European Journal of Integrative Medicine 8 (2016) 471–477

Contents lists available at ScienceDirect

European Journal of Integrative Medicine

journal homepage: www.elsevier.com/eujim

Research paper

What drives the use of natural products for medicinal purposes in the context of cultural pluralism?

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ARTICLE INFO

Article history:
Received 30 September 2015
Received in revised form 21 March 2016
Accepted 21 March 2016

Keywords:
Complementary and alternative medicine
Integrative medicine
Health seeking behavior
Multiculturalism
Traditional medical system

ABSTRACT

Introduction: What are the drivers of health seeking behaviors in a culturally diverse scenario? A context of medical and cultural pluralism with native and migrant people in NE Brazil was chosen to study the use of complementary and alternative medicine (CAM) and official medicine (OM) products and their drivers.
Methods: A one-year therapeutic recall was used to obtain information on individual health problems, products to treat their problems and access to health services. A generalized linear model (GLM (binomial errors) was employed to indicate the variables that better explained therapeutic choices.
Results: Most people use both CAM and OM products and most illnesses are treated by both systems. The GLM indicated that women, migrants and people that turns to primary health-care services (PHCs) in a lower extent are more likely to exclusively chose CAM products and are also more likely to prioritize them. Frequentation of the local health center also leads to a proportionally higher use of CAM products than the frequentation of other PHCs from the surroundings.
Conclusions: Women, migrants and people that do not frequent PHCs are the main supporters of CAM products. In the case of migrant people, their high adhesion to CAM products (especially medicinal plants) can turn them into new depositors of local (traditional) knowledge, although this knowledge will not be dissoluble from other types of medicinal plant knowledge.

1. Introduction

Complementary and alternative medicine (CAM) is a collection of different medical and health care systems, therapies, and elements that are not presently considered to be part of conventional medicine [1]. Multiple categories of CAM have been recognized, including (a) natural products, (b) mind and body medicine, (c) manipulative and body-based practices, (d) movement therapies, (e) traditional healing, (f) energy therapy, and (g) whole medical systems [2,3].

If we consider a broad concept of CAM, a conspicuous divergence is found in the literature. While studies performed in developed countries and some urban areas of developing countries acknowledge an increase in the use of CAM associated with a search for a better quality of life and the desire to be actively involved with medical decision making [2,4], studies in many developing countries, remarkably in rural areas, indicate an increasing use of products from the official medicine (OM) and abandonment of traditional practices related to natural resource use because some people believe that allopathic medicine is more efficient than traditional medicine [5–7]. These distinct processes can also lead to differences in the main factors that drive health seeking behaviors in the context of human populations.

Considering some of these factors, it is common to find differences between men and women in terms of health seeking behaviors. Commonly women are more likely to use CAM than men [8–10]. The reasons, however, can be completely different. In some situations women use more CAM (specifically traditional

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http://dx.doi.org/10.1016/j.eujim.2016.03.012
1876-3820/

medicine) because they have more social barriers in accessing and consulting professionals of official medicine [8,11]. However, in contexts where males and females have the same access to all possible health care facilities, other factors may explain gender differences, such as gender-based behavioral bias [10].

Age may also play a role in health-seeking behaviors. Younger people are commonly more prone to changes than the elders [12]. For this reason, literature often shows that abandonment of certain practices and the incorporation of new behaviors are stronger [13].

School education and income have also been pointed out as being drivers of health seeking behaviors. In contexts where CAM is based on traditional knowledge and access to OM products and facilities is restricted, some studies reveal that increases in such variables are responsible for a decrease in CAM or increase in OM [11,14]. On the other hand, other studies within different contexts have found a positive association between CAM use and income or level of school education [4,15].

People's origins, ethnicities and cultural backgrounds have an important influence on CAM use. In regional studies or contexts of cultural pluralism,[1] one can find differences between human groups in terms of health seeking behaviors [2,16].

The presence of certain illnesses is also a common driver found in the literature. On the one hand, in some areas, people having chronic illnesses, for example, tend to rely on CAM [9]. On the other hand, it is possible (although not tested) that in changing traditional medical systems, OM is more likely to treat modern and severe illnesses, since the system may not have had time to incorporate a new (and effective) element, such as plants, via experimentation or cultural transmission.

If we acknowledge that patterns and drivers can be different in distinct contexts and that the dynamics of CAM use are especially distinct in developed × developing countries or urban × rural areas, what happens to health seeking behaviors when people coming from urban and rural areas of several different countries converge to a single place and exchange knowledge and experiences? What drivers could possibly be relevant in such context? The answer to such questions may help eliciting the dynamics of the co-existence between CAM and OM and, thus, may help understanding human health seeking behaviors in complex scenarios.

We chose the rural community of the Capão Valley (NE Brazil) as a model for this study because it attracts people from diverse cultural and geographic backgrounds coexisting with natives. The region is known because of its natural attractions. Migration significantly increased and migrants were especially searching a better life quality in the Capão valley can influence the dynamics of CAM in the community.

Therefore, this study aims to answer the following questions: (1) do people use both CAM and OM products for healthcare? (2) is there a joint use of CAM and OM products for the same health problem? (3) which factors (origin, gender, age, level of school education, residence time, job and frequentation of health centers) influence therapeutic choices and therapeutic prioritizations for CAM and OM products in the community? (4) considering the integrative nature of the local health center, does its visitation lead to a proportionally higher choice and prioritization of CAM products when compared to other PHCs? We expect that the variables indicated above may explain differences in health-seeking behaviors.

2. Methods

2.1. Study area

The study was carried out in the rural community of Caeté-Açu, also known as the Capão Valley, placed in the Municipality of Palmeiras, Bahia, Northeastern Brazil (Fig. 1). Capão is placed in the geographical region of Chapada Diamantina ("Plateau of diamonds") and is bordered by the Chapada Diamantina National Park, the largest conservation unit in Brazil outside the Amazon [18].

The valley is currently inhabited by people from several countries and provinces. They coexist with native people, mostly descendants of miners. Regional migrants (migrants from other parts of the Chapada Diamantina) come from both urban and rural areas and they moved to Capão because of job opportunities, for family reunion (marriage) or to live in contact with nature. National migrants (migrants from other parts of Brazil) are mostly from urban areas and they moved to Capão seeking for a better life quality and contact with nature. International migrants come from several countries, especially from Latin America and Europe. A better life quality and contact with nature are also the most common reasons for their migration. More information about the profile of migrant people in the valley can be found in the study of Abreu et al. [19].

Main economic activities in the community are related to commerce. Although small-scale agriculture is still common, the presence of tourist-destined restaurants, stores and alternative health centers is remarkable. Other services (educational, artistic etc.) are also common. A vast diversity of religions and beliefs is found in the Capão Valley. Catholicism and Protestantism are predominant, although oriental religions (e.g. Buddhism and Shintoism) and Santo Daime[2] are increasing.

According to the local health center (non-published data), there are 693 families and 1177 people over the age of 15 living in the community. The health center only considers as dwellers those who have lived in the community for more than three months and this is also true for having access to consultations in the center. This distinction is performed because the community attracts many backpackers, who spend some time in Capão but do not establish themselves in the community. Registered people have access to a health center that is located in the center of the community (main village). People can also access official medicine facilities in the center of the municipality (21 km from Capão) and in neighboring cities (Seabra, Lençóis and Iraquara).

2.2. The nature of CAM product use in the Capão Valley

Use of CAM products in the Capão Valley is drawn in a complex scenario. Migrants (especially national and international) brought to the community a vast amount of products and treatments, mostly based on medicinal plants, phytotherapy, geotherapy, urine therapy and aromatherapy. Native people's contributions to CAM in Capão rely on medicinal plants. Medicinal plants are the most common therapeutic choice among both natives and migrants. The diversity of medicinal plant species known in the valley is extremely high (at least 152 species), covering native species, cultivated exotic species, spontaneous exotic species and exotic species acquired via trade [19].

[1] Therapeutic pluralism can be defined as "the coexistence, within the same society or group, of a number of health care alternatives with diverse origins and treatment foci, representing different systems of medical practice and ideology" [17].

[2] Santo Daime is a syncretic religion based on the use of a psychoactive beverage called Ayahuasca

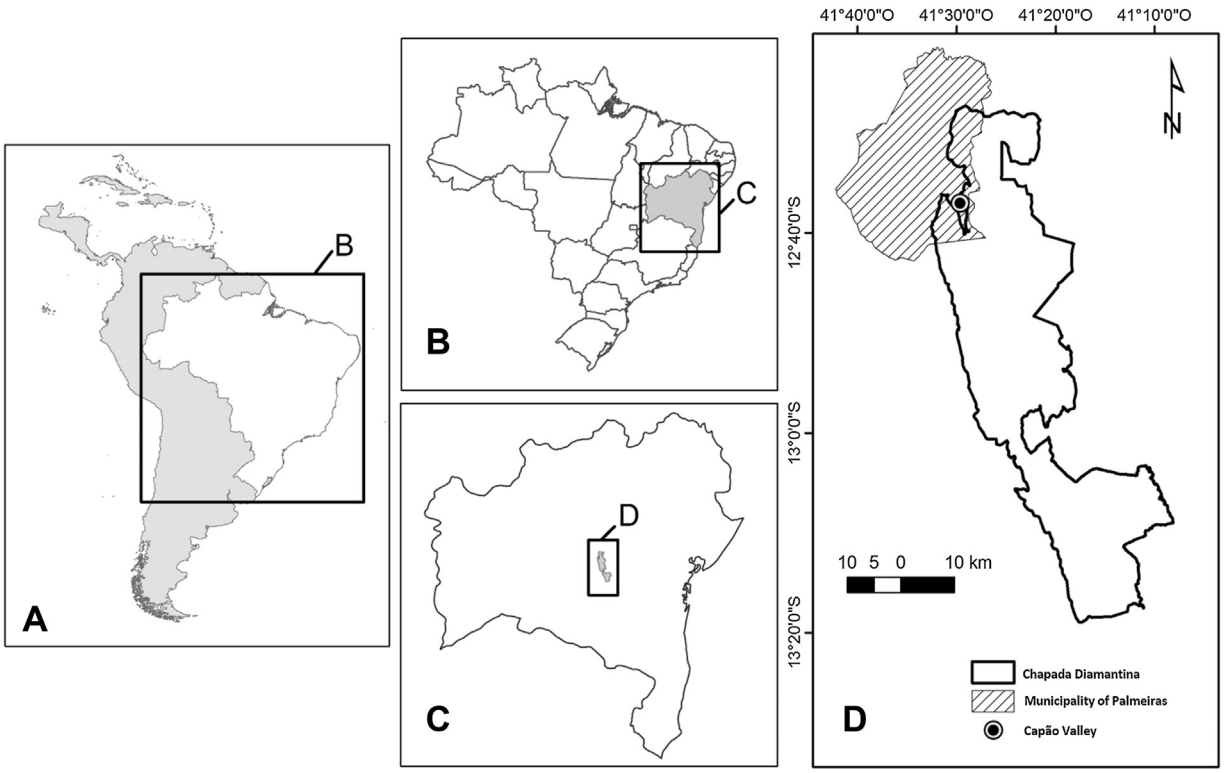

Fig. 1. Location of the Capão Valley, municipality of Palmairas, state of Bahia, Northeastern Brazil.

Medicinal plants have multiple natures in Capão. Migrants brought knowledge from external traditional medical systems and non-traditional knowledge.[3] Natives still preserve traditional knowledge based on native species and highly popular exotic plants.

Although there are differences in the original nature of medicinal plants within the community, a process of indissolubility is taking place. Knowledge is being exchanged among groups, especially in a native-to-migrant pathway. Recent generations (children of natives and migrants) will probably not distinguish between medicinal plant knowledge based on traditional and non-traditional information [19].

Discourses on the reasons for medicinal plants utilization are also shared between groups. Both natives and migrants claim to use medicinal plants because of their traditional nature (native-based discourse) and their "healthier" status (migrant-based discourse). Discourses that attribute the use of medicinal plants to a lack of economic opportunity to access allopathy are not common in the community.

Differently from most primary health-care services (PHC) placed in the geographical region of Chapada Diamantina, the local health center professionals incentive the use of some medicinal plants and the integrative use of CAM and OM.

[3] We are employing the ideas of traditional (TBK) and non-traditional botanical knowledge (NTBK) discussed by Hurrel and Pochettino [20]. For the authors, differences between TBK and NTBK are, among other things, related to (1) whether the knowledge is the result of long experience of the human group in their environment (TBK) or not (NTBK); (2) whether it is transmitted from generation to generation (TBK) or through different mass media (NTBK), and (3) whether those who consume knowledge also produce knowledge (TBK) or those who consume knowledge do not produce knowledge (NTBK). However, we have a theoretical position that considers that NTBK can enter traditional paths and vice-versa, creating an indissoluble scenario.

2.3. Data collection

The community of Capão was fully informed concerning the goals of this study, and members who agreed to participate were invited to sign a Free and Informed Consent Form.

This study is a subproject of the project entitled "*Conhecimento, uso e representações locais sobre recursos vegetais em comunidades rurais das regiões central e oeste da Bahia: aspectos teóricos e implicações para a conservação*" (Knowledge, use and local representations on plant resources employed by rural communities of central and western Bahia: theoretical aspects and implications for conservation). The project and its subprojects were conducted in accordance with guidelines developed by the National Health Counsel by means of the Research Ethics Committee (Resolution 196/96), and the protocol was approved by that committee (CAAE 44962515.5.0000.5026). A convenience sample [21] was employed with a margin of error of 6.05%, so that 215 dwellers were involved. Convenience sampling was employed due to the difficulties in performing a random sampling in the area. However, sampling was carefully performed in order not to generate a source of bias and all community districts were visited and had people involved in the survey.

The interviews were performed between 2014 and 2015. They began by collecting socioeconomic information of the interviewees (gender, origin, age, level of school education, residence time in Capão and job). Then, each interviewee was questioned about the health problems they have been through in the last year and the products they used to treat the affections (what is being called here a "therapeutic recall"). Only health problems people treated while living in the Capão Valley were considered.

For each health problem mentioned in the therapeutic recall, the interviewee was also questioned whether he or she consulted an official health center, clinic or hospital. In cases that the interviewee used more than one product for a given health

problem (OM and CAM products), the prioritized (first sought) product was also recorded.

2.4. Data analysis

Products reported by the interviewees were classified in CAM or OM. The frequentation of an official health center itself was not classified as OM. The chosen and prioritized products (plants, allopathics etc.) were rather considered. Therefore, inferences are only meant to be performed for CAM and OM products and not to the whole systems. From the 215 people interviewed, 45 people were excluded of the analyses because they did not mention they had any health problems in the therapeutic recall or they were treated with natural products or allopathics.

To analyze whether there is a tendency of joint use of CAM and OM, a chi-squared goodness-of-fit was used, comparing the number of people that employed both CAM and OM with the number of people that exclusively employed CAM or OM in the last year.

In order to evaluate whether there is a tendency of joint employment of CAM and OM products for the same health problem, a chi-squared goodness-of-fit was used, comparing the number of health problems with citations for both CAM and OM with the number of health problems with citations directed exclusively to CAM or OM. The test was performed considering only health problems mentioned by at least two interviewees.

Generalized linear models (GLM) with binomial errors and a logit link were employed to access the variables that influence health-seeking behaviors. The response (dependent) variables were (1) a two-column matrix containing (a) the number of choices of each person for CAM and (b) the number of choices of each person for OM and for both treatments (CAM and OM), and (2) a two-column matrix containing (a) the number of prioritizations of each person for CAM and (b) the number of prioritizations of each person for OM and for both treatments (CAM and OM). The explanatory (independent) variables and their nature are detailed in Table 1. They included origin, gender, age, level of school education, residence time, job and frequentation of health centers. The influence of income was not tested because its recording was a difficult task that could lead to bias in the studied community. Several dwellers have informal jobs with fluctuant incomes. Moreover, many were reluctant to reveal their real income because they feared they could lose governmental subvention.

A stepwise approach (both forward and backward) was used to define the group of explanatory variables that were included in each of the two models. The models included the combination of the variables which accounted for the lowest Akaike information criterion (AIC) values. A Wald χ^2 test was employed for the categorical variables with more than two categories in cases that those variables were significantly associated to the explanatory variables. This procedure is due to the fact that the GLM only exhibits the behavior of the categories in relation to one (the first) category, not performing pairwise comparisons for all possible combinations. Therefore, this test aimed to make pairwise comparisons between the categories. The R package 'aod' was used for such analysis. Nagelkerke's R^2 was also calculated to access the power of explanation of the models. This analysis was performed with the R package 'fmsb'.

To test if the frequentation of the local health center leads to a proportionally higher choice and prioritization of CAM products when compared to other PHCs, a χ^2 test was performed in a contingency table. Input data were the number of citations for (a) choice of OM products and therapies, (b) choice of CAM products and therapies and (c) choice of both CAM and OM, after consulting (1) the local health center and (2) other health centers. For this analysis data was excluded from citations of health problems in situations that people did not seek for a health center, clinic or hospital. Bonferroni method was used in the R package 'NCStats' to make pairwise comparisons (CAM × OM, CAM × both and OM × both). The same analyses were performed for prioritization.

3. Results

3.1. Do people use both CAM and OM products for healthcare?

Results indicate that the community is mostly composed of people who use both CAM and OM. For the 170 people considered in the analysis, a total of 60.6% used both CAM and OM products, 33.5% used only CAM and 5.9% used only OM products. Differences between the number of people using both CAM and OM (103) and people using only one of them (67) were significant ($\chi^2 = 27.6$; $p < 0{,}0001$).

For the three groups of migrants, use of CAM product is higher than OM products (Table 2). However, for native people the use of CAM is slightly lower than the use of OM products.

3.2. Is there a joint use of CAM and OM products for the same health problem?

A total of 64 out of 83 health problems were mentioned by at least two people. Most health problems (82.8%) are treated with both CAM and OM and a small amount is treated only with CAM

Table 1
Explanatory variables in the GLM (Binomial errors) to seek for drivers of the use of complementary and alternative medicine (CAM) products in a context of therapeutic and cultural pluralism in NE Brazil. Data presented only for the 170 interviewees that entered the model. The remaining 45 people claimed not to have had a health problem in the previous year or not to have treated a health problem with natural products or allopathics.

Quantitative variables	Min	Max	Details
Age	15	96	Absolute value for age (years)
Residence time	0.25	96	Absolute value for age (years)
Degree of school education	1	11	Ordination—11 levels of education according to Brazilian classification. 1—no school education, 2—incomplete basic school, 3—complete basic school, 4—incomplete elementary school, 5—complete elementary school, 6—incomplete high school, 7—complete high school, 8—incomplete under graduation, 9—complete under graduation, 10—incomplete graduation, 11—complete graduation
Frequentation of health centers, clinics or hospitals	0	100	Percentage—number of health problems for which the respondent sought for a health center, clinic or hospital/total number of health problems cited by the respondent
Categorical variables	**Categories**		
Gender	Male (67), Female (103)		
Origin	Native (72), Regional migrant (26), National migrant (45), International migrant (27)		
Job	Agriculture (21), Retired (11), Handicraft/Arts (24), Commerce/Services (80), Education (5), Student (9), Housewives (15), Alternative therapies (5)		

Table 2
Percentages of users of complementary and alternative medicine (CAM) and official medicine (OM) use according to their origin in a context of therapeutic and cultural pluralism in NE Brazil. Data presented only for the 170 interviewees that entered the model. The remaining 45 people claimed not to have had a health problem in the previous year or not to have treated a health problem with natural products or allopathics.

Group	% Users of CAM products	% Users of OM products
Native	72.2	86.1
Regional migrants	92.3	73.1
National migrants	97.8	42.2
International migrants	100	61.5

(15.6%) or OM (1.6%). Differences between the number of health problems treated by both CAM and OM (53) and the number of health problems treated by only one of them (11) are significant ($\chi^2 = 0.4$; $p < 0.05$). Health problems exclusively treated with CAM products and exclusively treated with OM products can be seen in Table 3.

3.3. Which factors influence therapeutic choices and therapeutic prioritizations for CAM and OM products?

Gender, origin and visitation to health centers significantly explained therapeutic choices and they were the explanatory variables that remained in the model after stepwise selection (Table 4). The explanatory power of the model was high (Nagelkerke's $R^2 = 0.52$). Women are more likely to choose exclusively CAM than men. Migrants are more likely to choose exclusively CAM than natives and the three groups of migrants (regional, national and international) do not differ regarding the odds for using exclusively CAM. The higher the proportional frequentation of PHCs when facing health problems, the more likely not to choose exclusively CAM.

Gender, origin and visitation to health centers were also the variables that remained in the model and significantly associated to prioritization of CAM (Table 4). The explanatory power of the model was high (Nagelkerke's $R^2 = 0.45$), although it was lower than the model for therapeutic choice. In terms of prioritization, however, regional migrants behaved similarly to natives and they were less likely to prioritize exclusively CAM than national and international migrants.

3.4. Does the visit to the local health center lead to a proportionally higher choice and prioritization of CAM products when compared to other PHCs?

Although visitation to health center influences both CAM choice and prioritization, there are differences according to the health center where the consultation takes place. A significant association was found between the frequented health center (local × others) and therapeutic choices ($\chi^2 = 15.6$; $p < 0.001$). Pairwise comparisons with the Bonferroni corrections showed that, compared to other health centers, clinics and hospitals from the proximities, the visitation to the local health center led to a significantly higher proportion of CAM choice against OM ($p < 0.001$). Comparisons between (a) CAM and both and (b) OM and both showed no significant differences. A significant association was also found between the frequented health center and therapeutic prioritization ($\chi^2 = 15.7$; $p < 0.001$). Pairwise comparisons also pointed out differences between the local health center and other health centers when specifically comparing CAM and OM prioritization. No difference between local and other health centers was found for the prioritization of (a) CAM against both systems and (b) OM against both systems.

Table 3
Health problems exclusively treated with complementary and alternative medicine (CAM) products and exclusively treated with Official medicine (OM) products in a context of therapeutic and cultural pluralism in NE Brazil. Only health problems mentioned by at least two interviewees.

Health problems exclusively treated with OM	Health problems exclusively treated with CAM
Osteoporosis	Diarrhea
	Fever
	Anxiety
	Scabies
	Fatigue
	Subcutaneous inflammation
	Constipation
	Hangover
	Torsion
	Vomiting

4. Discussion

4.1. Is there a joint use of CAM and OM products by the same person and for the same health problem?

People are integrating different mechanisms to treat their illnesses rather than choosing unique therapeutic options. This pattern can be found in the literature for other situations, and it probably occurs because "people take a pragmatic view of treatment and are willing to try whatever may be effective" [17].

The significant differences concerning the number of single-option and joint-option health problems confirm that in Capão people use all possible resources to treat illnesses, even if they are philosophically and epistemologically distant in terms of illness understanding and healing processes. Different interpretations can be drawn regarding the consequences of such pattern. On the one hand, this type of co-existence can assure the maintenance of traditional and non-traditional knowledge on natural resources at the same time that allows the access to modern official health facilities, amplifying therapeutic options [22]. On the other hand, integration between different medical systems must be carefully evaluated in terms of implications to public health and caution must be taken as some interactions between CAM and OM products can be harmful and have serious clinical consequences [23,24].

Under contexts of medical pluralism, the joint use of different resources can help disseminate maladaptive behaviors. In this case, maladaptive behaviors or traits may be observed as the use of a product which has no medicinal effect or retards the treatment of an illness [25]. If two or more products are commonly employed, the acknowledgment of which one actually contributed to cure can be more difficult. In a first moment, the maladaptive trait is neither positive nor harmful to the health care process. However, if a rupture happens between the co-existing medical systems, the exclusive use of a maladaptive trait can considerably damage health care, especially for severe health problems, before people realize its ineffectiveness and abandon the practice.

Therefore, efforts have to be done in order to identify the main combinations of products from CAM and OM and identify if their joint use is desirable (both contributing to cure), harmful (joint use leading to adverse interactions) or simply maladaptive (one product is effective and the other has no real function).

4.2. Which factors influence therapeutic choices and therapeutic prioritizations for CAM and OM products?

The fact that women are more likely to choose and prioritize CAM products can be partially explained by gender bias in decision-making. Previous studies have shown that women tend to be more active in their own health promotion than men [10].

Table 4
Final models (GLM, binomial errors) for the use of complementary and alternative medicine (CAM) products in a context of therapeutic and cultural pluralism in NE Brazil. The remaining variables (age, residence time, level of school education and job) were excluded in the stepwise approach. Data presented only for the 170 interviewees that entered the model. The remaining 45 people claimed not to have had a health problem in the previous year or not to have treated a health problem with natural products or allopathics.

Model 1: Drivers of exclusive choice for CAM products Parameter	Estimate (standart error)	p value
Intercept	2.02 (0.33)	<0.0001
Gender (male × female)	−0.57 (0.22)	<0.001
Origin (national × international migrants)	−0.09 (0.35)	>0.05
Origin (regional × international migrants)	−0.61 (0.38)	>0.05
Origin (native × international migrants)	−1.29 (0.32)	<0.0001
Frequentation of a health center	−0.02 (0)	<0.0001
Residual deviance: 251.92 Residual df: 164 *AIC: 382.79*		

Wald chi-squared test for the remaining pairwise combinations for Origin Groups	Wald Chi-squared	p value
native × regional migrants	5.3	<0.05
native × national migrants	20.1	<0.0001
regional × national migrants	2.3	>0.05

Model 2: Drivers of prioritization for CAM products Parameter	Estimate (standart error)	p value
Intercept	2.28 (0.35)	<0.0001
Gender (male × female)	−0.51 (0.22)	<0.05
Origin (national × international migrants)	−0.16 (0.38)	>0.05
Origin (regional × international migrants)	−0.8 (0.39)	<0.05
Origin (native × international migrants)	−1.21 (0.34)	<0.0001
Frequentation of a health center	−0.02 (0)	<0.0001
Residual deviance: 274.74 Residual df: 164 *AIC: 395.81*		

Wald chi-squared test for the remaining pairwise combinations for Origin Groups	Wald Chi-squared	p value
Native × regional migrants	1.9	>0.05
Native × national migrants	14.2	<0.001
Regional × national migrants	3.4	>0.05

People are more actively involved in decision-making when they use natural products rather than allopathics, whose knowledge on structure and functioning is often restricted to professionals (physicians) who are responsible for other people's health. Therefore, CAM products can empower the user and women are more likely to seek for such empowerment. The finding that migrants are more likely to use CAM products, as well as the field observations, may indicate that a contrasting process is taking place in the community. On the one hand, migrants (especially national and international) have brought to the Capão Valley the emerging status of CAM observed in most of their homelands. On the other hand, the increasing loss of traditional knowledge is taking place in rural communities of the Chapada Diamantina region [5] and native people in the Capão valley may also be (or have been) part of it, although this premise would need to be adequately evaluated.

However, exchanges between groups can be responsible for the maintenance of CAM products in the area. The previously mentioned native-to-migrant path of knowledge transmission on medicinal plants increases depositors of traditional knowledge and amplifies resilience [26]. Additionally, the enthusiasm of many migrants to use and incentive CAM in the search for a better life quality is already being incorporated by some natives.

Frequentation to health centers, clinics and hospitals negatively influenced CAM choice and prioritization. A plausible explanation for this context is that the condition of "patient" makes people rely on physician's advices and prescriptions and official health centers commonly prescribe allopathic. It happens because physician knowledge of CAM products is often limited [27,28] and physicians are often reluctant to incentive CAM use because of their concern with harmful interactions between CAM and OM products [28].

4.3. Does the visitation to the local health center lead to a proportionally higher choice and prioritization of CAM products when compared to other PHCs?

Considering that patients are extremely prone to employ what the physician recommends, it is plausible to infer that philosophical and epistemological orientation of professionals in an official health center is an important driver of health seeking behaviors. In the case of the Capão Valley, health professionals are not only free of prejudices regarding CAM, but also incentive its use under certain circumstances. This behavior is different from most other PHCs from the surroundings, which commonly have OM products as the only possibilities to treat health problems. Although many studies report that physicians have a low knowledge of CAM products, as stated above, this scenario is changing in some places, as medical doctors get more familiar with and refer patients to non-mainstream medicine (see Ref. [29]).

5. Conclusions

Health seeking behaviors in the Capão Valley are extremely integrative as most people make a joint use of CAM and OM products and most health problems are treated with both of them. This scenario of integration is increasingly observed throughout the world and scientists and policy makers have to learn to deal with it. Science has an important role in this issue, as this joint

employment of CAM and OM needs to be better evaluated in terms of advantages and disadvantages. Therefore, medical literature must increase its efforts to identify positive, innocuous and harmful interactions between CAM and OM products.

Women, migrants and people that do not frequent PHCs are the main supporters of CAM products. In the case of migrant people, their high adhesion to CAM products (especially medicinal plants) can turn them into new depositors of local (traditional) knowledge, although this knowledge will not be dissoluble from other types of medicinal plant knowledge. The fact that different behaviors were found between native and migrant people indicates that cultural pluralism must be taken into account when studying health-seeking behaviors.

Finally, this study has some limitations, which include: (1) the methodological cut-off, since only CAM and OM products were studied instead of a wider approach with all health-seeking behaviors, and (2) sampling may be underestimated, since the margin of error of this research was of 6.05% (when a typical margin of error is 5%). However, there is a very small difference between the real and the ideal sample, so that results presented here most likely corresponds to the patterns found in the community.

Conflict of interest

None.

Authors contribution

All research done by the authors.

Acknowledgements

The authors thank Conselho Nacional de Desenvolvimento Científico e Tecnológico for the research funding (Project 'Alimentos funcionais da flora nativa do Vale do Capão—Chapada Diamantina, Nordeste do Brasil' - nº 407583/2013-0). They also thank the Capão Valley dwellers for kindly participating in the study. We especially thank Áureo, Celi, Maceió, Françoise and Fortià for all support during our fieldwork and permanence in the community.

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