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Hypertension: the role of scientific dissemination in its prevention and control

Hipertensión: el papel de la divulgación científica en su prevención y control

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ABSTRACT

This article explores the repercussions of science communication concerning hypertension on individuals afflicted with the condition, emphasizing the necessity of ascertaining the target demographic. In this regard, the analysis focuses on the primary factors influencing the dissemination of health information to the Mexican population with hypertension, including their age range, educational level, and perception of science. Conversely, the article puts forward a series of resolution strategies, encompassing a review of educational and informative programs that have been implemented in various countries to reduce blood pressure and whose implementation could be considered for application in the local population. In conclusion, to have better control of hypertension, it is important to know the specific needs of patients to determine the appropriate methods to communicate information about disease, prevention, and treatment.

RESUMEN

Este artículo habla sobre el impacto que tiene la divulgación científica sobre la hipertensión en personas que viven con esta enfermedad y la importancia de identificar al público objetivo. En este sentido, se analizan los principales factores que impactan en la divulgación de la salud hacia la población mexicana con hipertensión como; su rango de edad, nivel educativo y percepción sobre la ciencia. Por otro lado, se proponen estrategias resolutivas, donde se hace una revisión de programas educativos e informativos que han promovido la disminución de la presión arterial en otros países y que podrían aplicarse en nuestra población. En conclusión, para tener un mejor control de la hipertensión, es importante conocer las necesidades específicas de los pacientes para determinar los métodos apropiados con los que se comunicará la información sobre la enfermedad, prevención y tratamiento.

INTRODUCTION

Arterial hypertension is defined as a sustained increase in blood pressure, which affects one in three people in Mexico and the world, making it one of the most important cardiovascular diseases. Despite its chronic nature, hypertension is a modifiable risk factor for cardiovascular accidents,[1] underscoring the necessity for effective management to avert potential future complications in patients. However, if society does not reverse the high prevalence rates of hypertension, the average annual expenditure for this disease, which currently exceeds 17 billion pesos, will continue to increase, and there will not be enough budget to meet the health needs in the near future, in addition to the imminent reversal of the population age pyramid in Mexico.[2,3]

In this context, it's important to note that the population is largely unaware of health-related issues. This lack of awareness contributes to a deficiency in healthcare, which in turn fosters the development of diseases, including those affecting the cardiovascular system.

In this regard, the objective of disseminating information on hypertension and related subjects is to furnish the general public with pertinent knowledge that may exert a beneficial influence on the population afflicted by this malady.

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To effectively disseminate information regarding hypertension, it is imperative to comprehend the social problem underlying this condition. This understanding is crucial for ensuring the dissemination of information that truly reaches all socioeconomic strata of the population. It is imperative to formulate strategies that are tailored to the needs of the hypertensive population in Mexico.

1. THE TARGET AUDIENCE FOR HYPERTENSION INFORMATION DISSEMINATION

Information on hypertension should be accessible to patients with hypertension and their caregivers. Therefore, it should be emphasized that in the process of writing and disseminating health texts, it is essential to understand the type of audience to which this information is addressed and the way in which it is communicated. Consequently, health texts addressing hypertension should prioritize clarity, practicality, and brevity, as these qualities are instrumental in ensuring the long-term positive impact of the information on the health of the population.

It is imperative to acknowledge that education about hypertension is chiefly directed towards individuals living with this condition. In this regard, the National Institute of Public Health (2018) observes that more than half of hypertensive individuals are over 60 years old, and 54.4% of those who have already been diagnosed do not manage their blood pressure adequately *(Figure 1)*.[1] It is noteworthy that up to 47.3% of hypertensive individuals are unaware of their condition, due to the lack of regular medical checkups and limited or inadequate information about the disease.[4]

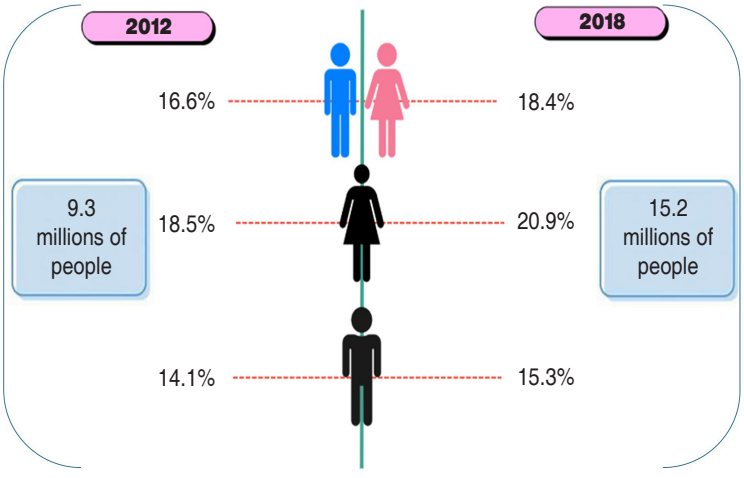

Figure 1: Population over 60 years of age with hypertension.
Source: This text has been modified from INSP, 2018.[1]

2. FACTORS THAT INFLUENCE HEALTH COMMUNICATION IN MEXICO

2.1. Educational level

It is imperative to acknowledge the significant efforts made to disseminate knowledge regarding hypertension to all interested parties. In this regard, it is imperative to consider the educational level of hypertensive patients, who constitute the target demographic for this initiative. This demographic is crucial in determining their ability to understand the information imparted.

In this regard, Ramos Serpa and López Falcón (2015) elucidate that the formation, assimilation, and development of concepts is facilitated by educators in an educational context that becomes increasingly intricate as the educational level advances.[5]

In this sense, approximately 50% of individuals living with hypertension are often deprived of the opportunity to access higher education *(Figure 2)*, and consequently, they are the most susceptible to poor diet, and it is prevalent that they also suffer from diabetes and obesity.[4]

The data presented indicates that individuals afflicted with hypertension are predominantly older adults who have received a basic education. This observation prompts the recommendation that scientific researchers, healthcare professionals, and students pursuing higher education should prioritize the development of educational materials that are comprehensible and accessible to individuals across all socioeconomic strata.

2.2. Limitations on basic education

It is imperative to acknowledge that basic education addresses health knowledge in a cursory manner, which engenders the prevalence of chronic degenerative diseases in the population due to the dearth of knowledge

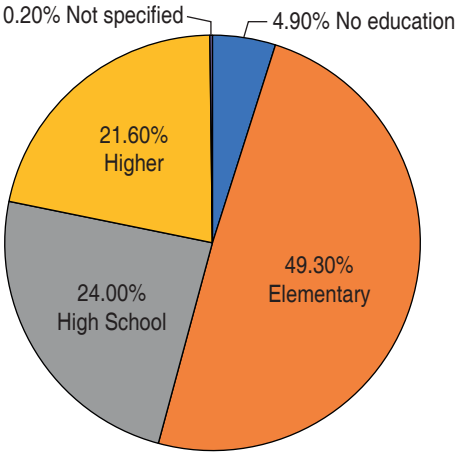

Figure 2: Percentage of population aged 15 and over by level of education. Source: This text has been modified from INEGI. Censos y Conteos de Población y Vivienda 2020.[6]

concerning risk factors, genetic predisposition, diagnosis, and treatment. According to the curriculum map of the Public Education Secretary (SEP), health education commences in the third grade of primary school and persists until the final year of secondary school. However, of health education at the basic level focuses mainly on sexuality, overlooking national health issues such as hypertension, diabetes, and obesity.[7]

Concurrently, numerous authors have examined primary and secondary school health education curricula and determined that there is a paucity of instruction on chronic diseases such as hypertension and diabetes. Even in the elective curricula of institutions that offer health-related programs, the instruction of these chronic diseases is deficient and does not enable students to comprehend their implications.[8]

The dearth of health education is not the sole factor influencing the comprehension of popular texts; the reading and scientific performance of the Mexican population is also impacted. According to data from the Organisation for Economic Cooperation and Development (OECD),[9] Mexico ranks among the five countries with the lowest scores on the PISA test. The PISA test assesses reading performance by evaluating the ability to understand and use written texts, as well as the application of scientific knowledge to explain phenomena and draw conclusions based on evidence.

Despite the above, the 2013 and 2017 survey on public perceptions of science and technology indicates that approximately 75% of Mexicans aged 17 and over *(Figure 3)* express interest in advances in the field of medicine and health science.[10] This represents a significant opportunity to explore innovative strategies for fostering public engagement with health-related issues.

However, despite the apparent interest in science, National Institute of Statistics and Geography (INEGI) reports that from 2013 to 2017 there was a decrease in the consultation of newspapers and magazines, the means by which the population is informed about science and technology. Therefore, it is essential to undertake efforts to regain the population's interest in reading.

3. PROPOSALS FOR DISSEMINATING INFORMATION TO THE PUBLIC

3.1. Language

It is important to highlight the positive elements that should be maintained in hypertension-related texts. Firstly, it is imperative to ensure that the development of these texts adheres to the principle of continuity, which stipulates that the depth of explanation should increase in accordance with the reader's progression in acquiring knowledge.[11] However, it is crucial to avoid the use of terminology from specialized domains such as physiology or pharmacology,

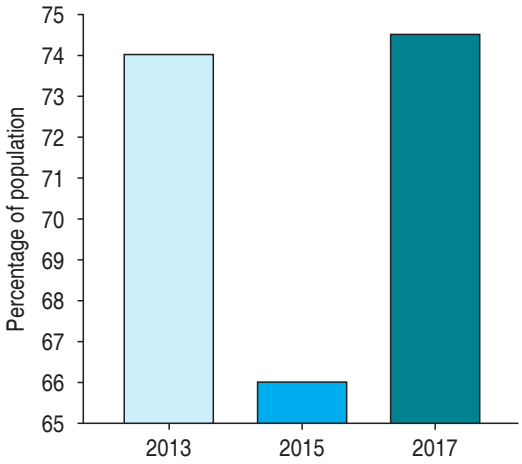

Figure 3: Mexican population interested in scientific developments in medicine or health sciences, 2013-2017. Source: This text has been modified from INEGI. Banco de Indicadores 2017.[10]

which may impede comprehension for individuals lacking expertise in these areas. Furthermore, didactic illustrations for patients and family members should be incorporated into triptychs or digital materials.

3.2. Ongoing conversations and workshops

One proposal to promote health outreach to people with hypertension would be to conduct a hands-on educational intervention, as this method has been shown to be effective in increasing the level of knowledge about hypertension in older adults, which could be very beneficial to patients with hypertension and their families.[12] Furthermore, an educational intervention has been demonstrated to modify inadequate knowledge about hypertension and reduce the number of patients with elevated blood pressure.[13]

Additionally, the implementation of a health education program in patients with hypertension has been shown to have a positive effect on blood pressure control and reduce mortality.[14]

3.3. Community Health Programs

To achieve the objective described above, and as previously mentioned, a prior diagnosis of the target population's knowledge and an assessment of their needs must be made in order to provide them with the information they truly require.

For instance, in 1990, a fundamental community education program was implemented for a period of six months with the objective of achieving blood pressure control. At the conclusion of the project, a reduction in systolic blood pressure was observed during the subsequent 18 months.[15] This finding underscores the efficacy of educational programs in fostering individual and familial self-care, thereby enhancing population health outcomes, including life expectancy.[16]

The dissemination of hypertension can be enhanced by patient-to-patient recommendations, as evidenced by Rosado et al., (2005). Their observations revealed that individuals with hypertension are willing to share their experiences, thereby supporting the care of others and fostering the dissemination of information within their social networks.[17]

In this regard, some authors have demonstrated that public understanding of science is developed collectively and that the dissemination of information within a community can generate interest and higher levels of knowledge.[18]

As Sanchez (2008) has explained, an understanding of how perceptions of scientific projects have benefited communities can facilitate the identification of scenarios where scientific dissemination in health is required. Furthermore, by comprehending the nature of the information disseminated and the public's interpretation of it, we are able to ascertain the most effective means of communication.[19]

It is imperative that outreach initiatives targeting individuals with hypertension exhibit a genuine interest in their well-being, respect their values and self-esteem, and foster an environment of trust and autonomy.

The existence of educational programs that address the needs of this population is of paramount importance, as they can lead to a change in their lifestyle, resulting in the control of the disease.[20]

3.4. Sensitization of scientists to the need for dissemination

Ungar (2000) observed that any topic facilitating social interaction is well received; however, if a topic becomes a language barrier, most individuals withdraw from the conversation, causing scientists to become entrenched in their niches, avoiding the simplification of their knowledge, resulting in the termination of the conversation and mutual ignorance.[21] Consequently, the employment of sophisticated language replete with technical jargon, as evidenced in certain literature concerning hypertension, has the potential to dissuade individuals lacking specialized knowledge from engaging with the material.

Furthermore, it is important to acknowledge that scientists are not systematically trained to communicate their findings beyond academic circles,[22] and they often recognize their deficiencies in communication skills.[23] This creates an opportunity for communication professionals, who can serve as guides, advisors, and promoters of these training programs. Their

role would be to facilitate the dissemination of health information to the target population, ensuring its comprehension.

It is imperative to acknowledge that the creation and restructuring of popular science books should be directed towards rendering complex and often inaccessible subjects comprehensible to students and readers lacking scientific training, as science is intrinsically linked to society and its primary objective is human benefit. A proposal that could facilitate the dissemination of knowledge related to hypertension is the involvement of a pedagogue and a communicologist, who would enhance and support the transmission of information to the population.

The role of health education in modifying habits and behaviors, thereby promoting the preservation of health and the enhancement of living conditions, is indisputable. Consequently, the dissemination of straightforward materials on hypertension can contribute to the prevention and management of blood pressure, a matter of paramount importance to health institutions in our nation.[13]

Additionally, this dissemination strategy aims to promote equitable access to information and culture by making pertinent issues more accessible to the Mexican population, facilitating their comprehension of the significance and rationale behind these issues.[24]

At present, a number of promotional programs have been implemented in Mexico. Among these are initiatives by the National Institute of Public Health, which have given rise to platforms such as EDUCAD. EDUCAD offers a variety of interactive materials designed for different audiences, with the aim of providing guidance on the management of chronic diseases.[25] In the private sector, the Carlos Slim Foundation promotes the ClikiSalud.net platform, which provides access to visual and multimedia educational resources on hypertension, contributing to a better understanding of health.[26] Conversely, the PrevenIMSS program of the Mexican Social Security Institute (IMSS) encompasses detection measures, guidance, and nutritional monitoring, leveraging digital and printed tools.[27] These initiatives exemplify a patient-centered health communication perspective, wherein science functions as a medium for social empowerment. The sustained implementation of these measures is imperative to alleviate the burden of hypertension-related diseases within the nation. However, its dissemination is limited, as it is currently restricted to the health sector, i.e., patients. This information is not disseminated to the public, where its impact could be generated to prevent the disease rather than cure it.

4. SOCIAL NETWORKS AND SCIENTIFIC DISSEMINATION

Consequently, in the contemporary digital era, social networks have emerged as indispensable instruments that exert a profound influence on diverse sectors, notably healthcare. These networks have enabled healthcare professionals to disseminate information and enhance health education, a subject that will be examined in this report. Furthermore, social networks empower patients by furnishing them with greater access to medical information. However, the complexity of this information, often characterized by technical jargon, poses a significant challenge for healthcare professionals in translating complex concepts into easily comprehensible formats, particularly for new generations. This challenge is further compounded by the need to tailor these educational materials to meet the diverse information needs of the general public.[28-30]

CONCLUSIONS

It is imperative to develop outreach materials focused on national public health problems, such as hypertension, with a focus on the target audience, understanding the specific needs of the population, and selecting the most effective methods or media for conveying the information. In the near future, patients and their caregivers may share the knowledge they have gained with others, thereby contributing to a reduction in the incidence of this condition and other chronic diseases.

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