

Climate change and the society's participation: contributions from Nursing

Mudanças climáticas e a participação da sociedade: contribuições da Enfermagem
Cambios climáticos y participación de la sociedad: aportes de la Enfermería

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Abstract

Objective: to reflect on the contributions of Nursing in mediating society's participation in mitigating the climate change impacts. **Method:** theoretical and reflective study, based on contemporary literature and international reports, carried out between August and November 2023. **Results:** to implement, articulate and promote actions that foster connections between Nursing and society, the study identified perceptions of social vulnerability and intersectionality as central elements that determine action, presented by three thematic axes: starting point; strategy; and processes, which respectively represent coping scenarios; governance and Nursing; and collaboration and social participation. **Conclusion:** it is necessary to review concepts of environmental and societal relations in training and discussion on the subject, in order to help raise awareness among nursing staff.

Descriptors: Climate Change; Nursing; Social Participation; Health Services; Intersectoral Collaboration

Resumo

Objetivo: refletir sobre as contribuições da Enfermagem na mediação da participação da sociedade na mitigação dos impactos das mudanças climáticas. **Método:** estudo teórico-reflexivo, embasado na literatura contemporânea e em relatórios internacionais, realizado entre agosto e novembro de 2023. **Resultados:** para implementar, articular e promover ações que agenciem conexões entre a Enfermagem e a sociedade, o estudo identificou as percepções sobre vulnerabilidade social e interseccionalidade como elementos centrais determinantes de ação, apresentados por três eixos temáticos: ponto de partida; estratégia; e processos, que respectivamente representam cenários de enfrentamento; de governança e Enfermagem; e de

colaboração e participação social. **Conclusão:** é necessário rever conceitos sobre relações ambientais e sociais na formação e na discussão sobre o tema, a fim de contribuir na sensibilização do corpo de trabalhadores em Enfermagem.

Descritores: Mudança Climática; Enfermagem; Participação Social; Serviços de Saúde; Colaboração Intersetorial

Resumen

Objetivo: reflexionar sobre los aportes de la Enfermería en la mediación de la participación de la sociedad en la mitigación de los impactos del cambio climático. **Método:** estudio teórico-reflexivo, basado en literatura contemporánea e informes internacionales, realizado entre agosto y noviembre de 2023. **Resultados:** para implementar, articular y promover acciones que creen conexiones entre Enfermería y sociedad, el estudio identificó percepciones sobre la vulnerabilidad social y la interseccionalidad como elementos centrales determinantes de la acción, presentados por tres ejes temáticos: punto de partida; estrategia; y procesos, que representan respectivamente escenarios de afrontamiento; gobernanza y enfermería; y colaboración y participación social. **Conclusión:** es necesario revisar conceptos sobre relaciones ambientales y sociales en la formación y discusión sobre el tema, para contribuir a la sensibilización del personal de enfermería.

Descriptores: Cambio Climático; Enfermería; Participación Social; Servicios de Salud; Colaboración Intersectorial

Introduction

Climate change has an impact on human health, directly affecting the operational processes of the Health Care Networks (HCN) of the Unified Health System (Sistema Único de Saúde, SUS) in Brazil.¹ These are shaped by a complex set of globally interconnected social and political factors,²⁻³ which involve and connect a variety of work fronts, as well as sectors and managerial articulations, linked by collaborative networks, with different levels of activity in health, which interconnect with services.¹

These ongoing actions are reflected in the ability of health services to respond adequately to the demands generated by climate change;³ for example vector-borne diseases, dehydration related to extreme age groups, such as children and the older adults, and others. Likewise, access to vital resources - drinking water and basic sanitation,⁴ which are greatly influenced by these changes, highlighting issues related to water-borne diseases. These courses have an impact on demands, strategic planning and decision-making for effective actions.¹

In this scenario, it is important that long-term projections³ are discussed and that there is an urgent need to identify and interpret effective governance models for mitigating climate change. These models must be multidimensional and incorporate social and participatory approaches.³⁻⁴

This is fundamental, as it recognizes the complexity and interdisciplinary nature of the challenges faced, as well as establishing actions between local communities, health professionals and educational institutions, underpinned by broad and integrated visions, in order to guide the identification of vulnerabilities. To this end, the implementation of strategies through collaborative efforts - with the participation of indigenous peoples and traditional communities in particular -, has the potential to mitigate the effects identified.

Their participation in tackling the challenges observed,⁴⁻⁷ in line with the principles of sustainability and equity,⁸ is strategic and necessary, as indicated in global reports and specific health policies, implying collaborative capacities to anticipate, identify and respond to demands, supported by the principles of social participation and the comprehensiveness of the Brazilian public health system.³

In addition, this involvement helps to improve protocols, infrastructures and training for human resources to respond to the adversities, risks and damages that characterize climate change contexts,⁹ with the aim of promoting health.⁴ The parameters established by international organizations, such as those contained in the Intergovernmental Panel on Climate Change (IPCC)³⁻⁴ and The Closing Windows reports, provide a picture of human activities and their relationship with the burning of fossil fuels, deforestation and agriculture, in particular, and have the potential to analyse impacts on the SUS,^{3,8} as well as signalling the indispensable participation of society.

These documents also highlight the need to listen to vulnerable populations, such as black, indigenous and rural communities,^{5,10} considering the underlying intersectionality. It is therefore essential to discuss power structures - governmental, economic, socio-cultural, educational, international, academic, cooperation and communication - and the ways in which existing inequalities shape health systems'

responses to climate change. This approach reveals the contradictions and conflicts inherent in health services, in light of climate change,⁴ and points to transformative actions that can overcome the disciplinary conceptual model in nursing.¹¹

From this, it can be seen that nursing, as the largest workforce in the SUS, has a historic role as a profession, at the forefront of health emergencies, which gives it prominence in organizing and tackling issues related to climate change, seeking to reorient health actions and the networks that make it up. However, the discussion also includes impasses with regard to educational challenges in the face of climate change,¹¹⁻¹² which have been little debated within the organization of society, a reflection of the way in which understandings of the environment, health and nursing are understood.¹¹

In this sense, in order to reorient the HCN to be more resilient and responsive to the needs of vulnerable populations, taking into account socio-economic conditions, social inequalities and forms of environmental racism and contributing to the stated demand, through the collaboration of the actors present in this scenario,^{5,12} the question was: what contributions can Nursing offer to the implementation of integrated, participatory and representative processes to mitigate the impacts of climate change? The aim of this study is to reflect on the contributions of nursing in mediating society's participation in mitigating the impacts of climate change.

Method

This is a theoretical and reflective study, based on the discursive formulation of the issue and supported by contemporary literature, international reports and the critical analysis of the authors.

Reports from the World Health Organization (WHO) website were included, such as the Intergovernmental Panel on Climate Change Assessment Report (IPCC AR6/2023),¹³ the the Lancet Countdown Report 2023¹⁴ and The Closing Windows report.¹⁵

In presenting the reflective impressions, the following inferences were considered: starting point (scenario for coping); strategies (governance and nursing); and processes (collaboration and social participation). The justification used was alignment with specific national policies - in order to listen to the experiences of local

social actors - and empirical and circular knowledge, based on an understanding of counter-colonial cultures and the importance of reflecting on processes that share the knowledge of these groups.

In order to understand how nursing can act, by deepening training aspects, to encourage the constitution of strategies from its services, counter-colonial concepts such as involvement were included. Then, we went on to present the involvement needed to implement, articulate and promote actions that create connections between nursing practices and society, emphasizing that the reflections presented here converge in interpretations of the literature and the authors.

Results and discussion

Starting point: a scenario for coping

Climate change represents a threat to human health,²⁻³ since it impacts on the incidence of diseases and illnesses, such as zoonotic, vector-borne, water-borne, cardiovascular and mental illnesses, among others.⁶⁻⁸ These are multidimensional factors, integrated with vulnerabilities, regionalities and health service infrastructures. In addition, there are training processes that need to be reconfigured in terms of professional performance, a fact perceived in Nursing, which must broaden its view of the issue, considering the historical, social and political aspects¹¹ surrounding HCN.

It is a central challenge for Brazil,³ and for Nursing,¹¹ due to the far-reaching consequences of climate change on health. Populations in situations of social vulnerability stand out,³ such as traditional peoples and communities, who are represented in the SUS, above all because they are the target audiences of specific initiatives, such as: National Policy for Health Care for Indigenous Peoples (PNAISP - in Portuguese);¹⁶ National Comprehensive Health Policy for the Black Population (PNAISPN - in Portuguese);¹⁷ and National Policy of Integral Health of Rural, Forest and Water Populations (PNAICFA - in Portuguese).¹⁸

It is worth noting that these actions bring together social groups that are relevant to tackling climate dynamics, due to their knowledge of environmental preservation, an important condition as formulators of public policies.³ These

policies provide for HCNs to be organized according to the peculiarities of the groups that make them up, a process that has made limited progress due to historically constituted structures - epistemic developments centred on the individual and with a Eurocentric base, which do not observe regional distinctions. In view of this, the implementation of processes that support a different vision, based on new evidence about local practices and in line with scenarios, requires efforts from society³ and the role of nursing as a transforming agent.¹¹

It is known that nurses are strategically positioned due to their practice, research and training, developing, implementing and sustaining actions to mitigate and adapt to climate change.¹¹ These are skills that require aptitude with extreme events and health conditions, which demands proactive and comprehensive approaches to droughts, floods, heatwaves, heat stress, among other situations, considering the relationship with the peculiarities and diversities of groups.¹¹⁻¹²

In principle, discussion of the concepts surrounding academia is indispensable. Notably, these follow Eurocentric and colonizing patterns,¹¹⁻¹² and are distinct from the dimensions that involve the concepts of “confluence” and “transfluence”,¹² a necessary insertion in the discussion of peoples' worldviews at a given moment in their formation.

This involves encouraging discussions about unique health and global approaches between people, animals and ecosystems.^{3,19} In addition, it calls for curricular integration in continuing education.¹¹ However, this understanding has been little explored, focusing on individuals and environmental relationships, without encompassing society as a whole,^{3,12} which preliminarily demonstrates the synthetic, linear knowledge institutionalized in academic spaces, which does not encompass territories characterized by circular dynamics that value the needs of others.^{5,12}

In practice, concepts need to be revised, as they have not shown satisfactory results when it comes to nursing participation. Potential avenues include extension curricularization projects and participatory research in order to prepare students in the field as educators, researchers, activists, collaborators and health agents. As the service involves continuous training, this implies revising protocols in terms of

illness prevention, targeted care and clinical conduct, which are central elements in effective interventions.¹⁹

Secondly, nursing training and practice must take into account the spatial and temporal distribution of diseases³ and social and cultural diversities,³ together with representatives of local societies, as this makes it possible to build methodological frameworks for integration into daily nursing practice, aligned with the needs of the different institutions and the groups that are part of them⁴⁻⁵ – and which impact on global health, too.¹⁹

Involving, listening to and integrating these groups¹² – in other words, effective social participation - gives health services multidisciplinary citizen status, anchored in the principles of the SUS. This approach is not new, given the well-developed experiences in the SUS, such as the free health conferences. In light of the above, Nursing, which is close to society through its daily practice, can direct discussions towards Primary Health Care (PHC), in accordance with the dimensions of the population's values and social organizations.¹¹

This can result from listening to society,^{5,12} recognizing its social and political weaknesses, such as aspects of access and accessibility, longitudinality, comprehensiveness and coordination of care, among others, in view of the phenomena arising from climate change and observing the most exposed groups.²⁰ Likewise, these interviews help in decision-making through interactional processes between nurses and institutions, such as schools, churches, community centers, among others.^{4,11-12}

The intersections in public health, especially in the case of vector-borne and respiratory diseases, which climatic variations encourage to proliferate and transmit,³ reflecting high incidences of emerging and re-emerging diseases, such as dengue, malaria, leishmaniasis and tuberculosis, can be the focus of discussion based on nursing exercises to listen to the populations most directly affected by these diseases.⁸⁻⁹ This can be done by implementing conversation circles in health service units, listening centers in educational institutions, meetings with social movements, working groups, among others. In any case, the need for integrated³ and adaptive²⁰ approaches on the part of health systems is emphasized.

In this sense, health surveillance is a comprehensive strategy. It goes beyond

identifying diseases and includes monitoring the social, environmental and economic conditions that directly influence the populations' health status.²¹ Integrated into PHC, health surveillance is aligned with the principles of social participation and comprehensive care of the SUS. This joint effort, supported by active listening and the involvement of nursing, allows for adaptive and integrated approaches to public health.^{12,14}

In addition to health surveillance, popular surveillance has emerged as an important tool for community participation. Based on the principles of popular education, this form of surveillance involves the direct engagement of communities, empowering their members to monitor and identify health risks.²² Through educational actions that promote knowledge about environmental impacts and their possible negative effects on health, the population can become protagonists in preventing and responding to climate challenges, strengthening local response capacity.

This synergy is indispensable for tackling the challenges posed by regional and socio-economic disparities,³⁻⁴ strengthening health actions that are relatively equitable to local needs and realities, and developing effective management of health risks associated with climate and environmental crises of global concern.²⁻⁴ This health model, based on health surveillance and PHC, reflects the essence of a citizen-based, multidisciplinary health service that values social participation and active listening in its interventions.¹²

In addition, the socio-spatial structure and relationships surrounding the services must be contextualized,^{5,12} identifying cultures, practices, beliefs, external influences, support networks, sovereignty and the rights of affected groups, in conjunction with nursing functions (Figure 1).

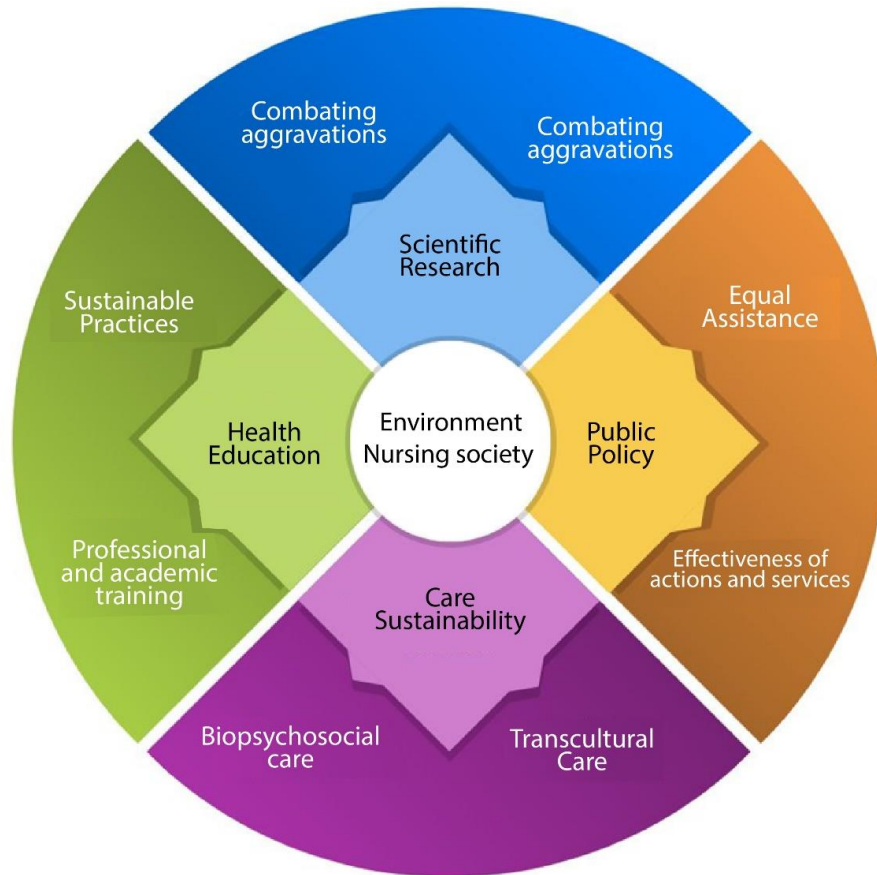


Figure 1 – Socio-spatial structure involved in socio-epidemiological relations - Belém, Pará, 2024

Notably, the starting point is to involve nursing in discussions about the environment and society,¹² seeking to integrate its different dimensions of action, from education to the sustainability of care, with the aim of building collaborations in response to demands. To this end, it considers the initial mapping of the practices of local groups, historically responsible for guarding territories,^{5,10-11} given their capacity for leadership and organization in dealing with emergencies, a fact recently evidenced by the Covid-19 pandemic.

In the meantime, nursing must redirect its collective actions so as to encourage the active participation of these groups^{5,12} and observe debates on counter-colonial concepts and environmental health in its professional training. In education, the integration of sustainability and climate change into nursing curricula can be promoted,

teaching future nurses about the relationship between human health and the environment, as well as promoting educational activities that focus on sustainable practices in healthcare, such as waste management.¹

In research, it is essential to continue with studies that show how health practices impact the environment and how these effects can be minimized, as well as studies on waste management practices to reduce waste and pollution, and on collaborative processes between health services and traditional communities, especially indigenous and quilombola communities. These are paths to be followed, initially by counter-colonial curricula, based on literature that converges with the territories' realities.¹²

Strategies: governance and nursing

Given the existing demands and the long-term prospects,³⁻⁴ it is necessary to think initially about training nurses for planned interventions and to reduce the inequities and social inequalities that exist, promoting fair responses to climate change.²⁻³ It is therefore favorable to base governance indicators that converge with the issue of social participation, based on constructs that include common objectives, norms, communications and involvement,^{20,23} adapted to contextualized climate change.²⁰

To this end, strategies that involve dynamic processes and diversity of knowledge and regions^{5,12} are important in actively engaging communities, health professionals from different fields, managers and other political groups in the development and implementation of health policies. Furthermore, because they involve regulatory mechanisms, these proposals represent new possibilities for promoting social justice,²⁴ since they ensure that the responses to climate change are inclusive and plural, in line with the different populations affected, especially the marginalized ones.^{5,10}

This converges towards intervention by the state and social participation mechanisms, as it is understood that decision-making and institutionalized spaces can interrupt, veto or alter results,²² which in practice ensures subsidies to address the needs of socially vulnerable groups, such as indigenous people, quilombolas and riverside dwellers,^{5,10} in health services. As an example, there are the health councils, which bring together representatives of users, health workers and governments, for

deliberation and social control of the SUS, a space in which nursing can configure important social capital.¹¹

While involving multiple stakeholders, it is possible to build more resilient and adaptable approaches,³ ensuring that public health services remain accessible to those who already face disparities due to socio-economic, racial and environmental factors, an aspect that can be addressed by Nursing¹¹ as a SUS workforce. Furthermore, with the advance of climate change, there is no doubt that there are precedents for accommodating these groups, such as increases in exposure to the impacts and associated vulnerabilities, especially in certain regions of Brazilian territory.^{3,9} It is therefore important to study and discuss the issues raised here with the actors in these scenarios,^{5,9-10,12} as there are demands on nursing and health teams today.

In this context, adaptation is the way forward and is related to problems and challenges such as deforestation and the increase in zoonoses.⁸⁻⁹ Discussions to generate knowledge and information will indicate the need to develop and implement collaborative protocols and technologies on an interprofessional and intersectoral basis. The initiatives that mediate health care in the territories are aligned with local and national health policies and international agendas, such as the Sustainable Development Goals (SDGs), WHO guidelines,² PNAISPI, PNAISPN and PNAICFA.

Nursing is made up of integrated, anticipatory and preventive measures, which focus on responding to needs in an articulated way, based on the various sectors in which it participates, with PHC, through which social learning can be experienced, with the capacity to learn new configurations in order to rethink its own trajectory, in the face of emergencies and the complexities of groups in situations of vulnerability.^{5,10-12}

Another issue concerns the debate on health information according to planning and monitoring. In this context, health data can be collected and used to plan interventions for both individuals and communities, taking into account the network involved. This also optimizes service management, adds value to population surveys and better characterizes the impacts of climate change, given that adaptation strategies involve nursing's recognition and assessment skills in monitoring situations.²⁰

In this scenario, nurses can contribute to the sensitive and fair implementation of this type of action, taking into account the intersectionality of interpretation and

application. Thus, influencing exposure and vulnerability to climate-related health problems, which, from this perspective, capture differences and confluences.^{4,11,19}

Processes: collaboration and social participation

Considering the different effects of climate change, such as global warming,⁴ multiple efforts that have direct actions on infrastructure and structure are indispensable. In the same way, the strategies developed must dialogue with various actors and scenarios and with collaborative processes that are critical to the causes and consequences of climate change, in order to ensure that the solutions are contextually relevant and socially just.^{3,9}

These critical collaborative processes include aspects of training and adaptive governance, as well as interdisciplinary links between researchers, educators, activists and communities, to develop integrated research strategies on knowledge and skills to cope with these impacts.^{4,9,10-11} It is also important to strengthen advocacy, participatory research methods and the principle of solidarity between different regions and groups, which are key to ensuring that the integrated body of interlocutors is able to adapt and respond in a timely manner.¹⁹ This also guarantees the inclusion of social actors in decision-making, so that health strategies reflect local needs and knowledge, as elements that promote mitigation.^{4,20}

This conduct recognizes different concepts, existing and silenced disparities and^{5,8,10} adjusts to the indispensability of different peoples and communities, as well as their diversities and socio-economic and regional conditions.^{9,12,20} In this regard, looking at historical and social contexts and the impacts of economic ventures in regions that are important for maintaining global warming, such as the Amazon, there are important scenarios and conditions of access to services among socially exposed groups, especially through PHC, given that this is the main mechanism for health promotion and disease prevention.^{3,5,9,20}

In addition, this ensures that regional specificities are taken into account, as it involves recognizing and valuing the particularities of each region, with the possibility of more precise

approaches that respect local singularities.^{5,9,11} This implies active listening and integration into the decision-making process, as well as ensuring equitable strategies by taking into account the different realities experienced by populations in different regions.

By considering intersectionality, it is recognized that different identity categories (such as race, gender, class and ethnicity) intersect and influence individual and collective experiences, meeting the guidelines of specific SUS policies. By incorporating them into health strategies, they become oriented towards structural inequalities, which allows for the implementation and creation of policies and practices that address the impacts of climate change and combat social inequalities, as set out in global targets.^{2,25}

Furthermore, ancestral knowledge should be valued for its valuable insights into sustainable practices, signaled in documents such as *The Closing Windows*, which offer guidance adapted to the local environment and its changes.^{3,11} Integrating such knowledge into research and health policy-making processes allows for more holistic approaches rooted in local culture,¹¹ which enriches the body of scientific knowledge with diverse perspectives, but also strengthens respect and collaboration between different cultures and communities.

Therefore, some points of attention are needed to develop, foster and ensure collaborative and participatory actions,^{4,12} as shown in Figure 2, which should aggregate multifaceted actions that incorporate diverse elements, establish actions and involve multiple stakeholders.

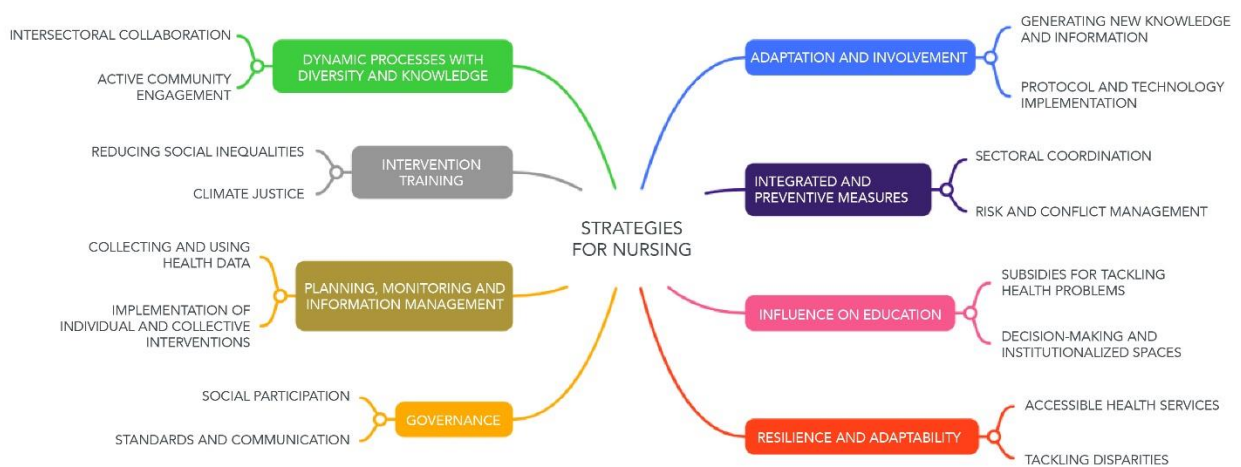


Figure 2 – Attention points in Nursing strategies - Belém, Pará, 2024

Figure 2 shows the capillarities in which nursing can advance and contribute to the discussion. These strategies focus on creating integrative and representative environments, enabling communities and nursing professionals to work together.^{1,25} In view of this, the formation of community partnerships is essential for including diverse voices in the research and planning processes and for carrying out participatory research that incorporates the perspectives and needs of the community, strengthening the process and ensuring that the strategies developed are representative.^{9,11,20}

The revision and adaptation of nursing curricula to include aspects of climate change and environmental health, along with leadership in community projects that address health disparities exacerbated by climate change, highlight the importance of an educational approach and inclusive practice.¹² By implementing these strategies, Nursing responds to emerging environmental challenges and paves the way for environmental and health policies with cohesive and comprehensive responses.^{9,11,20,23} This gives the health area a leading role in the curriculum and can create models, especially in the face of new demands.

Although the SUS faces additional challenges, as well as social and racial inequalities, the integration of different areas, such as Medicine, Nursing, Sociology, Biology, Economics, among others, to formulate a holistic approach to health is timely, as it integrates specialized knowledge.^{4,12} This initiative supports discussions about collective and adaptive governance, from the interdisciplinary perspective of collective health, in order to understand the dynamics surrounding climate change, the populations involved and nursing and the signs of global agreements, such as the 2030 Agenda, which can be presented in concrete actions based on nursing.^{2,20,24}

In this sense, this study was limited to reflecting on the roles of nursing and the society's participation, and did not cover specific risk management aspects. In addition, the analysis was based on reports, which may restrict the application of the reflections in a variety of nursing contexts.

These are important contributions to the fields of nursing and health, including the expansion of nurses' responsibilities and their strategic position in implementing adaptive and safe actions. In this scenario, it also offers implications for education and

training, by proposing the integration of themes such as climate change and environmental health into nursing curricula, given the indispensability of preparing professionals for emerging environmental challenges, and the inclusion of teaching methodologies that consider interdisciplinary and collaborative approaches, connecting nursing to other areas of knowledge and other epistemologies.

Conclusion

This work examined how nursing, by integrating with society, can effectively contribute to trying to mitigate the effects of climate change, but also discussed the relevance of the active participation of society and vulnerable communities in the development of public health strategies. As the largest workforce in the SUS, it is fundamental in this scenario, since its actions can include integrating health and public health surveillance into PHC and promoting adaptive and participatory public health, taking into account local realities and the needs of the most affected populations.

It has been shown that it is essential for the SUS to implement management measures aimed at building strategies to mitigate and cope with climate change, so that professionals can understand and outline processes to manage care according to environmental impacts, preparing them for the challenges ahead. In addition, the incorporation of ancestral knowledge and sustainable practices into policy formulation stands out.

In order to achieve a future that meets these demands, we suggest further research into the interaction between climate change, public health and nursing, with a focus on practical strategies and policies that integrate the voice and needs of local communities. In addition, research is suggested on strengthening health governance, the multifaceted role of the profession in promoting interdisciplinarity and the incorporation of adaptive and resilient approaches in health services, aligned with the processes and goals to be achieved, from the perspective of alignment with global measures.

References

1. Manfrini GC, Treich RS, Rumor PCF, Magagnin AB, Moncada MA, Furtado JR. Primary health care actions in natural disasters. *Texto Contexto Enferm.* 2020;29:e20180256. doi: 10.1590/1980-265X-TCE-2018-0256.

2. United Nations (UN). Department of Economic and Social Affairs. The 17 Goals [Internet]. 2022 [cited 2023 Oct 10]. Available from: <https://sdgs.un.org/goals>.
3. Artaxo P. Mudanças climáticas: caminhos para o Brasil: a construção de uma sociedade minimamente sustentável requer esforços da sociedade com colaboração entre a ciência e os formuladores de políticas públicas. *Ciênc Cult*. 2020;74(4):01-14. doi: 10.5935/2317-6660.20220067.
4. Artaxo P. As três emergências que nossa sociedade enfrenta: saúde, biodiversidade e mudanças climáticas. *Estud Av*. 2020;34:53-66. doi: 10.1590/s0103-4014.2020.34100.005.
5. Prist PR, Sangermano F, Bailey A, Bugni V, Villalos-Segura MC, Pimiento-Quiroga N, et al. Protecting Brazilian Amazon Indigenous territories reduces atmospheric particulates and avoids associated health impacts and costs. *Comun Earth Environment*. 2023;4(34):2023. doi: 10.1038/s43247-023-00704-w.
6. Alberio SHVO, Cunha LM, Lima AVM, Pantoja MS, Cunha VM, Lima CAM. Impacto de fatores ambientais na incidência de Leishmaniose Tegumentar Americana no Estado do Pará. *Rev Eletrônica Acervo Saúde*. 2023;23(7):e13624. doi: 10.25248/reas.e13624.2023.
7. Carvalho BM, Perez LP, Oliveira BFA, Jacobson LSV, Horta MA, Sobral A, et al. Vector-borne diseases in Brazil: climate change and future warming scenarios. *Sustainability Debate*. 2020;11(3):383-404. doi: 10.18472/SustDeb.v11n3.2020.33985.
8. Oliver SL, Ribeiro H. Zika virus syndrome, lack of environmental policies and risks of worsening by cyanobacteria proliferation in a climate change scenario. *Rev Saúde Pública*. 2020;54(83). doi: 10.11606/s1518-8787.2020054002159.
9. Ribeiro PS, Gomes DJC, Souza EB, Nascimento MMM, Nascimento JCS, Oliveira MRS, et al. Influência do desmatamento na temperatura do ar, Estado do Pará. *Rev Bras Geogr Fis*. 2023;16(1):165-76. doi: 10.26848/rbgf.v16.1.p165-176.
10. Andrade LS, Silva JS, Gomes CVA, Souza AM. A meteorologia popular e seu uso em atividades produtivas na comunidade quilombola Mocambo, em Ourém, Pará, Brasil. *Bol Mus Para Emílio Goeldi Ciênc Hum*. 2022;17(2):e20210015. doi: 10.1590/2178-2547-BGOELDI-2021-0015.
11. Santos OP, Melly P, Joost S, Verloo H. Climate change, environmental health, and challenges for nursing discipline. *Int J Environ Res Public Health*. 2023;20(9):5682. doi: 10.3390/ijerph20095682.
12. Santos AB. Somos da Terra. *Piseagrama* [Internet]. 2018 [acesso em 2024 ago 21];12:44-51. Disponível em: https://edisciplinas.usp.br/pluginfile.php/5120556/mod_resource/content/1/BISPO-DOS-SANTOS_Somos%20da%20terra%20-%20Piseagrama.pdf.
13. Intergovernmental Panel on Climate Change (IPCC). Climate Change 2023: synthesis report: summary for policymakers [Internet]. IPCC: Genebra (CH); 2023 [cited 2024 Aug 21]. doi: 10.59327/IPCC/AR6-9789291691647.001.
14. Lancet Countdown. Lancet Countdown: tracking progress on health and climate change [Internet]. 2023 [cited 2024 Aug 21]. Available from: <https://lancetcountdown.org/>.
15. United Nations (UN). United Nations Environment Programme (2022). Emissions Gap Report 2022: the closing window - climate crisis calls for rapid transformation of societies - executive summary [Internet]. Nairobi: UN; 2022 [cited 2024 Aug 21]. Available from: <https://www.unep.org/emissions-gap-report-2022>.

16. Ministério da Saúde (BR). Fundação Nacional de Saúde. Política Nacional de Atenção à Saúde dos Povos Indígenas. Brasília (DF): Ministério da Saúde; 2002.
17. Ministério da Saúde (BR). Secretaria de Gestão Estratégica e Participativa. Departamento de Apoio à Gestão Participativa e ao Controle Social. Política Nacional de Saúde Integral da População Negra : uma política para o SUS. Brasília (DF): Ministério da Saúde; 2017.
18. Ministério da Saúde (BR). Secretaria de Gestão Estratégica e Participativa. Política Nacional de Saúde Integral das Populações do Campo, da Floresta e das Águas. Brasília (DF): Ministério da Saúde; 2014.
19. Kalogirou MR, Olson J, Davidson S. Nursing's metaparadigm, climate change and planetary health. *Nurs Inq.* 2020;27(3):e12356. doi: 10.1111/nin.12356.
20. Dias EMS, Pessoa ZS, Teixeira RLP. Governança adaptativa e segurança hídrica em contexto de mudanças climáticas no semiárido. *Mercator.* 2022;21:e21025. doi: 10.4215/rm2022.e21025.
21. Monken M, Barcellos C. Vigilância em saúde e território utilizado: possibilidades teóricas e metodológicas. *Cad Saúde Pública.* 2005;21(3):898-906. doi: 10.1590/S0102-311X2005000300024.
22. Meneses MN, Quadros JD, Marques GP, Nora CRD, Carneiro FF, Rocha CMF. Práticas de vigilância popular em saúde no Brasil: revisão de escopo. *Ciência Saúde Colet.* 2023;28(9):2553-64. doi: 10.1590/1413-81232023289.13542022.
23. Ribeiro JM, Vaitsman J, Motta JIJ. Sistemas de saúde, mecanismos de governança e porosidade governamental em perspectiva comparada. *Saúde Debate.* 2022;46(Spec No 4):10-25. doi: 10.1590/0103-11042022E401.
24. Padilha LGO, Verschoore JRS. Green Governance: a proposição de construtos de governança coletiva para o desenvolvimento sustentável local. *Ambient Soc.* 2013;16(2):153-74. doi: 10.1590/S1414-753X2013000200009.
25. Manfrini GC, Rodrigues J, Meirelles BHS, Barroso TMMDA, Paim SMS, Ribeiro EAW, et al. Health teams' role in disaster risk management. *Texto Contexto Enferm.* 2023;32:e20220322. doi: 10.1590/1980-265X-TCE-2022-0322en

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