

Media gatopardism: health portrayals in press, radio and television pre and post-pandemic

Gatopardismo mediático: representaciones de la salud en prensa, radio y televisión pre y pospandemia

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ABSTRACT

Introduction: The changes brought about by the pandemic in journalism have been and continue to be widely investigated. However, in the aftermath of the biggest global health crisis for a century, there are hardly any studies in the literature on the evolution of the health portrayals in the media before COVID19. **Methodology:** A quantitative content analysis was used to review the concept of health in the general press, radio and television with the largest audience in Spain in the periods before and after the pandemic. **Results:**

These media construct health from a mostly biomedical conception to the point of tripling their coverage with respect to information representing social health aspects or lifestyles. The very small variation in the data before and after the pandemic is noteworthy. **Discussion:** The changes in gatekeeping that accompanied the hardest stage of the pandemic have not been correlated with an evolution in the way of conceiving health. This suggests a deep-rooted biomedical approach to health that has prevented emerging representations such as the health drivers, One Health or global health, which emerged with prominence in COVID19, from gaining a foothold in the literature. **Conclusions:** After noting a Lampedusian 'gatopardo effect' in post-pandemic health journalism, further research is needed to investigate the causes of the entrenched media hegemony concerning biomedicine and its possible relation with the mistaken social identification between sanitation and health.

Keywords: journalism; health; mass media; COVID19 pandemic; social determinants of health; content analysis; health communication.

RESUMEN

Introducción: Los cambios que provocó la pandemia en el periodismo han sido y siguen siendo ampliamente investigados. Sin embargo, tras la mayor crisis sanitaria global desde hace un siglo, apenas se hallan en la literatura estudios sobre la evolución de la representación mediática de la salud respecto a antes de la COVID19. **Metodología:** Mediante un análisis de contenidos cuantitativo se ha revisado la concepción de salud en las informaciones de prensa, radio y televisión generalista de mayor audiencia en España en periodos pre y pospandemia. **Resultados:** Estos medios construyen la salud desde una concepción muy mayoritariamente biomédica, hasta triplicar su cobertura respecto a las informaciones que representan aspectos de salud social o estilos de vida. Destaca la muy pequeña variación en los datos entre antes y después de la pandemia. **Discusión:** Los cambios en el *gatekeeping* que acompañaron la etapa más dura de la pandemia no han tenido su correlato en una evolución en la forma de concebir la salud. Esto sugiere una concepción biomédica de la salud muy arraigada que ha impedido asentarse en las redacciones a representaciones que emergieron con protagonismo en la COVID19, como los determinantes de la salud, One Health o la salud global. **Conclusiones:** Tras constatar un lampedusiano 'efecto gatopardo' en el periodismo de salud pospandemia, se necesitan más investigaciones para indagar las causas de la arraigada hegemonía mediática de lo biomédico y su eventual asociación con la errónea identificación social entre sanidad y salud.

Palabras clave: periodismo; salud; medios de comunicación; pandemia de COVID19; determinantes sociales de la salud; análisis de contenido; comunicación y salud.

1. INTRODUCTION

Journalism experienced a critical moment due to the COVID19 pandemic (Quandt and Wahl-Jorgensen, 2021). Following its classic norms and values (Kovach and Rosenstiel, 2021), in the first two months of 2020 the profession reacted mostly with caution and avoided creating alarm by reporting cases of a strange pneumonia that the Chinese state media portrayed with ambiguity (Gong and Firdaus, 2022; Wang and Mao, 2021). When the contagions multiplied and reached the first Western countries, journalists were confronted with doubts and different interpretations about the capacity for human-to-human transmission and the severity of the SARS-CoV-2 coronavirus (Casero-Ripollés, 2021; Costa-Sánchez and López-García, 2020). With the announcement of a global pandemic on March 11, 2020, and the avalanche of hospital admissions, deaths, and confinements, journalism underwent a revolution in 1) newsroom routines and practices, 2) audience behavior, 3) the consequences on journalists' health, 4) the level of trust in the media, 5) the scale of information overload and misinformation, and 6) the viability of journalistic businesses.

1. In professional routines and practices, the pandemic forced journalistic teleworking and the digitalization of processes. The usual journalistic routines were adapted to the virtual space, with some reservations on the part of managers (García-Avilés, 2021). Telematically, an attempt was made to contrast the preponderant information from official sources with experts who initially did not know what they were dealing with (Lopes et al., 2021; Mellado et al., 2021; de Sola, 2021). The lack of access to solvent scientific evidence was experienced, which could only be overcome by the multiplication of preprints, sometimes contradictory, and the speed with which journals imposed their review processes (Torres-Salinas, 2020). The hasty pace of events meant that there were always new developments waiting to be disseminated, while the health journalist multiplied to generate news while trying to provide criteria to those responsible for gatekeeping (ANIS, 2021). Data journalism gained prominence as an explanatory tool (Desai et al., 2021).
2. In terms of audience behavior, the insecurity and uncertainty surrounding the pandemic generated an increase in news consumption in the initial months, similar to what was observed in serious crisis situations such as the terrorist attack of 9/11 in 2001 (Boyle et al., 2004). This effect was mainly observed in the consumption of television, Internet and social networks (Newman et al., 2020), although not homogeneously across all audiences (Broersma and Swart, 2022; Jain, 2021). Information use rose to a greater extent among those who prior to COVID19 showed more trust in traditional media and those who were more concerned about the impact of the crisis (van Aelst et al., 2021). A rejection behavior was also observed, explained by the negative emotions and feelings provoked by the news. Information avoidance was associated with a positive effect on the perceived well-being of those who adopted this avoidance behavior (de Bruin et al., 2021).
3. As for the health consequences for journalists, beyond virus infections, involvement in pandemic coverage led to an intense increase in burnout and emotions, sometimes resulting in psychological disorders. Journalists reached similar levels of anxiety and depression as emergency professionals (Osmann et al., 2021), with statistically significant differences between those who reported directly on COVID19 and those who covered other topics (Tyson and Wild, 2021). Journalists' perceptions of the logistical support provided by their companies when they were forced to telework at home were associated with lower levels of stress and higher levels of commitment to get the job done (Hoak, 2021).
4. Regarding the level of trust in the media, during the confinements the audience trusted information about COVID19 from mass media more than twice as much as from social networks, video platforms and messaging apps (Newman et al., 2020). Citizen appreciation of the media for their role in understanding the pandemic was not uniform across countries, with Spain and the United States lagging behind Great Britain, Germany, South Korea, and Argentina (Nielsen et al., 2020). In terms of psychosocial effects, trust in the news was associated with lower levels of stress and higher audience satisfaction; lack of trust was correlated with low levels of happiness (Jain, 2021).
5. In terms of information overload and disinformation, the pandemic represented a turning point in an emerging disinformation process, in which the media and digital platforms had already become protagonists. The WHO named this "information overload (some accurate and some not) that makes it difficult for people to find reliable sources and guidance when they need it" (World Health Organization, 2020) as massive infodemia. The rise of disinformation and fake news was particularly relevant in social networks (Gabarron et al., 2021). Reasons for producing or sharing false or inaccurate information included low risk awareness, lack of health and media literacy, pure entertainment, and lack of trust in government action and media coverage (Balakrishnan et al., 2022). A proposed classification of science and health hoaxes concluded that there was hasty science,

decontextualized science, misinterpreted science, and falsehood without scientific basis (León et al., 2022).

6. Regarding the viability of the journalistic business, the shutdown of the economy that accompanied the first wave of COVID19 led to sharp drops in advertising investment and a reorientation of corporate communication toward social media conversation (Lim, 2021). The cutback in advertising revenues generated an aggravated crisis in the media, with journalists fearing for their jobs or becoming temporarily or permanently unemployed (Finneman and Thomas, 2021). The ensuing difficulties, added to those carried over from the Great Recession, worsened the situation of some media and newsrooms (Finneman and Thomas, 2022). During the confinement, the impossibility of going to the newsstand to buy print newspapers accelerated the change in the business model towards digital subscriptions (García-Avilés et al., 2022; Sangil et al., 2023).

The six approaches chosen to synthesize the critical moment experienced by journalism during the pandemic continue to produce numerous investigations (Casero-Ripollés et al., 2023; Gomez-Sobrino and Catalán-Matamoros, 2024). Likewise, scientific literature is abundant on the quantity, quality or tone of media content during the different stages of the crisis and, in particular, on some of the topics that generated the most information, such as trust in the media (Moon et al., 2023) or vaccines (Catalán-Matamoros et al., 2023). Similarly, a bibliometric analysis of Health Communication (HC) research published between 2020 and 2022 on COVID-19 in 170 peer-reviewed communication journals indicated a wide variety of issues analyzed and, among the most frequent, the effects of information dissemination, the impact on the general public and vulnerable populations, preventive behaviors, and the use of communication technologies (Lei and Wang, 2023). This same study identified the United States as the most productive country in HC studies, followed by Spain, China and the United Kingdom.

Although there are many studies on journalism and the pandemic, there is a lack of research on the possible changes that may have been generated after the pandemic in the vision of health transmitted by the media.

2. OBJECTIVES

Given the relevance of health contents in the media, the main objective of this research is to know if there have been variations in the representation of health in the media after a global crisis that has left more than 7 million deaths registered, according to the web COVID19 Dashboard of the WHO, whose updated data can be accessed at the URL <https://covid19.who.int/>

Specifically, the research questions asked are two:

- RQ1: what is the majority representation of the health-disease process in the media in the aftermath of the pandemic?
- RQ2: what changes have there been in this media representation since the pre-pandemic stage?

They are specified in three hypotheses:

- H1: the Spanish media with the largest audience disseminate a mostly biomedical conception of the health-disease process.
- H2: the Spanish media with the largest audience disseminate less information with a biomedical conception of health after the pandemic.
- H3: the general media devote more space to health information after the pandemic.

These hypotheses consider the scientific evidence on the traditional higher frequency of biomedical media information (Larsson et al., 2003; Briggs and Hallin, 2016) and combine it with the fact that the confinements made visible many other aspects of health that go beyond health care. Verbi gracia, the impact of preventive measures on employment and the economy, the greater virulence of COVID-19 in the elderly and the vulnerable population, or the special importance of the space and healthiness of the homes during the time they had to remain indoors without going out into the street.

3. METHODOLOGY

A quantitative content analysis was used to review health information in the Spanish general media (press, radio and television) with the largest audience, assuming that through agenda-setting and framing effects, the representations of health in these mass media influence a broad segment of the population (Entman, 1993; Ashwell, 2006; McCombs, 2006). It was decided to include press, radio and television in the analysis to obtain a complete view and avoid the tendency to observe only the textual in health media analyses (Catalán-Matamoros and Peñafiel-Saiz, 2019).

Each day in March 2023, the paper editions of *El País* and *El Mundo* were analyzed, as well as two audiovisual news programs randomly selected from the three radio stations (*Cadena SER*, *COPE* and *Onda Cero*) and three television stations (*Antena 3 Televisión*, *Tele 5* and *Televisión Española*) with the largest audiences. The sources used to select the media were the last wave of 2022 of the General Media Study (GMS) and the data for January and February 2023 from GfK DAM and Kantar Media. In the case of radio and TV, the midday news were reviewed because they have less news space, which assumes that their gatekeepers include only the health pieces they consider to be of great interest (Shoemaker and Vos, 2009). To ensure that the pandemic no longer predominated among the health topics, the frequency of COVID19 as the main topic was measured, which did not reach 10% of the news items. The 2023 results were compared with health news from a sample obtained in the same month of March 2015, eight years earlier, whose data have remained unpublished, and which followed the same criteria for inclusion. The selection of media according to their audience leadership was obtained through the reports of the Office of Justification of Diffusion (OJD) of January 2015 in the case of newspapers, the last wave of the GMS of 2014 in the case of radios and the February 2015 data of Kantar Media in the case of television. The media analyzed were, in this case, *El País*, *ABC*, *Cadena SER*, *Onda Cero*, *Radio Nacional de España*, *Televisión Española*, *Tele 5* and *Antena 3 Televisión*. Performing the analysis in the same month (March) avoided comparative biases associated with the number and framing of the news published, especially due to the possible effect of world days, which are celebrated annually on the same date and are of high journalistic interest in health, although not all of them are homogeneous (Costa-Sánchez, 2008).

The coding was performed manually and the 3 authors participated independently. The first author of the article analyzed all the contents in both periods; the second author and the third author analyzed the randomized 10% of the pre-pandemic and post-pandemic sample, respectively, following the criteria established in the literature (O'Connor and Joffe, 2020). Inter-coder reliability was calculated for each variable using Gwet's AC1 statistical concordance coefficient, indicated for analyses in which there is high agreement (Gwet, 2008). With 1.0 being the maximum degree of agreement, in the pre-pandemic sample the reliability remained between 0.83 and 1.0, with a weighted average of 0.983, and in the post-pandemic sample it remained between 0.79 and 1.0, with a weighted average of 0.949. Different authors consider these figures a high or very high reliability range (Krippendorff, 2004).

To code the media representation of the health-disease process, the variable "health concept" was used, which is operationally defined as the health perspective disseminated by each news item. Thus, media content can deal with the health-illness process from 3 main perspectives:

1. Biomedicine, whose media representation is based on disease, the hegemonic figure of the physician and the health care system.
2. Lifestyles, which focuses on individual conduct, habits and healthy or unhealthy behaviors of each person.
3. Meta-health, in which prevail those non-health elements that influence individual and collective health, and which are called health drivers.

Mixed information can also be found in the analysis, in which more than one health concept is presented. Annex 1 includes more details on these health perspectives and the coding instructions for the health concept variable. The variable was constructed based on the sociological approaches of Clarke (1991), who pointed out that the disease could be represented in the media through three models (medical, lifestyle and political economy), and the ethnographic-communicative approaches of Briggs and Hallin (2010, 2016), who propose to interpret the biomediatization of health from three cultural frameworks: medical authority, patient-consumer and public sphere.

Table 1 shows all the variables analyzed, whose definitions are available in Annex 2.

Table 1. *Variables for the content analysis.*

Common variables for press, radio and TV	Variables for press	Variables for radio and TV
Inclusion of health-related news	Section	Geographic origin of the news item
Inclusion on front page or headlines	Number of modules	Duration of the news item
Health concept	Total pages of the newspaper Even pages, odd pages or both	Total length of news item

Source: Elaborated by the authors.

To answer the research questions and hypotheses, chi-square statistical tests were used to analyze associations between qualitative variables, Student's t-test to relate qualitative variables to quantitative variables, and the Z-test to measure the difference in proportions between independent samples before and after the pandemia.

4. RESULTS

In the post-pandemic sample, 3,306 newspaper pages and 2,306 minutes of audiovisual information (923 radio and 1,383 television) were analyzed, while in the pre-pandemic sample the figures were 4,482 newspaper pages and 2,393 minutes of audiovisual information (810 minutes of radio and 1,583 minutes of television).

The health-related information found in the Spanish generalist media with the largest audience in 2023 grew (n= 333) with respect to that observed in 2015 (n= 284). This increase occurred despite a decrease in the average number of pages of newspapers from 73 to 58 (p < 0.001) and the duration of radio and television news from 38.5 minutes to 37 (p > 0.05). In the press, health-related content increased from 2.2% to 5.5%. In radio and television, it increased from 5.5% to 7.3% (p < 0.001).

After the pandemic, it was less frequent for the media to present themselves to their audience without health news. Whereas in 2015 an association was found between the absence of health news and audiovisual media (p < 0.001), this was not the case in 2023. Post-pandemic, daily newspapers carried health-related pieces of

news more frequently on their front pages ($p = 0.005$), whereas audiovisual media reduced headline appearances ($p = 0.001$).

On average, the modules occupied by health-related pieces of news in newspapers after the pandemic ($M=34.4$) were higher than those of the pre-pandemic stage ($M=25.5$), ($p = 0.001$). There were no significant differences, however, in the duration of radio and television health-related pieces of news.

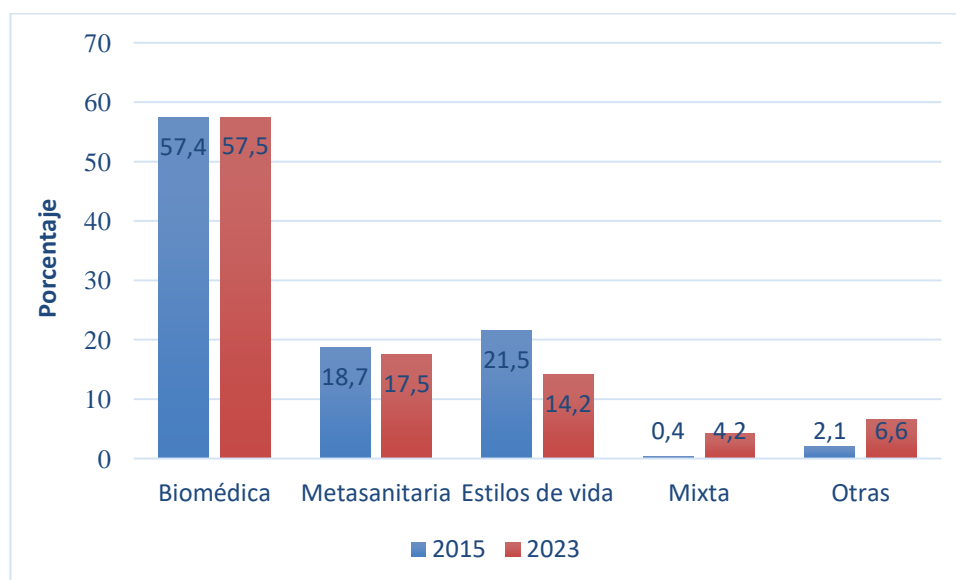
Table 2. Main tendency measures for the number of modules and duration in seconds (2015-2023).

Statistic	Year 2015 n=154		Year 2023 n=210		Evolution
	Mean	DT	Mean	DT	p-value
No. of press modules	25.448	21.291	34.414	29.203	0.001
Time in seconds radio and TV	84.473	47.068	81.976	48.178	0.704

Source: Elaborated by the authors.

With regard to the health concept variable, the statistical analysis ($p < 0.001$) showed that there was no change in the frequency of publication of information with a biomedical and meta-health perspective, although the former continued to be three times more frequent than the latter. However, there was a decrease in news based on lifestyles and an increase in mixed news (with more than one concept of health) and those coded as “other” (diseases of relevant or famous people, among other issues).

Figure 1. Percentages of the health conception variable 2015-2023.



Source: Elaborated by the authors.

There were no statistical associations between the health concept of the information and whether it was published in the press or broadcast on radio and television. Nor was there any statistically significant relationship between any of the possible concepts of health and a greater appearance on the front page of newspapers or in the headlines of radio and television news programs.

In the post-pandemic period, the percentage of information with a biomedical conception exceeded 60% in 4 of the 8 media observed: *Onda Cero* (82%), *COPE* (76%), *Cadena SER* (67%) and *Tele 5* (64%). In pre-pandemia, 5 of the 8 media analyzed opted for the biomedical conception in more than 60% of their health-related pieces of news: *Onda Cero* (80%), *RNE* (71%), *A3 TV* (65%), *TVE* (63%) and *El País* (62%).

In 2023, *Tele 5* was the broadcaster that most often dealt with information from a lifestyle perspective (28%), doubling the average of the rest of the media (14%) and confirming what was found in 2015 when this channel broadcast 38% of its pieces based on this conception, with *A3 TV* (30%) and *ABC* (28%) following. Regarding the meta-health perspective, in post-pandemic *TVE* and *El País* were the media that had it more present, with 24% in both cases. *Cadena SER*, in 2015, was the only news outlet of those analyzed in both periods that oriented its information mainly towards the meta-health concept (53% of its news), a trend that was reversed in 2023 when only 9.5% of its pieces used this framing.

Regarding the press, in the pre-pandemic period, news based on lifestyles occupied the greatest number of modules, followed by biomedical and meta-health news. After the pandemic, lifestyles continued to occupy more pages, however, meta-health information approached them in extension, doubling the average space given to them before the pandemic. Biomedical information also increased its modules, although to a lesser extent.

Table 3. Average occupancy in modules, according to health concept and year

Health concept	2015		2023	
	Average	DT	Average	DT
Lifestyles	33	27	45	25
Meta-health	20	19	42	37
Biomedicine	25	19	30	27

Source: Elaborated by the authors.

With respect to the duration of radio and television pieces of news, lifestyles continued to occupy the most space after the pandemic, with a slight increase with respect to pre-pandemic and remaining above one and a half minutes in average duration. Audiovisual news with a biomedical focus hardly changed between the two periods observed. There was a sharp drop in the time allocated to meta-health news.

Table 4. Average duration in seconds, according to health concept and year.

Health concept	2015		2023	
	Average	DT	Average	DT
Lifestyles	92	27	97	30
Biomedicine	77	42	75	44
Meta-health	104	71	66	46

Source: Elaborated by the authors.

5. DISCUSSION AND CONCLUSIONS

Despite all the social and media changes brought about by COVID-19, the Spanish generalist media with the largest audience continue to treat health mainly from a biomedical perspective. The percentage of news items that assume this perspective remains unchanged between the two periods (57%), which is three times more than those presenting meta-health aspects and four times more than those referring to lifestyles. Lifestyle-related news is the only one that shows a statistically significant decrease between the periods before and after

the pandemic. In addition to this result, the media devoted more space to health after the pandemic: in the press the modules were multiplied by 2.5, and in radio and television by 1.3. These results verify hypotheses H1 and H3, while H2 is falsified.

Our analysis adds evidence, in this case with simultaneous fieldwork in press, radio and television, to previous contributions on the biosanitary orientation of health information in Spain. Costa-Sánchez (2008) observed the preponderance of the physician as a character as a source of recognized wisdom in his presentations in an analysis of the contents of Galician newspapers. Francescutti et al. (2011) found that health information on national television represented an eminently curative system of care, with a scientific basis and a fascination with therapeutic innovations. In the study of five national newspapers between 2000 and 2009, *Revuelta* (2012) found a strong emphasis on biomedical issues and a presence, although lower in percentage, of information based on healthy habits.

Internationally, Briggs and Hallin (2016) observed that the “medical authority model” was the one most used by the media, both in the United States and in several Latin American countries. This pattern was endorsed in Europe, where the media showed widespread interest in biomedical and new developments in technology, with a smaller but significant percentage of information focused on lifestyles and a social framing of health that was especially less marginal in the north of the continent (Hallin et al., 2021). Stroobant et al. (2016) showed that in Belgium health policy and medicine use were the two most frequent topics, although with also relevant coverage of lifestyle-related topics. The greater presence, albeit secondary, of lifestyles in international media contrasts with what was observed in our research.

The results obtained suggest that the possibilities for change in the public understanding of science and health that were envisioned at the beginning of the pandemic are not being fulfilled (Elías and Catalán-Matamoros, 2020). The fact that there are three biomedical reports for every one meta-health report suggests that the media are hindering the visibility in the public space of transformative approaches such as the health drivers, One Health or the health consequences of climate change. Thus, the media emerges as one more barrier to achieving the redefinition of health, which the journal *Nature* (*Nature*, 2023) has explicitly favored in the current context of global crisis in which health, inequality and climate are intertwined.

That Spanish media reports underline the same framing before and after the pandemic, and that simultaneously there is more space devoted to health issues would indicate, according to agenda-setting and framing models, that the audience is perceiving health as a more relevant issue (McCombs, 2006) but without new cultural frames or changes in the collective opinion (Sádaba et al., 2012). Society's perception of health is conditioned in part, and not uniformly, by the messages that the media continuously broadcast about health and disease (Gollust et al., 2009; Viswanath and Emmons, 2006). One form of social influence is the very concept of the health-disease process that filters through press, radio and television information (Viswanath et al., 2021). To understand the persistence of the social confusion between health and sanitation (Padilla, 2019), it is understood that it is not innocuous that the media disseminates in such a majority way information referring to the fact that being healthy is a normal state that can be achieved by looking for assistance in the health system.

While healthcare is the system used to prevent and care for people's ailments, health is a broader concept that is conditioned by 1) the healthcare system's own attention to disease, 2) genetics, 3) good or bad habits and lifestyles, and 4) other social and environmental factors (Lalonde, 1974; Marmot et al., 2008). These non-medical-health factors that influence the bio-psycho-social well-being of individuals and populations are called drivers of health and some authors argue that the media should begin to consider them as such (Ugarte, 2023).

Future research could consider whether there is some kind of association between the deep-rooted primacy of biomedical content in the information and the attribution to health journalists of a secondary role in the general

media, an issue that was only an exception during the most serious moments of the pandemic. According to Briggs and Hallin (2016), the biomedical authority model implies that an expert tells a layperson what is happening, and that health journalists are the first laymen in the informative process. Would this role be altered if the media were to adopt a more transformative health concept?

It should be noted that health care systems in Welfare States, by their very nature, are doomed to suffer shocks in terms of financing, coverage, access, resources and quality. From the point of view of gatekeeping, it would seem that health journalists will always have an abundant supply of topics and reasons to report on the health system, which is a structural determinant of the fact that the concept of biomedical health maintains its strength in the media.

In relation to the limitations, it should be noted that the results of our study are limited to Spain and refer to the general media with the largest audience. In the future, it would be possible to investigate the representation of health in specialized, local or lesser-readership media; it would also be necessary to extend the research to other countries. This prospective study would also make it possible to ratify the soundness as an instrument of analysis of the dependent variable conception of health, whose inter-coder test has achieved a high degree of agreement in this case.

It would also be necessary to complete the research with in-depth interviews with editors, editors-in-chief and other gatekeeping managers to detect what they understand by health and how they treat these topics in their media. As for the audiences, it would be interesting to find out whether there are possible connections between their media consumption and their understanding of health.

In conclusion, the generalist press, radio and television in Spain construct health from a very largely biomedical perspective, which is three times the meta-health perspective associated with the health drivers and four times that of individual behaviors and lifestyles. This media construction of health has hardly varied between the periods of time before and after the pandemic, except that in 2023 the frames related to lifestyles and preventive habits decreased even more. More research is needed to investigate the causes and consequences of this entrenched hegemony that remains intact after a destructive global health crisis that revolutionized everything and once overcome, seems not to have changed the cultural frameworks on health in the newsrooms, offering a paradoxical effect of “gatopardismo” (Lampedusa, 1958).

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ANNEX 1. CODING INSTRUCTIONS FOR THE HEALTH CONCEPT VARIABLE

To guide the coders in the analysis, the criteria to be followed to include the information in one or the other health concept are detailed below. Specifications, explanatory examples and operational suggestions are also given to provide clarity and intelligibility, with a view to facilitating intercoder agreement and the replicability of the study.

1. Meta-health concept. This will include those units of analysis in whose journalistic treatment the health status of the population is related to its political, economic, social and environmental context. In particular, the connection of health with (1) social exclusion, income, education, employment/unemployment; (2) belonging to social classes, ethnicities, races, genders or neighborhoods; (3) material circumstances such as living conditions (access to food, food and water security), work (work stress or risk prevention) and environmental surroundings (noise, pollution, presence of rodents and insects, proximity to wild animals); or (4) differences in access to the health or social protection system. Information on inequities -unfair and avoidable health inequalities- between different population groups, both between countries and within each country or territory, will also be classified under this theme. Information on empowerment and community action for health promotion will also be included. To identify these actions, it should be noted that they are usually approached from a multidisciplinary perspective and are often targeted at a specific territory.

2. Biomedical concept. In this perspective, all information whose journalistic treatment gives priority to the clinical approach to diseases (both physical and mental) within the health care systems, both public and private, will be included. Specifically, it will include information on (1) issues related to surveillance, diagnosis and treatment (therapies, screening, prescription, pharmacopoeia, technology); (2) professional aspects (medical specialties, nursing prescription, curricula of health professions); (3) management aspects (medical specialties, nursing prescription, curricula of health professions); (3) management aspects of the capacity and functioning of primary, specialized and hospital care (waiting lists, frequency of hospital consultations and emergencies, adequacy of the number of professionals) and, in addition, (4) regulations, political decisions, court rulings and social debates related to the health care system (access, coverage, budgets, drugs and treatments financed, private insurance).

3. Individual preventive concept. This includes all information on lifestyles, habits and behaviors with consequences for the subject's own health. In particular, the behaviors that favor a healthy life or that, on the contrary, imply risk factors for individual health. Therefore, the units of analysis that refer to (1) habits such as the consumption of tobacco, alcohol, other drugs, non-prescribed medication; (2) sexual practices; (3) sedentary lifestyles and physical activity; (4) nutrition; (5) leisure, including social networks; (6) dental hygiene; (7) accident prevention are included. An important issue for the coder in the post-pandemic reality is that information on vaccination in which the individual decision (to vaccinate or not) is the fundamental part of the meaning of the news piece will be included in this perspective.

4. Mixed information. Those whose informative treatment includes more than one of the previously mentioned conceptions of health, in such a way that it is very difficult to choose one of them. As a general criterion, when this occurs, the coder -as a first option- will decide in which category to include the unit of analysis according to which journalistic approach has more weight on the information as a whole. In the event that the doubts about the weighting are greater than the certainties, it will be included in the category of mixed informative treatments.

5. Other. Any information on the health-disease process that cannot be included in the previous 4 will be classified under this item. For example, this includes information that makes the diagnosis of a disease newsworthy for people with social relevance or influencers, or that deals with the causes of the disease and/or death of a historical figure.

Here are some operational examples of how the coder should act.

A pathology such as cancer could have a presence in the three conceptions of health proposed for analysis. If the unequal and inequitable (unfair prevalence) of cancer associated with ethnicity, region, gender and social class were to be reported, it would fall within the meta-health concept. Information on the implementation of an innovative therapy/vaccine would, however, fall within the biomedical concept. Another news item on the risks associated with tobacco and alcohol consumption and their consequences for the prevention of certain types of cancer would be part of lifestyles, therefore, individual preventive concept. Finally, a news item dealing with a politician, a sportsman or a relevant social actor diagnosed with cancer would be classified as "Other".

Information on mental health, especially that focused on adolescents and young people, sometimes shows a special complexity in its coding. In this sense, the greater or lesser burden of mental illness in populations, with emphasis on issues of gender, ethnicity or vulnerability will be included within the meta-health concept. The clinical approach to disorders with a focus on illness will be coded as a biomedical concept. The units of analysis considered as journalistic messages whose information reflects habits that favor psycho-emotional well-being and/or behaviors at risk for mental health will be assigned to the individual preventive concept. If the analyst has more doubts than certainties about how to code, he/she has at his/her disposal the option of mixed information.

The informative references to research or scientific advances, which are very common and relevant in the field of health, are not directly included in one conception of health or another. There may be research on ways to treat a disease, there may be research on which habits are more effective in its prevention, and there may be research on the determinants that make it more prevalent in a certain type of population or territory.

In the case of television, the content of the images will be taken into account if there are doubts about identifying the concept of health. Occasionally, some news items make explicit their view of the health-disease process in the video shots and the location of the totals (place where the interviewees are located). An example of this can be seen in certain information on nutrition. News items that are contextualized in the anchor's lead-in on the basis of prevalence data and/or broad references, may derive - depending on the chosen plans and locations - in information centered on the treatment of disorders in a hospital environment (which should be indicated as biomedical conception) or on community activities to promote physical activity in neighborhoods (which would fall under the meta-health conception due to its supra-individual approach) or on the advice to modify habits or the personal experience of one or two cases that have modified their sedentary lifestyle or their fat intake (which should be coded as individual preventive concept).

ANNEX 2. VARIABLES ANALYZED

Common formal categories (press, radio and television)

- Date: day [numeric] of the month in which the information was published or disseminated.
- Name of the media outlet: usual name of the media outlet that published or disseminated the information. The coder will indicate the number that has been assigned to each media outlet in the coding book.
- Inclusion of health-related news: dichotomous variable (yes/no) that makes it possible to code the fact that a media outlet, on a specific day, has not published or broadcast health news.
- Inclusion of the news on the front page or in headlines: dichotomous variable (yes/no) that makes it possible to observe whether the media outlet has considered the health news to be of sufficient importance to include it on the front page, in the case of newspapers, or in the headlines in the case of radio and television news.

Formal categories for press

- Section. The different parts into which a newspaper is divided. The coder will note the number that has been assigned to each section in the coding book.
- Number of news modules. Space occupied by the piece of news, sometimes also called “spot”. It is a numerical variable. Each page of the newspapers *El País* and *El Mundo* is laid out in five columns and occupies a space of 8 modules high (5x8, therefore), in total each page has 40 modules. There are some pages of *El Mundo* that do not follow the 5x8 layout (they change to 4 columns, not always homogeneous) and the coder is forced to make an estimation of modules. The coder must note the total number of modules occupied by the analyzed piece of news. In the case of the 2015 analysis, it must be taken into account that *ABC* has 32 modules per page; to enable a homogeneous comparison with the other newspapers, the following converter is used:

Page module converter between ABC and El País.

	Módulos xPágina	ABC vs EL PAÍS	
ABC	32	-20,00%	
El País	40		
Ejemplo 20 módulos en País = a 16 módulos en ABC			
	Números de Módulos en ABC	Equivale 20 módulos en El País	EL PAÍS vs ABC
Abc	16		25,00%
	Números de Módulos en El País	Equivale 16 módulos en ABC	ABC vs EL PAÍS
El País	20		-20,00%

Source: Elaborated by the authors.

- Total pages of the newspaper. Number of pages of that day's edition.
- Odd page, even page or both. This variable is introduced because the newspaper reader's view favors the odd page over the even page, so it is a well-established journalistic technique that the news to be highlighted should occupy the odd pages. News that occupies two pages or more will be coded as “both”. The coder will note the number that has been assigned to each item in the coding book.

Formal categories in radio and television

- Source of information. Radio and television stations do not usually have divisions as clear as newspaper sections. For this reason, this variable has been introduced, which seeks to know whether the information deals with national or international issues or whether it is a commentary or opinion piece. The coder will note the number that has been assigned to each item in the coding book.
- Length of the news item (including lead-in). The number of seconds that the news item lasts from the moment the presenter starts talking about it, if any, is coded numerically.
- Total duration of the news item. Time that the radio or television newscast lasts, measured in minutes.

Specific aspects of the analysis

- Concept of health (explained in Annex 1).
- COVID19 as the main topic. Variable incorporated into the collection of post-pandemic empirical information to control for the frequency of information that had the pandemic as the only or main topic and, thus, to be able to assess the relevance of comparisons between pre-pandemic and post-pandemic. It is a dichotomous variable (yes/no)

Related articles:

- Betancourt, A., Campillo, N. y Mieres, C. (2021). Información sobre la salud: una revisión de la literatura existente sobre YouTube como fuente de información sanitaria. *Revista de Comunicación y Salud*, 11, 1-18. <https://doi.org/10.35669/rcys.2021.11.e207>
- Cerdán Martínez, V., Giménez Sarmiento, Álvaro y Padilla Castillo, G. (2022). El auge de Vox y el populismo en Youtube antes y durante la pandemia del COVID-19. *Revista de Comunicación de la SEECI*, 55, 17-35. <https://doi.org/10.15198/seeci.2022.55.e751>
- Mdleleni, L. y Velapi, L. (2022). Can Social Innovation advance the PMTCT programme? A South African reflection. *European Public & Social Innovation Review*, 7(1), 43-56. <https://pub.sinnergiak.org/esir/article/view/165>
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- Vargas, J. J. y Yébenes Cortés, M. P. (2023). Salud mental y cobertura mediática del COVID-19: una investigación de los efectos del manejo de la televisión y la interrelación eficiente de la ansiedad a través de la técnica dual: sufrimiento vs dolor, para la mejora del estrés generado por la pandemia. *Vivat Academia. Revista de Comunicación*, 156, 288-305. <https://doi.org/10.15178/va.2023.156.e1464>