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EXPERIENCE REPORT
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Teaching, research, and extension: an experience of SUS schools in Mato Grosso do Sul

Ensino-pesquisa-extensão: uma experiência das escolas do SUS de Mato Grosso do Sul

Docencia, investigación y extensión: una experiencia de las escuelas del SUS en Mato Grosso do Sul

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ABSTRACT

Objective: To report and analyze the experience of a teaching, research, and outreach project aimed at training Terena Indigenous Health Agents (Agentes Indígenas de Saúde – AIS) in Miranda, Mato Grosso do Sul, Brazil, highlighting the role of the School of Public Health "Dr. Jorge David Nasser" (ESP/MS) and the SUS Technical School "Profa. Ena de Araújo Galvão" (ETSUS/MS). **Methods:** A report structured in five stages: dissemination, online course, qualitative research, workshops, and a final event. The analysis employed the SWOT matrix. **Results:** Thirty-two AIS participated. Strengths included team qualification, funding, and institutional articulation. Weaknesses comprised partial adherence and bureaucratic constraints. Opportunities included public calls for proposals and local partnerships, while threats involved sustainability and stigma against Indigenous peoples. **Final considerations:** The experience highlighted the relevance of Health Schools in in-service training, integrating academic and traditional knowledge, strengthening Indigenous Primary Health Care (APS), and underscoring the need for continuity policies.

Keywords: *Indigenous Health; Continuing Education; Healthy Eating; Food Security.*

RESUMO

Objetivo: Relatar e analisar a experiência de um projeto de ensino, pesquisa e extensão para capacitação de Agentes Indígenas de Saúde (AIS) Terena em Miranda (MS), destacando o papel da Escola de Saúde Pública "Dr. Jorge David Nasser" (ESP/MS) e da Escola Técnica do SUS "Profa.

Ena de Araújo Galvão" (ETSUS/MS). **Métodos:** Relato estruturado em cinco etapas: divulgação, curso on-line, pesquisa qualitativa, oficinas e evento final. A análise utilizou a matriz SWOT. **Resultados:** Participaram 32 AIS. Como forças, destacaram-se **a** qualificação da equipe, o financiamento e a articulação institucional. Fraquezas incluíram adesão parcial e entraves burocráticos. Entre as oportunidades, observaram-se editais e parcerias locais; as ameaças envolveram a sustentabilidade e estigmas contra povos indígenas. **Considerações finais:** A experiência evidenciou a relevância das Escolas de Saúde na formação em serviço, integrando saberes acadêmicos e tradicionais, fortalecendo a APS indígena e apontando a necessidade de políticas de continuidade.

Palavras-chave: *Saúde indígena; Educação permanente; Alimentação saudável; Segurança alimentar.*

RESUMEN

Objetivo: Relatar y analizar la experiencia de un proyecto de enseñanza, investigación y extensión para la capacitación de Agentes Indígenas de Salud (**AIS**) Terena en Miranda (MS), destacando el papel de la Escuela de Salud Pública "Dr. Jorge David Nasser" (**ESP/MS**) y de la Escuela Técnica del SUS "Profa. Ena de Araújo Galvão" (**ETSUS/MS**). **Métodos:** Relato estructurado en cinco etapas: divulgación, curso en línea, investigación cualitativa, talleres y evento final. El análisis utilizó la matriz SWOT. **Resultados:** Participaron 32 AIS. Como fortalezas, se destacaron la cualificación del equipo, el financiamiento y la articulación institucional. Las debilidades incluyeron adhesión parcial y obstáculos burocráticos. Entre las oportunidades, se observaron convocatorias y alianzas locales; las amenazas involucraron la sostenibilidad y los estigmas contra los pueblos indígenas. **Consideraciones finales:** La experiencia evidenció la relevancia de las Escuelas de Salud en la formación en servicio, integrando saberes académicos y tradicionales, fortaleciendo la Atención Primaria de Salud indígena (APS) y señalando la necesidad de políticas de continuidad.

Descriptores: *Salud Indígena; Educación Permanente; Alimentación Saludable; Seguridad Alimentaria.*

INTRODUCTION

The SUS Schools – Public Health Schools and SUS Technical Schools – enable the articulation between teaching, research and outreach in dialogue with social needs and the principles of the Unified Health System (SUS)[1]. In this movement, experiences that bring professional training closer to local and community contexts gain relevance, valuing cultural diversity and promoting care practices aligned with the social determinants of health[2].

Among the current challenges, malnutrition, overweight, and obesity are a growing problem in Brazil[3]. In the case of indigenous populations, the situation is aggravated by the coexistence of food insecurity and consumption patterns impacted by changes in lifestyles. This situation, known as the double nutritional burden, requires innovative, intersectoral, and culturally sensitive responses[4].

The Terena people, present in different municipalities of Mato Grosso do Sul, with villages close to urban centers, emblematically illustrate this process[4]. In their communities, traditional cultivation and food preparation practices coexist with the increasing introduction of industrialized products, resulting in a rise in chronic non-communicable diseases. In this context, Indigenous Health Agents (AIS) are mediators between health services and the community, constituting strategic actors for health promotion and disease prevention actions[5].

Given this context, this article reports on the experience of a teaching, research, and outreach project developed by the Dr. Jorge David Nasser School of Public Health (ESP/MS) and the Prof. Ena de Araújo Galvão SUS Technical School (ETSUS/MS), in partnership with local institutions, which aimed to train Terena AIS of the municipality of Miranda (MS) on nutritional care and on addressing overweight and obesity. In addition to describing the project's trajectory, its execution is analyzed using the Strengths, Weaknesses, Opportunities, and Threats (SWOT) matrix[6], highlighting strengths, weaknesses, opportunities, and threats, in line with the mission of the SUS Schools to promote innovative training processes and relevant deliverables for society.

METHODS

Study type

This work is characterized as an experience report, focusing on the activities developed in the teaching, research, and outreach project "Feeding Traditions, Cultivating Health: Terena Training in Nutritional Care and Obesity Management," which lasted 12 months. The project is characterized as outreach because it involves the local investigation of problems and the search for solutions with the community itself, expanding activities beyond the school walls.

The project was conceived by the Research, Outreach and Innovation in Health Management of the Dr. Jorge David Nasser School of Public Health (ESP/MS), in cooperation with the Prof. Ena de Araújo Galvão SUS Technical

School (ETSUS), the Special Indigenous Health District of Mato Grosso do Sul (DSEI/MS), the Nutrition Association of Mato Grosso do Sul (ASMAN), the Federal University of Mato Grosso do Sul (UFMS) and the Oswaldo Cruz Foundation – Mato Grosso do Sul (Fiocruz/MS).

The proposal was approved in the Public Call for Funding for Technological Outreach Projects for Family Farmers, Indigenous Peoples, and Traditional Communities, promoted by the Foundation for the Support of the Development of Education, Science and Technology of the State of Mato Grosso do Sul (Fundect) in conjunction with the Secretariat of Environment, Development, Science, Technology and Innovation (Semadesc).

Study Scenario

The state of Mato Grosso do Sul is home to the third largest indigenous population in Brazil, composed of eight ethnic groups: Terena, Guarani, Kaiowá, Kadwéu, Kinikinaw, Atikun, Ofaié, and Guató. According to the Special Secretariat for Indigenous Health (Sesai/MS), this population totals 80,459 inhabitants, distributed across 29 municipalities.

The Terena people, the focus of this study, are present in 10 Indigenous Territories, encompassing more than 40 villages located in the municipalities of Miranda, Aquidauana, Anastácio, Sidrolândia, Dois Irmãos do Buriti, Nioaque, and Rochedo[7].

According to the Regionalization Master Plan of the State of Mato Grosso do Sul, the territory is organized into nine health regions, with the municipality of Miranda being part of the Alto Pantanal Health Region[8].

Project Development

The central objective of the project was to train 32 Indigenous Health Agents (AIS) from the Terena villages in the municipality of Miranda in the care and control of malnutrition, as well as in addressing overweight and obesity in Primary Health Care. To achieve this goal, several interconnected development stages were planned, such as: a dissemination event, the offering of an online course, the carrying out of qualitative research, face-to-face educational workshops, the planning of actions on healthy nutrition in the villages, training in data recording in information systems and, finally, a closing event. The launch took place in December 2024, shortly after the project was contracted by Fundect, with an event held at the Legislative Chamber of Miranda. On that occasion, kits containing a bag, t-shirt, personalized notebook, pen, and water bottle were distributed, in addition to the formal presentation of the project and three lectures that contextualized the problem: "Overview of overweight and obesity in the State of Mato Grosso do Sul", "Overview of overweight and obesity in the Terena community of Miranda" and "Presentation of the distance learning course".

Subsequently, the Indigenous Health Agents (AIS) were invited to participate in the course "Care and Control of Malnutrition in Primary Health Care," developed by the Observatory of Chronic Conditions and Nutrition (OCCA/UFMS), with a workload of 40 hours and offered through the Moodle platform of ETSUS/MS. The course took place between December 2024 and February 2025. To ensure access, the project acquired four laptops with complete kits (keyboard and mouse), installed in different villages with internet access. At the end, three of the devices were donated to the Indigenous Health District (Dsei-MS) center in Miranda, reinforcing the sustainability of the initiative.

In April 2025, a qualitative research study was conducted, approved by the National Research Ethics Committee (CONEP), under opinion No 7.424.742, which sought to understand barriers and potential in the applicability of acquired knowledge. Data collection took place through a face-to-face focus group, with the participation of 25 Health Information Agents (AIS), and lasted approximately 40 minutes. This stage allowed the identification of important aspects of the training, supporting the preparation of two scientific manuscripts and two abstracts submitted to the 14th Brazilian Congress of Collective Health (Abrascão).

Between May and September 2025, five in-person educational workshops were held to consolidate the knowledge acquired in the online course and strengthen community intervention practices. The first workshop, held in the Morera village, focused on welcoming, establishing rules of coexistence, reflecting on self-care, self-assessing health and eating habits, and introducing a logbook as a self-reflection strategy. The second workshop promoted the sharing of diary entries, the creation of a daily meal plan, and reflection on physical activity and stress management. The third workshop discussed environments and food consumption, presented the Dietary Guidelines for the Brazilian Population, and addressed reading food labels in supermarkets. The last two workshops were held in partnership with the National Rural Learning Service (SENAR/MS) and the Rural Union of Miranda. The first workshop took place in August, lasting three days, and involved planting leafy vegetables in a community garden, requiring soil preparation with materials funded by the project. The second, held in September, was an eight-hour healthy cooking workshop where the AIS, organized into two groups, prepared practical recipes such as white rice, chicken stew, pumpkin puree, eggplant caponata, cornbread, and cassava cake.

In October, Indigenous Health Agents (AIS) were encouraged to reproduce the recipes in their communities and to promote talks on the importance of healthy eating, taking advantage of the mobilization around World Food Day, celebrated by the United Nations, to broaden the impact of the initiative. For November, a workshop on data registration in the Food and Nutritional Surveillance System (SISVAN) was planned, as well as the discussion and planning of new educational actions between the AIS and the nutritionist of the indigenous health team, aimed at promoting healthy eating in the villages. Furthermore, in that same month, the healthy menu, with some of the recipes

developed by the AIS in the indigenous communities, was translated into the Terena language, valuing the culture and traditional knowledge, and linking them to the routine of health services. Finally, in December, the project team proposed holding a closing event aimed at sharing the productions and coordinating with the Municipal Health Department, the Municipal Agriculture Department, and the Rural Union, strengthening institutional partnerships and promoting the continuation of actions in food and nutritional security among the Terena population.

Data Analysis

For the analysis of the experience, the SWOT matrix was used, a tool widely employed for strategic evaluation. The acronym stands for Strengths, Weaknesses, Opportunities, and Threats. The first two elements refer to the organization's internal environment, while the last two relate to the external environment. Applying the matrix makes it possible to identify factors that favor or hinder the execution of an action, as well as guiding reflections on improvement strategies[6].

In this study, the SWOT matrix was used to analyze the internal and external factors that influenced the execution of the teaching, research, and outreach project, as well as those that enhanced its implementation. To this end, the team members met online and collectively discussed the project's trajectory, systematizing their perceptions based on the four dimensions of the matrix.

RESULTS

The SWOT matrix analysis of the experience was used to identify and verify Strengths and Weaknesses (both internal) as well as Opportunities and Threats (both external), highlighting a set of internal and external factors that influenced the project's development (Table 1). Among the strengths, the qualification of the proposing team, composed of professionals with academic and technical experience, stood out.

Educational processes previously developed by ETSUS/MS with this same population, such as the 500-hour professional qualification offered to AIS in 2019, contributed to strengthening ties and trust, favoring methodological guidance and integration among the different actors and institutions involved.

It is worth highlighting that the establishment of ESP/MS as a Science and Technology Institution (ICT) legitimized the actions, while the project's financial resources enabled the acquisition of permanent and consumable materials, as well as the contracting of support services. The strategic role of the scholarship recipients linked to the DSEI, who acted as mobilizers in the indigenous communities, should also be emphasized.

However, some weaknesses were identified. The partial adherence of participants to certain self-care incentive activities, such as the logbook—a teaching resource proposed for the break between workshops and intended for

recording difficulties and potential in adopting a healthy diet and habits—limited the pedagogical reach of this strategy, highlighting the need for methodologies more suited to the indigenous sociocultural context.

Another weakness identified was the use of structured instruments for conducting the focus group, which provided greater rigor to the data collection process. However, the application occurred shortly after the online course was offered, which hindered the establishment of a bond between the research coordination and the participants. Therefore, during the focus group, the Indigenous Health Agents (AIS) showed little participation, requiring the intervention of an Indigenous research fellow, a speaker of the Terena language, whose role helped to create a more welcoming environment and foster interaction.

Another challenge was the state bureaucracy encountered in finalizing the donation of equipment acquired by the project, which delayed the delivery of the materials to partner institutions.

Regarding external factors, important opportunities arose for the execution and continuity of the project. The existence of public calls from Fundect focused on outreach activities in ICT favored the financing and consolidation of the proposal. Similarly, the partnership with SENAR/MS and the Rural Union of Miranda strengthened the practical workshops, especially those related to vegetable cultivation and the promotion of healthy cooking, expanding intersectoral collaboration.

On the other hand, some threats proved to be significant. The main one concerns the sustainability of the project after the funding ends, indicating the need for strategies to institutionalize the actions.

Table 1 – Results of the SWOT analysis of the teaching, research and outreach project of ESP/MS, 2025.

	Strengths	**Weaknesses**
Internal Factors	The proposing team is qualified, consisting of 1 PhD from ESP, 2 Masters from ETSUS, and 3 professors/researchers from higher education institutions.	Partial participation of the participants in the activities using the logbook during the workshops.
	Successful educational experiences previously promoted by ETSUS with the AIS.	Application of a research instrument for conducting a focus group without prior ties to the participants.
	Recognition of ESP as a Science and Technology Institution (ICT) in its internal regulations.	
	Availability of financial resources from the selected grant for the acquisition of consumable and permanent materials, and third-party services.	Administrative red tape required to finalize the donation of equipment acquired by the project.
	The presence of scholarship recipients, professionals linked to the DSEI, and members of the Terena village, fostering community mobilization.	

	Opportunities	Threats
External Factors	Fundect's public call for proposals to promote outreach activities in ICT.	Project sustainability after funding ends.
	Partnership established with SENAR/MS and the Rural Union of the municipality of Miranda.	

Source: Author's own.

DISCUSSION

The results of this experience reinforce the relevance of Health Schools as spaces for the production of applied knowledge, capable of linking health education to local realities. The qualification of the team, the institutional legitimacy of the ESP/MS as an ICT, and the articulation with the ETSUS/MS were important elements to enable the execution of the activities and mobilize the indigenous community. It is worth noting that the organizational structure of an ICT is also identified in other schools in the country, such as the Paulo Marcelo Martins Rodrigues School of Public Health (ESP/CE)[9]. These aspects corroborate the literature that recognizes the importance of Schools in inducing educational practices in health, from the perspective of teaching, research, and outreach[1].

A key aspect identified was the funding opportunity via the Fundect public call for proposals, which enabled the acquisition of equipment, the development of educational materials, and the execution of workshops. This condition reflects the role of public funding policies as catalysts for innovation in health and outreach, but also exposes a recurring risk, such as the sustainability of actions after the funding ends. This finding is consistent with studies on outreach and intervention projects in indigenous health, which frequently face continuity difficulties due to dependence on one-off funding[10].

The educational workshops demonstrated potential for impact not only through their technical approach, but above all through the appreciation of indigenous food culture, the encouragement of self-care, and the promotion of the empowerment of AIS. In this sense, perspectives are reinforced that health education must consider sociocultural aspects and engage with traditional knowledge to be effective and generate sustainable changes[11]. However, the partial adoption of the logbook as a tool to support self-care points to the need for pedagogical methodologies that are more sensitive to local culture and realities, an aspect widely discussed in research on the training of indigenous health workers.

Another critical point identified concerns the project's sustainability after funding ends. This threat highlights the need for continuous support through specific research and outreach grants aimed at SUS Schools, ensuring the continuity of actions and the strengthening of successful initiatives.

Finally, the reported experience demonstrates that, although bureaucratic and sustainability challenges remain as limitations, institutional strengths and opportunities for intersectoral and community articulation were predominant. This suggests that projects of this nature can contribute not only to the training

of Indigenous Health Agents, but also to the strengthening of the Primary Health Care Network for Indigenous people, expanding the dialogue between public policies, schools of government, universities, and traditional communities.

FINAL CONSIDERATIONS

The experience of the project "Feeding Traditions, Cultivating Health: Terena Training in Nutritional Care and Obesity Management" demonstrates that the SUS (Brazilian Unified Health System) Schools are strategic actors in building innovative solutions to complex problems, such as malnutrition and obesity in indigenous communities. The project's trajectory demonstrated the capacity of these institutions to integrate different actors, articulate academic and traditional knowledge, and produce concrete deliverables for society.

Among the main results, the following stand out: the training of 32 AIS, the implementation of culturally sensitive educational workshops, the production of scientific knowledge, and intersectoral collaboration with local organizations.

Experience reinforces that, when properly supported, SUS Schools can enhance activities in the field of Indigenous Health. In this sense, the institutionalization of continuous funding policies aimed at SUS Schools for teaching, research and outreach activities, especially focused on traditional peoples, is recommended.

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Conflict of Interest

The authors declare no conflicts of interest.

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