



Bacilão vacilão: an amigurumi mascot for tuberculosis education

Bacilão vacilão: uma mascote de amigurumi para educação em tuberculose
Bacilão vacilão: una mascota amigurumi para la educación sobre la tuberculosis

Site doi: <https://doi.org/10.17058/reci.v15i2.20115>

Submitted: 12/20/2024


Accepted: 03/10/2025


Available online: 05/08/2025


Corresponding author:


E-mail: dienefer_bierhals@hotmail.com


Address: General Osório Street, s/n – Center, Rio Grande, Rio Grande do Sul, Brazil.

Mariana Quaresma de Souza^{1,2} 

Dienefer Venske Bierhals^{1,2} 

Yasmin Castillos das Neves^{1,2} 

Jéssica Quaresma da Rosa¹ 

Ana Júlia Reis¹ 

Andrea von Groll^{1,2} 

Pedro Eduardo Almeida da Silva^{1,2} 

Ivy Bastos Ramis^{1,2} 

¹Medical Microbiology Research Center, Federal University of Rio Grande, Rio Grande, Rio Grande do Sul, Brazil.

²Postgraduate Program in Health Sciences, Faculty of Medicine, Federal University of Rio Grande, Rio Grande, Rio Grande do Sul, Brazil.

Health education and promotion actions are essential to raise awareness among the population regarding self-care, and directly contribute to improving quality of life. These initiatives play a relevant role in controlling infectious diseases, such as tuberculosis (TB).¹ Brazil has one of the highest TB burdens in the world, and in 2023, approximately 80 thousand new cases of the disease were estimated.^{2,3} Thus, national health education strategies are aligned with the “*Plano Nacional pelo Fim da TB*” and the “*Programa Brasil Saudável – Unir para Cuidar*” of the Ministry of Health. Since TB is a disease associated with social determinants, with higher prevalence in people with low income and lower education levels, and those in vulnerable situations, such as those deprived of liberty, in a state of homelessness, and living with HIV/Aids, strategies are also aligned with the social purpose of disease control.²

Seeking a playful and accessible way to address TB in health education actions, the Núcleo de Pesquisa em Microbiologia Médica da Universidade Federal do Rio Grande (NUPEMM-FURG), in Rio Grande, Rio Grande do Sul (RS), developed a mascot named “Bacilão Vacilão.” The mascot was made of crochet, following the amigurumi style. The term amigurumi means “crochet doll,” and its use has already been demonstrated as promising in health education.⁴ The amigurumi developed by NUPEMM-FURG was inspired by the bacillus *Mycobacterium tuberculosis*, the etiological agent of TB, when visualized by microscopy, after Ziehl-Nielsen staining. Its pink color, increased size, and humanized aspects were designed to visually attract the public. (Figure 1).

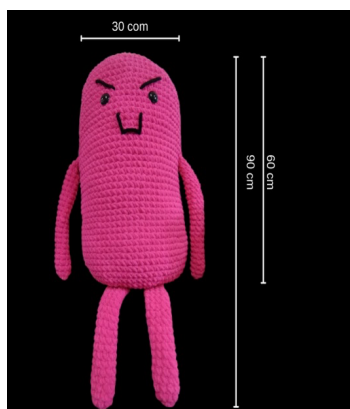


Figure 1. Illustrative image of the mascot “Bacilão Vacilão,” highlighting its dimensions, colors and specific shapes used for educational purposes, in Rio Grande, Rio Grande do Sul, 2024.

Strategies involving the use of text, illustrations, and audiovisual content can be used to present the main concepts related to TB as these can be disseminated through social networks or demonstrated in health promotion actions. The amigurumi mascot can assist in explaining the etiology of the disease and the transmission of the bacillus, thereby facilitating the

popularization of basic information about TB. “Can TB be transmitted?” From a simple question and with the help of Bacilão Vacilão, a dialogue can be developed starting with what a bacterium is and how to see it under the microscope. This can be extended to how *M. tuberculosis* affects the lungs and open up explanations about coughing as one of the main symptoms of the disease, for example. However, we emphasize that so far, the use of the amigurumi technique for this purpose has not been reported, with “Bacilão Vacilão” being an innovative tool that can be replicated in different scenarios.

Currently, Bacilão Vacilão is being used by NUPEMM-FURG in actions with the local community in the municipality of Rio Grande, which is a priority for TB control in RS. With 40 new TB cases per 100 thousand inhabitants, this state has a higher incidence rate than the national average (37 new TB cases per 100 thousand inhabitants). Rio Grande, in turn, is among the ten priority municipalities for disease control in RS, with 71.4 TB cases per 100 thousand inhabitants in 2023.^{2,6} Despite this scenario, health education actions focused on TB occur infrequently in the state.¹

This letter to the editor presents an innovative and didactic tool for popularizing knowledge about TB and recognizes the need to strengthen health education and promotion actions focused on the disease. Previously, Bacilão Vacilão was used in extension and health promotion actions in public schools in the municipality of Rio Grande and in activities aimed at undergraduate students at FURG, along with the “Ciência na Cidade, Ciência na Vida” program of the university itself. Additionally, the mascot was presented to teachers of Youth and Adult Education – EJA in the southern region of the state through the “Quebrando Barreiras - Comunidade Carcerária contra Tuberculose e Hepatite C” project, which is promoted by the Núcleo de Pesquisa e Extensão com Foco no Sistema Prisional – NUPESISP, of the Universidade de Santa Cruz do Sul – UNISC. The mascot was received with enthusiasm in these different scenarios, consequently promoting dialogues about TB.

As future perspectives, the use of the mascot with educators in actions aimed at elementary and high school students in public and private schools in the southern region of RS is highlighted. The children and adolescents reached by the actions to be developed can act as multipliers of knowledge about TB in their social circles. Additionally, actions in schools aim to reach the adult public through Youth and Adult Education – EJA in prison establishments, as this is a population at risk of TB development.

The use of the mascot can also serve as inspiration for actions at the national level, thus resulting in the creation of similar prototypes and encouraging health education. Furthermore, the proposed mascot is the

result of an extension project (EXT – 2114) developed at FURG and reflects the responsibility of researchers engaged in combating TB to adapt their knowledge about the disease so that it can be disseminated and understood by the community. Thus, university extension, which is one of the pillars of the teaching-research-extension triad of Brazilian higher education, acts in the development of educational practices through the integration of technical-scientific knowledge from academia with popular knowledge, and is an important tool for health promotion.⁷

ACKNOWLEDGMENTS

The authors gratefully acknowledge the financial support of the Universidade Federal do Rio Grande – FURG (Notice ProExtensão 2023) and the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil – CAPES (Financial Code 001).

REFERENCES

1. Kessler M, Thumé E, Duro SMS, et al. Ações educativas e de promoção da saúde em equipes do Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica, Rio Grande do Sul, Brasil. *Epidemiol Serv Saúde* 2018; 27 (2):e2017389. <https://doi.org/10.5123/S1679-49742018000200019>
2. BRASIL. Ministério da Saúde. Boletim Epidemiológico - Tuberculose 2024. Brasília: Ministério da Saúde; 2024; 67 p. Disponível em: <https://www.gov.br/aids/pt-br/central-de-conteudo/boletins-epidemiologicos/2024/boletim-epidemiologico-tuberculose-2024/view>
3. World Health Organization. Global Tuberculosis Report 2023. Geneva: World Health Organization; 2023; 57 p. Disponível em: <https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2023>
4. Kırcan Ç, Kahraman A. Effect of therapeutic play using a toy nebulizer and toy mask on a child's fear and anxiety levels. *J Pediatr Nurs* 2023; 73:e556– 62. <https://doi.org/10.1016/j.pedn.2023.10.033>
5. Ni S, Wang J, Li X, et al. Assessment of health promotion action for tuberculosis of end tuberculosis action plan (2019–2022) in China. *BMC Public Health* 2024; 24(1):2051. <https://doi.org/10.1186/s12889-024-19413-w>
6. BRASIL. DATA SUS TabWeb - Casos de tuberculose desde 2001 [Internet]. Brasília: Ministério da Saúde. 2024. Disponível em: <https://datasus.saude.gov.br/acesso-a-informacao/casos-de-tuberculose-desde-2001-sinan/>
7. Santana RR, Santana CC de AP, Neto SB da C, et al. Extensão universitária como prática educativa na promoção da saúde. *Educ Real* 2021; 46(2):e98702. <https://doi.org/10.1590/2175-623698702>

AUTHORS' CONTRIBUTIONS

Mariana Quaresma de Souza conception, design, and writing of the article. **Dienefer Venske Bierhals** conception, design, and writing of the article. **Yasmin Castillos das Neves** conception, design, and writing of the article. **Jéssica Quaresma da Rosa** conception, design, and writing of the

article. **Ana Júlia Reis** planning, review, and final approval of the article. **Andrea von Groll** planning, review, and final approval of the article. **Pedro Eduardo Almeida da Silva** funding acquisition, planning, review, and final approval of the article. **Ivy Bastos Ramis** funding acquisition, planning, review, and final approval of the article.

All authors approved the final version to be published and are responsible for all aspects of the work, including ensuring its accuracy and integrity.

Please cite this article as: de Souza MQ, Bierhals DV, das Neves YC, da Rosa JQ, Reis AJ, von Groll A, da Silva PEA, Ramis IB. Bacilão vacilão: an amigurumi mascot for tuberculosis education. *Rev Epidemiol Control Infect* [Internet]. 2025 May 8; 15(2). Available from: <https://seer.unisc.br/index.php/epidemiologia/article/view/20115>