and medical real-world issues through combining action with the shared production of scientific knowledge in a collaborative communication between scientists, practitioners, and lay-people (Bathia 2008; Kress 2009; Sarangi 2010; Garzone 2020; Thompson and Harrington 2021; Hanganu-Bresch *et.al* 2022). More specifically, the analysis attempts to demonstrate how the lexical and phraseological interaction generate the boundary crossing and provide a multifaceted discourse system through a multimodal structure (which is manifest in "Citizen Science for Health" ECSA Working Group), question the internal processes of professional scientific communication (i.e., ECSA "Completed Projects" and "Current Projects"), and reset the nature of professional roles/identities, expertise, and practises via a multimodal interaction between medical science and the non-specialist public community (as in the case of ECSA "Documents").

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Language and aging research in China

Dementia occurs in each country and each culture. Cultures and family values vary from country to country, and so do the systems and policies governing aging, healthcare, and caregiving with them. They may influence the sociopragmatic practice of seniors, both with and without dementia, and their attitudes to self-identity. Following the inquiry along this line of research, the proposal panel assembles scholars with a shared goal of exploring language and aging research in China. The three presentations examine a couple of issues from several theoretical and methodological perspectives (e.g. discourse analysis, case studies, and systematic reviews). As the role of pragmatic language abilities is increasingly emphasized in the diagnosis of dementia, two presentations focus on pragmatics in language and aging research. One presentation offers a systematic review explicating pragmatics studies on persons experiencing dementia (Lyu). One presentation examines politeness phenomena in the naturalistic conversation of Chinese individuals with dementia (Song). The third, taking seniors' attitudes and stance on long-term senior caregiving in China as the point of departure, discusses seniors' multiple identities that emerged in the aging narrative (Wei). Findings are expected to contribute to language and aging research in terms of theoretical significance and cultural diversity.

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News that never was: healthy (and unhealthy) quoting in uncertain medical communication

The contribution focuses on how scientists and practitioners in medicine and health may have a scientifically motivated impact on any public audience of non-experts through traditional vs social media communication. The lack of authenticity in scientific and professional communication during one of the most controversial Covid-19 vaccination campaigns is the main goal of our ongoing research.

The accuracy (or lack thereof) in the information circulating on any vaccine in January 2021 is not called into question. Instead, the focus is on the impact of the way in which 'vaccine effectiveness' was represented and communicated in popular and non-scientific contexts. The vaccine campaigns were often supported by arguments that were largely distorted by incorrect, unbiased references and erroneous quotations, even in the presence of quotation marks. The result is a collection of written and oral texts rich in fake news and unfaithful quotations.

Our corpus comprises texts that appeared in one Italian and one British national newspaper (*Il Corriere della Sera* and *The Times*) from 14th to 27th March 2021 containing the keyword "AstraZeneca" and retrieved using LexisNexis, coupled with articles posted on the two newspapers' Facebook pages and retrieved using the same criteria. This is compared with another contemporaneous corpus composed of US digital news on the linguistically controversial "Operation Warp Speed". The analysis focuses on quotations from experts and scientists as they appear in headlines and leads, compared with their reported discourses in the body of the texts. The findings show that imprecise and out-of-context quotations abound in headlines, often distorting the original meaning of the cited words and possibly misleading readers. This helps to shed light on the potentially important and positive role that digital, disintermediated communication plays for scientists and experts who want to communicate directly to their audiences to avoid distortions or rectify incorrect quotations.

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"Knowing about something is not the same as knowing something". Promoting mental health literacy in the digital public sphere

In the last few years, the role of media in conveying a message of social responsibility to a wide audience has increased due to the fact that many governments have adopted a less authoritative approach in favour of policy-making based on promotion and education. Against this backdrop of global changing policies, governments have started to include discourses of diversity and inclusivity in mass media campaigns and introduced national action plans to improve health literacy. For instance, more and more mental health organizations have been launching awareness-raising campaigns on diversity and inclusion and mental health literacy initiatives, featuring a diverse group of individuals to speak out against commonly held stereotypes and the so called "implicit bias" (FitzGerald and Hurst 2017: 2).

Jorm et al. (1997: 182) coined the term "mental health literacy" and defined it as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention". While different policy initiatives related to health literacy have been introduced in many countries, mental health literacy is still neglected even though research (Henderson 2013; Wei et al. 2015) has shown that mental health literacy reduces stigma and promotes help-seeking intentions.

The present study aims to examine a sample of text-types (videos, brochures, handbooks) retrieved from the websites of some Canadian non-profit organizations such as the Canadian Mental Health Association (https://cmha.ca/) and Mental Health Literacy (https://mentalhealthliteracy.org/).
Against the theoretical framework of multimodal discourse analysis (Jewitt 2014; Kress and van Leeuwen 2021), the research aims to explore how non-profit organizations promote mental health literacy through verbal and visual communicative techniques and to what extent semiotic resources

interplay contributes to fighting stigma, changing public attitudes and behaviour towards mental disorders.

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