

Experience Report

Neglected tropical diseases: report on experience in learning workshop

Doenças tropicais negligenciadas: relato de experiência em oficina de aprendizado

Enfermedades tropicales desatendidas: informe de experiencia de un taller de aprendizaje

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Abstract

Objective: to report on the experience of a learning workshop on Neglected Tropical Diseases at a private university located in southern Brazil. **Methods:** this is a qualitative experience report. A workshop was designed and implemented for students in the Nursing and Pharmacy courses at a private university in southern Brazil. These students were enrolled in the first semester and were taking the Public Health course in synergy. **Results:** the workshop was held in three stages. First stage: presentation of slides to nursing and pharmacy students; Second stage: distribution of informational leaflets, materials (cardboard, colored pens, glue sticks, and images), and explanation of the activity; Third stage: construction of the mind map and completion of the final assessment of the activity. **Conclusion:** the mind map workshop on NCDs promoted active learning and the integration of theory and practice, encouraging collaboration and the exchange of knowledge among students. The activity highlighted the potential of interdisciplinary work in addressing these diseases. However, its educational impact could not be measured, as the results were limited to the immediate perceptions of the participants.

Descriptors: Neglected Diseases; Health Education; Public Health.

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Whats is already known on this?

Brazil has a high concentration of neglected tropical diseases, especially in the north and northeast. A workshop held in the south strengthens knowledge and preventive practices, promoting regional integration and improvement.

What this study adds?

The article highlights the importance of active methodologies in teaching about Neglected Tropical Diseases, promoting critical learning and raising students' awareness of neglected social and health realities.



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Resumo

Objetivo: relatar a experiência de uma oficina de aprendizado sobre as Doenças Tropicais Negligenciadas em uma universidade privada localizada no sul do Brasil. **Método:** trata-se de um relato de experiência com abordagem qualitativa. Foi idealizada e implementada uma oficina com estudantes dos cursos de Enfermagem e Farmácia de uma universidade privada localizada no sul do Brasil. Esses estudantes estavam matriculados no primeiro período, e cursavam a disciplina de Saúde Coletiva sinergicamente. **Resultados:** a oficina foi realizada em três momentos. Primeiro momento: apresentação dos slides para os estudantes de Enfermagem e Farmácia; Segundo momento: distribuição do folder informativo, dos materiais (cartolinas, canetas coloridas, cola bastão e imagens) e explicação da atividade; Terceiro momento: construção do mapa mental e realização da avaliação final da atividade. **Conclusão:** a oficina de mapas mentais sobre as DTNs promoveu um aprendizado ativo e a integração entre teoria e prática, estimulando a colaboração e a troca de saberes entre os estudantes. A atividade evidenciou o potencial do trabalho interdisciplinar no enfrentamento dessas doenças. Contudo, suas repercussões formativas não puderam ser mensuradas, sendo os resultados limitados às percepções imediatas dos participantes.

Descritores: Doenças Negligenciadas; Educação em Saúde; Saúde Pública.

Resumen

Objetivo: informar sobre la experiencia de un taller de aprendizaje sobre Enfermedades Tropicales Desatendidas en una universidad privada del sur de Brasil. **Métodos:** se trata de un informe de experiencia con un enfoque cualitativo. Se diseñó e implementó un taller con estudiantes de Enfermería y Farmacia de una universidad privada del sur de Brasil. Estos estudiantes cursaban el primer semestre y cursaban simultáneamente el curso de Salud Colectiva. **Resultados:** el taller se desarrolló en tres etapas: Primera etapa: presentación de diapositivas a los estudiantes de Enfermería y Farmacia; Segunda etapa: distribución de la carpeta informativa, materiales (cartulinas, marcadores de colores, barras de pegamento e imágenes) y explicación de la actividad; Tercera etapa: construcción del mapa mental y evaluación final de la actividad. **Conclusión:** el taller de mapas mentales sobre ETD promovió el aprendizaje activo y la integración de la teoría y la práctica, estimulando la colaboración y el intercambio de conocimientos entre los estudiantes. La actividad destacó el potencial del trabajo interdisciplinario para abordar estas enfermedades. Sin embargo, no se pudo medir su impacto formativo y los resultados se limitaron a las percepciones inmediatas de los participantes.

Descriptores: Enfermedades Desatendidas; Educación en Salud; Salud Pública.

INTRODUCTION

Neglected Tropical Diseases (NTDs) encompass diseases caused by infectious agents such as viruses, bacteria, helminths, and protozoa, which are generally transmissible. According to the World Health Organization (WHO), there are 20 diseases or groups of diseases recognized in this category. In Brazil, some of the most prevalent NTDs considered a priority by the Ministry of Health (MS) include Chagas disease, schistosomiasis, leprosy, lymphatic filariasis, tegumentary leishmaniasis, visceral leishmaniasis, onchocerciasis, human rabies, dengue, and trachoma.⁽¹⁾

Brazil is the Latin American country with the highest number of cases of NTDs. However, the distribution of these diseases across the country is uneven. According to the Ministry of Health, the North and Northeast regions have the highest incidence rates, while the highest mortality rates are recorded in the Midwest and Southeast regions. Factors such as poverty and insufficient investment in public policies aimed at education and socioeconomic development intensify the vulnerability of these regions to infectious diseases.⁽²⁾

Epidemiological data showed that between 2000 and 2019, the country recorded an average of 3.32 deaths per 100,000 inhabitants, with the Midwest Region standing out, reaching 8.68 per 100,000. Chagas disease accounted for most of these deaths, followed by schistosomiasis, highlighting regional patterns and clear links to conditions of vulnerability. These findings reinforced the need for educational and preventive initiatives in different territories, including outside areas of higher incidence, to raise awareness and reduce risks.⁽¹⁾

Addressing NTDs as a public health problem remains challenging, especially in regions marked by high social vulnerability. In this scenario, it is essential to establish feasible global goals. In this context, the World Health Organization (WHO) has presented a new strategic plan that includes, among its main objectives, the elimination of NTDs. This initiative sought to contribute to the fulfillment of the Sustainable Development Goals (SDGs) by 2030, considering both the specificities of each disease and the common axes for its control.⁽³⁾

With the emergence of the COVID-19 pandemic, caused by the SARS-CoV-2 virus, in March 2020, health systems began to adopt measures such as social distancing, the implementation of non-pharmacological actions, and the suspension of services linked to existing programs, which limited many users' access to routine care. In April of the same year, the WHO recommended the interruption of mass treatment of NTDs and the suspension of promotion and prevention activities due to the risk of COVID-

19 transmission. Subsequently, in July, the WHO issued new guidance to assess the risk-benefit ratio of resuming these actions. However, these restrictions had a significant impact on the health-disease process.⁽⁴⁾

From the perspective of the authors of this report, it was observed that scientific production on NCDs in Brazil focuses mainly on epidemiological analyses, focusing on patterns of occurrence, mortality, and spatial distribution. Although these studies are essential for assessing the scale of the problem, they do little to explore the training and capacity building of health professionals. There is still a lack of research addressing how workers are prepared to deal with these diseases.

Therefore, introducing the topic of NTDs into the university context is essential for both public health and social and economic development. Many of these diseases are preventable through simple, low-cost measures such as basic sanitation, vector control, and Health Education (HE). Thus, HE is an essential strategy for health promotion.⁽⁵⁾

The Ministry of Health conceptualizes HE as an educational process aimed at building knowledge in the area, with a view to promoting public engagement with the topic. Furthermore, it should be understood as a political and pedagogical process that promotes critical and reflective thinking, encouraging individuals to deepen their awareness and recognize themselves as historical and politicized agents.⁽⁶⁾

Active teaching and learning methodologies have gained prominence for overcoming the limitations of traditional models. These approaches place the student at the center of the process, favoring the autonomous and participatory construction of knowledge. Their main objective is to stimulate learning through the resolution of real problems and situations, which require students to mobilize intellectual resources to understand and solve them.⁽⁷⁾

The Theory of Meaningful Learning, developed by David Ausubel in 1976, underpins the application of active teaching-learning methodologies by recognizing students as protagonists in the educational process and valuing their active participation in the construction of knowledge.⁽⁸⁾

In this context, this study aimed to report on the experience of a learning workshop on NTDs at a private university located in southern Brazil.

METHODS

This is a qualitative experience report describing an academic experience in the context of the Public Health course. The experience report is a form of knowledge production that presents, in a detailed and reflective manner, interventions carried out in teaching, research, or extension scenarios, articulating description, theoretical foundation, and critical analysis of the practice.

To guide the construction of this report, we adopted the framework proposed by Mussi, Flores, and Almeida (2021),⁽⁹⁾ who suggest four types of description—informative, referenced, dialogical, and critical—as a structural roadmap for organizing experience reports. Thus, the preparation of this study was guided by these four dimensions, which structure the content presented below.

Informative description

Brazil has the highest number of cases of Neglected Tropical Diseases (NTDs), with the highest incidence in the North and Northeast regions, and an increase in mortality rates in recent years. To support the preparation of this report, searches were conducted in the Virtual Health Library (VHL), selecting four studies published in the last five years, in addition to four official documents available on the Ministry of Health (MS) website, consulted between November and December 2024. Materials in Portuguese, English, and Spanish that addressed the topic were included.

Referenced description

Based on the initial review and the relevance of NTDs to public health, a workshop entitled “Understanding Neglected Tropical Diseases in Brazil” was developed and held in April 2025 at a private university in Curitiba (PR). Twenty nursing students and 20 pharmacy students enrolled in the Public Health course participated. The room was organized into seven teams, each with six students. Each group received a poster board, colored pens, glue sticks, and printed images related to NTDs. The activity used visual materials such as slides, informational leaflets, posters, pens, and printed images, which served as support for the collective construction of an activity applied during the workshop.

Dialogued description

This stage corresponds to the moment of interaction and discussion with students, involving the exchange of perceptions, questions, and interpretations about NTDs. The active participation of the groups and creativity in the elaboration of the mind map produced in the workshop were considered.

Critical description

After completing the previous steps, a reflective analysis of the experience was carried out, considering the lessons learned, challenges, and potential of the activity, as well as its contributions to health education.

To conduct the workshop with nursing and pharmacy students, we opted for advanced planning, as shown in Chart 1.

Chart 1. Workshop planning. Curitiba (PR), Brazil, 2025.

| | |
|---|---|
| Stage 1: developing workshop materials | <ul style="list-style-type: none"> - Selection of DTN topics and selection of topics to be covered in the workshop; - Creation of the leaflet (first version); - Creation of slides; - Development of a Google Forms questionnaire to evaluate student feedback on the workshop. - Printing of leaflets (final version); - Printing of images used in the workshop; - Selection of poster boards (48x66) used in the workshop; - Selection of colored pens. |
| Stage 2: finalization of workshop materials and invitations to students | <ul style="list-style-type: none"> - Organizing the materials to be used in the workshop (leaflets, slides, poster boards, colored pens, glue sticks, and printed images); - Making thank-you cards for participating in the workshop; - Visiting the first-semester class that was taking the public health course to invite them to participate in the workshop. |
| Stage 3: workshop implementation | <ul style="list-style-type: none"> - Start at 9:00 p.m. and end at 10:30 p.m. |

Source: Elaborated by the authors (2025).

After planning, the workshop “Understanding Neglected Tropical Diseases in Brazil” was developed in three stages. In the first stage, an expository presentation was given with the support of slides produced in Canva (a graphic design platform), in its free version, conducted by eighth-semester nursing students, addressing the relevance of NTDs as a public health problem and highlighting the importance of early diagnosis and the role of health professionals. Then, in the second part, an informative leaflet written in accessible language was handed out, containing QR codes for supplementary materials, in addition to the distribution of poster boards, pens, and images used in the practical activity. The students were organized into seven teams and instructed to choose an NTD to create a mind map. In the third stage, the teams constructed mind maps based on reading the leaflet and the information accessed via QR code, demonstrating engagement in systematizing the main characteristics of the selected diseases. At the end, they responded to an evaluation form about the workshop, pointing out the clarity and dynamism of the activity as positive aspects, although some limitations in internet access were noted.

It is worth noting that, as this is an experience report that did not collect data from participants, it was not necessary to submit this study to the Research Ethics Committee (REC).

RESULTS

The workshop “Understanding Neglected Tropical Diseases in Brazil” was held in three stages, described below.

First stage – Presentation of slides to Nursing and Pharmacy students

The team began the activities promptly at 9 p.m. The professor who was part of the team introduced the eighth-semester nursing students and explained to the class that NTDs are a public health problem and, for this reason, they were developing this workshop in the Public Health course.

The eighth-semester Nursing students gave a brief presentation with the support of a slide, which was structured in Canva. The presentation consisted of five pages, with objective topics and illustrative images, which facilitated the assimilation of the content in a clear and visual way, promoting awareness of the importance of early diagnosis, adequate treatment, and prevention of NTDs. In addition, the essential role of health professionals in promoting health and reducing inequalities in public health was reinforced.

Second stage – Distribution of the information leaflet, materials (cardboard, colored pens, glue sticks, and images), and explanation of the activity

This stage involved distributing the leaflet (Figure 1). The material was chosen because it was low cost, easy to handle, and written in understandable language. It was developed in Canva.

The leaflet has two sides and three folds. The color green was selected for the background of the material. On the cover, the title was highlighted in bold: Neglected Tropical Diseases, and the subtitle: informational leaflet. The image selected for the cover was carefully chosen from Google Images, referring to the regions of the country that are most affected by NTDs.

Three NTDs - Chagas Disease, Leprosy, and Trachoma - were randomly selected to compose the leaflet, according to the epidemiological bulletin of neglected diseases in Brazil in mid-2024. In addition to discussing each disease, a QR Code was assigned to each topic that directed the reader to more information related to the diseases.

The information leaflet was previously reviewed by the responsible professor, who validated its content and authorized its use in the workshop, with no additional changes necessary.

Figure 1. Neglected Tropical Diseases – Information Leaflet. Curitiba (PR), Brazil, 2025.

Front



Elaborated by the authors (2025).

Back



Elaborated by the authors (2025).

After distributing the leaflet, the room was divided into seven teams with six students per team. Cardboard, colored pens, and glue sticks were provided to each team. In addition, several printed images related to the NTDs were handed out.

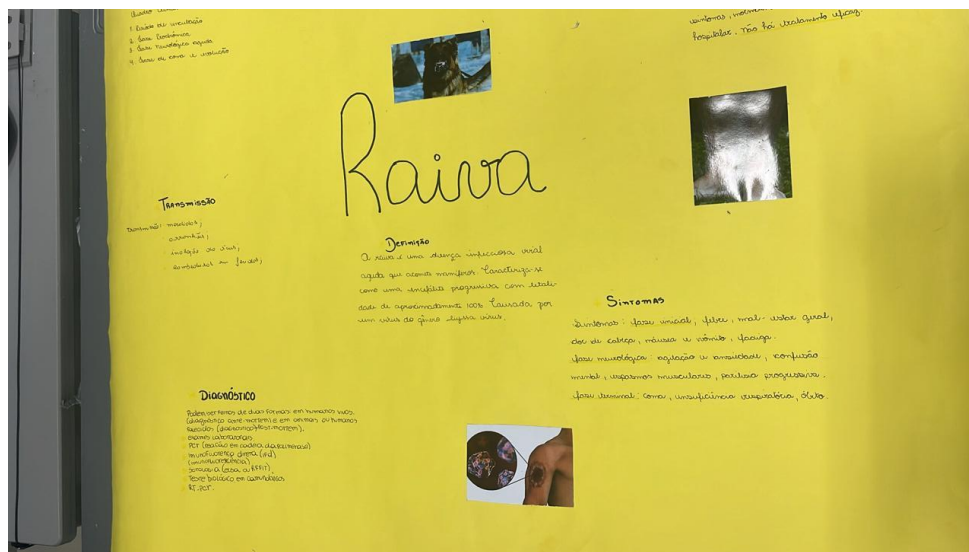
With the material in hand, the implementing team instructed the teams to first read the information leaflet and access the QR code provided. Once this was done, the students were instructed to select an NTD and build a mind map with the information they deemed most relevant.

Third stage – Construction of the mind map and final evaluation of the activity

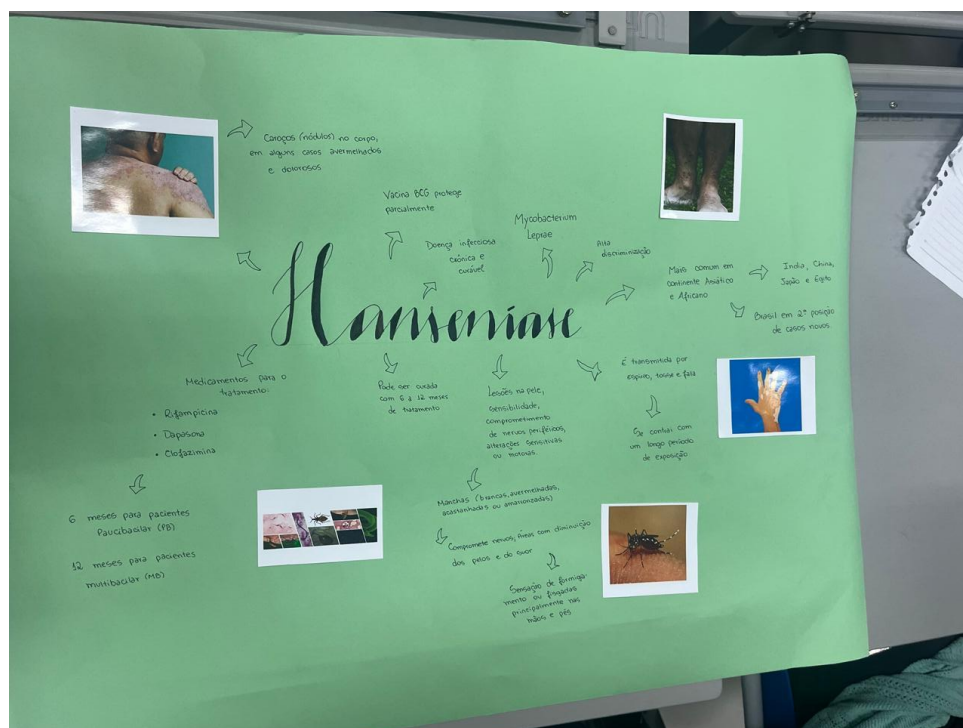
The students interacted with their respective teams, showing interest in constructing the mind map. They began by reading the information leaflet and accessing the QR code that directed them to the Ministry of Health's Epidemiological Manual of Neglected Diseases. By consensus, each team selected an NTD, and it was noted that they wrote down information and ideas related to the central theme.

With their ideas organized, they began to assemble the mind map. In the center of the poster board, they wrote the name of the selected NTD and drew arrows with information related to the central theme. They finished the mind map (Figure 2) by pasting images that referred to the chosen NTD.

Four teams chose trachoma as their NTD. It was observed that most students were curious about the disease, mainly because of its name, which was the first criterion for 57.1% of the teams to choose it.

Figure 2. Mind maps. Curitiba (PR), Brazil, 2025.

Source: Elaborated by the authors (2025).



Elaborated by the authors (2025).



Elaborated by the authors (2025).

Then, after completing the mind maps, a QR code containing four questions was made available (“What did you think of the workshop?”; “What were the positive points of the workshop?”; “What were the negative points of the workshop?”; “Did you have any questions?”). The questions were extremely important for the team to understand whether the workshop was relevant to students from both courses.

Unanimously, the teams reported that the workshop allowed them to learn about NTDs. The teaching method was considered clear and self-explanatory, and the mind map allowed the information to be memorized quickly. On the negative side, some students did not have access to a mobile network on their smartphones, which made it impossible to access the QR code provided in the leaflet.

DISCUSSION

Faced with changes in student profiles, educational institutions have sought to innovate their teaching and learning strategies by incorporating more active methodologies. These approaches contribute to the training of professionals who are aware of their social role, promoting the development of ethical, political, and technical skills. In addition, they encourage the critical and analytical application of knowledge, resulting in improvements in academic performance and student grades.⁽¹⁰⁾

Thus, mind maps emerge as a methodology that allows the construction and connection of concepts on a given topic. The tool can be used by teachers as a means of assessing the teaching-learning process of students when applied at the end of each class.⁽¹¹⁾

Education has a strong influence in empowering individuals to take a more active stance toward their own health and disease, especially with regard to NTDs, which have historically been overshadowed by the interests of the pharmaceutical industry.⁽¹²⁾

Most NTDs cause fear in the affected populations, although they remain little known, especially outside endemic areas. Poverty is one of the main factors that hinder access to prevention and treatment, restricting the use of essential health services. However, although they are more prevalent in vulnerable contexts, these diseases can also affect individuals from other social levels, especially in situations of population mobility, urbanization, and environmental exposure. The progression of NTDs tends to cause disability and reduce productivity, perpetuating a cycle of illness that deepens inequalities and increases costs for public health systems.⁽¹³⁾

According to De Oliveira and Cândida (2021)⁽¹³⁾, an analysis of the National Curriculum Parameters (PCN) reveals an unpromising scenario regarding the approach to neglected diseases. Terms such as “diseases” and “neglected” are not even mentioned in the document, which limits itself to addressing topics related to human health in a generic manner. In contrast, the Complementary Educational Guidelines to the PCNs recognize the importance of understanding and investigating the main diseases that affect the Brazilian population.

This is a public health issue that deserves attention, as NTDs negatively affect various spheres of society, especially because, in some cases, they are chronic diseases that compromise the ability to work and perform daily activities. These conditions also carry social stigmas that perpetuate the cycle of poverty. Although initiatives and programs promoted by governmental and non-governmental organizations focused on health education have contributed to prevention and control, the overall picture is still far from indicating the eradication of these diseases.⁽¹⁴⁾

The effectiveness of controlling these diseases increases considerably when information is disseminated, and there is a thorough understanding of the behaviors and practices that favor their transmission. In addition, it is essential that the population actively participate in prevention and health promotion actions. Health education stands out as one of the main tools in combating these diseases, as it promotes social empowerment through awareness. This allows individuals to develop critical thinking and the capacity for change, encouraging the adoption of habits that can contribute to improving individual and collective quality of life.⁽¹⁵⁾

With regard to health education, NTDs can be addressed in the form of classroom workshops, with the aim of exploring characteristics such as etiology, signs and symptoms, diagnosis, and treatment, with an emphasis on preventive measures. The use of teaching and informational materials is an important strategy, as it facilitates the assimilation of the content covered, especially in contexts where these resources are scarce in the school and social environment. In addition, a playful approach contributes to making the learning process lighter and more engaging, arousing greater interest in the target audience for the topic covered.⁽¹⁶⁾

In short, the results cannot be generalized to other institutions or educational contexts. The workshop was held at a single private university located in southern Brazil, with students in their first semester of nursing and pharmacy courses, which limits the diversity of participants' prior experiences and perceptions. The evaluation of the activity was based on the observations and impressions of the facilitators, without the application of systematic instruments to assess the impact of learning. In addition, the absence of longitudinal follow-up prevents the verification of the lasting effects of the workshop on the students' training.

CONCLUSION

The workshop on constructing mind maps about NTD provided nursing and pharmacy students with an active and collaborative learning experience, promoting the integration of theory and practice and the use of a visual tool that facilitates the organization of information. The interaction between participants stimulated the exchange of knowledge and highlighted the potential of interdisciplinary work in addressing these diseases. Although the activity promoted relevant discussions and aroused students' interest, it was not possible to measure, based on the data collected, the degree of awareness or the educational impact generated, since there was no longitudinal follow-up. Thus, the results should be interpreted as immediate perceptions of the experience, in line with the limitations identified.

CONTRIBUTIONS

Contributed to the conception or design of the study/research: Melo Filho PL. Contributed to data collection: Abe PM, Santos MF. Contributed to the analysis and/or interpretation of data: Abe PM, Santos MF. Contributed to article writing or critical review: Melo Filho PL, Chaves SCS. Final approval of the version to be published: Melo Filho PL, Chaves SCS, Abe PM. Santos MF.

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