

# Reflection on educational actions generated in Brazil by scientific research in giardiasis and amoebiasis: what space they take up in articles?

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*Giardia duodenalis* and *Entamoeba histolytica* are protozoan parasites that infect people and animals worldwide due to the dispersion of infectious forms by feces in the environment facilitated by water transmission and ingestion of contaminated food. They constitute a serious Public Health problem, being responsible for high levels of mortality and morbidity in children, especially in poor communities in Brazil where they remain uncontrolled<sup>1</sup>.

Moreover, the difficulty in diagnosing *E. histolytica* and the zoonotic potential of *G. duodenalis* make it more difficult to control amoebiasis and giardiasis and contribute to the dissemination of these parasites. In Brazil, these protozoa stand out in the scenario of tropical diseases resulting from social determinants, and the high prevalence in poor communities multiplies the risk of morbidity and mortality, making control measures directed at the susceptible population indispensable. Part of the Brazilian population is unaware of the fact that animals can transmit some of these parasites, and therefore are not able to adequately assess the potential acquisition of this type of infection.

Health education should be considered as a primary point for the empowerment of people so that they can understand the minimum necessary of the dynamics of parasitic infections, the protocols to avoid infection and the importance of care in personal hygiene, receiving guidance on the adequacy of these procedures in their realities of life.

The existing failures in health education can be easily observed by comparison with emerging and re-emerging viral infections, for example, the Covid-19, Influenza, or Dengue, where prevention and hygiene protocols are announced by the public authorities, through television and social media, only when a particular pathogen is in evidence due to an outbreak, epidemic or pandemic. At this moment, such protocols are followed by most people only as long as panic lasts, and soon after this period, there is a relaxation of preventive measures, as can be seen, today.

The public power does not manage to establish basic sanitation, satisfactorily, in all places. This denotes the need for educational measures in basic health more prominently for the less favored population, with explanations that allow them to evaluate the measures to prevent infections, develop logical thinking in decision making for dialogic interaction with health professionals when establishing and managing parasitoses, and even other types of infections and comorbidities.

How to cite this article: Alves et al. Reflection on educational actions generated in Brazil by scientific research in giardiasis and amoebiasis: what space they take up in articles? ABCS Health Sci. 2022;47:e022101 <https://doi.org/10.7322/abcshs.2021296.2019>

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Declaration of interests: nothing to declare  
Funding: FAPERJ



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Thus, we surveyed to evaluate the existence and what were the health education actions in Brazil generated by scientific research related to *G. duodenalis* and the *Entamoeba histolytica/dispar/moshkovskii* complex. A systematic review of scientific articles from 1919 to 2019 was performed with a search in Medline, Lilacs, Scopus, Web of Science, and SciELO databases. Of the 392 articles retrieved, 86 were selected for qualitative evaluation, whereas in 4 articles some educational activities with the participants were mentioned in a more descriptive way (Table 1).

That is, although they are “chronic” parasitoses in the country, few studies investigating *G. duodenalis* or the *E. histolytica/dispar/moshkovskii* complex reported having carried out Health Education activities or described them in detail in the articles.

Evaluating the eligible articles, Neves and Massara<sup>2</sup>, describe the actions in education for the population in more detail with a focus on awareness. Tashima et al.<sup>3</sup> widely approach the subject of intestinal parasitoses to emphasize to the participants the need for hygiene care to decrease infections. Volotão et al.<sup>4</sup> indicate health promotion as a measure in the control of parasitic infections. Lima et al.<sup>5</sup>, report the educational actions from the University Extension project, demonstrating the interaction between Science and the community in promoting Public Health through Health Education, which has been reinforced by other studies.

The articles indicate the prediction of a favorable outcome for the reduction of the spread of protozoa such as giardiasis and amoebiasis, as well as other intestinal parasitoses, with the rescue of personal hygiene and food habits in the study area. Although the benefit of educational activities is evident, the low number of retrieved articles that presented the description of some health education activities performed, according to the criteria adopted for the Systematic Review, is a contradiction.

We understand that in other types of references we could have retrieved more papers, such as Course Completion Papers, Dissertations, Theses, and Congress abstracts, however, this type of literature would escape the scope of the profile currently accepted for Systematic Reviews.

We consider that the low number of descriptions of health education activities or proposals in scientific articles should be discussed

**Table 1:** Articles that mentioned educational measures in their studies

Article	Local	Educational Measure
Lima-Junior et al. 2013 <sup>2</sup>	Settlement (São Paulo)	“...raise awareness in the community about the importance of health care.”
Neves & Massara, 2009 <sup>3</sup>	Squares (Minas Gerais)	“...lecture on verminous... This activity aimed to inform, to form, to build knowledge....”
Tashima et al. 2009 <sup>4</sup>	Settlement (São Paulo)	“...explanation of the transmission of enteroparasitoses and how to act to reduce or avoid infection.”
Volotão et al. 2007 <sup>5</sup>	Slums (Rio de Janeiro)	“...promote primary health care in the control of parasitic diseases.”

among researchers. Although there is an “underreporting” of health education activities in scientific articles, few studies were conducted in communities in Brazil in which one of the objectives was to investigate the parasites *Giardia sp.* and *Entamoeba histolytica*, reported performing such activities or did not describe them in detail. It is evident the lack of understanding of Health Education as a protagonist in the prevention and combat of these intestinal protozoa, and the importance of reporting and describing these activities, or because they understood that this was not the space for describing or mentioning the activity. It is worth mentioning the lack of space in some scientific journals for this type of proposal to be well accepted amid statistics and laboratory experiments.

Many make a distinction between research, teaching, and extension when it is increasingly clear that they are inseparable. The authors, as professionals in the area of Parasitology, are aware of many Extension projects or actions in this thematic, and countless times are seen in lectures, posters, and oral presentations at events in the area.

But is there no room or is it not important to mention these activities in scientific articles? Or if these actions did not exist, wouldn't it be time to think about including them in future research?

In times when there has never been so much talk about “One Health”, the understanding that Health Education is one of the pillars in the fight against giardiasis and amoebiasis is paramount, to make the research participants and/or the local community multipliers of the interventions they receive.

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