

# Medicinal plants vs. conventional medicine: treatment assessments for indigenous populations

Andrea C. L. Porto,<sup>1</sup> Eloisa A. Holanda,<sup>2</sup> Roberta L. Fernandes,<sup>3</sup> Antônia B. F. Sousa,<sup>3</sup> Kevlia Letícia F. da Silva,<sup>3</sup> Dayane T. T. Nonato,<sup>4</sup> Patrícia S. Pantoja<sup>5\*</sup>

## Abstract

**Introduction:** Although traditional healing practices are important for indigenous populations, access to modern health care practices is essential to ensure the health of communities as well as the prevention of diseases and their aggravation. **Objective:** To examine the acceptance of medication by the Pitaguary indigenous group, who live in Maracanaú, state of Ceará (CE), Brazil. **Methodology:** An observational and descriptive case of the use of natural plants as a medicinal treatment in the Pitaguary indigenous group, in Maracanaú-CE. The interviews used a questionnaire adapted from the SATIS-BR scale. **Results:** The majority of the Pitaguary population in the interview presented chronic diseases (diabetes or hypertension). Only 13.3% do not follow up with their community medical doctor. Of the interviewees, 20% use a mix of conventional and herbal treatments; 67.2% use a non-secure method to identify medication; and 52% suspend use of conventional drugs in the middle of treatment and replace them with herbal plants recommended by the village shaman. **Discussion:** The main strategy when working with indigenous populations ends up being health education about the use of medicinal plants in association with commercial drugs. The involvement of community's leaders in the delivery of health ser-

1. Universidade de Fortaleza. Fortaleza, CE, Brazil.
2. Centro Universitário Fametro. Fortaleza, CE, Brazil.
3. Centro Universitário Fanor Wyden. Fortaleza, CE, Brazil.
4. Empresa Brasileira de Serviços Hospitalares. Brasília, DF, Brazil.
5. University of Memphis. Tennessee, United States of America.

\*Correspondence address:  
E-mail: [pdnewman@memphis.edu](mailto:pdnewman@memphis.edu)  
ORCID: <https://orcid.org/0000-0002-4621-7059>

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vices seems an effective strategy to promote their understanding about dual use of medicinal plants and western drugs for chronic diseases. **Conclusion:** A culturally sensitive approach that takes into account indigenous traditions and beliefs should be used to improve medication adherence within indigenous groups.

**Keywords:** Indigenous, Conventional, Medicinal plant, Pitaguary.

## Introduction

The use of medicine by indigenous groups varies according to culture and tradition. Many indigenous communities have traditional healing knowledge and practices that include the use of medicinal plants, ritualistic practices, and natural medication.<sup>1</sup> However, these practices are often threatened by the access to adequate medical drugs and health care, in addition to pressure from Western medicine and the sale of industrialized drugs.<sup>2</sup>

Traditional healing practices and the use of medicinal plants are a fundamental part of the culture and traditions of indigenous populations. These practices are passed down from generation to generation and play an important role in community identity and cohesion.<sup>3</sup> Furthermore, the preservation of cultural traditions and healing practices is also important to ensure the emotional and spiritual welfare of indigenous tribes. Many indigenous communities employ a holistic approach to health that includes connection to the land, spirituality, and social relationships. Therefore, the preservation of these practices is essential to ensure the health and well-being of indigenous populations.<sup>4</sup>

Although traditional healing practices are important for indigenous tribes, access to modern health care practices is essential to ensure the health of the community and the prevention of diseases and their aggravation. Indigenous communities often have difficulty in accessing health care, including medicine, vaccines, and medical treatments. As a result, many indigenous people face serious chronic health problems, such as diabetes, heart disease and tuberculosis.<sup>2</sup>

Indigenous tribes have the right to receive culturally appropriate health care and their practices and beliefs must be respected. Therefore, health policies must be developed in partnership with indigenous communities, in order to guarantee access to appropriate medicine and health treatments, and conventional medication while ensuring respect for their beliefs, traditions and cultures.<sup>3,5</sup>

Usage of conventional medicine can be effective in preventing and treating diseases in indigenous communities. In this context, this work aims to evaluate the acceptance of conventional medication by indigenous communities, especially those of the Pitaguary people, who live in Maracanaú, in the state of Ceará (CE) in northeast Brazil, by addressing issues related to the preservation of culture and traditions, access to health care, and challenges faced by communities in the use of modern medicine, especially possible interactions between their natural plants and conventional drugs.

## Methodology

This is a prospective, observational, and descriptive case-control study of the Pitaguary indigenous people, who live in Maracanaú. Located in Maracanaú and Pacatuba, in the state of Ceará, the Pitaguary indigenous territory is populated by four indigenous groupings: Olho d'água, Horto, Santo Antônio and Munguba. Maracanaú is a small town located in the metropolitan area of the city of Fortaleza, and the Pitaguary communities are part of its population. According to the Special Department for Indigenous Health, the Pitaguary tribe comprises 2,881 indigenous people divided into 4 groups.

The research took place between September 2017 and January 2018 and was approved by the human research ethics committee of National Commission of Ethics and Research – Brazil (CONEP) under number 1.331.534. All research complies with resolution 196/96; a free and informed consent form was signed by each family; and the personal data of the participants were kept confidential. The indigenous population interviewed in this study were 243 families living in the Pitaguary communities of 400 index families in National Foundation of Indigenous People (FUNAI).

Community health workers and researchers collected data using a questionnaire adapted from the SATIS-BR mental health satisfaction scale by visiting each family to explore the commu-

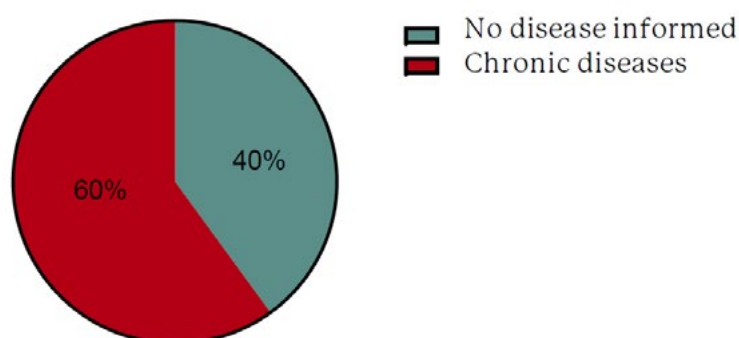
nity's cultural and sociodemographic profile, the use of medicinal plants and the influence of these traditions on treatment adherence in the handling of chronic diseases. Interviewees must be of legal age, sign an informed consent form and live with their family in the indigenous territory. Individuals who did not meet these criteria were excluded from the survey.

The results were calculated based on the information provided by the population through the questionnaire. Tables were compiled with information on the prevalence of chronic diseases in the families interviewed.

## Results

### Presence of chronic diseases in the Pitaguary community of Maracanaú/CE

In total, 207 families from the Pitaguary indigenous community were evaluated. According to Graph 1, 60% of the population claim to have at least one chronic disease, the most prevalent of which are diabetes mellitus and chronic hypertension (Figure 1).



**Figure 1. Presence of chronic diseases in the Community Pitaguary-Maracanaú/CE**

Source: The authors (2023).

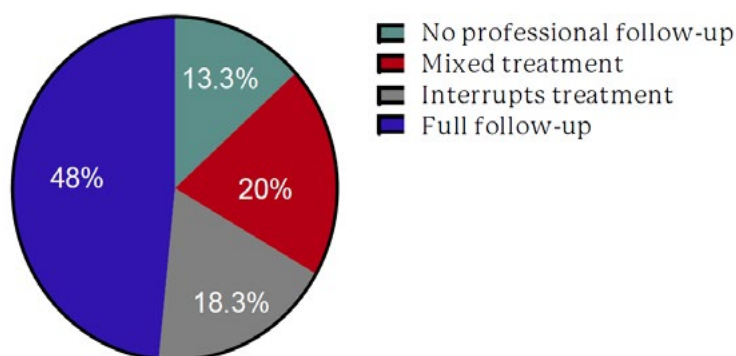
### Adherence to follow-up by the family health team in the Pitaguary communities of Maracanaú/CE

Based on Figure 1, we questioned families about the consistency of their treatment for chronic diseases with the recommendations of the health teams assigned to the village. The results showed that 13.3% of the families interviewed did not report doing any follow-up. Of the 86.7% who were being followed up by the family health team, 20% did not use the appropriate drug therapy prescribed by the family doctor to treat chronic pathologies and 18.3% stopped the treatment after concluding by themselves that it was unnecessary or that their health condition had improved. Another important reason cited by the population for discontinuing medication was the difficulties in administering many drugs at the same time (Figure 2).

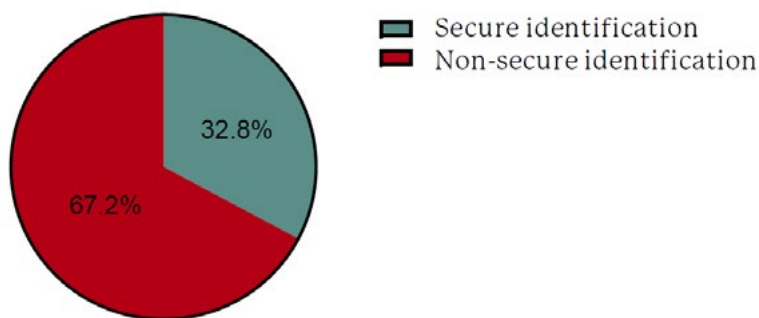
### Education on the correct identification of medication for treatment of chronic disease

Considering that one of the reasons why families report difficulties in maintaining drug therapy is related to the volume of medication being administered, the study examined possible difficulties in the correct identification of medications, which increase problems with medication adherence. The most mentioned ways of identifying medication were by the name on the

packaging 32.8% use the most secure identification mode considered: identifying medication by the name (Figure 3). And 67.2% of the families interviewed use insecure methods of identifying the right medication and the correct time of administration, such as trusting only where the box of medication is located at home, color, or size of the medication without checking the name of the medication. It is interesting to note that most interviewees informed that they were able to buy the medication if it were not available for free through the SUS (Brazilian Unified Health System). However, 10% are completely dependent on the SUS and this share of the population will not have a good treatment condition for any pathology in case of impediments to access. This last piece of information is a timely reminder of the importance of keeping the SUS in full operation, in order to avoid impairing the treatment of the indigenous population.



**Figure 2. Adherence to follow-up by the family health team in the Pitaguary's communities, Maracanaú/CE**  
 Source: The authors (2023).

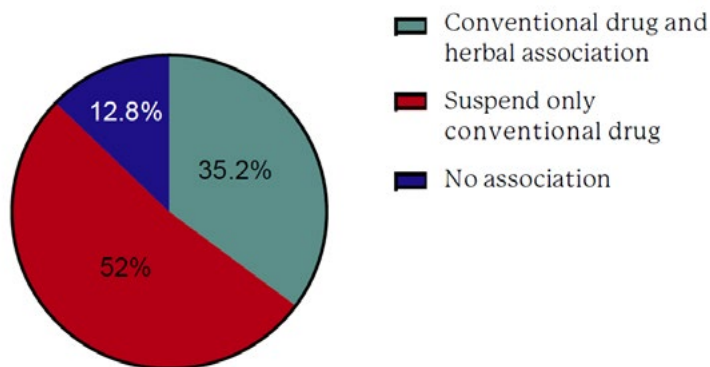


**Figure 3. Education on the correct identification of medication for the treatment of chronic disease**  
 Source: The authors (2023).

### Dual use of conventional drugs and herbal medicines in the Pitaguary communities of Maracanaú/CE

When evaluating whether this community use both medications, conventional drugs prescribed by doctors with medicinal plants (herbal medicines) available in the community, 35.2% claim to do the treatment with dual use and 52% even report suspending the use of conventional drugs in order to use only herbal medicines recommended by the village shaman (Figure 4). All the interviewees state that the use of herbal medicines is not accompanied by any side effects, which facilitates acceptance by the community, while 60% of the

population report side effects when using conventional drugs. This conclusion leads the community to be more wary of using medication prescribed by family doctors for the treatment of acute or chronic diseases.



**Figure 4. Association between conventional drugs and herbal medicines in the Pitaguary's Communities, Maracanaú/CE**

Source: The authors (2023).

## Discussion

This study showed the presence of chronic diseases in an indigenous Pitaguary population in Maracanaú/CE. A population that showed values comprehensive care, an increased risk in the secure identification of medication for the treatment of chronic diseases and a predominance of the use for natural medicines present in the community, putting at risk treatment with conventional drugs already tested and prescribed by the doctor. In a review of the literature on indigenous populations and chronic diseases, Umaefulam and colleagues<sup>6</sup> reported a strong presence of chronic diseases, such as diabetes and hypertension, but when evaluated the percentage of indigenous group enrolled for clinical studies from United States of America (USA), Canada, New Zealand and Australia, only 5.6% of the individuals enrolled were the indigenous, showing how is still difficult to address these population to clinical care. In addition, a study published by the School of Medicine, Missouri, USA, in 2021,<sup>7</sup> identified a high prevalence of cardiovascular diseases in the Native American population. Our study corroborates findings in the literature that show indigenous populations with a high incidence of chronic diseases and a need for quality health care.

Medication adherence, which is the patient's ability to correctly follow medical guidelines regarding the use of medication, is a problem faced by many people, including indigenous populations,<sup>8</sup> which needs to be addressed and corrected. Adherence to herbal medication among the indigenous population can be driven by a variety of factors, including the availability of local indigenous medicinal plants, culture and traditions related to the use of herbs and plants, accessibility and availability of allopathic medicines, and health education passed on by previous generations.<sup>9</sup>

Many indigenous communities have a robust tradition of using local medicinal plants to treat a variety of ailments; however, the introduction of so-called conventional drugs often leads to a decline in the use of medicinal plants, which can have negative effects

on the preservation of culture and tradition.<sup>10</sup> Furthermore, the availability of conventional medicines may be limited within many indigenous communities, especially in remote areas, which can lead to a greater dependence on medicinal plants. Nevertheless, no evidence exists that such plants are effective in combating diseases such as diabetes and high blood pressure.<sup>11</sup> Many indigenous communities have faced histories of trauma and violence, including colonization, genocide, displacement, and marginalization. This can lead to distrust and resentment towards health professionals, who may be seen as agents of the State and the dominant culture.<sup>12</sup>

Therefore, adherence to herbal medication among the indigenous population is a complex and multifactorial problem that reflects a variety of influences, including the availability of medicinal plants in the vicinity, indigenous culture and traditions related to the use of herbs and plants, accessibility and availability of herbal medicines and health education.<sup>13</sup>

In this study, the Pitaguary population exhibited difficulties in safely identifying medication. Health education also plays an important role in the acceptance of herbal remedies, since the culture and customs of a community can influence the way in which people perceive and use medication.<sup>14</sup> Some groups may distrust modern medicines or lack access to them. Therefore, health professionals should establish effective means of communication with the communities served, in order to understand their needs and to assess difficulties better; thus, being able to offer guidance and competent care.<sup>15</sup>

To deal with such challenges, health professionals must respect and value traditional knowledge and practices of indigenous medicine by listening and learning from community members. These methods can also be complementary and integrate into a more holistic approach and integrative health. In a study with the same population in 2011,<sup>16</sup> a pilot project was implemented by multidisciplinary students from the State University of Ceará (UECE) in partnership with the PET indigenous health project (organized by the SUS). This pilot project developed stickers that provide guidance on the correct times to take medication, allowing patients to monitor the use of medication and to observe improvements in chronic pathological conditions. In addition, the pilot project showed a need for professional training so that professionals can understand the culture, languages, and values of these communities, in order to establish relationships of trust and mutual respect.<sup>17</sup>

The main strategy when working with indigenous populations ends up being health education and the use of medicinal plants in association with commercial drugs. As observed in this research, 52% of the population stopped using medication prescribed by the family health team and opted to rely only on the use of medicinal plants. The uses of plants for the indigenous population in other continents of the world have a strong prevalence of medicinal use, in alignment with the results found in the Pitaguary population.<sup>18,19</sup>

The involvement of community leaders and elders in the delivery of health services so that indigenous health practices are valued and respected is usually an effective strategy. In addition, indigenous health practices, including the use of medicinal plants, should be recognized and promoted, so that the community feels more comfortable and confident in adhering to the correct treatment for chronic diseases.<sup>20</sup> Risks and possible side effects should be emphasized, so that the community is aware of the consequences of decisions involving the suspension of drugs or the dual use of conventional drugs and herbal medicine among them.<sup>21</sup>

## Conclusion

In order to improve compliance among indigenous groups and to achieve benefits from greater control of chronic diseases through the safe identification of medication and follow-up contacts with the health team, a culturally sensitive approach must be adopted that takes into account traditions and beliefs. In addition to guaranteed access to medicine in an adequate and regular manner, clear and accessible information about the use of medicines and their side effects should be provided. Moreover, community leaders and local authorities must be involved in the process of raising awareness about the importance of medication adherence and in promoting health practices that are more appropriate to the reality of indigenous communities.

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