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REPORT

NURSING AND ENVIRONMENTAL HEALTH: A PEDAGOGICAL PRACTICE GROUNDED IN CRITICAL PRAXIS AND THE SOCIAL DETERMINATION OF HEALTH

ENFERMAGEM E SAÚDE AMBIENTAL: PRÁTICA PEDAGÓGICA ORIENTADA PELA PRÁXIS CRÍTICA E PELA DETERMINAÇÃO SOCIAL DA SAÚDE

ENFERMERÍA Y SALUD AMBIENTAL: PRÁCTICA PEDAGÓGICA ORIENTADA POR LA PRAXIS CRÍTICA Y LA DETERMINACIÓN SOCIAL DE LA SALUD

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ABSTRACT

Objective: to describe and analyze the implementation of a critical praxis–based educational strategy, highlighting how Nursing students interpreted the social determination of health in Amazonian territories and developed interventions within the scope of Primary Health Care. **Experience Description:** This experience report was conducted within a Public Health course in an undergraduate Nursing program at a federal university in Northern Brazil. The activity involved 40 students organized into nine groups and was carried out between August 2025 and January 2026. The systematization was based on the final seminar minutes and a guidance document structured around the following components: territorial characterization, issue tree development, objective setting, intervention prototyping, and the descriptive record of the final seminar. The analysis adopted a reflective-interpretive approach and was guided by critical praxis and the theoretical framework of the social determination of health in PHC, focusing on territories in the Amazon region of Pará and their socio-environmental relationships. **Results:** Critical syntheses were produced that articulated socio-environmental processes, living conditions, and barriers to access. The proposed interventions prioritized territorially grounded surveillance, situated health education, the use of low-cost social technologies, and intersectoral collaboration. **Final Considerations:** The educational strategy facilitated the pedagogical translation of the social determination into critical-operational reasoning, connecting environmental health, equity, and feasible action within Amazonian territories.

Keywords: Primary Health Care; Learning; Educacion, Nursing; Nursing; Climate Change; Environmental Health..

RESUMO

Objetivo*: descrever e analisar a operacionalização de uma dinâmica formativa baseada na práxis crítica, evidenciando como estudantes de Enfermagem realizaram a leitura da determinação social da saúde em territórios amazônicos e elaboraram intervenções no âmbito da Atenção Primária à Saúde.* ***Descrição da experiência:*** *trata-se de um relato de experiência desenvolvido na disciplina Saúde Coletiva de um curso de Enfermagem em uma universidade federal da Região Norte do Brasil. A atividade envolveu 40 estudantes organizados em nove grupos e foi realizada entre agosto de 2025 e janeiro de 2026. A sistematização teve como corpus a ata do seminário e o documento-guia, este último estruturado em: caracterização territorial, árvore de problemas, definição de objetivos, prototipagem de intervenções e ata descritiva do seminário final. A análise assumiu caráter reflexivo-interpretativo, sendo orientada pela práxis crítica e pelo referencial da determinação social da saúde na Atenção Primária à Saúde, com foco nos territórios da Amazônia paraense e em suas relações socioambientais.* ***Resultados:*** *foram produzidas sínteses críticas que articularam os processos socioambientais, as condições de vida e as barreiras de acesso. As intervenções propostas priorizaram a vigilância territorializada, a Educação em Saúde Situada, a aplicação de tecnologias sociais de baixo custo e a articulação intersetorial.* ***Considerações finais:*** *a dinâmica favoreceu a tradução pedagógica da determinação social para o raciocínio crítico-operacional, conectando a saúde ambiental, a equidade e a ação possível nos territórios amazônicos.*

Palavras-chave*: Atenção Primária à Saúde; Aprendizagem; Educação em Enfermagem; Enfermagem; Mudança Climática; Saúde Ambiental.*

RESUMEN

Objetivo*: describir y analizar la operacionalización de una dinámica formativa basada en la praxis crítica, evidenciando cómo estudiantes de Enfermería realizaron la lectura de la determinación social de la salud en territorios amazónicos y elaboraron intervenciones en el ámbito de la Atención Primaria en Salud.* ***Descripción de la experiencia:*** *se trata de un relato de experiencia desarrollado en la asignatura de Salud Colectiva de una carrera de Enfermería en una universidad federal de la Región Norte de Brasil. La actividad involucró a 40 estudiantes organizados en nueve grupos y se llevó a cabo entre agosto de 2025 y enero de 2026. La sistematización tuvo como corpus el acta del seminario y el documento guía, estructurado en: caracterización territorial, árbol de problemas, definición de objetivos, prototipado de intervenciones y acta descriptiva del seminario final. El análisis tuvo un carácter reflexivo-interpretativo, orientado por la praxis crítica y por el marco de la determinación social de la salud en la Atención Primaria en Salud, con énfasis en los territorios de la Amazonía Paraense y sus relaciones socioambientales.* ***Resultados:*** *se produjeron síntesis críticas que articularon los procesos socioambientales, las condiciones de vida y las barreras de acceso. Las intervenciones propuestas priorizaron la vigilancia territorializada, la Educación en Salud situada, la aplicación de tecnologías sociales de bajo costo y la articulación intersectorial.****Consideraciones***

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finales: *la dinámica favoreció la traducción pedagógica de la determinación social hacia el razonamiento crítico-operacional, conectando la salud ambiental, la equidad y la acción posible en los territorios amazónicos.*
Palabras clave: *Atención Primária de Salud; Aprendizaje; Educación en Enfermeria; Enfermería; Cambio Climate; Salud Ambiental.*

INTRODUCTION

Primary Health Care (PHC), particularly the Family Health Strategy, has been the focus of discussions regarding vulnerabilities exacerbated by socio-environmental crises, with direct impacts on the production of illness and the organization of care. This underscores the need for debates grounded in historical and social processes[1]. In the Brazilian Amazon, this scenario is manifested through the overlap of structural inequalities and territorial pressures, including environmental degradation, water insecurity, precarious urban expansion, conflicts, and rapid transformations in ways of life. In this context, environmental health is not a secondary issue but rather a central dimension of care, permeating health surveillance, health promotion, and care coordination amid regional specificities and the everyday functioning of the Brazilian Unified Health System (Sistema Único de Saúde – SUS)[2,3].

The Social Determinants of Health approach, as formulated by the World Health Organization's Commission on Social Determinants of Health, has been widely adopted in health curricula. However, it often operates through the enumeration of factors, such as income, education, and housing, without necessarily linking them to the historical dynamics and power relations that produce them. As an epistemological counterpoint, the social determination of health perspective, developed by Breilh[1], proposes understanding illness not as the result of isolated factors but as the expression of historical processes and social relations that organize inequalities, distribute risks, and shape the possibilities for protection. This distinction is not merely theoretical. From a pedagogical standpoint, it determines whether students learn to list conditioning factors or to explain how these factors interact to produce vulnerabilities in specific territories[2], with direct implications for the quality of the interventions proposed.

At the same time, the climate and health agenda has demonstrated that the risks associated with climate change have already reached unprecedented levels, requiring the reorientation of health systems, professional education, and public governance[4,5]. This underscores the need to strengthen discussions on climate change, environmental justice, and planetary health within Nursing curricula, expanding practices oriented toward care delivery, advocacy, service organization, and equity[6,7]. For PHC, this entails incorporating risk communication, territorially grounded surveillance, intersectoral action, and adaptive responses to environmental vulnerabilities, particularly in settings characterized by limited capacity and high levels of social exposure[8].

This scenario reinforces alignment with the Sustainable Development Goals (SDGs), particularly SDG 3 (Good health and well-being), SDG 4 (Quality education), and SDG 13 (Climate action), by recognizing that establishment PHC depends on educational processes capable of integrating social justice, sustainability, and the strengthening of local capacities.

Nevertheless, a significant pedagogical gap persists even when the social determination of health is taught as curricular content, it is not always operationalized as a formative method. As a result, students often identify socio-environmental factors in an enumerative manner, without constructing explanatory linkages or developing feasible interventions that are coherent with the governance capacity and scope of PHC. This disconnect between critical analysis, and operational proposal constitutes the central pedagogical problem that motivated the experience reported herein.

Equity-oriented educational experiences suggest that the learning process gains potential when it is organized around the interpretation of reality, critical thinking, and student autonomy[3,8]. Accordingly, pedagogical strategies that combine social critique[3] with the operationalization of care are especially relevant, particularly in territories where environmental health is deeply intertwined with historical and social processes, such as the Brazilian Amazon[2].

Accordingly, this report aims to describe and analyze the implementation of a critical praxis-based educational strategy, highlighting how Nursing students interpreted the social determination of health in Amazonian territories and developed feasible interventions within the scope of PHC

EXPERIENCE DESCRIPTION

This experience report was developed within the context of the Public Health course, a mandatory curricular component offered in the third semester of an undergraduate Nursing program at a federal university in Northern Brazil, with a total workload of 115 hours. A total of 40 daytime-program students participated and were organized into nine groups according to their thematic affinity with the health regions of the state of Pará. The activity was supervised by the course instructor, two master's

students affiliated with the research group, and four teaching assistants involved in the curricular activity.

The instructor coordinated the pedagogical proposal and facilitated the collective analysis sessions, while the master's students and teaching assistants supported the groups during the completion of the guidance document, providing methodological and theoretical guidance. The activity, which constituted a pedagogical strategy integrating environmental health, the social determination and PHC, was conducted between August 2025 and January 2026 under the thematic axis: "Health and Primary Health Care: health in the diverse territories of the Amazon region of Pará and its socio-environmental relationships."

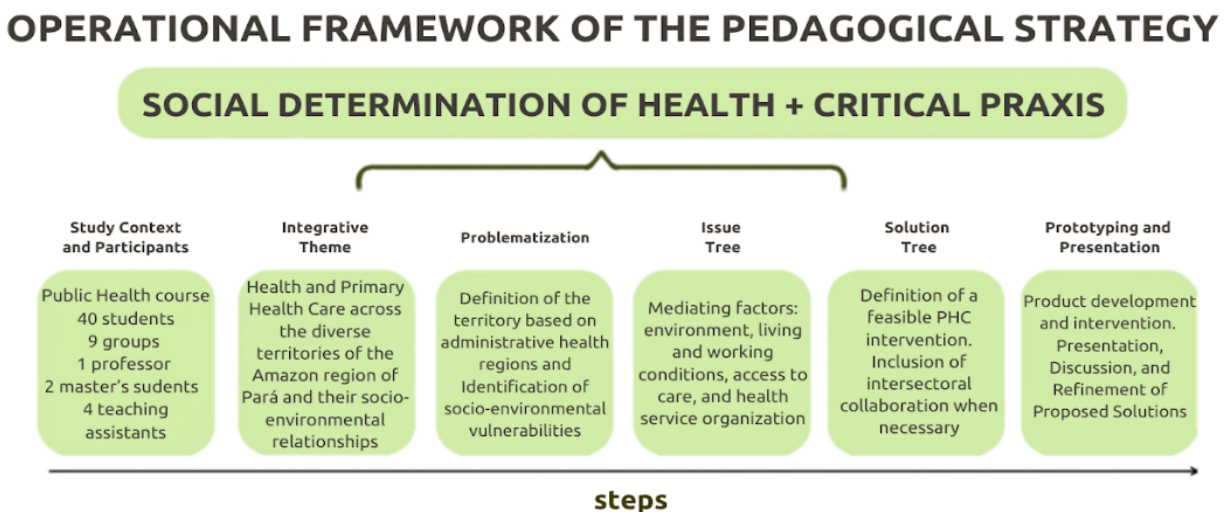
The pedagogical proposal was grounded in the theoretical framework of the social determination of health, which understands illness as being produced within historical contexts and through social relations that organize inequalities, patterns of exposure, and possibilities for protection[1]. Critical praxis guided the analytical process, mobilizing the action-reflection-action framework, in which learning is consolidated as a synthesis emerging from engagement with a concrete problem, articulating critical analysis with the development of feasible proposals within the territory[1,2].

The educational strategy was designed to foster a territorially grounded interpretation of the social determination of health and the development of feasible interventions within the scope of PHC. Its findings are presented in the results section, based on the observations illustrated in Figure 1.

The activity was organized from a guidance document structured into five core components: (1) socio-environmental characterization of the territory and target municipality; (2) development of an issue tree, including the identification of causes, effects, and causal linkages; (3) definition of objectives and expected outcomes; (4) prototyping of feasible interventions within the scope of PHC; and (5) identification of actors, intersectoral partnerships, and available resources. Each group completed the guidance document progressively, and the resulting set of productions constituted the corpus of this report, together with the descriptive minutes of the final seminar presentation.

These steps were conducted using Design Thinking, adapted from the British Design Council (Double Diamond) model, whose four phases (discover, define, develop, and deliver) were reinterpreted through the lens of the social determination of health. The discovery phase corresponded to the socio-environmental and territorial characterization; the defining phase encompassed the development of the issue tree and priority setting; the developing phase involved the design of interventions; and the delivery phase focused on prototyping and presentation at the final seminar. This adaptation sought to prevent the design process from being limited to technical creativity alone by anchoring each step in a structural analysis of the conditions that produce vulnerabilities in Amazonian territories, as illustrated in Figure 2.

Figure 1 – Pedagogical strategy.



Source: Prepared by the authors (2026) via Canva Pro.

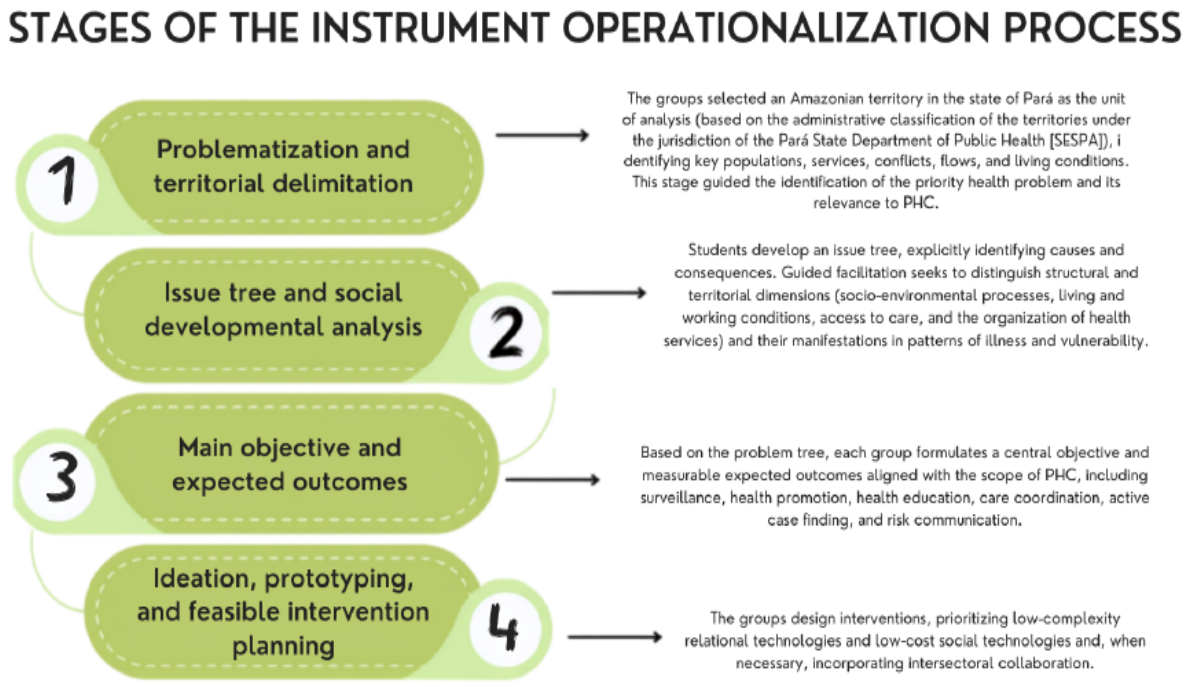
This report distinguishes three methodological dimensions: the pedagogical activity (i.e., what students carried out throughout the course), the information sources, and the reflective-interpretive analytical process. This process was conducted through three steps: an initial comprehensive reading of the documents; inductive categorization of the outputs based on thematic convergence across territories, problems, and interventions; and interpretation guided by critical praxis. This interpretation sought to reveal how students mobilized the social determination of health as an explanatory framework and translated it into operationally feasible proposals within the scope of PHC. The three analytical movements presented in the results section emerged from this interpretive reading.

As this is an experience report developed exclusively for pedagogical purposes and did not involve the collection of data from research participants, the study falls within the exceptions established by Brazilian National Health Council (CNS) Resolution No. 510/2016, which exempts educational activities from review by the Research Ethics Committee/National Research Ethics Commission (CEP/CONEP) system when their purpose is not to produce generalizable knowledge about participants. In addition, the following ethical measures were adopted: groups were identified solely by numerical codes (G1-G9), without any information that could enable the identification of individual students; the pedagogical products were used exclusively for the reflective analysis of the educational experience; and the activity was conducted as part of the course syllabus with institutional awareness and approval. No sensitive data or information from individuals external to the curricular activity were used.

RESULTS

The groups produced territorially grounded analyses with greater explanatory depth and revealed three main analytical movements: (1) establishing connections between socio-environmental processes and illness; (2) recognizing barriers to access and institutional limitations within PHC; and (3) designing interventions that were compatible with local governance capacities and available territorial resources.

Figure 2 – Adapted steps of the operationalization process.



Source: Prepared by the authors (2024), based on the British Design Council model and created via Canva Pro.

The primary evidence supporting the adopted approach was the shift from an enumerative logic to a process-oriented and mediated perspective – a framework that understands health as a continuous process and recognizes a complex network of social mediations. Within this process, the groups articulated living conditions, working conditions, environmental factors, housing conditions, and the organization of health services as interdependent processes that generate risks and vulnerabilities across the regional health networks established by the Pará State Department of Public Health, as illustrated in Figure 3.

After selecting the target municipality within the health region, targeted searches were conducted to characterize the local context. The issue trees identified illustrative causal pathways, such as the relationship between environmental degradation, deteriorating air quality, and respiratory illnesses, as well as the association between inadequate sanitation and increased episodes of diarrheal disease. These findings demonstrate the process-oriented analytical approach adopted by the groups, as illustrated in Figure 4.

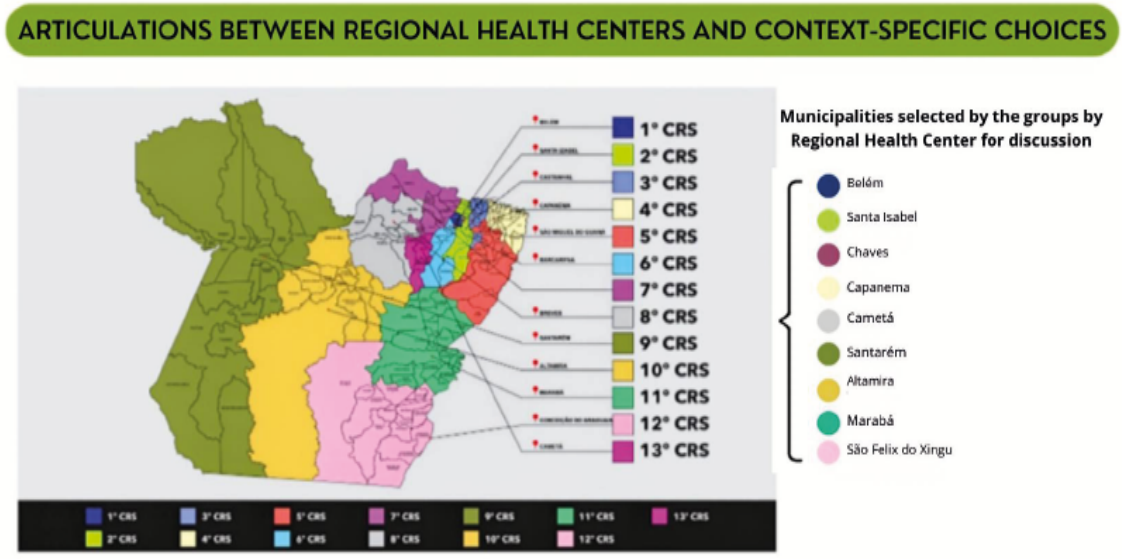
The priority themes presented in Figure 4 were defined during the issue tree development step, in which each group identified the main health problems and socio-environmental determinants of the selected municipality through documentary research and territorial analysis. Prioritization was guided by criteria related to the magnitude of the problem, population vulnerability, and the governance capacity of PHC, as specified in the guidance document.

In addition, the groups incorporated the institutional dimension into their analyses, highlighting insufficient resources, geographic barriers to access, weaknesses in risk communication, and challenges related to care coordination. This component was identified in eight of the nine groups, indicating that the structure of the guidance document facilitated the integration of the institutional dimension into the territorial assessment.

Regarding the interventions proposed by the nine groups, convergence was observed around key operational axes within PHC, particularly territorially grounded surveillance and risk communication. These strategies were associated with proposals for local monitoring (active case finding), integration of territorial information, development of warning systems, and dissemination of guidance using accessible language, with the aim of reducing exposure and strengthening timely responses.

The model followed an approach aligned with equity and local realities, consistent with learning

Figure 3 – Articulation between regional health centers and context-specific territorial decisions.



Source: Adapted from the Pará State Department of Public Health (2026), via Canva Pro.
Caption: Regional Health Centers (Centros Regionais de Saúde - CRS)

Figure 4 – Priority themes identified by the groups.

Source: Prepared by the authors (2026) via Canva Pro.

processes mediated by problem-based inquiry and student engagement. From this context, different types of technologies emerged, including workshops, discussion circles, territory-adapted educational materials, and approaches focused on protective measures, rights, and collective action. The proposed educational technologies were low-cost and included posters, adapted pamphlets, scripts for Community Health Workers (CHWs), and the use of community communication networks to expand outreach and support rapid decision-making. The prototyping process gave tangible form to interventions that could be implemented even under infrastructure constraints, without reducing the social complexity of the issues being addressed.

As a significant component of the process, critical analysis enabled intersectoral collaboration and the identification of protection networks, fostering the understanding that socio-environmental problems require coordination with social assistance, education, environmental sectors, and community organizations. The interventions incorporated partnerships and referral pathways, positioning PHC as a coordinator of responses rather than an isolated service, as illustrated in Figure 5.

DISCUSSION

The experience demonstrated that an educational strategy grounded in critical praxis[3] can facilitate the operationalization of the social determination of health within the teaching and learning process[1] in Nursing Public Health education. This approach extends beyond the final products developed by the students, which represent only the concluding step of the process, and is distinguished by the way students structured their reasoning to identify health problems within territories and construct critical syntheses. The strategy also fostered reflection on multiple dimensions, including socio-environmental conditions, access to services, service organization, and concrete possibilities for intervention[3]. Notably, the social determination of health was mobilized as both an explanatory and an operational framework rather than as a mere inventory of factors. Rather than limiting analysis to a biomedical perspective, the issue trees developed by the groups revealed processes of vulnerability identified through the Regional Health Centers (Centros Regionais de Saúde - CRS), which are decentralized administrative units of the SUS in the state of Pará. This approach enabled students to recognize differences in infrastructure conditions, territorial dynamics, forms of work, and institutional barriers, while also deepening their understanding of vulnerability as a socially produced and historically situated phenomenon[1,2].

By positioning PHC as the central analytical axis, the groups demonstrated that health needs emerge from the interaction between environmental conditions, ways of life, and access to services[3], and that responses must be conceived through both health services and the articulation of local networks. This movement became evident

Figure 5 – Summary of groups by identified problem and feasible PHC response. Belém, Brasil, 2026

Groups	Ploblematization and interventions
G1	Wildfires/Air Pollution → local surveillance and prevention plan + Community Education
G2	Arboviral diseases in a socially vulnerable urban area → active case finding + community mobilization + breeding site control
G3	Occupational/Industrial exposure → Educational technology for Community Health Workers (CHWs) and service users + Follow-up care plan
G4	Unsafe water and inadequate sanitation → practical household water treatment guide + territory-specific guidance
G5	Rapid territorial changes → support network and longitudinal care + articulation with social policies
G6	Violence and vulnerabilities affecting women and children → strengthening networks, reporting, and PHC-based care
G7	Nutritional vulnerability/anemia → monitoring and programmatic care+ community-based strategy
G8	Endemic diseases and environmental conditions → surveillance +organization of the work process within the Family Health Strategy
G9	Climate risks and rapid response → community communication and warning alerts + protective measures

Source: Preparecd by the authors (2026).

when several groups linked structural causes, such as occupational exposures, territorial transformations, and violence, to institutional responses involving intersectoral referral pathways.

From a pedagogical perspective, the combination of issue trees and solution trees functioned as a methodological device for translating the social determination into practical analysis, guiding the relationships between causes and consequences. This guidance was achieved through the adoption of an adapted and innovative administrative model[8] for planning, whose sequential steps promoted continuous implementation and dependence on preceding phases. This practice reduced the risk of generic interventions and those based on assumptions, while strengthening the internal consistency between diagnosis and proposed action. Such coherence reinforces the critical-operational reasoning that is fundamental to Nursing practice, PHC, and diverse perspectives on environmental issues[4,5]. Another central finding was the prominence of environmental health among the priority issues identified by the groups. This reinforces the relevance of the topic in Nursing education[6,7], particularly in Amazonian contexts, where environmental degradation, wildfires, precarious urbanization, and occupational exposures directly influence patterns of illness and the capacity of health services to respond to demands, affecting the long-term sustainability of PHC[2]. In this regard, the experience aligns with contemporary discussions advocating for greater integration among climate, health, and health system organization, emphasizing the strategic role of PHC in adaptation and protection responses[4,5,8]. The educational strategy functioned both as a social practice and as a formative policy insofar as it not only mobilized content related to the social determination but also led students to select real territories, identify concrete institutional actors, and propose interventions grounded in contexts characterized by resource constraints. By recognizing territory as a space of contestation shaped by inequalities, economic interests, historical deprivation, and forms of resistance, the experience contributed to learning processes committed to social justice[3].

This political dimension became evident, for example, when G5 incorporated social assistance policies and when G9 integrated community communication strategies and climate alerts into its proposals[3]. Learning therefore provided students with the foundations to recognize that environmental health challenges cannot be addressed exclusively through the biomedical model, as they require territorial governance and community engagement.

The predominance of proposals based on educational technologies should not be interpreted as an analytical weakness. On the contrary, it reflects their adequacy to the real governance conditions of PHC and the need for feasible responses in contexts marked by resource constraints and vast territorial distances, such as those found in the Amazon[2]. From a praxis-oriented perspective, what strengthens these proposals is that they do not place responsibility for risk solely on individuals; rather, they are anchored in territorial and institutional mediations that preserve a critical understanding of the structural determinants responsible for generating and sustaining vulnerabilities.

Among the strengths of this experience are the coherent integration of theoretical framework and methodological strategy, avoiding the common disconnect between critical content and pedagogical form; the broad territorial scope of the analysis, encompassing nine distinct health regions in Pará and thereby providing diversity to the products developed; the applied nature of the proposed interventions, grounded in the actual governance capacities of PHC; and the incorporation of the activity into a mandatory curricular component, ensuring that all students in the course participated regardless of voluntary engagement. These characteristics suggest potential transferability of the experience to other public health educational settings, particularly in regions experiencing high levels of socio-environmental vulnerability.

At the same time, the experience reinforces a strategic concept for Nursing practice in PHC, namely that feasible interventions can operate at two interrelated levels: immediate practical action and political/intersectoral articulation. This dual perspective avoids both limited technicism and paralyzing criticism, strengthening PHC as a space for care delivery and for coordinating responses within the territory[2].

From an educational standpoint, the experience aligns directly with proposals for equity-oriented learning processes in Nursing by demonstrating that learning is consolidated when students develop applicable syntheses and critically reflect on inequalities and institutional responsibilities[3]. Educational actions focused on equity are closely linked to environmental health and the Social Determination of Health as fundamental dimensions to be integrated into professional training[6,7]. The objective extends beyond understanding inequalities; it involves constructing territorially grounded responses[3] that recognize the unequal distribution of risks and protections, thereby strengthening the ethical-political dimension of care.

This discussion has also been reflected in other studies, which emphasize that the incorporation of climate change and planetary health topics into Nursing education should occur as a cross-cutting competency that integrates climate justice, service organization, and advocacy, rather than as an additional isolated content area[6,7]. By providing a structured pedagogical framework, the present experience contributes to this debate by translating a global agenda into the everyday reality of PHC and identifying pathways for critically and reflectively addressing these issues across different biomes.

Furthermore, by being incorporated transversally into Public Health education, this strategy reaffirms Nursing education as a social and political process[3], in which learning to care also entails learning to critically interpret the conditions that shape life, recognize structural inequalities, and engage in the negotiation of meanings surrounding health within the territory. In this sense, the initiative also enables dialogue with diverse perspectives on territory, particularly those that support democratic decision-making and the participation of multiple voices, with the social determination of health serving as the guiding framework[9].

Within this perspective, PHC ceases to be merely a field of practice and becomes a space for the construction of public responsibility, in which Nursing is called upon to integrate care, surveillance, and community action with an ethical commitment to rights. Consequently, Public Health as a curricular discipline is consolidated as a foundational component of an education grounded in equity and territorial justice. This strengthens the professional capacity to respond to the environmental and social crises that characterize the Amazonian reality while respecting the sociocultural ties and everyday experiences that shape territories[9], including those of the diverse actors currently engaged in undergraduate Nursing education[10].

A limitation of the experience is the absence of systematic pre- and post-intervention assessments, which precludes a comprehensive analysis of the educational process. In addition, the localized nature of the experience, implemented within a specific course at a Nursing program situated in the Pará Amazon, limits the generalizability of the findings, although it does not diminish their transferability to similar educational contexts. Future studies should incorporate formative and diagnostic assessment tools and seek to evaluate the educational impact of environmental health approaches more explicitly.

It is important to clarify that environmental health, planetary health, and climate change, although often

associated, operate at different scales and address distinct objects of analysis. Environmental health focuses on the relationship between local exposures (e.g., pollution, sanitation, and contamination) and the production of illness in specific territories. Planetary health broadens this perspective to encompass the limits of global ecosystems and the systemic risks they pose to human life. Climate change, in turn, constitutes a geophysical process with uneven impacts that cut across both dimensions[4–7]. The experience reported here operated primarily within the framework of territorially grounded environmental health, while recognizing climate change as a structuring process underlying the local risks identified by the groups.

FINAL CONSIDERATIONS

The educational strategy facilitated the operationalization of the Social Determination of Health by enabling students to develop territorially grounded analyses of socio-environmental vulnerabilities in the Amazon. Furthermore, it fostered dialogue through explanatory and action-oriented syntheses that integrated environmental conditions, living and working conditions, institutional barriers, and concrete possibilities for action within SUS.

The experience confirmed environmental health as a foundational dimension of PHC in Amazonian territories, aligning with contemporary agendas focused on equity and climate change. As a practical contribution, it provided a structured pedagogical framework consisting of five steps: territorial characterization, issue tree development, objective setting, intervention prototyping, and seminar presentation. This framework is applicable to Public Health courses focused on territories experiencing high levels of socio-environmental vulnerability and has the potential to be replicated across different biomes and regional contexts, if it is adapted to local specificities. It therefore constitutes a valuable educational tool for developing competencies in territorially grounded surveillance, risk communication, context-specific health education, and intersectoral collaboration.

REFERENCES

1. Breilh J. La categoría determinación social como herramienta emancipadora: los pecados de la “experticia”, a propósito del sesgo epistemológico de Minayo. Cad Saúde Pública [Internet]. 2021[cited 2026 Jan 10];37(12):e00237621. Available from: https://doi.org/10.1590/0102-311X00237621

2. Fausto MCR, Giovanella L, Lima JG, Cabral LMDS, Seidl H. Sustentabilidade da Atenção Primária à Saúde em territórios rurais remotos na Amazônia fluvial: organização, estratégias e desafios. Cienc Saúde Colet [Internet]. 2022[cited 2026 Jan 10];27:1605-18. Available from: https://doi.org/10.1590/1413-81232022274.01112021

3. Castro NJC, Araújo JSA, Santos RA, Castro PC, Santos DN, Nascimento MTA, et al. Processos de aprendizagem sobre equidade para reflexão da prática social da Enfermagem. REME Rev Min Enferm [Internet]. 2023[cited 2026 Jan 10];27:e-42296. Available from: https://doi.org/10.35699/2316-9389.2023.42296

4. Silva EN, Barreto JOM, Martins MAP, Araújo WN, Galvão TF. Climate change: a priority agenda for health services. Epidemiol Serv Saude [Internet]. 2025[cited 2026 Jan 10];34:e20252001. Available from: https://doi.org/10.1590/S2237-96222025v34e20252001.en

5. Romanello M, Walawender M, Hsu Shi-Che, Moskeland A, Plameiro-Silva Y, Scamman D, et al. The 2024 report of the Lancet Countdown on health and climate change: facing record-breaking threats from delayed action. Lancet [Internet]. 2024 [cited 2026 Jan 10];404(10465):1847-96. Available from: https://doi.org/10.1016/S0140-6736(24)01822-1

6. Tiitta I, Cubelo F, McDermott-Levy R, Jaakkola JJK, Kuosmanen L. Climate change integration in nursing education: a scoping review. Nurse Educ Today [Internet]. 2024[cited 2026 Jan 10];139:106210. Available from: https://doi.org/10.1016/j.nedt.2024.106210

7. Vandenberg S, Avanthay Strus J, Chircop A, Egert A, Savard J. Planetary health in nursing: a scoping review. J Adv Nurs [Internet]. 2024[cited 2026 Jan 10];81(12):8080-115. Available from: https://doi.org/10.1111/jan16570

8. Mendes RS, Anunciação KCOS, Fonseca BS, Silva JA, Salvador PTCO. Uso de estratégias inovadoras no ensino da Saúde Coletiva nas graduações da área da Saúde: uma revisão de escopo. Interface [Internet]. 2024[cited 2026 Jan 10];28:e230225. Available from: https://doi.org/10.1590/interface.230225

9. Monken M. Território e saúde: apontamentos conceituais para a proposta de territórios sustentáveis e saudáveis. Saúde Debate [Internet]. 2024 ago. [cited 2026 Jan 10];48(spe1):e8721. Available from: https://doi.org/10.1590/2358-28982024E18721P

10. Castro NJC, Paes FT, Way JRDS, Ribeiro NL, Sena MLMD, Naka KS, Parente AT. Mapeamento dos cursos de enfermagem e interfaces com a inclusão de estudantes indígenas. Texto Contexto Enferm [Internet]. 2024[cited 2026 Jan 10];33:e20240084. Available from: https://doi.org/10.1590/1980-265X-TCE-2024-0084pt