







## ORIGINAL ARTICLE

# HEALTH AND MINING PRACTICES IN INDIGENOUS TERRITORIES

### HIGHLIGHTS

1. Mining activities expanded during the pandemic.
2. The weakening of regulatory agencies has driven mining activities.
3. Increased vulnerability to health issues among indigenous peoples.

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### ABSTRACT

**Objective:** To identify the repercussions of mining practices on Indigenous Territories on health. **Method:** A qualitative documentary study was conducted, based on online news articles from Brazilian and international newspapers published between March 2020 and December 2022. Data collection took place between December and January 2023. A content analysis was performed. **Results:** A total of 28 news articles from online newspapers were identified, revealing two core themes: Mining and Threats to Indigenous Peoples; and Exposure of Indigenous Peoples' Health. **Conclusion:** The expansion of illegal mining is evident, posing a threat to the isolation of indigenous peoples and weakening the control of health-related issues by epidemiological services. This research contributes to raising awareness about mining activities and indigenous health, enabling nurses to better understand emerging health issues and adapt their care practices.

**KEYWORDS:** Indigenous Peoples' Health; Mining; Environmental Pollution; Indigenous Peoples; Public Health.

### HOW TO REFERENCE THIS ARTICLE:

Pacheco W da S, Santos D de N dos, Nascimento MTA, Mesquita D da S, Naka KS, Castro NJC de. Health and mining practices in Indigenous Territories. *Cogitare Enferm.* [Internet]. 2024 [cited "insert year, month, day"]; 29. Available from: <https://dx.doi.org/10.1590/ce.v29i0.93848>

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## INTRODUCTION

The health of indigenous peoples is an inalienable right, achieved through public policies, culminating in the creation of the Indigenous Health Subsystem (SASISUS). However, this condition, while significant, carries echoes of persistent colonialism, as predominantly biomedical approaches are identified<sup>1</sup>, neglecting the diversity and uniqueness of indigenous peoples. The relevance of this debate cannot be overlooked, considering the multiple issues surrounding health territories and their surroundings, balancing the intercultural context<sup>2-4</sup> in the face of persistent historical inequalities and social impacts faced by these peoples.

One of the most pressing challenges is the impact of mining on Indigenous Territories (IT)<sup>2</sup>. Illegal mining practices and exposure to mercury (Hg) directly affect the health of indigenous peoples, highlighting the need to implement surveillance programs to mitigate the already identified impacts of metal exposure among indigenous populations<sup>2-4</sup>.

Hg is a toxic metal used in gold extraction to facilitate the collection of the precious metal. However, exposure to Hg can lead to acute intoxication with high concentrations and chronic intoxication (long-term), which can result in dysfunctions in the central nervous, renal, and pulmonary systems. Due to the neurotoxicity of Hg, individuals may experience muscle tremors, emotional instability, sleep disturbances, hallucinations, memory loss, headaches, muscle weakness, anorexia, and loss of sensitivity. In the lungs, symptoms such as shortness of breath, fever, fatigue, and chest pain have been reported. A metallic taste in the mouth and gingivitis have also been observed<sup>5,6</sup>.

Illegal mining is also often associated with a web of violence and exploitation, including weapons, drugs, and even prostitution, which can result in an increase in sexually transmitted infections<sup>7</sup>. There is also vulnerability among indigenous peoples regarding food and river contamination by Hg, as approximately 20% of the Hg used in gold extraction is discharged into the rivers<sup>8</sup>. Fish easily absorb Hg and accumulate it in their tissues as methylmercury (MeHg), but they exhibit gradual elimination. Therefore, the higher the trophic level, the higher the concentrations of this metal, causing harmful effects on human health since fish constitute the primary protein source for indigenous peoples<sup>5-7</sup>.

The situation is exacerbated by the vulnerability of indigenous peoples to the impacts of the dominant economic model<sup>1,9,10</sup> and by health crises that demand urgent control of health risks, such as the COVID-19 pandemic, which amplified the vulnerabilities of indigenous peoples. Invasions by illegal loggers, land grabbers, missionaries, and miners acted as "vectors" for the spread of the virus<sup>11</sup>, and with the weaknesses in public policies, environmental surveillance, and health issues were exacerbated during this pandemic period due to social isolation and the implementation of sanitary barriers in villages, further magnifying the vulnerabilities of indigenous peoples<sup>7</sup>.

In this scenario, the ongoing presence and flexibility of mining and prospecting activities alarmingly threaten the livelihoods and health of indigenous peoples<sup>2-4</sup>. These activities not only endanger the physical well-being of the inhabitants of these areas but also violate the sacred constitutional rights of these communities, including the right to control their territories, resources, cultures, and traditions, including their rights to health<sup>10</sup>.

Due to weaknesses in environmental legislation, indigenous peoples have been subjected to recurrent attacks on their territories in recent years<sup>7</sup>. This debate has been noticed in widely circulated journalism. Recognition and open discussion of these issues in these vehicles are important for fostering critical reflection on the topic and expanding awareness of the situation in society. This, in turn, can assist healthcare professionals in developing a deeper understanding of the specific needs of indigenous peoples, taking into account the impacts of mining, interculturality, and the importance of documenting facts to comprehend specific vulnerabilities.

Health records can highlight conflicts that undermine the effectiveness of the system, hindering the implementation of effective actions within the Health Care Network (Rede de Atenção à Saúde - RAS) and having a negative impact on the monitoring and control of diseases among indigenous peoples. Nursing, as a part of this team, plays a fundamental role in promoting the health and well-being of indigenous peoples, recognizing the complexities of their cultural, social, and health realities, with a focus on identifying conflicts that affect the RAS.

Thus, it is understood that information about these events has been disseminated and discussed but has been studied relatively little as a source of information. This can provide elements for a broader debate on the health and vulnerabilities of indigenous peoples. This study aimed to identify the repercussions of mining practices in IT on health.

## METHOD

This is a documentary study with a qualitative approach, and it was conducted using newspaper articles that had not yet been analyzed by scientific committees, meaning that the materials were considered primary sources<sup>13</sup>. The research was carried out through a clipping service, which involves research and data collection to monitor, analyze, and archive information from various media sources, providing an overview of what is being reported<sup>14</sup>. It took place during the months of December 2022 to January 2023. In the initial search, the keywords "Mining," "Indigenous," and "Health" were used.

The inclusion criteria encompassed international, national, and regional digital newspapers with free access, containing articles published between March 2020 and December 2022, addressing the topics of "indigenous health" and "repercussions of mining in IT." The articles were cataloged in a Microsoft Excel spreadsheet to facilitate organization by the author.

According to the inclusion criteria, articles published in digital newspapers with international coverage (El País), national coverage (G1, O Globo, Brasil de Fato, UOL Notícias, BBC News Brasil), and regional coverage (Correio Braziliense, Folha de Pernambuco, Carta Capital, Folha Boa Vista, G1 Roraima, and Amazônia Real) were selected.

The analysis of the results was based on Bardin's content analysis method<sup>15</sup>. Therefore, the articles were read in their entirety for eligibility purposes, and interpretations of the content were made, resulting in sets of core meanings with similar ideas and expressions that were related to each other: "Mining and Threats to Indigenous Peoples" and "Exposure of Indigenous Peoples' Health."

No ethical approval from a Research Ethics Committee was required since the contents are in the public domain.

## RESULTS

The final sample consisted of 28 news articles linked to online headlines, available between March 2020 and December 2022, during the COVID-19 pandemic period. The information is presented in Table 1.

**Table 1** - List of Headlines. Belém, PA, Brazil, 2023

Number	Newspaper and date	Headlines	Subject
1	<i>El País</i> 04/23/2020	The dual threat to Amazon peoples	Health
2	G1 12/06/2020	Mining in the Amazon has set records for deforestation in the past two years and is encroaching on conservation areas	Risks of mining
3	Folha de Pernambuco 03/23/2021	Illegal mining is increasing in Yanomami Indigenous Territories in Brazil, according to a study	Violence and risks of invasion
4	Brasil de Fato 04/08/2021	Understand how illegal mining occurs in Indigenous Territories in the Northern Region of Brazil	Risks of invasion and consequences
5	G1 05/27/2021	Child malnutrition, mining, and COVID: Understand the issues affecting the Yanomami Indigenous Territories	Health and politics
6	Correio Braziliense 06/05/2021	Attacks by illegal miners on indigenous people reflect the growth of illegal activity	Risks of invasion, violence, and politics
7	<i>El País</i> 06/22/2021	Mining and gold prospecting occupy an area larger than Belgium within the Yanomami Indigenous Territory	Violence, health, and politics
8	UOL Notícias 08/09/2021	Indigenous people denounce Bolsonaro in The Hague for genocide and reference the former Yugoslavia	Politics
9	G1 08/25/2021	'Combo of death': Understand why five bills in Congress are seen as threats to the environment, quilombolas, and indigenous people	Politics
10	<i>El País</i> 10/15/2021	Two Yanomami children killed, sucked into an illegal ore mining dredge	Violence and risks of invasion
11	G1 11/21/2021	Funai prohibits Fiocruz team from providing assistance to the Yanomami amid malnutrition, malaria outbreak, and government neglect	Health
12	UOL Notícias 12/01/2021	Illegal mining destroys 600 km of rivers in Indigenous Territories in Pará in five years	Risks of invasion and health
13	Carta Capital 02/13/2022	Decree on mining could lead to a catastrophe in the Amazon	Politics and health
14	BBC News Brasil 02/20/2022	The death of elders from COVID-19 threatens the cultural heritage of indigenous people in the Amazon	Health
15	UOL Notícias 03/11/2022	UN: Mining bill will cause unprecedented and irreparable damage to Brazil	Risks of invasion and Bill.

16	Brasil de Fato 04/11/2022	Illegal mining brings hunger, disease, and sexual exploitation to the Yanomami territory, according to a study	Health and consequences
17	G1 Roraima 04/19/2022	Guns and alcohol: How young Yanomami are recruited for work in illegal mining	Risks of invasion
18	BBC News Brasil 04/19/2022	Indigenous people aim to increase their presence in Congress to unlock land demarcations and curb illegal mining	Politics
19	Amazônia Real 04/20/2022	Gold prospectors invade a village in the Javari Valley and force indigenous people to consume alcohol and gasoline	Invasion and violence
20	Brasil de Fato 04/26/2022	Gold prospectors rape and murder a 12-year-old Yanomami, says community leader	Violence
21	BBC News Brasil 05/04/2022	What is known about the invasion of gold prospectors in the Yanomami territory?	Risk of invasion and violence
22	UOL Notícias 06/28/2021	The Yanomami community held hostage by gunfire and explosives from gold prospectors for over a month	Violence
23	Uol Notícias 07/07/2021	What is Bill 490, and how does it affect the lives of indigenous peoples?	Politics
24	UOL Notícias 05/20/2021	Indigenous people report another attack by gold prospectors on Yanomami land.	Politics
25	Amazônia Real 07/20/2022	Mining threatens isolated indigenous peoples: 3- How does mining affect these peoples?	Consequences of mining
26	UOL Notícias 06/06/2022	Gold mining doubles with Bolsonaro's attacks on the Yanomami Territory, says a study.	Politics and the advancement of mining
27	Brasil de Fato 10/06/2022	Yanomami: Ambush by gold prospectors kills indigenous person and leaves teenager in critical condition.	Violence
28	Folha BV 11/01/2022	Indigenous people report attacks on Yanomamis; a young person was shot.	Violence

Source: Authors, 2023.

Headlines 16, 19, 21, and 25 highlight the consequences of gold prospectors' invasion and their encroachment on IT, while headlines two, four, six, 12, 15, and 17 depict the risks of gold mining invasion, emphasizing environmental and social impact, increased violence, sexual exploitation, and risks to indigenous health.

Headlines one, five, 11, and 14 portray mining as detrimental to indigenous health, causing the transmission of diseases to which they have no immunity, such as COVID-19. Meanwhile, headlines eight, nine, 13, 18, 23, 24, and 26 cover political topics, highlighting the lack of public policies for indigenous people, as well as government neglect towards indigenous communities. They also criticize the federal government's conduct in combating illegal mining.

Headlines three, seven, 10, 20, 22, 27, and 28 highlight the violence caused by

gold prospectors, particularly illegal ones, against the Yanomami and other ethnic groups, emphasizing the federal government's neglect regarding calls for help from organizations.

The content analysis of the articles in the investigated newspapers allowed for the classification of three core themes: (1) Mining and threats to indigenous peoples; (2) Health of the indigenous population.

### **Core Theme 1: Mining and Threats to Indigenous Peoples**

Identifies the consequences of environmental disasters and health issues among indigenous people related to exposure to Hg and describes cases of physical and sexual violence against children, adolescents, and women, particularly in Yanomami communities.

*The gold prospectors have destroyed our forest. We, the leaders, don't want your gold prospectors! Our game has already disappeared! The children are already suffering from skin diseases and diarrhea! Our children are already sick!* (15)

*Mining harms the entire riverbed, causing an impact on the entire surrounding ecosystem.* (12)

*With these invaders, our concern is also about sexual exploitation. They can influence drug use, cause deforestation, and pollution. Our relatives rely on agriculture and fishing. They (gold prospectors) may be deceiving leaders with money and gold extraction.* (19)

*Unfortunately, episodes of sexual violence against Yanomami children, adolescents, and women perpetrated by invading gold prospectors have been documented in other regions.* (21)

*They can also affect isolated indigenous peoples through environmental pollution, exposing indigenous populations to mercury and diseases that are common in society, given that these populations lack immunity to these diseases..* (25)

*The mining is not sustainable... Along with mining comes drugs, prostitution, alcohol, clandestine airstrips, and machinery that creates airstrips for planes because there is no oversight.* (13)

Based on the analyzed newspapers, it was possible to highlight the recruitment carried out by gold prospectors among indigenous people, mercury contamination of indigenous populations, and the social and cultural impacts.

*It leads to various acts of violence against the indigenous population, such as death threats, murders, physical assault, attacks on communities, exploitation, and humiliation.* (04)

*If you have a daughter and give her to me, I will bring in a large amount of food that you will eat! You will be fed!* (16)

*Mining contaminates rivers and people, leads to violence against traditional communities, and triggers other predatory actions.* (02)

*The shamans say that the mountains, rivers, and forests can't withstand what the white man is doing to nature... mining is destroying not only sacred places but also the entire culture of a people.* (04)

*Mining impacts everything: crops, fishing, lands, and, obviously, the most directly and immediately affected are the indigenous communities...* (04)

*This threat is further reinforced by the constant presence of evangelical missionaries... a threat to cultural integrity. They can be vectors for the transmission of COVID-19 to*

communities. (04)

*High risk of land conflicts involving indigenous territories, further exposing indigenous peoples to rural violence, contamination from toxic pollutants, and contagious diseases. (15)*

### **Core Theme 2: The health of the indigenous population**

The health of indigenous people is highlighted in the analyzed reports, as the advancement of mining and the proximity of isolated peoples to gold prospectors contribute to the spread of contagious diseases, to which indigenous people have no immunity, such as malaria and COVID-19.

*The Sateré-Mawé ethnic group is one of the indigenous communities that has already been affected by the coronavirus, with the death of a tuxaua, an elder leader. (01)*

*The gold prospectors have opened pathways through rivers, air, and land in the Yanomami area. This is a significant threat to our health. (01)*

*Since March of last year, the beginning of the pandemic, there have been 1,640 cases of infected indigenous people, and the number of deaths has reached 13. One of these victims was the 15-year-old teenager Alvanei Xirixana, the first COVID-related death among indigenous people registered in Roraima. (01)*

Another point highlighted is the cases of malnutrition, resulting in the health collapse of the Yanomami. The reports also criticize the performance of government agencies responsible for implementing health policies in the villages.

*This is very serious. My people are dying, the children are dying. (11)*

*The scourge of malnutrition is directly linked to another problem in the region: illegal gold mining. The extraction of ore with mercury contaminates rivers, kills animals, and impacts the availability of food. (11)*

*As for the special attention that should be provided by the health district, it is not happening [...]. (11)*

## **DISCUSSION**

Territorial conflicts in Brazil, linked to ethno-environmental issues, have their roots in European colonization, a process that still persists, with changes only in its strategies of domination<sup>16-17</sup>. The investigation of mining impacts on IT reveals a worrying trend: protective institutions are losing strength, while neoliberal interests advance, disregarding the rights of indigenous peoples<sup>11</sup>.

As indigenous culture and their territories are intrinsically linked to the ecosystems they inhabit, environmental degradation can directly affect traditional indigenous territories<sup>18</sup>. Such conditions are related to major financial, extractive, agro-industrial, and commodity entities that exploit and privatize public lands, disregarding the negative impacts that result<sup>19</sup>.

As an example of territorial conflicts, there is the case of the invasion of Yanomami IT, a vast territory of almost 10 million hectares between the states of Amazonas and Roraima, where episodes of intense violence and deaths of indigenous people have occurred<sup>4</sup>, reflecting the expansion of illegal mining in Brazil. The report "Complicity in Destruction"

confirmed a 62% increase in deforestation related to mining in the Amazon in 2021 compared to 2018, as well as deaths of environmental defenders, with 722 conflict cases and 17 deaths in 2020<sup>20</sup>.

The years from 2019 to 2022 were challenging for defenders of Indigenous Territories (ITs)<sup>7-9</sup>. Despite constitutional protection and international norms, such as the International Labor Organization's Convention No. 169, colonial practices persist in Brazil, leading to genocide. The government in power at the time relaxed environmental legislation, exacerbating the situation<sup>17</sup>. For example, Bill 191/2020 aimed to authorize mining in IT, weakening the right to prior, free, and informed consultation. Additionally, bills in Congress also threatened the indigenous peoples' right to their lands, such as Bill 2,633/2020, which expanded the regularization of invaded lands<sup>21</sup>.

These environmental relaxation measures related to gold extraction have contributed to the contamination of water, soil, and the deterioration of the health of various indigenous peoples and traditional communities<sup>2-4</sup>. For example, the Munduruku and Sai Cinza IT have approximately 606 kilometers of rivers affected since 2017. These facts reflect governmental negligence and the "risk society" described by Ulrich Beck, in which the production and distribution of wealth are accompanied by risks<sup>22</sup>, such as diseases like malaria and various forms of violence.

Finally, these interferences go against the indigenous philosophy of "bem-viver," (good living) based on complementarity, harmony, and reciprocity with nature, in contrast to capitalist competitiveness<sup>1</sup>. Even as they prioritize harmony with nature, these peoples have their dynamics altered by such enterprises due to neoliberal logic<sup>11</sup>, which clearly impacts health<sup>2,3,4</sup>.

### **Inclusion of various challenges faced by indigenous peoples**

The records in the core themes reflect how the fragility of environmental legislation, government policy, and the pandemic have accelerated problems in indigenous territories in recent years, favoring invasions and an increase in illegal mining. These issues are related to the exposure of indigenous peoples to the risks of infections and violence, which could lead to their extinction. History shows that contact between indigenous and non-indigenous people has contributed to the spread of diseases, causing epidemics and high mortality among indigenous populations<sup>23</sup>.

Contact with invaders has led to the transmission of diseases to indigenous peoples<sup>24</sup>, contributing to the emergence of health problems related to mining. Among the various consequences, the exposure of indigenous people to factors that contribute to their illness is directly related to the use of Hg by gold prospectors<sup>2,3,4</sup>. This is highly detrimental to human health, causing imbalance in the body and neurological symptoms, vomiting, diarrhea, facial tremors, and even death<sup>4</sup>, symptoms that should be identified and understood by nursing professionals, who have a relevant role within and around IT.

Nursing, through Primary Health Care (PHC), can identify immediate needs, leading efforts in epidemiological surveillance, disease monitoring, and tracking<sup>25</sup>, supported by the development of health education actions and case management.

It is known that indigenous exposure to Hg reflects the impact on biodiversity, contaminating rivers and food sources, and on the health of indigenous people, leading to diarrhea, skin lesions, and other health problems<sup>24</sup>. In this regard, nursing can advise at-risk groups to undergo regular health exams and make referrals when exposure to Hg is identified<sup>25</sup>.

Furthermore, transformations and exploitation in the vicinity of Indigenous Territories intensify violence due to the resistance of indigenous people. This violence is physical,



moral, cognitive, and cultural, and is perpetrated by invaders of IT, and it can be identified through actions of expropriation of IT, the suppression of cultural practices, the annihilation of traditional health knowledge, and acts against indigenous life<sup>26</sup>.

Sexual violence in adolescents and adults also had repercussions, and the consequences and traumas vary according to the sociocultural context of each ethnicity<sup>27-28</sup>. It affects the psychosocial development of child victims of sexual violence, leading to extreme and sudden changes in behavior and personality, as well as physical changes such as bruises, genital lacerations, pain, and body injuries, and a lack of understanding of the nature of the act as violence<sup>28</sup>.

Another point is the intensification of Sexually Transmitted Infections (STIs) in these regions. It is evident that mining activities contribute to the emergence of STIs in these indigenous regions due to contact with prostitution, which has raised concerns for health agencies. This is because cases of STIs among indigenous people and populations in mining-affected areas have increased<sup>29</sup>.

These health issues highlight the need for healthcare teams, especially nurses, to identify cases of violence on-site and provide psychological support to communities affected by mining impacts, as there can be significant psychological consequences<sup>25</sup> due to threats of territory invasion and health concerns<sup>20,24</sup>.

In this context, the convergence of healthcare, psychological, and legal fields becomes essential for interdisciplinary efforts, given the limitations of Primary Health Care (PHC) actions within the villages. Referring cases of violence to medium and high complexity levels of the Brazilian Unified Health System (SUS), located in urban areas, brings about situations involving organizational and cultural differences that pose additional challenges for indigenous users<sup>6,10</sup>.

Professionals working in the Special Indigenous Health Districts (DSEI), in these cases, in addition to their technical skills, would consider the cultural and historical nuances of the peoples they serve<sup>1</sup>. This allows them to identify, address, and properly refer cases of physical violence<sup>27,28</sup> through the National Foundation of Indigenous Peoples (FUNAI), the Center for Reference and Social Assistance (CRAS), the Center for Specialized Reference in Social Assistance (CREAS), mobilizing preventive approaches and support to strengthen a protection network<sup>6,27,28</sup>.

Regarding cultural and cognitive violence, it is essential to ensure that indigenous people themselves are protagonists in the preservation of their knowledge and traditions<sup>1,6</sup>. This can be achieved through dialogue channels between indigenous leaders and healthcare professionals to ensure that public policies respect and strengthen the autonomy and cultural diversity of indigenous peoples, as can be addressed through Indigenous People's Health Conferences<sup>6</sup>.

In the face of moral violence, there is a demand for a psychosocial support network that is immersed in the indigenous worldview<sup>1</sup> and with active collaboration from human rights defense institutions such as the State and Federal Public Prosecutors' Offices. In these cases, there is a need for alignment with nurses in Indigenous PHC through actions and programs such as the Indigenous Health Knowledge Articulation Program (PASSI), through initiatives for specialized professional training<sup>10</sup>.

Regarding the context of the COVID-19 pandemic, it became evident that the invasion of gold miners and direct contact with non-indigenous people facilitated the spread of the virus<sup>25</sup>, and the weaknesses in defending the human rights of indigenous peoples were exposed<sup>5,9</sup>. This demonstrates that federal institutions responsible for the defense of indigenous peoples neglected and denied resources for the control and combat of COVID-19 in indigenous villages, as evidenced in core theme 1.

The nursing response to health emergencies, such as COVID-19, has been observed

throughout history, and it was no different as identified in the findings regarding the healthcare team's role. Therefore, considering the facts, nursing care can be comprehensive and interdisciplinary, addressing issues of physical, mental, cultural, and environmental health, by monitoring the spread of diseases<sup>2,3</sup> and health issues, with efforts through health education to mitigate the impacts of mining<sup>25</sup>.

### **Non-protective measures at the federal level in the last five years and their impact on the worsening of diseases due to the fragility of the SASISUS.**

It is essential to highlight ineffective procedures and actions in the face of the pandemic. These ineffective actions, which should have been coordinated with municipalities and states, resulted in weakened reporting, leading to the worsening of diseases<sup>9</sup>. Monitoring cases by the nursing team, especially those working within ITs, facilitates local decision-making that has an impact on actions directed by government authorities through official records. This demonstrates the essential role of professionals working within these territories<sup>24</sup> in combating diseases such as malaria, which has seen a significant increase in cases.

To achieve this, it is necessary to strengthen intersectoriality and interculturality as a crucial component in intervening in the determinants of health<sup>6,10</sup>, with the aim of developing broader and more effective initiatives, as well as the active participation of indigenous peoples in the process<sup>1,7</sup>. This is the key to ensuring the continuity and sustainability of indigenous medicinal practices<sup>1</sup>, which can be integrated with healthcare professionals, especially nursing, and incorporated into care practices.

The limitation of specific actions in the territories to mitigate the effects of mining is also highlighted in the news articles. Headline 11 illustrates the devastating impact of a government that went against the public interest and favored neoliberal initiatives<sup>9</sup>. This situation was exacerbated by the newspapers, which showed the government's negative contribution to monitoring measures due to political authoritarianism<sup>9</sup>.

This implies, initially, the fragility of the SASISUS due to a decrease in resources for indigenous health and the deterioration of the sector<sup>9</sup>. It affects the work of healthcare professionals, especially nurses, who are in the villages working in PHC, which in turn reflects on the effective monitoring and responses to events<sup>7,8</sup>, such as the healthcare center for the Yanomamis<sup>4</sup>.

It is important to emphasize that the development of effective strategies, aligned with indigenous health knowledge<sup>1</sup>, needs to encompass various dimensions, such as the promotion, protection, and recovery of health in the face of the impacts of mining<sup>2,4</sup>, as identified in the newspapers regarding events in the SASISUS, especially regarding malaria, child malnutrition, Hg poisoning, and COVID-19<sup>4,5,7,12</sup>.

Due to the identified weaknesses, nursing can develop initiatives such as advocating for the right to health, promoting intersectoral approaches that encourage intercultural<sup>1</sup> and interdisciplinary approaches in the provision of healthcare<sup>25</sup>, supporting the social participation of indigenous peoples in the development and implementation of health policies<sup>7</sup>, monitoring and evaluating the systems involved, and being able to identify diseases and health issues early and intervene effectively<sup>25</sup>.

The study is limited by the generalization of results. Due to the cultural, social, and geographical diversity of indigenous peoples, the results obtained in a specific group or region may not be generalizable to all indigenous peoples. These limitations emphasize the need for future studies to address these issues and continue investigating the repercussions of mining in indigenous territories specific to each ethnicity.

## FINAL CONSIDERATIONS

In conclusion, the accelerated expansion of mining activities in ITs was driven by the weakening of regulatory bodies under an antidemocratic-leaning government, intensifying the devastation of these areas and increasing the vulnerability of these populations, both from an epidemiological and environmental perspective.

The analyzed headlines, in their reports, highlighted the risks associated with an exclusive government that promotes mining in ITs and uses the authority of its position to engage in actions that contribute to invasions in these territories. Therefore, it is important to identify the repercussions during critical periods to foster discussions about the health and vulnerability of indigenous peoples and the impacts of government policies that disregard the rights of these populations.

Furthermore, the study underscores the need to implement strategies for collective participation, particularly in the formation of DSEI teams. This involves engaging indigenous peoples in discussions and decision-making processes to develop effective measures that integrate their knowledge with the healthcare system and territorial protection.

The research contributes to raising awareness of the relationship between mining activities and indigenous health, enabling nurses to better understand emerging health issues and adapt their care practices. This includes the identification of epidemiological, environmental, and indigenous rights risk factors, which, of course, can provide support for the training and work of nurses in intercultural contexts and their social and political role through inclusive strategies.

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Received: 01/08/2023

Approved: 08/10/2023

Associate editor: Dra. Luciana Kalinke

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ISSN 2176-9133



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