



**Scientific popularization of medical terms related to chronic diseases on health websites
Analytic study on health website ESSAHA**

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Abstract:

This study, titled "Scientific Popularization of Medical Terms Related to Chronic Diseases on Health Websites: Analytic Study on Health Website ESSAHA," examines how ESSAHA popularizes medical terms related to chronic diseases. Through content analysis, we identified a predominant focus on news reporting, with a significant but less frequent emphasis on analytical and explanative articles. Despite covering major chronic diseases like cancer and diabetes, the site lacks interactive features and multimedia content, limiting user engagement and comprehensive health education and scientific popularizations of medical terms. Enhancing these areas could improve ESSAHA's effectiveness in health communication and scientific popularization of medical terms in general and those related to chronic diseases.

Keywords: health communication; scientific popularization; medical terms; chronic diseases.

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1. INTRODUCTION

The advent of digital media has profoundly reshaped the landscape of health communication, especially in the realm of chronic disease management and education. In Algeria, online platforms have become pivotal in disseminating medical knowledge especially after the pandemic covid 19, addressing the needs of a diverse audience in search of reliable health information. This study delves into the scientific popularization of medical terms related to chronic diseases on Algerian information websites, with a particular focus on the health website ESSAHA.

Scientific popularization involves the translation of complex medical terminology into language that is accessible to the general public. This process is essential for bridging the gap between healthcare professionals and laypersons. By ensuring that critical health information is clear and understandable, effective popularization empowers individuals to make informed health decisions. This is especially crucial for chronic diseases, which necessitate ongoing management and patient education.

ESSAHA, a leading online news platform specialized on health in Algeria, serves as a significant source of health information for its public. Its health articles and news offer a valuable case study for examining the communication of medical terms to the general populace. This research aims to analyze the methods used by health website ESSAHA to popularize medical terminology related to chronic diseases, assessing the clarity, accuracy, and effectiveness of its content. By critically assessing the health website ESSAHA, this study will offer insights into the current state of health communication in Algeria and propose recommendations for optimizing the dissemination of medical knowledge.

Given the importance of making complex medical information accessible to the public, the main problematic this study addresses is:

How does the health website ESSAHA execute the scientific popularization of medical terms related to chronic diseases?

This study employs a qualitative research design, utilizing content analysis to examine the scientific popularization of medical terms related to chronic diseases in the health website ESSAHA. The content analysis approach, which we have incorporated as part of the media content survey method, is the most suitable tool for this study. It allows for the identification and exploration of the methods and techniques used by the site to simplify complex medical terminology. Through this methodology, we aim to uncover the strategies employed by health website ESSAHA to make medical information more accessible and comprehensible to the general public, ensuring the clarity, accuracy, and effectiveness of the health content provided. This, in turn, contributes to improving health literacy and the management of chronic diseases among its public.



2. Concept Definition

2.1 Health communication

Health communication, as a field, is concerned with the study and application of communication strategies to enhance public understanding and engagement with health-related information. This is especially relevant when addressing complex medical terms that might otherwise be inaccessible to the general population. To better understand this concept, we can refer to a comprehensive definition: “*Health communication encompasses the study and use of communication strategies to inform and influence individual and community knowledge, attitudes, and practices (KAP) with regard to health and healthcare. The field represents the interface between communication and health and is increasingly recognized as a necessary element for improving both personal and public health. Health communication contributes to all aspects of disease prevention and health promotion*” (RICHARD , 2006, p. 02).

In the realm of health, communication spans various forms: from individual interactions to group dynamics, community engagements, and mass media dissemination. Similar to communication in general, health communication is seen as « a transactional process ». (Neuhauser & Kreps, 2003, p. 08). It involves the exchange of information and ideas aimed at promoting health awareness, prevention, and overall well-being. By integrating "Health" into the concept of communication, it becomes a valuable tool for delivering messages that educate and prevent health issues. This comprehensive definition acknowledges that health communication operates across multiple levels, facilitating effective communication strategies that cater to diverse audiences and contexts (Corcoran, 2013, p. 09).

In our study, understanding the concept of health communication is pivotal as we analyze how health website ESSAHA utilizes communication strategies to simplify medical terminology related to chronic diseases. By applying this framework, we aim to assess the effectiveness of these strategies in enhancing health literacy and promoting informed health behaviors among its audience in Algeria.

In health communication, three fundamental actions are essential: engage, inform, and persuade. The process starts with engagement, whether dealing with an individual patient, a classroom, a virtual community, policymakers, or the general public via mass media. Engagement leads to interaction, allowing for the dissemination of information. In healthcare, this often involves shared decision making (SDM), where providers aim to present options impartially. When there is strong conviction about the benefits of a proposal, persuasive strategies can be employed. Effective health communication often integrates these approaches seamlessly (Parvanta & Bass, 2020, p. 69).

Designing health information to be clear, compelling, actionable, and accessible to all is a challenging task. Effective communication must account for psychological processes that affect how individuals notice and process new information, even among equally educated and linguistically competent audiences. Consequently, multiple versions of messages and extended



timelines may be necessary. The vast amount of information from traditional media, the internet, and social media further complicates the situation. People often mistake repeated anecdotes and rumors for facts. Healthcare providers face time constraints, limiting their ability to educate patients effectively. Therefore, it's crucial to carefully select the appropriate amount of information to share during healthcare appointments to meet patients' needs (Parvanta & Bass, 2020, p. 30).

From the preceding discussion, we have examined the nature of communication, its influencing factors, and its relationship to health. Over time, the field of health communication has developed various strategies for practitioners to effectively engage, inform, and persuade individuals at the personal, group, and community levels.

2.2 Scientific popularization

Within the landscape of health communication, the scientific popularization plays a pivotal role in translating complex health scientific concepts into accessible and engaging forms for the general public. This chapter examines different perspectives and definitions of scientific popularization, highlighting its essential function in bridging the gap between specialized knowledge and broader societal understanding.

The concept of the popularization of science involves presenting scientific ideas in a manner that makes them comprehensible to the general public. This approach, often referred to as the public understanding of science, aims to ensure that basic scientific concepts are accessible to everyone (Ghadimi & Khan, 2021, p. 64).

According to the Iranian association for the popularization of science, “popularization of science is any activity that is undertaken to generalize science, to spread scientific thought and thinking, or to interest people or groups of them in science and scientific activities”. The definition of scientific popularization from the perspective of Paul and others includes the following:

- The popularization of science is a continuous affair;
- Writing journal articles in newspapers and new medias is official popularization;
- Text books and children book are a form of science popularization.

We explain some other definitions of the concept of popularization of science:

- Scientific popularization is a bridge between scientific literature and the discourse of ordinary people;
- In simple terms, popularization of science is a tool for linking and communicating between the society and the world of science (Ghadimi & Khan, 2021, p. 65).

Defining popularization is less about pinning down an exact meaning and more about establishing your own boundaries. While a broad approach might be acceptable in a general course on popularization, a career in this field requires setting specific guidelines, either at the beginning or as you specialize:

- Many university graduates aspire solely to be journalists; Some aim to develop their skills in



writing for children, which involves focusing on certain media (like Les *Débrouillards*) or establishing contacts in book publishing; Others are determined to stay involved in education.

- In some instances, these boundaries are ethical: if you are a journalist, you are not working for science, even if you come from a scientific background. You should maintain a professional distance from communication contracts related to your journalistic subjects.

For public relations professionals, the question is how far you are willing to go if asked to convey a message that contradicts your beliefs. Before delving deeper, let's define popularization. Is it about: Translating? Simplifying? Explaining? Teaching? It involves all these aspects to varying degrees based on your personal guidelines.

Translation: Initially, this term means converting an unknown language into a known one. The downside is that it creates a gap between the alien body of science and our society. For this reason alone, the term should perhaps be avoided. However, it does highlight the existence of technical vocabulary that the popularizer must simplify. Jargon is the first and most formidable obstacle to effective communication. Yet, merely translating technical terms into common language can result in a dull text. The vocabulary might be accessible, but the style would be uninspired. We need to go beyond simple translation.

Simplification: This term is even more contentious than translation and often displeases scientists. The line between simplification and simplistic is thin and varies according to individual tolerance levels. Moreover, "simplification" still suggests two worlds: one complex, the other – ours – simple.

Explanation: Likely the best term, as it can satisfy both scientific and general audiences. Explanation encompasses the goal of "simplifying" while providing new insights into complex concepts. This approach aligns with high-quality journalism: making the world more comprehensible by illuminating subjects previously in the dark. All forms of journalism – not just scientific journalism – should strive to make the world more understandable, whether covering health, politics, business, arts, or sports. The aim is not only to report facts but to explain them.

Teaching: Popularization is not traditional teaching, where a teacher develops a predefined curriculum. Instead, journalists, public relations professionals, and museum curators focus on specific aspects – the news, emerging trends, or unresolved issues. However, there is an element borrowed from teaching. Some popularizers engage in non-formal education, such as school activities, or museum programs. Authors of children's books on topics like animals or space also play a role in this educational aspect (LAPOINTE , 2008, pp. 19-21).

This process not only overcomes the barriers of jargon and complexity but also enriches public understanding and appreciation of science. Ultimately, effective popularization is essential for fostering an informed society that values scientific knowledge and its contributions to our everyday lives.

Scientists (such as doctors) have their own language, a difficult and specialized one, but necessary for their work. They cannot change this, which makes it challenging for them to reach



the general public. Face-to-face communication is often impossible. Therefore, a mediator is needed between scientists and the general public. The role of these mediators is crucial in society. Science communicators facilitate the exchange of information between the creators and the recipients. They "translate science" to make it accessible to a broader audience and also communicate with scientists by interpreting public messages and ensuring that these messages are received by the scientific community (JURDANT, 2008, p. 207).

Fig.1. The Poles of Scientific Popularization



Source: (JURDANT, 2008)

This prototypical model, in which the mediator acts as a conduit between scientific discourse and the general public, works well and continues to function in dissemination mediums such as the newspapers, TV, Information Websites, etc. Also, through internet, several places of scientific popularization are identifiable on the internet: magazines available in kiosks have created websites, and sites without a print support have emerged designed for digital platforms. It seemed that scientific popularization, by introducing new figures and being present online through websites, had explored all spheres of language activity. However, an unexpected twist is noticeable: we have identified a new venue contributing to the circulation of knowledge transmissions, where scientific popularization is emerging the realm of "science blogs" with a new figure, the amateur.

Whether through journalism, education, or digital platforms, popularizers serve as intermediaries, distilling complex ideas into accessible forms without sacrificing substance. This role not only enhances public understanding but also fosters a deeper appreciation for the complexities of science across diverse audiences. As the field continues to evolve, navigating ethical boundaries and embracing new mediums like blogs and digital platforms will be pivotal in shaping the future of health communication.

2.3 Medical terms & chronic diseases

Transitioning from the broader concept of scientific popularization, this chapter delves into the realm of medical terminology and chronic diseases. Chronic diseases, by nature, require ongoing management and a thorough understanding of medical concepts. It's necessary to explore



a specific and critical application: the communication of medical terms related to chronic diseases. Chronic illnesses pose significant challenges not only to patients but also to healthcare providers and the public at large. The need for clear, accurate, and accessible dissemination of medical information is paramount.

Medical terminology consists of words developed over centuries to describe anatomical structures, diseases, procedures, treatments, medications, and instruments associated with medicine. This specialized language facilitates communication within the medical field. Most medical terms have their roots in Latin and Greek, although some also originate from Arabic, French, German, and Anglo-Saxon languages (Walker, Wood, & Nicol, 2021, p. 03).

For SUE WALKER, MARYANN WOOD and JENNY NICOL, learning medical terminology can seem daunting. The words often appear lengthy, complex, and difficult to pronounce, resembling a foreign language. Indeed, it is a specialized language with its own set of rules. However, like any language, medical terminology follows relatively straightforward principles. Most medical terms are composed of two or more parts, with each term's meaning being the "sum of its parts." These components typically include; Word root; Prefix; Suffix; Combining vowel & Combining form. Generally, each medical term is built around one or more-word roots. The word root usually provides a general idea of what the term is about or specifies a body part. A prefix may be added to the word root to modify the term's meaning by indicating location, place, time, shape, size, or direction. A suffix can also be attached to the word root, creating a new medical term that often signifies a disease, action, or type of test (Walker, Wood, & Nicol, 2021, p. 04).

Fig.2. Example for medical terms combination



Source: (Walker, Wood, & Nicol, 2021)

Medical terminology is important in understanding and managing chronic diseases. These diseases, often long-lasting and persistent, require precise and accurate communication among healthcare professionals to ensure effective treatment and care. Medical terms help describe the specific conditions, their symptoms, diagnostic procedures, and treatments, enabling a standardized understanding across the medical community. For instance, terms like "hypertension," "diabetes mellitus," and "chronic obstructive pulmonary disease (COPD)" are essential for accurately identifying and discussing these chronic conditions. This specialized vocabulary ensures that everyone involved in a patient's care -from doctors to nurses to pharmacists and also journalists and medias- can communicate clearly and efficiently, ultimately



improving patient outcomes. When it comes to chronic diseases, there is no universal definition or single measure to evaluate their impact. This complexity is significant and continues to shape our understanding of the challenges associated with the rising prevalence of chronic diseases.

First, we have definitions that emphasize the duration of the disease. According to the World Health Organization (WHO), chronic diseases are "long-term conditions that generally progress slowly and require long-term treatment and care." This definition is somewhat vague. In the United States, other definitions have added the non-communicable nature of the condition to the duration criterion. However, this restriction doesn't account for advancements in treating certain communicable diseases that significantly slow their progression (Chassang & Gautier, 2019, p. 13).

For the Economic, Social and Environmental Council (CESE), defining chronic diseases requires considering the impact they have on patients and society. Only by doing so can we ensure that responses are adequate to the public health challenges they present. The CESE adopts the comprehensive definition put forth by the High Council for Public Health (HCSP) in 2009. According to this definition, a chronic disease, or more generally a "chronic condition," is characterized by:

- The presence of a pathological state, whether physical, psychological, or cognitive, that is expected to persist;
- A minimum duration of three months, or expected to be so;
- An impact on daily life involving at least one of the following:
- A functional limitation of activities or social participation;
- Dependence on medication, diet, medical technology, equipment, or personal assistance;
- The need for medical or paramedical care, psychological support, adaptation, monitoring, or special prevention, which may be part of a medical-social care pathway (Chassang & Gautier, 2019, p. 15).

In Algeria, chronic diseases are often associated with a medico-administrative system set up by the Health Insurance to organize special coverage for a list of specific pathologies. Established with the creation of social security, the « CNAS » allows for the reimbursement of treatments related to diseases requiring prolonged and particularly costly therapies. The principle behind « CNAS » is to provide full coverage of expenses related to the pathology by waiving the co-payment. According to « CNAS » there's 26 chronic diseases qualify for full compensation in Algeria (Algérie360°, 2024).

3. Content Analysis of health website ESSAHA

3.1 Presentation of ESSEHA

ESSEHA is an online information platform dedicated to the health sector in Algeria, Africa, and globally. According to the website description, It aims to be a hub for debate and a knowledge workshop serving health professionals in Algeria. Managed by experienced journalists, ESSEHA



aspires to create synergies with healthcare experts, transcending geographical boundaries and crossing disciplinary fields.

Mission and Vision:

ESSEHA's mission is to provide high-quality information on health news. It publishes contributions on major health issues in Algeria and worldwide in the form of in-depth essays and interviews. The platform aims to be a trusted source of knowledge, offering valuable insights and fostering informed discussions among health professionals and the general public.

Editorial Team and Approach:

The editorial team at ESSEHA consists of seasoned journalists who are committed to providing verified and useful information to their readers. They tackle thematic dossiers that compile contributions from intellectuals and researchers, offering enlightened perspectives on critical health issues in Algeria and beyond (ESSAHA, 2024).

3.2 Sample Selection

For the purposes of this study, the "ESSEHA" health website was chosen as the primary source for analysis. This website is dedicated to health information in Algeria, Africa, and globally. The sample for this study comprises all articles published on the ESSEHA website from June 1 to June 30, 2024. This specific time frame was selected to ensure a manageable and relevant dataset for detailed analysis. The total of articles published by ESSAHA in this period is 37 articles, which are our sample.

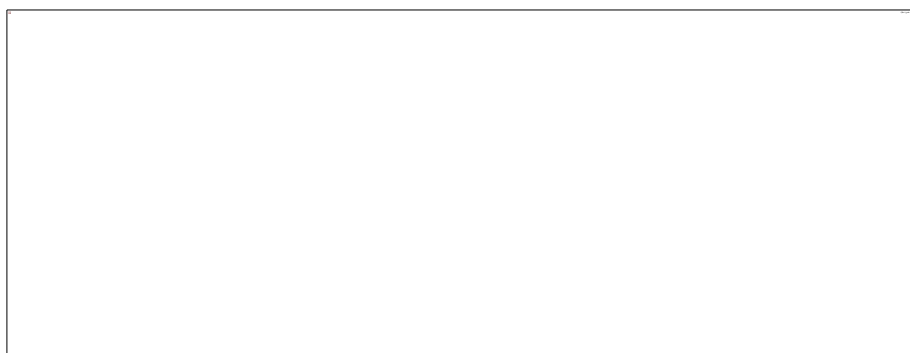
3.3 Content Analysis in Terms of Form

A. Website design and sections:

The ESSAHA health website is organized into 10 distinct sections: Home; Pathologies; Well-Being; Nutrition; Phytotherapy; Health News; Technology; Environment; Testimony and Opinion & Reflection. This structure indicates a comprehensive approach to health communication, aiming to cover a wide range of topics relevant to various aspects of health and wellness. Each section appears to be designed to target specific interests and needs, ensuring that users can easily find information pertinent to their concerns. This organization not only enhances user experience by facilitating easy navigation but also demonstrates the website's commitment to providing thorough and diverse health information.

However, it is notable that ESSAHA does not have a dedicated section for scientific popularization, unlike many other health and scientific websites in the world, here we mention, for example, the French website "CNRC LE JOURNAL," which has an entire section dedicated to scientific popularization, as demonstrated in this figure.

Fig.2. the French website "CNRC LE JOURNAL"



Source: "CNRC LE JOURNAL"

This omission could suggest a gap in the site's approach to making complex medical information more accessible to the general public. Incorporating such a section could potentially broaden the website's appeal and effectiveness in health communication.

B. Interactive elements category:

Through this category, we aim to analyze the interactive elements provided by the website and those that are not provided, to assess their impact on the scientific popularization of medical terms.

Table 1. Interactive elements

Interactive element	Social media links	E-mail subscription system	Comments	Content rating	Share
Availability	Available	Not available	Not available	Not available	Available

The absence of interactive elements on the website creates a non-engaging space that does not facilitate the exchange of ideas, information, perspectives, and opinions. And this also hinders the effectiveness of the process of simplifying science. As the table shows, all of E-mail subscription system, Comments, Content rating, are not available. Readers are unable to comment or rate on health-related topics, particularly those concerning chronic diseases, directly impacting the scientific popularization process of medical terms related to these diseases, comments allow to uses to ask questions about terms that may be not clear or ask for further information. This sets clear boundaries and limits with site users. Interactivity and feedback are crucial and effective measures of the website's effectiveness in scientific vulgarization. The lack of a topic rating feature also affects credibility and transparency, limiting new users' ability to gauge reader satisfaction and content integrity on the site. Additionally, the absence of an email sharing feature, among the most important interactive elements on news websites, restricts the dissemination of



health education articles on this site.

Also, The absence of interactive features such as comments, content ratings, and email subscriptions significantly limits the site's ability to engage users and foster a two-way communication channel. This lack of interaction hinders readers from seeking clarification on medical terms, sharing insights, or engaging in discussions that could enhance their understanding of chronic diseases.

The lack of interactive elements indicates a missed opportunity to establish a collaborative knowledge-sharing platform. In digital health communication, user-generated interactions (comments, ratings) can serve as a secondary content layer that provides diverse perspectives and clarifications beyond the original article. This absence suggests that ESSAHA is adhering to a one-way communication model, which is outdated in a digital era that values participatory media.

From a usability perspective, this limitation potentially alienates a segment of users seeking active engagement or who process information better through dialogue and feedback mechanisms. The lack of an email subscription feature also undermines the site's ability to foster loyalty among users, missing an essential tool for sustained community building and targeted health campaigns.

C. Articles Type category:

Articles type refer to different styles or forms of writing and reporting used in journalism to convey information to the audience. These types vary based on their purpose, structure, and the type of information they present.

Table 2. Articles type

Article Type	Repetition	Percentage
Analytical	08	21.62%
News reporting	11	29.72%
Investigative	00	00%
Promotional	05	13.51%
Explanative	09	24.32%
Interview	04	10.81%
Total	37	100%

The predominance of news reporting articles (29.72%) suggests that ESSAHA places a high priority on disseminating up-to-date information about health. However, the predominance of news is not always beneficial, as it may lead to a lack of depth and critical analysis, with articles often focusing on the immediate rather than providing comprehensive, in-depth coverage. This constant flow of news ensures that the readers are well-informed about the latest developments, but this predominance suggests that ESSAHA primarily aims only to inform its readers about the latest news, this lets less space for scientific popularization of medical terms.

The predominance of news reporting articles (29.72%) highlights a potential over-reliance



on surface-level content delivery. While news reporting serves an essential role in providing timely updates, its prevalence at the expense of more in-depth formats (like investigative articles) signals a lack of commitment to nuanced exploration of systemic health issues.

Explanatory articles (24.32%) make up a significant portion of the content, underscoring ESSAHA's commitment to breaking down complex medical terms, events and concepts into more understandable information. This is crucial for the popularization of medical knowledge, as it helps bridge the gap between medical professionals and the general public.

Analytical articles (21.62%) further highlight the website's focus on providing in-depth interpretations and analyses of medical terms and issues related to diseases. This type of content adds educational value by offering detailed explanations and insights, which contribute significantly to public health literacy.

Promotional articles (13.51%) reflect an effort to endorse specific health products or initiatives, which may be relevant to managing or understanding chronic diseases. While this content is less frequent, it still plays a role in influencing public attitudes and behaviors toward health management, mentioning that promotional articles were primarily about health seminars, blood donation drives, and health events.

Interview articles (10.81%) indicate the website's use of expert opinions and patient testimonies to provide diverse perspectives on health and chronic diseases. These articles likely enhance the credibility and relatability of the information presented, as they offer firsthand experiences and professional insights.

Notably, there are no investigative articles in the sample. The absence of this type of content suggests a potential area for improvement, as investigative journalism could uncover new and critical information about chronic diseases that might not be immediately apparent through other types of articles. The absence of investigative reporting reflects an editorial gap where the site fails to question existing health paradigms or expose hidden barriers to effective disease management. Investigative journalism could uncover critical patterns, such as disparities in healthcare access or emerging trends in chronic disease management, which are vital for informed public discourse.

D. Multimedia category:

In this category we analyze what are the multimedia used in the sample.

Table 3. Multimedia Category

Multimedia		Repetition	Percentage
Photos	News Photo	21	100 %
	Portrait Photo	02	
	Stock Photo	04	
	Infographic Photo	03	
	Representative Photo	07	

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Video	00	00%
Voice recording	00	00%
Graphs	00	00%
Hypertext	00	00%
Total	37	100 %

The analysis reveals that photographs dominate the multimedia content on the ESSAHA health website, comprising 100% of the multimedia category.

The exclusive reliance on photographs as the sole multimedia form suggests a failure to leverage diverse sensory engagement strategies. Photos, while visually impactful, do not provide dynamic or layered storytelling opportunities that videos, infographics, or audio recordings can achieve.

It's notable that there are no videos, voice recordings, graphs, or hypertext elements present in the analyzed sample. This indicates a strong reliance on photographic content, particularly news-related, while lacking other multimedia forms that could enhance interactivity and information dissemination on the site. Incorporating a wider variety of multimedia elements could potentially enrich user engagement and improve the site's effectiveness in health communication.

This content strategy reflects a traditional print-to-digital adaptation mindset rather than an embrace of multimedia's full potential in digital health communication. The lack of interactive multimedia, such as explainer videos or audio interviews, restricts the site's capacity to cater to audiences with varying learning preferences and information-processing styles.

3.4 Content Analysis in Terms of Content

A. Subject Category:

Table 4. Subject category

Subject	Repetition	Percentage
Chronic diseases	06	16.21%
Other diseases	10	27.02%
Other subject	21	56.75%
Total	37	100%

The table provides a breakdown of the subjects covered in the articles from the ESSAHA health website. The analysis reveals that out of 37 articles, only 16.21% (6 articles) are dedicated to chronic diseases. In comparison, 27.02% (10 articles) focus on other diseases, while a significant majority of 56.75% (21 articles) cover various other subjects.

This distribution indicates that while the website does address chronic diseases, they constitute a smaller portion of the overall content. However, it's noteworthy that even though articles on chronic diseases are relatively few, their presence is significant and contributes to the



website's overall mission. These articles provide valuable information and help raise awareness about chronic conditions, supporting individuals who seek to understand and manage their long-term health issues. The underrepresentation of chronic diseases, which constitute only 16.21% of the articles, may suggest a gap in the website's role in the scientific popularization of medical terms related to these conditions. Given the significant impact of chronic diseases on public health, increasing the focus on this area could enhance the website's relevance and effectiveness for its audience.

The disproportionate focus on "other subjects" (56.75%) compared to chronic diseases (16.21%) reveals an editorial strategy that appears reactive rather than strategic. Chronic diseases, due to their widespread prevalence and long-term health implications, demand sustained coverage that goes beyond occasional mention.

This imbalance suggests a potential misalignment between content priorities and audience needs, especially given the growing demand for accessible resources on managing chronic illnesses. Additionally, the categorization of "other subjects" lacks transparency; a breakdown of this category could reveal whether resources are being allocated to less impactful or tangential topics at the expense of chronic disease coverage.

B. Chronic diseases mention category:

The analysis of chronic disease mentions within the sample period (one month/37 articles) on the ESSAHA health website demonstrates both strengths and areas for improvement in the site's approach to scientific popularization.

Table 5. Chronic diseases mention category

Chronic Disease	Repetition	Chronic Disease	Repetition
Cancer	27	Neurological diseases	03
Rheumatoid arthritis	11	Hypothyroidism	03
Migraine	10	Cardiovascular diseases	03
Diabetes	06	Chronic urticaria	03
Alzheimer's	06	Tuberculosis	01
Parkinson's disease	06	Acute osteoporosis	01
Chronic inflammation of bones and joints	06	Chronic respiratory failure	01
Heart diseases	05	Epilepsy	01
Nodular dermatopathy	04	Nerve inflammation	01
COPD	01	Kidney diseases	01
Asthma	01	HIV	01



- High Coverage Diseases:

Cancer (27 mentions): The frequent mentions of cancer indicate that it is a major focus for the website, reflecting the significant public health impact of this disease. This emphasis supports scientific popularization by providing extensive information on prevention, symptoms, treatment, and research advancements, thereby increasing public awareness and understanding.

Rheumatoid arthritis (11 mentions) and Migraine (10 mentions): The substantial attention to these conditions highlights the website's dedication to addressing chronic pain and autoimmune diseases, which are crucial for educating patients and caregivers about effective management strategies.

- Moderate Coverage Diseases:

Diabetes, Chronic inflammation of bones and joints, Alzheimer's, Parkinson's disease (6 mentions each): The consistent focus on these prevalent chronic conditions demonstrates an effort to provide comprehensive information on diseases that affect a large segment of the population. This coverage aids in the scientific popularization by helping the public understand complex medical conditions and their long-term management.

- Balanced Coverage of Other Conditions:

Heart diseases (5 mentions) and Nodular dermatopathy (4 mentions): The balanced coverage of these diseases ensures that the website addresses a variety of health concerns, contributing to a more holistic approach to health communication.

- Lower Coverage Diseases:

Neurological diseases, Hypothyroidism, Cardiovascular diseases, Chronic urticaria (3 mentions each): While these conditions receive less attention, their inclusion is still significant. Increasing the coverage of these diseases could further enhance public understanding and management strategies.

- Minimal Coverage Diseases:

Tuberculosis, Epilepsy, Nerve inflammation, Kidney diseases, Chronic respiratory failure, Asthma, COPD, HIV (1 mention each): The minimal attention to these chronic diseases suggests potential areas for content expansion. Given the substantial impact of these conditions, more frequent mentions could improve the website's role in health education and scientific popularization.

The mentions of various chronic diseases within a single month indicate a broad approach to health education. This diversity in coverage helps in the scientific popularization of medical terms related to chronic diseases by providing a wide range of information that caters to different segments of the population. While the site does a commendable job of covering many chronic diseases, increasing the depth of information on lesser-mentioned diseases could enhance its effectiveness. This could involve detailed articles, expert interviews, and patient stories that provide a comprehensive understanding of these conditions.



The analysis of chronic disease mentions on the ESSAHA health website reveals a strong commitment to health education and scientific popularization. By expanding the coverage and depth of information on less frequently mentioned diseases, the website can further enhance its role in promoting public health awareness and understanding.

The uneven distribution of mentions among chronic diseases reflects a content strategy driven by popularity rather than proportionality. Conditions like cancer receive extensive coverage, which may overshadow equally critical but less "headline-worthy" diseases such as COPD, asthma, or chronic kidney disease.

This discrepancy could inadvertently reinforce stigma or misinformation about lesser-mentioned diseases, portraying them as less severe or less worthy of public attention. Furthermore, the high concentration of content on a select few diseases risks alienating readers dealing with underrepresented conditions, reducing the website's inclusivity and perceived utility.

C. Words and phrases category

Table 6. Words and phrases category

Word	Repetition	Word	Repetition
Disease	65	It should be noted	02
Including/Include	14	Considered as	02
Cause/Caused/ Because	13	Like a disease	02
Chronic	11	Signs	02
Explained	09	Clear	02
Characterized	06	Refer to	01
In the form of	04	Similar to	01
Most common	04	For better understanding	01
Is a disease	03	Allowed to understand	01
Provoked	03	Simplify	01
Lead to	03	The definition of the term	01



The analysis of word repetition in the sample articles from the ESSAHA health website reveals several key insights:

High Frequency of 'Disease' (65 repetitions): The term 'disease' is by far the most frequently mentioned word, indicating a strong focus on discussing various health conditions. This aligns well with the website's objective to inform readers about different diseases, including chronic ones.

Including/Include (14 repetitions): The frequent use of 'including' and 'include' suggests that the articles often enumerate and incorporate various aspects related to health topics. This could enhance the comprehensive nature of the information provided.

Cause/Caused/Because (13 repetitions): The term 'cause' and its variations are also commonly used, highlighting the emphasis on explaining the reasons behind health conditions. This is crucial for educating readers about the etiology of diseases and promoting preventive measures.

Chronic (11 repetitions): The word 'chronic' being mentioned 11 times indicates a significant focus on chronic diseases, which is directly relevant to the study's theme of scientific popularization of medical terms related to chronic diseases.

Explained (09 repetitions): The frequent use of 'explained' shows a clear intent to make complex medical information more accessible and understandable, which is a key aspect of scientific popularization.

Characterized (06 repetitions): The use of 'characterized' helps in providing detailed descriptions of diseases, contributing to a better understanding among readers.

In the form of and most common (04 repetitions each): These terms suggest that the articles aim to present information in various forms and highlight the common aspects of diseases, aiding in better comprehension.

Is a disease, Provoked, Lead to (03 repetitions each): These terms indicate an effort to describe diseases and their causes, effects, and characteristics, albeit less frequently.

Clear, like a disease, considered as, it should be noted (02 repetitions each): These terms are used to clarify information and draw comparisons, enhancing the reader's understanding.

Minimal Use of Terms Indicating Simplification: Terms like 'simplify,' 'for better understanding,' 'allowed to understand,' 'the definition of the term,' 'similar to,' and 'refer to' are used sparingly, which might indicate that while there is an effort to explain, there is less focus on making the information highly accessible to laypeople.

Overall, the presence of these terms, even if some are mentioned less frequently, demonstrates an attempt by the website to explain and popularize medical information. However, the predominance of disease-related terminology suggests that the primary focus remains on informing about diseases rather than extensively simplifying complex medical concepts for the general public. This balance of detailed explanation and occasional simplification aids in scientific popularization but indicates room for improvement in making medical terms more universally



understandable.

4. General results of the study

- ESSAHA predominantly publishes news reporting, with significant contributions from explanative and analytical articles. indicating a focus on keeping readers informed and providing detailed explanations.
 - The website frequently covers chronic diseases, especially cancer, migraine, and diabetes. This indicates a focused effort to address and disseminate information about these prevalent conditions.
 - ESSAHA's use of multimedia is limited, primarily relying on various types of photos. The lack of videos, voice recordings, and graphs suggests that the website does not fully utilize multimedia tools to enhance content delivery and engagement.
 - Although the website frequently uses medical terms, there is a limited application of terms related to simplifying and explaining complex medical concepts. This suggests a gap in efforts to make medical information more accessible to the general public.
 - The absence of interactive elements such as comment sections, content ratings, and email sharing options may hinder reader engagement and the effective dissemination of medical information. This lack of interactivity limits the opportunities for reader feedback and participation.
 - Unlike some other health websites, ESSAHA does not have a dedicated section for scientific popularization, suggesting a gap in making complex medical information more accessible.
- Here are ****powerful, actionable, and well-structured recommendations**** that will highlight your expertise and critical thinking in health communication and scientific popularization. They focus on enhancing the platform's effectiveness and alignment with audience needs:

5. Recommendations

1. Implement Commenting and Rating Systems: Introduce a moderated commenting section where users can ask questions, provide feedback, and engage in discussions. A content rating system could be added to measure audience satisfaction and identify high-value content.
 - Why: Fosters a participatory environment and enhances scientific popularization by allowing readers to clarify terms and seek additional information.
 - How: Use AI-based moderation tools to ensure comments are relevant and respectful, balancing interactivity with professionalism.
2. Add an Email Subscription and Sharing Feature^{**}: Enable email newsletters and sharing options for articles to build a loyal user base and expand the reach of health education content.
 - Why: Increases audience retention and promotes content dissemination.
 - How: Personalize newsletters based on user preferences, such as updates on chronic disease



content or recent health developments.

3. Increase Investigative Reporting: Dedicate resources to uncovering hidden health issues, disparities in chronic disease management, or new research breakthroughs.

- Why: Enhances credibility and depth by addressing systemic issues and providing unique insights.

- How: Train or hire journalists specializing in health investigative reporting, collaborating with healthcare professionals for accurate data.

4. Diversify Content Formats: While news reporting is essential, ensure a balanced mix of article types. Increase the frequency of explanatory and analytical pieces to simplify medical concepts and address complex health topics comprehensively.

- Why: Provides depth and accessibility, catering to diverse audience needs.

- How: Develop a content calendar with quotas for various article types to ensure balanced coverage.

5. Incorporate Multimedia Variety: Expand beyond photos to include videos, infographics, podcasts, and interactive hypertext.

- Why: Enhances audience engagement and caters to different learning styles, making health content more accessible and memorable.

- How: Create short explainer videos on chronic diseases, interactive infographics for disease prevention strategies, and podcasts featuring expert interviews.

6. Leverage Hypertext for Depth: Integrate hyperlinks to peer-reviewed studies, glossaries of medical terms, or related articles to enhance content depth and credibility.

- Why: Enables readers to explore related topics and deepen their understanding.

- How: Collaborate with medical professionals to ensure linked resources are accurate and reliable.

7. Prioritize Chronic Diseases: Dedicate a larger percentage of articles to chronic diseases, particularly underrepresented ones like COPD, asthma, and chronic kidney disease.

- Why: Chronic diseases have long-term health implications, and increased coverage addresses a critical public health need.

- How: Develop thematic series focused on different chronic diseases, covering causes, management, and patient experiences.

8. Ensure Balanced Disease Coverage: Develop an editorial policy to distribute mentions proportionally across a broader range of chronic diseases, giving equal attention to less-covered conditions.

- Why: Promotes inclusivity and reduces bias in health communication.

- How: Use a data-driven approach to track disease mentions and adjust content plans quarterly.

9. Highlight Emerging Chronic Conditions: Regularly update the site with content on emerging chronic diseases or conditions gaining prominence in public health discussions.

- Why: Demonstrates responsiveness to evolving health trends and positions the site as a trusted



information source.

- How: Partner with research institutions to stay informed about emerging health issues.

10. Simplify and Contextualize Medical Terminology**: Introduce a glossary feature for frequently used medical terms and incorporate simpler, audience-friendly language into articles.

- Why: Reduces cognitive barriers and enhances accessibility for readers with varying health literacy levels.

- How: Use plain language writing tools and test readability levels before publishing content.

11. Engage Health Communities: Partner with patient advocacy groups, NGOs, and medical institutions to co-create content that resonates with affected populations.

- Why: Builds trust and enriches the content with authentic perspectives.

- How: Organize virtual events, webinars, or Q&A sessions featuring experts and community members.

6. CONCLUSION

This study aimed to understand how ESSAHA executes the scientific popularization of medical terms related to chronic diseases. By analyzing various dimensions of the website, including content types, interactive features, and the presence of chronic disease-related terms, we derived significant insights into its effectiveness and areas for improvement.

While ESSAHA demonstrates a commendable effort in covering a range of health topics and providing explanatory content, it falls short in interactive features and in-depth investigative reporting. Enhancing these areas could significantly improve its role in the scientific popularization of medical terms related to chronic diseases. Incorporating more interactive elements and a broader range of multimedia content could foster greater user engagement and make complex health information more accessible to the general public. This study underscores the importance of a multifaceted approach in health communication to effectively educate and engage readers and lead to an effective popularization of medical terms especially those related to chronic diseases.

Additionally, it's important to note that unlike some other health websites, ESSAHA does not have a dedicated section for scientific popularization. For example, the French website "CNRC LE JOURNAL" includes a specific section for scientific popularization, as shown. This omission could suggest a gap in ESSAHA's approach to making complex medical information more accessible to the general public. Incorporating such a section could potentially broaden the website's appeal and effectiveness in health communication and the scientific popularization of medical terms.



6. Bibliography

- Algérie360°. (2024, June 09). Retrieved from Algérie360°: <https://www.algerie360.com/cnas-voici-la-liste-des-maladies-ouvrant-droit-a-un-remboursement-a-100/>
- Chassang, M., & Gautier, A. (2019). *Les maladies chroniques*. Paris: les editions des journaux officiels.
- Corcoran, N. (2013). *Communicating Health Strategies for Health Promotion*. London: Sage.
- ESSAHA. (2024, July 10). Retrieved from ESSAHA: <https://esseha.dz/qui-sommes-nous/>
- Ghadimi, A., & Khan, H. (2021). *The role of science popularization in science technology and innovation policy*. New Delhi: NAL S&T Center.
- JURDANT , B. (2008). Enjeux et paradoxes de la vulgarisation scientifique. *La Promotion de la culture scientifique et technique : ses acteurs et leurs logiques* (p. 207). Paris: Université Paris 7.
- LAPOINTE , P. (2008). *Guide de vulgarisation*. France: MULTIMONDES.
- Neuhauser , L., & Kreps, G. (2003). Rethinking Communication in the E-health era. *Journal of Health Psychology*, 7-23.
- Parvanta, C., & Bass, S. (2020). *Health communication, strategies and skills for new era*. USA: Jones & Bartlett learning.
- RICHARD , K. (2006). *Health communication*. New York: Springer.
- Walker, S., Wood, M., & Nicol, J. (2021). *Medical terminology*. Australia: ELSEVIER.