Neglected diseases in Brazilian biology textbooks and the knowledge of high school students: a new dimension of neglection

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According to epidemiological and economic relevance, either by direct or indirect cost, six neglected diseases (ND) were elected by the Brazilian government as major research problems: dengue, tuberculosis, leprosy, malaria, leishmaniasis and Chagas disease. These diseases are presented in Brazilian schools basically with the help of textbooks that are evaluated, acquired and distributed freely in public schools by the National Textbook Program (PNLD). PNLD 2012/13/14 certified eight Biology book collections from different authors, their contents being filled with terms and concepts. However, the focus on central concepts may help in the development of innovations that allow for meaningful learning. We then wanted to investigate how these six diseases were presented to Brazilian students and employed as a research source in the high school textbooks used in Brazil. The approved collections distributed the biological content in three volumes. We then chose to study in these 8 collections three criteria: textual inaccuracy, irrelevance of images and absence of images related to the ND selected. Also we checked for the presence of structural concepts of the infectious diseases and we investigated the knowledge of the 45 students of the second year of high school related to ND. The six selected diseases were found in almost every collection approved in the PNLD 2012/13/14, exceptions being tuberculosis and leprosy. Collections performed well in all three criteria, but we found 30 problems out of a total of 144 insertions. The most common structural concepts related to the selected neglected diseases in the textbooks were: etiologic agents, route of transmission, life cycle, symptoms, prevention and treatment. The most familiar disease to the students was dengue. However, we detected many conceptual mistakes in the open questions proposed. The results show a gap between students and content, and this may be associated with the lack of information about neglected diseases and their key concepts in textbooks. In this sense, the use of educational innovations may promote the (re)construct meanings on the subject.

Keywords: neglected diseases, structural concepts, educational innovations.