



Popularization of science: extensionist proposal for the dissemination of studies on headaches and cranial algias

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The production of knowledge and technologies through scientific research are fundamental to the development of society. In the medical field it is no different. A fine example was the development of the vaccines against Covid-19, which happened in record time, saved thousands of lives, and has allowed the resumption of pre-pandemic routines. However, to reach the current moment, the disclosure and propagation of the so-called "fake news" about the vaccines generated distrust on the part of the population. Why was it so difficult to convince people to get vaccinated? Surely the answer to this question lies in the "popularization of science".

Until recently, the results of scientific research were disseminated almost exclusively in events such as congresses, workshops, and symposia, and were limited to researchers and specialized professionals. In addition, the written divulgation of scientific knowledge has always been carried out in specialized language, built within the "Scientific Journalism". In both cases, most of the population ends up excluded from the dissemination of science. The absence of democratization of scientific knowledge leaves gaps that favor the dissemination of misinformation as seen during the pandemic.¹

Popularizing science is a dialogical process from the experts to the laymen. To be successful, this dialogue needs to be developed through effective communication strategies. These strategies are: (1) use of non-specialized language; (2) use of media with the widest possible reach; (3) keeping the focus on the main objective, which is science information (interests and values); (4) knowing the audience you want to reach. In this case, it is necessary to consider the beliefs, values, emotions, expectations and demands of the "lay" population so that the dialogical process is initiated, maintained and successfully completed.²

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Knowing the important role of universities in the popularization of science, a brief description of the current moment of medical education in Brazil becomes necessary. In this sense, we highlight the significant increase in the number of medical courses in the last 20 years. Currently, the country has more than 350 medical schools, more than half of which were founded after 2010. With the new courses, medical education, previously located in capitals and large cities, is moving towards the interior. The occupation of the vacancies offered has also changed. Besides the traditional admission exam, the National High School Exam (ENEM) and the quota system have been adopted by many medical schools as a means of admittance. All these changes have contributed to a more heterogeneous profile of medical students.

Given the new reality of Brazilian medical education, in 2014, the Ministry of Education updated the National Curriculum Guidelines for the Undergraduate Course in Medicine (DCN). Among the main changes are: (a) prioritize active methodologies in the teaching-learning process; (b) curriculum matrices adapted to regional needs; (c) curriculum matrix with interdisciplinarity and integration between teaching units; (d) teaching practices in the community from the beginning of the course. In addition, as of 2023, the pedagogical projects of medical courses must present at least 10% of their teaching practices as extension activities (Curricular extension).

This new model of medical education favors the popularization of science in several aspects. First, by giving the students the leading role in their learning. Second, by inserting them in teaching practices in the community from the beginning of the course. Third, by the expansion of curricular extension activities. It is the extension activities that take the scientific knowledge acquired (classroom) and produced (research) to the society, thus promoting the popularization of knowledge.

The Medical course at the Federal University of Paraná, Toledo Campus, had its inaugural class on March 21, 2016. As it is a new course, its PPC is modern with teaching practices in Health Care Units. And it was through these practices that the need was detected for a more effective dialogic interaction with the community regarding headaches and

cranial algias, situations that are responsible for about 9% of the care at the Health Units and that affect, throughout life, 93% of men and 99% of women.³

In this context, in February 2022, the Center for Studies in Headache and Cranial Ailments of Western Paraná (NECEFAC) was created. It is a university extension project whose main goal is to establish dialogical interaction with the local community (health professionals, citizens, and patients) through actions that bring quality information to everyone.

NECEFAC's actions are developed on different fronts. In one of them, students and teachers deepen their knowledge about the theme through classes, participation in congresses and discussion of cases. Next, informative material is produced, targeting two distinct audiences: health professionals and the local "lay" community. Communication with health professionals uses technical and scientific language through a cycle of lectures with specialized professionals in the area and discussion of clinical cases (Figures 1A and 1C, respectively). With the "lay" community, the dialogical interaction uses popular language and widely accessible media such as local radio programs (Figure 1B).

As final considerations, we highlight the importance of the popularization of science to avoid misinformation and promote health quality. It is also important to highlight the role of universities in the democratization of scientific knowledge and how the extension activities can be used in this process.

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Figure 1. Actions developed by NECEFAC. A: Cycle of lectures directed to students and health professionals. B: Dissemination of information on a local radio program. C: Discussion of clinical cases with students, teachers and health professionals.

References

1. Lee J, Koh J and Kim J-Y. **Popularization of Medical Information.** *Healthcare Informatics Research* 2021;27(2):110-115 Doi:10.4258/hir.2021.27.2.110
2. Motta-Roth D and Scherer AS. **Popularização da ciência: a interdiscursividade entre ciência, pedagogia e jornalismo.** *Bakhtiniana: Revista de Estudos do Discurso* 2016;11(2):164-189 Doi:10.1590/2176-457323671
3. Bigal ME, Bordini CA and Speciali JG. **Etiology and Distribution of Headaches in Two Brazilian Primary Care Units.** *Headache: The Journal of Head and Face Pain* 2000;40(3):241-247 Doi:10.1046/j.1526-4610.2000.00035.x