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Intersections between Medicine and Yanomami Cosmology: an Ethnographic Study in Health

Intersecções entre Medicina e Cosmologia Yanomami: um estudo etnográfico em saúde

Intersecciones entre la Medicina y la Cosmología Yanomami: un Estudio Etnográfico en Salud

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Abstract:
Objective: to analyze the intersections between medical practices and Yanomami cosmology, based on an ethnographic approach to understand the challenges faced in health care in indigenous contexts. **Methods:** an ethnographic experience report based on participant observation and field diary, by a doctor working in the Yanomami Indigenous Territory in 2019, within the scope of the Mais Médicos Program. The study included daily interactions, allowing immersion in local health practices and in the relationship between biomedical and traditional knowledge. Data analysis was based on an ethnographic perspective, aiming to identify patterns, meanings and relevant interactions in the context of medical practice. **Results:** language barriers were found that hinder communication and access to care, in addition to the impact of alcohol consumption on the social structure, generating conflicts and impairing adherence to treatments. The precarious infrastructure and logistical difficulties compromised both care and working conditions. Tension between biomedical and traditional knowledge was also observed, influencing the acceptance of medical interventions. **Conclusion:** medical work in regions such as the Yanomami indigenous reserve is challenging and requires specific technical and practical skills in an environment of deficiencies in health care.
Keywords: Health of Indigenous Populations; Health Consortia; Anthropology, Cultural; Physicians; Health Services, Indigenous.

Resumo:
Objetivo: analisar as intersecções entre práticas médicas e a cosmologia Yanomami, com base em uma abordagem etnográfica para compreender os desafios enfrentados na assistência à saúde em contextos indígenas. **Método**: relato de experiência com base etnográfica baseada na observação participante e diário de campo, por um médico atuante na Terra Indígena Yanomami durante o ano de 2019, no âmbito do Programa Mais Médicos. O estudo incluiu interações cotidianas, permitindo a imersão em práticas locais de saúde e na relação entre saberes biomédicos e tradicionais. A análise de dados se deu com base na perspectiva etnográfica, visando identificar padrões, significados e interações relevantes no contexto da prática médica. **Resultados**: verificou-se barreiras linguísticas que dificultam a comunicação e o acesso ao cuidado, além do impacto do consumo de álcool na estrutura social, gerando conflitos e prejudicando a adesão aos tratamentos. A precariedade da infraestrutura e as dificuldades logísticas comprometeram tanto o atendimento quanto as condições de trabalho. Observou-se ainda a tensão entre saberes biomédicos e tradicionais, influenciando a aceitação das intervenções médicas. **Conclusão**: o trabalho médico em regiões como a reserva indígena Yanomami é desafiador e requer habilidades técnicas e práticas específicas num ambiente de carências na assistência à saúde.
Palavras-chave: Saúde das Populações Indígenas; Consórcios de Saúde; Antropologia Cultural; Médicos; Serviços de Saúde Indígena.

Resumen:
Objetivo: analizar las intersecciones entre las prácticas médicas y la cosmología Yanomami, basándose en un enfoque etnográfico para comprender los desafíos enfrentados en la atención sanitaria en contextos indígenas. **Método**: relato de experiencia con base etnográfica fundamentada en la observación participante y el diario de campo, realizado por un médico que trabajó en la Tierra Indígena Yanomami durante el año 2019, en el marco del Programa Más Médicos. El estudio incluyó interacciones cotidianas, permitiendo la inmersión en las prácticas locales de salud y en la relación entre los saberes biomédicos y tradicionales. El análisis de datos se llevó a cabo desde una perspectiva etnográfica, con el objetivo de identificar patrones, significados e interacciones relevantes en el contexto de la práctica médica. **Resultados**: se constataron barreras lingüísticas que dificultan la comunicación y el acceso a la atención, así como el impacto del consumo de alcohol en la estructura social, generando conflictos y perjudicando la adherencia a los tratamientos. La precariedad de la infraestructura y las dificultades logísticas comprometieron tanto la atención como las condiciones de trabajo. También se observó la tensión entre los saberes biomédicos y tradicionales, que influyó en la aceptación de las intervenciones médicas. **Conclusión**: el trabajo médico en regiones como la reserva indígena Yanomami es desafiante y requiere habilidades técnicas y prácticas específicas en un entorno caracterizado por carencias en la atención sanitaria.
Palabras-clave: Salud de las Poblaciones Indígenas; Consorcios de Salud; Antropología Cultural; Médicos; Servicios de Salud Indígena.

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INTRODUCTION

The Yanomami Indigenous Territory, located in the Amazon region, is one of the largest and most remote indigenous protected areas in Brazil. It covers approximately 96,650 km^2 and home to more than 27,000 people from the Yanomami and Ye'kwana ethnic groups[1]. Since their first significant contact with non-indigenous society in the 1940s, the Yanomami have faced persistent challenges, such as invasions by illegal miners, deforestation, conflicts, and severe health problems, including malaria outbreaks and malnutrition[2]. The official demarcation of their lands in 1992 represented a major victory, but external threats continue to impact their way of life and the health of their communities.

The health of indigenous populations in Brazil is shaped by historical and structural challenges that reflect the impact of geographic and cultural distance from non-indigenous society. This distance contributes to the vulnerability of these groups, hindering their access to adequate health services and perpetuating health inequities. The factors such as language barriers, cultural differences and geographic isolation aggravate the exposure of these populations to infectious diseases, malnutrition and maternal and child mortality. Furthermore, precarious socioeconomic conditions, associated with environmental degradation and violence in indigenous territories, aggravate the vulnerability of these populations[3].

In the Yanomami Indigenous Territory, these challenges manifest themselves as recurrent outbreaks of malaria, child malnutrition, high maternal and child mortality rates, as well as respiratory and endemic diseases. Invasions by illegal miners in the Yanomami Indigenous Land further worsen public health problems, due to mercury contamination in rivers and the introduction of infectious diseases. Limited access to basic sanitation and drinking water also contributes to the vulnerability of indigenous populations to diseases[4-5].

The Mais Médicos Program was introduced to address the shortage of health professionals in remote regions, particularly among indigenous populations who struggle to access medical care. The presence of doctors in indigenous areas in Brazil has always been insufficient, especially in hard-to-reach places such as the Yanomami territory, where communities are spread across vast forested and hard to navigate areas. The Mais Médicos Program, created in 2013, aimed to address this gap by allocating Brazilian and foreign doctors, with an emphasis on serving vulnerable populations, whose rates of infant mortality and infectious diseases, such as malaria and tuberculosis, are significantly higher than the national average[6-7].

The insertion of health professionals in indigenous contexts has uncovered challenges that go beyond biomedical care, including cultural conflicts, language barriers, and tensions

between traditional knowledge and Western medical practices[8]. Indigenous health cannot be understood in isolation from the cosmology and symbolic systems that structure the social life of these peoples, and it is essential to consider the intersections between Western medicine and traditional knowledge for interculturally sensitive health practices[9].

The program's implementation in the Yanomami Territory has also faced criticism in other areas, especially regarding the permanence of professionals in the region and the sustainability of the improvements observed. Doctors had to quickly adapt to very different working conditions, often without adequate health infrastructure or advanced diagnostic support. The temporary nature of most participating doctors and the difficulties in maintaining a stable health team compromise long-term results. For improvements in health care to be lasting, it is necessary to strengthen not only the presence of professionals, but also the local health infrastructure and the training of indigenous health agents, who can mediate contact between doctors and communities[10].

Nevertheless, the program has led to important advancements in access to primary care, with increased vaccination coverage and improvements in managing endemic infectious diseases, such as malaria. In addition, the doctors in the program have played a central role in health education for indigenous communities, contributing to a positive impact on local public health[11-12].

This study aims to analyze the intersections between medical practices and Yanomami cosmology, through an ethnographic approach to understand the challenges faced in health care in indigenous contexts.

METHODS

This study is based on an ethnographic understanding of a report by a health professional. The report describes the experience of a doctor who worked in the Yanomami Indigenous Territory, in the state of Roraima, Brazil, in 2019, as part of the Mais Médicos Program.

The experience is described based on the social, cultural and logistical context that directly influenced health practices in the region. The Yanomami Indigenous Territory was chosen due to the significance of the area as one of the largest and most isolated indigenous regions in the Amazon, where access to healthcare is severely hindered by geographic and socioeconomic challenges. The 12-month period, corresponding to the year 2019, was selected to allow continuous observation of health dynamics and interaction with the local population

at various seasonal and crisis moments, such as the intensification of the malaria outbreak and the presence of illegal miners.

Data collection was carried out through participant observation, with the primary participant being the physician who worked and systematically recorded the researcher's experiences during his medical work in the Yanomami Indigenous Territory in 2019. Notes were taken daily, using various media, such as field notebooks, the researcher's mobile phone and other available resources, according to local conditions. These records included descriptions of clinical situations, interactions with the Yanomami and Ye'kwana populations, logistical challenges and personal reflections on health practices and cultural aspects observed.

At the end of each month, the researcher systematized the data by transferring and organizing the notes in digital files on the computer. This process allowed for the review, supplementation and critical reflection on the information collected. This contributed to the identification of emerging patterns and themes relevant to the ethnographic analysis.

The study did not involve formal interviews, but was based on daily observations and interactions with the populations served. Data were collected through participant observation, and data analysis occurred after the experience in indigenous territory was concluded. The experience report does not reveal sensitive or confidential information about individual patients. The study respects the ethical principles of anonymity and confidentiality, ensuring that no information can be used to identify indigenous participants or others involved in the interactions described.

The Yanomami Special Indigenous Health District (*Distrito Sanitário Especial Indígena Yanomami* - DSEI Yanomami) is an administrative health unit tasked with providing medical and healthcare to the indigenous population of the Yanomami and Ye'kwana ethnic groups, who live in a vast area in the Brazilian Amazon, located between the Brazilian states of Roraima (RR) and Amazonas (AM). Integrated into the Indigenous Health Care Subsystem (*Subsistema de Atenção à Saúde Indígena* - SASI-SUS), the Yanomami DSEI is administered by the *Secretaria Especial de Saúde Indígena* (SESAI) of the Brazilian Ministry of Health. It covers an area of approximately 96,650 km^2.

The region is characterized by dense tropical forest and hard-to-reach areas, with populations dispersed across geographically isolated villages. This dispersion presents significant logistical challenges for the provision of health services, requiring the use of air and river transport to reach some communities[13-14]. The Yanomami DSEI serves approximately 31,000 indigenous people, of whom 96% belong to the Yanomami ethnic group and 4% to the Ye'kwana ethnic group. The population is distributed across more than 360 villages, with

varying cultural practices and health and sanitation needs[15]. The DSEI is structured into Base Hubs, with a total of 37 Base Hubs, each responsible for supporting a specific number of villages. Additionally, there are Indigenous Health Centers (*Casas de Saúde Indígena* - CASAI) in the cities of Boa Vista (RR) and Manaus (AM), which provide support to indigenous people in need of medium and high-complexity treatment in urban centers[3-15-16].

The entry of health professionals into the Yanomami Special Indigenous Health District occurs in 15-day rotations. Transportation is primarily done by single-engine aircraft, subject to frequent delays due to weather conditions or logistical problems.

RESULTS

This ethnographic report describes the one year long work carried out with the Yanomami ethnic group in 2019, which preceded the author's training in psychiatry. He now works exclusively with patients suffering from drug addiction. First of all, it is necessary to note that, despite the extensive training offered to doctors in Brazil, the health of indigenous people and other social minorities is often underestimated, failing to prepare professionals for the complexities of this area of practice and causing a feeling of insecurity for most professionals who decide to work in remote indigenous areas.

A key aspect of this report is that the experience lived in one indigenous region can be completely different from another, as it became clear when returning to Boa Vista and sharing experiences with other medical colleagues. In 2019, the number of doctors was significantly lower than needed. Considering that the call for applications provided for 16 doctors to cover 360 health centers, this shortage required the circulation of doctors between different centers in the same region.

The first assignment took place in the region of Santa Isabel do Rio Negro (AM). He was called to perform an initial screening in the communities of the Marauiá River, in preparation for the arrival of a team of ophthalmologists from São Paulo who, months later, would perform cataract surgeries on the local population. For seven days, the team traveled along the river, heading up to the communities and spending each night in a different location, which provided an overview of the regional situation.

One aspect that drew attention was a meeting between community leaders in the first community visited, in which a speaker discussed the possibility of fragmenting the community in response to the increase in alcohol use among young people. Fragmenting communities was considered a possible solution to deal with such problems. This context showed that large

population agglomerations increasingly required social and cultural mechanisms to maintain general homeostasis.

Community fragmentation is a dramatic measure, but local reports suggest it is frequent and essential for maintaining the balance between the relationships of local inhabitants. Another surprising fact was the way each speaker spoke, with rhythmic intonations and repetitions of lines, which revealed that this form of speech was called "xapono", a tradition in which each speaker has their own speaking space, an essential ritual for the social, political and spiritual life of the community, involving leaders, elders and shamans.

On one occasion, at the beginning of the first week, an indigenous person approached timidly and asked: "*Are you a doctor?*" When he confirmed, he said: "*I have a problem, I eat too much hair*". Today, as a psychiatrist, the author imagined countless questions he could have asked. In moments like this, the main feelings are of helplessness due to the difficulty of treating the situation in such a remote place, especially considering the risk of serious complications, such as trichobezoar.

These moments make us reflect on how medical treatment remains inaccessible, with the SUS principle of universality still a kind of utopia. Seen from another perspective, in Western society, psychiatric diagnoses are constantly evolving and there is still no consensus among specialists. There is a huge gap until the indigenous communities in that region can receive quality mental health care that respects their rituals and beliefs.

Even today, one might question whether it is possible to apply psychiatric diagnoses to the indigenous population, even when mental suffering is evident. In everyday life, it is noted that many mental disorders result from unhealthy lifestyles, in some ways different from those practiced in indigenous communities.

Resistance to formulating diagnoses may arise from the difficulty in accepting that the context of these communities, which may also have flaws or be corrupted in some way, is inherent to a certain degree of suffering. Thus, a certain degree of suffering is intrinsic to any system, and human beings try to regulate themselves with the tools available, even if these are not always ideal.

In 2019, the first call for applications for the Mais Médico Program was issued to exclusively recruit Brazilian doctors trained in Brazil; previously, most professionals in the region were foreign and few in number. After the new doctors' first experiences in indigenous areas, several demands were made to the administration of the Yanomami Special Indigenous Health District (*Distrito Sanitário Especial Indígena Yanomami* - DSEI-Y).

The working conditions were alarming, and it is now safe to say that employers were unable to guarantee the safety of employees in these locations. The structural precariousness varied according to the location and included places without bathrooms, limited electricity (provided by diesel generators), large holes in the ceilings and floors of the Basic Health Units (UBS), runways in inadequate conditions, as well as restricted food due to delays in supply flights. In addition, there were threats arising from conflicts, especially when certain community members had consumed alcohol or were in confrontations with local miners.

The subsequent experiences in indigenous areas differed significantly from the first. The author was assigned to work in the Mucajaí River region, in areas known for the presence of mining. At the Paapiú Maloca, where he first settled, he was well received by both the local population and the team.

Working as a doctor on indigenous lands can be both a fascinating and frustrating experience; at various times, one felt like living a kind of tragicomedy. As seen in one case; in one of these episodes, a 25-year-old woman offered her 2-year-old daughter for him to "take care of" and possibly have as a future partner. It is important to emphasize that marital relationships between people with large age differences are common in the local culture, often with a view to ensuring cooperation and continuity between family groups.

The first mission was to correct some established habits that could cause serious harm to the local population. The team of local workers, in the chronic absence of a medical professional, had the custom of giving the indigenous people corticosteroid suspension in the morning. It was common for indigenous people to seek out the UBS to ask for "sweets," a term that actually referred to the sweet-tasting corticosteroid. During the same period, it was found that this practice occurred in several health centers. Chronic use of corticosteroids can have several consequences, especially suppression of the immune system, making the person more vulnerable to infections. Cases were frequently observed in which indigenous people sought out this syrup.

The primary health demands of the region were malaria, trauma, and respiratory infections in children. It was common to find piranha bites, mutilations, arrow wounds, trauma resulting from fights, children with expectoration, and, mainly, individuals with fever. The professionals used phrases such as "yaro xawara" to ask if someone had a fever, and the indigenous people responded with "yobi mahi", referring to a physical discomfort as some "evil spirit" in the body.

Communicating with patients proved challenging; younger patients were more demanding, while older ones were more resistant to the care of the health team. Residents often

laughed and whispered about the professionals, most often in a funny tone, usually demonstrating curiosity and sympathy. There was clearly a lack of experience and preparation to deal with different situations and the difficulty that such situations demanded.

A woman came to the unit every day complaining of genital pain and bleeding. It was necessary to examine her, but there were cultural barriers involved. After an extensive conversation, she agreed to a gynecological exam, which revealed significant lacerations in her vagina, apparently caused by some foreign object. Hypotheses were raised about the origin of the situation, since the patient denied saying that anyone had attacked her. A few days later, the team was informed by another indigenous woman that the patient was intentionally causing the injuries in order to be transferred to Boa Vista, for unknown reasons.

For a long time, the author considered that there were more "wrong" aspects than "right" aspects in his work with the health team. The team he worked with was usually made up of a nurse, two nursing technicians and an endemic agent. Theoretically, there should have been an Indigenous Health Agent (IHA), equivalent to the SUS Community Health Agent. However, the presence and role of the IHA varied according to each indigenous center.

In the centers, it was common for the IHA to take on "domestic" tasks, such as cleaning, sweeping and even collecting garbage. When sharing this situation with other medical colleagues, it was realized that this reality was repeated in other centers. There was an urgent need to reformulate the practices of several health teams, which generated even more wear and tear in the administration of the DSEI-Y. Among the negative points to be worked on were: conflicts between team members (including romantic conflicts), favoritism among indigenous people and even mockery.

A common practice was to give names to indigenous people chosen by the health team itself. To understand this issue, it is necessary to contextualize the relationship indigenous people have with names. The Yanomami have their own names, but their approach to names differs significantly from Western tradition.

For the Yanomami, a person's name is considered something sacred and intimate. In practice, it is common to use nicknames and even pejorative names as a form of social interaction. However, it is important to understand this within their cultural context. Nicknames or pejorative names do not necessarily carry the same negative weight as they would in other cultures. Often, these nicknames reflect physical characteristics, behaviors, or events associated with the person, and their use may be a form of humor or familiarity within the group.

However, the health team needed to record names for the spreadsheets, especially for vaccine control. It was necessary to assign a name to each individual born, but for cultural

reasons and lack of trust, real names were often not disclosed to the health team. As a result, the team developed the habit of creating the names they wanted.

It was common to see names of public figures on the spreadsheets, such as “Xuxa”, “Silvio Santos”, “Bolsonaro I”, “Bolsonaro II”, “Lula”, among others. One of the most striking scenes occurred when they visited a community far from the center to vaccinate the population: the team selected an indigenous woman, better known as “Nina”, and lined up all of “Nina’s” children next to her, comparing them with the list on the spreadsheet to see if they were present.

However, “Nina’s” children did not recognize each other by the names given to them by the health team, and it was common for the younger ones to “play” by pretending to be someone else’s children in order to get the vaccine – called “tikiri” or “injection” by the locals. The health team made vain efforts to bring order to the people amidst the screams and laughter of the locals. The lack of certainty about who was being vaccinated contrasted with the importance of the vaccines, and the chaotic environment, filled with laughter from the younger ones who hid in the bushes when the professionals approached with the needles, made the task even more challenging.

The work format for the employees made the environment prone to conflict. While the doctors followed a rotation of 15 days on and 15 days off, the other employees faced 30 days of work followed by only 15 days off. On several occasions, it was possible to hear complaints from other professionals at night, silent crying among the team members.

The forest can create a feeling of mental oppression: showers are precarious, often consisting of a single pipe in the wall, and bathing in rivers also generates a constant feeling of dirtiness. The lack of comfort was constant, with chairs improvised from tree stumps and the need to sleep in hammocks for days on end, in addition to the suffocating heat that made the closed environment unbearable.

It was also possible to observe emotional relationships forming between team members and indigenous people, as well as with people involved in mining. The need for affection flourished in such an isolated environment, generating feelings of loneliness even in the strongest of people. This feeling of loneliness was temporarily alleviated during the period of rest, when the professionals returned to their families, but it was common, on the other hand, to see "exaggerations", with attempts to seek to "make up" for the "lost" time with excessive alcohol consumption or luxurious gifts for family members. Most of the time, it was possible to observe that the relationship with family members was already quite strained due to the emotional absence of remote work.

In the middle of the year, another assignment to work in areas with a greater presence of mining included one known for its notoriety: the Kayanaúl area, where the Brazilian Army established a military base five years after this report, in early 2024, to combat illegal mining. Working as a doctor in mining areas brought new challenges.

After months of treating only Yanomami indigenous people, it was strange to go back to treating people who spoke fluent Portuguese. In general, the miners were cordial and friendly, often trying to please the medical team. This friendliness had a clear motivation: the health team was one of the main sources of local healthcare and the supply of chloroquine – used to treat malaria – was limited, forcing them to prioritize only at-risk groups.

The relationship with the indigenous people in the areas with the greatest presence of mining was even more complex and conflictual, varying significantly between individuals. In some regions, many of the traditional values had been replaced by values brought by the miners. In the areas where mining had been established for a longer time, the part of the community that did not want to be involved with mining had already moved away, leaving only those who tolerated contact with the "kraiwa," as the Yanomami refer to whites or invaders.

The indigenous people of the Kayanaúl region often tried to interfere with the care provided to the miners, insisting that our mission in the area was exclusively to serve the indigenous population. On several occasions, Yanomami indigenous people were witnessed asking for bribes from the miners in exchange for health services, for boat passage to certain points on the river, or for allowing the installation of mining sites.

In this region, social roles and mechanisms of social control had disintegrated. On the first night, the author observed a group of "haros" – children – next to the UBS, inhaling gasoline, while in the background loud music and gunshots by miners could be heard, sometimes to demonstrate power or simply for fun. This scene of chaos and violence contrasted sharply with the calm and natural sounds of the surrounding forest.

Working as a member of the health team in a conflict-ridden area can be a daunting task. On the one hand, there was the seduction of the miners, who offered bribes for anti-malaria medication and provided free Wi-Fi signals to the health team. Others were charged a gram of gold for the same amount of time using Wi-Fi (approximately R$400 in September 2024). They also offered beer and fresh food, including the only freezer in the health center that came from the mine itself, used to preserve the little refrigerated food available - refrigerated, because diesel power was not enough to freeze the food.

Despite the perks, the integrity of medical conduct was maintained, guided by ethical principles. Fortunately, there was no shortage of anti-malaria medication, which could have created serious medical dilemmas.

However, a major enemy that occasionally disturbed the team was the use of alcohol during indigenous "festivals." The Yanomami's consumption of alcohol often created a confusing and threatening environment. When the team knew that there would be alcohol consumption on a given night, they would lock all the doors and make as little noise as possible, hoping not to be remembered by the community members. It was common to see fights between siblings and to notice that people who previously had an excellent relationship with the team would suddenly start to intimidate them, throwing stones at the unit at night or firing firearms into the air.

The lives of the miners were also corrupted in this context. One miner revealed that he expected to extract an average of 10 grams of gold per week, but only 40% of the gold stayed with him; the other 60% went to the "owner of the raft." Doing the math, this would mean around R$6,000 per month for the miner, if he could sell the gold directly in a large city.

However, the cost of living in the indigenous area was high, with a case of beer or a frozen chicken costing approximately one gram of gold. Thus, the miners lived in a state similar to that of a person in front of a roulette wheel in a casino, always looking for the best place to mine, or the best bet. Although they managed to collect large quantities of gold, keeping that gold was more challenging than obtaining it. In a lawless and highly paranoid environment, murders and "settling of scores" were common, and the gold they easily obtained was destined for relief in alcohol or sex workers. Getting the gold was the easy part; keeping the gold was a greater challenge.

DISCUSSION

The descriptions highlight structural and logistical challenges faced by health professionals working in the DSEI-Y. These findings, while based on the experience of a single doctor, are consistent with research that documents similar difficulties in remote and hard-to-reach areas in the Amazon[17,18]. The main challenge faced was the shortage of health professionals, a well-documented fact in studies that show the lack of qualified labor in indigenous territories, especially after the departure of Cuban doctors from the Mais Médicos Program[17.] This insufficiency directly impacts the quality and continuity of care, as observed in the health centers described in the report, where frequent rotations and a high turnover of professionals compromised the effectiveness of interventions[18].

The issue of precarious working conditions, such as the lack of basic infrastructure, lack of medicines and fragility of health units, is a recurring situation linked to indigenous health. A study identified similar problems, such as the deterioration of health services in indigenous areas, where the lack of adequate working conditions led to the frustration of professionals and limited the provision of essential services[17]. In addition, the lack of security for both workers and indigenous people themselves in regions of conflict with illegal miners was widely reported as a persistent problem in the area[17].

Another point that deserves attention is the difficulty of maintaining long-term interventions in Yanomami territories. Although the Mais Médicos Program has provided specific improvements in access to health, the turnover of professionals and the lack of infrastructure suggest that the solution must be more robust. The continuous training of indigenous health agents and the strengthening of public health policies aimed at remote areas are fundamental steps to ensure sustainable and culturally appropriate care[17-18].

The cultural and linguistic challenges described are obstacles to indigenous health. The language barrier between doctors and indigenous communities naturally makes it difficult to establish a relationship of trust, which is essential for adherence to health practices[19]. This barrier was a major factor in the difficulties reported in interactions with the Yanomami population, which, combined with the lack of qualified indigenous health agents, made communication and care delivery difficult. The inappropriate use of indigenous agents as assistants in domestic tasks, rather than as cultural mediators, reinforces the need for greater training and appreciation of these professionals, as discussed in previous studies[12].

The devastating effects of external influences, such as alcohol consumption, on the disintegration of indigenous social structures are also present. A publication on the impact of alcohol on Yanomami communities highlighted how substance use exacerbated a range of social problems, including increased violence and the weakening of community ties, further corroborating the perception of alcohol's corrosive effect on indigenous social relations[19].

In 1988, anthropologist Bruce Albert[23] discussed how alcohol affected the traditional social structure of the Yanomami. It has been observed that alcohol consumption has resulted in the breakdown of social norms and interpersonal relationships, leading to increased violence and conflict in communities. Thirty years later, it is regrettable to note that the impact of chronic destruction caused by alcohol introduced by invaders still persists in local communities.

The introduction of external habits and values, often linked to illegal mining, was a constant in field reports, a finding confirmed in another publication that also describes the environmental and cultural destruction caused by invaders on Yanomami lands[9].

In the book *Queda do Céu*, Kopenawa and Albert write: "When the napë arrived, they began to destroy our land with machines and weapons. They cut down the trees and destroyed the mountains. We suffered and so did the forest. They do not know that they are provoking the wrath of the spirits"[9]. The miner's report on the average expected mineral return (10g of gold per week) is consistent with data from the Institute of Man and Environment of the Amazon (*Instituto do Homem e do Meio Ambiente da Amazônia*)[20].

This information shows that many individuals are attracted by the promise of a quick and apparently safe financial return, although this expectation masks the high risks inherent in the activity, which result in direct and indirect negative impacts for the miners themselves, the environment and third parties. Even with financial gains, the cost of meeting basic needs is high and risky, aggravated by the frequent indebtedness of workers when they enter the activity and by the absence of regulations that establish clear and protective social norms[20].

Regarding the culture and social structure observed in indigenous areas, the immersion revealed that the Yanomami community has its own dynamics that vary significantly between different groups. One of the findings was the fragmentation of the community as a strategy for resolving social conflicts. This practice shows how indigenous communities have developed adaptive social mechanisms to maintain internal cohesion, especially in the face of challenges related to population growth and the intensification of social interactions.

Harmonious coexistence in larger communities requires the adoption of complex social tools that go beyond traditional practices. This phenomenon is in line with the reflections of Claude Lévi-Strauss[21-22] in works such as *Tristes Tropiques* and *The Savage Mind*, which explore the relationship between small traditional groups and complex, urban societies. The need for increasingly sophisticated symbolic and cultural systems to deal with the challenges of living in dense population clusters has been highlighted. In the Yanomami context, this complexity manifests itself in the way communities articulate their networks of relationships, conflict mediation practices, and cultural adaptations in the face of external influences and internal transformations.

Despite the difficulties inherent to medical practice in indigenous areas, the challenges presented offer a rich and detailed perspective on the tensions between traditional indigenous values and the influence of external agents, in addition to the structural gaps that persist in the Brazilian indigenous health system. However, more research is needed to build permanent solutions to these problems that take into account the cultural and geographic particularities of the Yanomami territory.

CONCLUSION

At the intersections between medical practices and Yanomami cosmology, it was shown how health care in indigenous contexts is deeply influenced by cultural, social and logistical factors. Through lived experience, it was possible to identify challenges related to the language barrier, the coexistence of traditional and biomedical knowledge, as well as structural difficulties in accessing and continuing health care. These findings highlight the importance of strategies that expand intercultural integration in medical practice, respecting the values and beliefs of local communities.

Currently, the Yanomami Indigenous Territory presents heterogeneous realities; this report reflects the experience of a single person in specific places and dates. It is crucial to highlight that, even in the year of the events described, the reports of doctors working in the region were varied and often contradictory.

The main limitation is that it is a single report, and therefore it is not enough to represent the entire variety and experiences of professionals working in indigenous lands. In turn, the experience report presented points to the limited selection of the writer's perspective and recollection, running the risk of memory and observation distortions, since the observer's interpretation is unique and may ignore other realities exposed during the experience, preventing generalizations.

In turn, the description of the facts presented in this study has as its main contribution to expose challenges that are encountered in medical practice so that it can assist in the training of professionals who will also work in similar conditions. Working in areas of social conflict requires skills that must be reinforced in medical schools and in the preparation of future Brazilian doctors.

It is observed that, in several places, indigenous culture and traditions have been significantly altered due to direct contact with non-indigenous people, including health professionals themselves. A broad and individualized approach to the indigenous population is essential to avoid a doctor-patient relationship and also conduct that may be iatrogenic for the population itself; which provides a valuable insight into medical practice.

Future studies could integrate reports like this into broader investigations, including formal interviews with other health professionals and indigenous agents, as well as a quantitative analysis of health indicators in the region. Therefore, there is a need for more studies and a deeper understanding of local traditions to seek ways to preserve the indigenous population and cultural diversity.

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