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The use of integrative and complementary practices in leprosy-related pain is influenced by sociodemographic, clinical and care factors: A case-control study

O uso de práticas integrativas e complementares na dor relacionada à hanseníase é influenciado por fatores sociodemográficos, clínicos e assistenciais: Um estudo caso-controle

El uso de prácticas integradoras y complementarias en el dolor relacionado con la lepra está influenciado por factores sociodemográficos, clínicos y asistenciales: Un estudio de casos y controles

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Abstract

Purpose: Study in order to evaluate the use of complementary and integrative practices for leprosy-related pain. Cross-sectional, descriptive and quantitative research carried out at the University Hospital and Medical Specialties Center of Sergipe between February and June 2019. Methods: 170 people with leprosy pain contributed socio-demographic data, resources used for pain relief and factors that hinder adherence to practices. For pain assessment, the Verbal Pain Scales, Descriptor Scales and the tester Douler Neuropathic 4 were used. Results: Neuropathic pain was present in 119 individuals (70.0%) and the pain was assessed as severe in 85 (50.0%). Half of them (86; 50.6%) reported using pain relief: restricted diet (50, 29.4%), exercise (32, 18.8%), massage (31, 18.2%), among others. The factors that most influenced adherence to practices: lack of information (65, 38.2%), economic reasons (36, 21.2%), subjective characteristics (34, 20.0%). Women (45, 60.0%, p = 0.0427), patients with the borderline clinical form of the patient (23, 74.2%, p = 0.0014), reporting a burning sensation on the skin (70, 55, 5%, p = 0.0437), and those monitored by a physiotherapist (11, 84.6%, p = 0.0178) showed greater adherence to the practices. Conclusion: It is concluded that several complementary and integrative practices are being used for pain relief, but sociodemographic, clinical and care factors can influence adherence to these interventions.

Keywords: Leprosy; Pain; Complementary therapies.

Resumo

Objetivo: Estudo com intuito de avaliar o uso de práticas complementares e integrativas para a dor relacionada à hanseníase. Investigação transversal, descritiva e quantitativa realizada no Hospital Universitário e Centro de Especialidades Médicas de Sergipe entre fevereiro e junho de 2019. Método: 170 pessoas com dor hansênica contribuíram com dados sociodemográficos, recursos utilizados para o alívio da dor e fatores que dificultam a adesão às práticas. Para a avaliação da dor, foram utilizadas as Escalas Verbal de Dor, Descriptor Scales e o tester Douler Neuropathic 4. Resultados: Dor neuropática esteve presente em 119 indivíduos (70,0%) e a dor foi avaliada como intensa em 85 (50,0%). Metade deles (86; 50,6%) informou usar para alívio da dor: dieta restrita (50, 29,4%), exercícios (32, 18,8%), massagens (31, 18,2%), entre outras. Os fatores que mais influenciaram na adesão às práticas: falta de informação (65, 38,2%), motivos econômicos (36, 21,2%), características subjetivas (34, 20,0%). Mulheres (45, 60,0%, p = 0,0427), pacientes com a forma clínica limítrofe do paciente (23, 74,2%, p = 0,0014), relatando sensação de queimação na pele (70, 55,5%, p = 0,0437), e os acompanhados por fisioterapeuta (11, 84,6%, p = 0,0178) apresentaram maior adesão às práticas. Conclusão: Conclui-se que diversas práticas complementares e integrativas estão sendo utilizadas para o alívio da dor, mas fatores sociodemográficos, clínicos e assistenciais podem influenciar na adesão dessas intervenções.

Palavras-chave: Hanseníase; Dor; Terapias complementares.

Resumen

Objetivo: Estudiar para evaluar el uso de prácticas complementarias e integradoras para el dolor relacionado con la lepra. Investigación transversal, descriptiva y cuantitativa realizada en el Hospital Universitario y Centro de Especialidades Médicas de Sergipe entre febrero y junio de 2019. Métodos: 170 personas con dolor por lepra aportaron datos sociodemográficos, recursos utilizados para el alivio del dolor y factores que dificultan la adherencia a las prácticas. Para la evaluación del dolor se utilizaron las Escalas Verbal de Dolor, las Escalas Descriptor y el probador Douler Neuropathic 4. Resultados: El dolor neuropático estuvo presente en 119 individuos (70,0%) y el dolor se calificó como severo en 85 (50,0%). La mitad de ellos (86; 50,6%) refirió utilizar analgésicos: dieta restringida (50, 29,4%), ejercicio (32, 18,8%), masajes (31, 18,2%), entre otros. Los factores que más influyeron en la adherencia a las prácticas: falta de información (65, 38,2%), razones económicas (36, 21,2%), características subjetivas (34, 20,0%). Mujeres (45, 60.0%, p = 0.0427), pacientes con la forma clínica límite del paciente (23, 74.2%, p = 0.0014), reportando una sensación de ardor en la piel (70, 55, 5%, p = 0.0437), y los monitorizados por fisioterapeuta (11, 84,6%, p = 0,0178) mostraron mayor adherencia a las prácticas. Conclusión: Se concluye que se están utilizando diversas prácticas complementarias e integradoras para el alivio del dolor, pero factores sociodemográficos, clínicos y asistenciales pueden influir en la adherencia de estas intervenciones.

Palabras clave: Lepra; Dolor; Terapias complementarias.

1. Introduction

Leprosy is an infectious disease caused by Mycobacterium leprae, one intracellular parasite with cutaneous tropism for macrophages and Schwann cells of the peripheral nervous system (Rodrigues & Lockwood, 2011). Chronic infectious disease related in two subgroups for therapeutic purposes: paucibacillary and multibacillary, closely related to the host's immune responses (Marçal et al., 2020).

India, Brazil and Indonesia stand out in respect of new cases in the world ((WHO), 2017). In Brazil, leprosy is more prevalent in the North, Northeast and Midwest regions (Ribeiro et al., 2018). The state of Sergipe has high rates of endemicity, with 16.04 cases per/100 thousand inhabitants (Saúde, 1990).

Leprosy control achieved significant success in the 1980-1990s with the implementation of multidrug therapy, which its global prevalence to less than 1 in 10,000 inhabitants, however, there is a relative stagnation in its control (Steinmann et al., 2020).

The frequency of pain in patients with leprosy is high, and can reach more than 70% of this population. Nociceptive pain is present in approximately 10% of individuals (Santos et al., 2016), and neuropathic pain can affect more than half of this population, which can occur even years after the completion of treatment (Toh et al., 2018).

Pain is an unpleasant sensory and emotional experience associated with, or similar to that related to actual or potential tissue damage (Rajaa et al., 2020). The pain caused by leprosy can be nociceptive due to tissue inflammation, frequently found in episodes of immune activation, or neuropathic type, as a consequence of damage to the nervous system (PRNAG & Dalben, 2012).

The presence of pain unconsciously generates changes in vital signs, stress and anxiety in the patient (Dik & Lohmann, 2020). Therefore, people with leprosy pain suffer daily physical restrictions that impact their quality of life (Santos et al., 2016; Toh et al., 2018).

Pharmacological treatment of nociceptive pain in individuals with leprosy is carried out using corticosteroids, thalidomide or non-hormonal anti-inflammatory drugs, and for neuropathic pain, anticonvulsants, tricyclic or neuroleptic antidepressants are used (Saúde, 2008). The Brazilian government offers these drugs for treatment, but some drugs are not well tolerated by users because of their side effects. (Del Arco et al., 2016).

In 2006, the Brazilian government instituted Ordinance 971GM/MS on the National Policy of Integrative and Complementary Practices (PNPIC) and presented guidelines for the use of integrative and complementary practices (CIPs) (acupuncture, homeopathy, medicinal plants and herbal medicine, anthroposophic medicine and crenotherapy) in the public health system. In 2017, other practices were included including art therapy, Ayurveda, bio-dance, circular dance, meditation, music therapy, reflexology, reiki, yoga and shantala (Brasil & Saúde, 2017). The use of CIPs has been expanded in public and private health networks in different scenarios, as it contributes to the relief of symptoms in a humanized way, reduces the use of medications and has a positive impact on the quality of life of users (do Val Silva et al., 2020).

Despite the presence of pain related to leprosy being frequent and causing a negative impact on (Santos et al., 2016) society, and the fact that complementary and integrative practices have shown themselves to be useful in the treatment of pain (Brain et al., 2019; Stein, 2016), there are few studies on this topic. Therefore, the objectives of this study were to evaluate the differences between users and nonusers of complementary and integrative practices for the relief of pain related to leprosy, know the CIPs used for pain relief and the factors that influence adherence to them.

2. Methodology

This research was approved by the Research Ethics Committee of the Federal University of Sergipe under no. 3.090,481. Participants were informed about the objectives of the study and signed an Informed Consent Form. The research followed the recommended by resolution Nº466 do National Council for Ethics and Human Research.

2.1 Study population and data sources

This is a transversal observational study with a quantitative approach and was carried out in two centers for the care of leprosy in the state of Sergipe: The Leprosy Care Unit at the University of Sergipe Hospital (HU-UFS), and the Medical Specialties Center, Aracaju (CEMAR), in the period between February and June 2019.

Sample size was calculated considering the average number of people with leprosy treated monthly at CEMAR and HU-UFS, and an estimated frequency of pain associated with leprosy of 75% (Santos et al., 2016). This resulted in a sample of 806 individuals in the five-month research period. A pilot study was carried out in the first month of data collection of the research, and it was observed that approximately 10% of the interviewees used CIPs for pain relief, obtaining the proportion $p = 0.10$. Considering a significance level of $p < 0.05$, and a margin of error of 5%, based on the formula for calculating sample sizes (Miot, 2011), the minimum sample size resulted in 118 individuals.

During the study, 188 individuals were approached, of whom 10 were excluded for having diabetes mellitus, which was one of the exclusion criteria, and 8 people refused to participate due to lack of time and/or having other physical ailments. Thus, the total sample size was 170 individuals.

The inclusion criteria were: having neuropathic and/or nociceptive pain which was associated with leprosy for a minimum period of two months up to the time of recruitment. The exclusion criteria were: being under four years old, being a chronic alcoholic, having diabetes mellitus or having neurological or mental disorders that might interfere with the evaluation.

2.2 Variables

The medical records were analyzed to collect clinical and care data, and sociodemographic data of the patients were also obtained through interviews, along with the application of respondents about the intensity, frequency of pain and about their medical condition and the consequences of the use of integrative practices and for pain relief and factors that hinder adherence to PICs.

The following scales were also applied: the World Health Organization (WHO) disabilty grading, to check the degree of disability (Brandsma & Brakel, 2003), the Verbal Descriptor Scale (VDS) for pain intensity (Herr et al., 2004) and the Douler Neuropathic 4 questionnaire (DN4) for the type of pain (Bouhassira et al., 2005). These instruments have been translated into Portuguese and validated for use in Brazil. The scores for the WHO disability grading were: 0 (carrier presents no degree of disability); 1 (there is a decrease or loss of sensation in the eyes, hands or feet, no visible deformity); and 2 (there is loss of sensation and visible deformities in the eyes, hands or feet) (Brandsma & Brakel, 2003). The verbal descriptors scale (VDS) quantifies the sensation of pain by different words representing intensities of subjective pain, such as none, mild, moderate, strong and worst possible pain (Herr et al., 2004).

The DN4 is a questionnaire that was originally developed and validated in France in 2005 and translated into Brazilian Portuguese. This questionnaire distinguishes neuropathic pain and nociceptive pain using seven items related to symptoms (burning sensations, painful cold, electric shocks, tingling, pins and needles, numbness and itching) and three physical evaluation items to check hypoesthesia (touch, a needle, and brushing). A score of 1 is given for each item positive answer and 0 for each negative answer. Patients with scores ≥ 4 are classified as having neuropathic pain rating; lower scores are classified as nociceptive pain (Bouhassira et al., 2005).

To gather other research data on the individuals with leprosy, a questionnaire was used that included sociodemographic information, data on the intensity and frequency of pain, the effects of the pain, the types of treatments used for pain relief, and the factors that hamper adherence to treatments. The questionnaire was developed by the researchers and was initially valided in five individuals with leprosy. The questionnaire was applied by a single researcher and statistically analyzed by a different researcher (Koche, 2011).

2.3 Statistical analysis

The categorical variables were described as absolute and relative frequency rate. Pearson's chi-square test or Fisher's exact test were used to verify the association between the variables (sociodemographic, care and clinical) of patients with pain related to leprosy between the group with patients who used PICs in the group not used for pain relief. To verify the normal distribution of variables, the Shapiro-Wilks test was used. The significance level adopted was $p < 0.05$ and the software used was R, version 3.6.1 (https://www.R-project.org/).

3. Results

The sample consisted of 170 subjects, 95 (55.9%) males, with the most prevalent age between 36 and 75 years. 133 (78.23%) the highest level of education completed was elementary school education for 85 participants (50.0%), and 37 (21.8%) were illiterate. 84 subjects (49.4%) had a household income equal to the monthly minimum Brazilian salary, and 76 (44.7%) earned less than this.

Of the 170, 105 (61.8%) had no other disease, 52 (50.0%) had a clinical form of lepromatous, 31 (29.8%) had borderline lepromatous, 13 (12.5%) had tuberculoid leprosy, and 8 (7.7%) had an undetermined condition. Most patients had a leprosy reaction (77; 45.5%, and only 4 (2.4%) had a recurrence) and were discharged due to cure (99; 58.2%).

Topographically, 118 (69.4%) reported pain in the legs and feet, 101 (59.4%) in the arm, 98 (57.6%) in the hand, and 25 (14.7%) in the back. Of these, 119 (70.0%) reported neuropathic pain: 1 (0.6%) unbearable, 85 (50.0%) intense, 62 (36.5%) moderate, and 22 (12.9 %) light. As to pain frequency, pain was daily in 94 individuals (55.3%), less than three days intervals in 48 (28.4%), and less than weekly intervals in 28 (16.5%).

The most common types of treatment were corticosteroids (for pain) (129; 75.9%), antidepressants (48; 28.2%) and thalidomide (42; 24.7%), with 9 individuals (11.2%) not using any medication.

Half of the sample (86; 50.6%) stated that they used complementary and integrative practices for pain relief. The practices mentioned were: restricted diet without seafood, pork or fatty food (50; 29.4%); physical exercise (32; 18.8%); massage (31; 18.2%); cold compress (18; 10.6%); hot compress (6; 3.5%), lemon balm tea (4; 2.4%); electrotherapy (TENS) (3; 1.8%); old man's cinnamon tea (2; 1.2%); and pichilinga, garlic and mango leaf tea (1; 0.6%, each). Of these patients, 48.8% (42) a practice used only for the relief of pain, 29.1% (25) 22.0% and two (22) three (Table 1).

Patients stated that they had more than one source of information about CIPs, the most common being: popular knowledge 75.5% (114), a physician 14.6% (22), a nurse 5.3% (8), a physical therapist 3.3% (5) and a community health agent 1.3% (2). Patients reported undertaking the practices at home in 97.4% of cases (147), and in private clinic 1.9% (3) or reference hospital 0.7% (1) (Table 1).

Table 1 - Complementary and integrative practices used by individuals to treat leprosy pain in Sergipe Reference Centers, 2019.

Variables		**N**	**%**
Knowledge of CIPs	Yes	86	50.59
	No	84	49.41
Restricted diet	Yes	50	29.41
Source of information	Popular knowledge	41	82.00
	Doctor	8	16.00
	Nurse	1	2.00
ormed	At Home	50	100.00
Physical exercise	Yes	32	18.82
Source of Information	Popular knowledge	26	81.25
	Doctor	6	18.75
Performed	At Home	32	100.00
Massage	Yes	31	18.24
Source of Information	Popular knowledge	20	64.52
	Doctor	4	12.90
	Nurse	4	12.90
	Physiotherapist	2	6.45
	Health agent	1	3.23
Performed	At Home	30	96.77
	Private clinic	1	3.23
Cold compress	Yes	18	10.59
Source of Information	Popular knowledge	15	83.33
	Doctor	1	5.56
	Nurse	1	5.56
	Health agent	1	5.56
Performed	At Home	18	100.00
Hot compress	Adept	6	3.53
Source of Information	Popular knowledge	4	66.67
	Doctor	2	33.33
Performed	At home	6	100.00

Teas (lemon balm, garlic, cinnamon, mango, leaf and pichilinga)	Yes	9	5.31
Source of Information	Popular knowledge	3	75.00
	Nurse	1	25.00
Performed	At Home	4	100.00
Electrotherapy-TENS	Yes	3	1.76
Source of Information	Physiotherapist	3	100.00
	Private clinic	2	66.67
Performed	Reference Hospital	1	33.33

Note: Complementary and integrative practices used by individuals to treat leprosy pain.
Source: Author’s archive.

Among the factors reported that interfered with adhesion to complementary practices were: lack of information (74, 43.5%), mainly not knowing about the existence of the CIPs (61, 35.9%); financial reasons (47, 35.3%) - lack of funds to buy the materials to perform the practice at home (24, 14.1%), or to travel to the location where the service is offered (23, 13.5%). Other factors reported were: undetermined 35 (20.6%); lack of time 28 (16.5%); service infrastructure problems 32 (18.8%); lack of resources at the institution 24 (14.1%); and physical/health difficulties 16 (9.4%) - 13 due to tiredness (7.7%), and 3 physical disability 3 (1.8%) (Table 2).

Table 2 - Factors that interfere with adherence to the CIPs in individuals with pain due to Hansen's disease in Reference Centers of Sergipe, 2019.

Variables	Nº	%
Lack of information	74	43.54
Not informed of existence of CIPs	61	35.88
There have been reported as performing at his residence	10	5.88
Fear	03	1.78
Financial reasons	47	35.30
Lack of financial resources to undertake CIP at home	24	14.12
Lack of financial resources to travel to the location where the service is offered	23	13.53
Subjective aspects	35	20.06
The lack of time	28	16.47
Did not identify with the recommended practice	04	2.35
Shame	03	1.78
Service infrastructure issue	32	18.83
Lack of the institution resources	24	14.12
Distance to the service	08	4.71
Physical / Health	16	9.41
Fatigue	13	7.65
Physical disability	03	1.76

Note: Factors that interfere with adherence to the CIPs in individuals with pain due to Hansen's disease.
Source: Author’s archive.

Comparing those who undertook CIPs with those who did not, significant differences were found for sex (60.0%, 45; p = 0.0427, of the users were women), among people with the clinical borderline form of the disease (74.2%, 23; p = 0.0014), those who felt a burning sensation on the skin (55.5%, 70; p = 0.0437), and those who had follow up with a physiotherapist (84.6%, 11; P = 0.0178). (Table 3).

Table 3 - Comparison between users and non-users of CIPs for pain relief due to leprosy in Reference Centers in Sergipe, 2019.

		Users of CIPs		
Variables		**No(%)**	**Yes(%)**	**P-value**
Sex	Female	30 (40.00)	45 (60.00)	0.0427*
	Male	54 (56.84)	41 (43.16)	
Age Range	18-25	05 (38.46)	08 (61.54)	0.7025
	26-35	11 (55.00)	09 (45.00)	
	36-45	26 (57.78)	19 (42.22)	
	46-55	19 (48.72)	20 (51.28)	
	56-75	21 (42.86)	28 (57.14)	
	75 mais	02 (50.00)	02 (50.00)	
Income per person	Below 1 salary	38 (50.00)	38 (50.00)	0.7764
	1 minimum salary	40 (47.62)	44 (52.38)	
	up to 3 salaries	06 (60.00)	04 (40.00)	
Education	Illiterate	15 (40.54)	22 (59.46)	0.2241
	Elementary School	40 (47.06)	45 (52.94)	
	High school	25 (58.14)	18 (41.86)	
	University educationr	04 (80.00)	01 (20.00)	
Race	Black	33 (48.53)	35 (51.47)	0.3069
	Brown	48 (52.75)	43 (47.25)	
	White	03 (27.27)	08 (72.73)	
Leprosy Type	Indeterminate	04 (50.00)	04 (50.00)	0.0014*
	Tuberculoid	11 (84.62)	02 (15.38)	
	Dimorphic	08 (25.81)	23 (74.19)	
	Virchowian	30 (57.69)	22 (42.31)	
Clinical manifestations				
Tarnish	Yes	44 (46.81)	50 (53.19)	0.5480
	No	40 (52.63)	36 (47.37)	
Nodules	Yes	11 (50.00)	11 (50.00)	1.0000
	No	73 (49.32)	75 (50.68)	
Burning	Yes	56 (44.44)	70 (55.56)	0.0437*
	No	28 (63.64)	16 (36.36)	
Numbness	Yes	71 (47.97)	77 (52.03)	0.4565
	No	13 (59.09)	09 (40.91)	
Hand deformity	Yes	04 (30.77)	09 (69.23)	0.2482
	No	80 (50.96)	77 (49.04)	
Support				
Doctor or Nurse	Yes	84 (49.41)	86 (50.59)	
	No	00 (0.00)	00 (0.00)	
Psychologist	No	82 (49.70)	83 (50.30)	1.0000
	Yes	02 (40.00)	03 (60.00)	
Physical therapist	No	82 (52.23)	75 (47.77)	0.0178*
	Yes	02 (15.38)	11 (84.62)	

* Significant difference. The tests were Pearson's Chi-Square and Fischer's Exact. Note: Comparison between users and non-users of CIPs for pain relief due to leprosy.
Source: Author’s archive.

4. Discussion

The results of this study indicated that subjects with pain associated with leprosy use complementary and integrative practices (CIPs) for analgesia. Among the most used are restricted diets, physical exercise, massage and cold compresses. In addition, lack of information, financial reasons, subjective aspects, service infrastructure problem and the physical limitations/health are the main factors for non-adherence to the CIPs. Finally, being female, having the severe clinical form of the disease and follow up with a physiotherapist were factors that made patients more likley to adhere to the use of CIPs.

The main practice used for pain relief as a preventive action was restricted diet (no seafood, pork and fat). It is known that a plant-based diet can decrease inflammation and pain in the body, reducing concentrations of exogenous arachidonic acid, which decreases the production of pro-inflammatory (Calder, 2011). Also, proteins derived from animals, such as methionine and cysteine, can further induce inflammation in the body causing pain (Fontana & Partridge, 2015). The greater use of this practice is probably due to its recommendation by health professionals. Advice from the health care sector is already an established way of the population receiving information on health in general.

Physical activity was reported as the second most common aid for pain relief. There is research that shows that home exercise in older adults with chronic pain contributes to pain reduction (Nicolson et al., 2019), with physical exercise resulting in the release of endogenous opioids that connect to receptors on pain modulation sites (Stein, 2016). Massage was another one of the resources used for pain relief. Massage is a technique that is widely used to relieve back pain (Tsang et al., 2017). It assists in relieving pain by promoting relaxation and inhibiting sensory transmission in pain pathways, as well as by improving blood flow and oxygenation of tissues (Mc Nabb et al., 2006).

Some patients with pain related to leprosy were using thermotherapy (heating or cooling). The application of local heat has the ability to reduce muscle spasms and irritation of the nerve root. Reductions in temperature can interfere with pain processing, and certain low-temperature levels can result in the release of endorphins (de Araújo et al., 2010).

Among the teas cited as CIPs for pain relief, *Melissa officinalis* (lemon balm) was the most mentioned. It is a well-known medicinal plant that is also used in cosmetics, and in many countries is used as a tea with reported sedative properties. Rosmarinic acid is the main constituent phenol of *M. officinalis*, and is reported to have strong anti-nociceptive effects (Bisset & Wichtl, 1994; Čanadanović-Brunet et al., 2008), which may explain the perception of the teas' ability to relieve pain in users.

Electrotherapy using transcutaneous electrical nerve stimulation (TENS) has also been reported as a means for the relief of pain, but less frequently. A study showed that it was effective in reducing nonspecific lower back pain after 20 minutes application (Verruch et al., 2019). TENS is used with the purpose of influencing and modulating the neuroconduction process of pain and acting on the release of endogenous opioids (Rushton, 2002). In this study, more than half of the CIP users used more than one practice for pain relief. A similar finding was made in an American study on chronic pain (Wayne et al., 2018). The use of more than one CIP may be associated with individuals having better results in the terms of pain relief.

The fact that over half the sample use some form of CIP for the relief of pain agrees with the results of studies in the United States (Feinberg et al., 2018), and in Malaysia among individuals with different types of acute and chronic pain (Kaur et al., 2019). However, this also indicates that almost half of individuals with pain may be missing out on the use of CIPs that might benefit the management of their pain. Most individuals made use of PICs at home and found out about these practices through family, the community or via social media. Even though CIPs do not involve invasive procedures or high risk, they should be administered carefully, with an understanding of the capabilities and limitations offered by these therapies, and information on these treatments should not be generalized (Aguiar et al., 2020), to avoid the use of inappropriate treatments for particular types of pain, or even aggravating the disease of their users.

Our results also showed that women were more likely to be users of CIPs; The same was found in a study of patients undergoing elective surgery in Australia (Guilmetdinov et al., 2019). Possibly, due to a cultural issue that accustomed the search for different forms of care for women. People with leprosy of the borderline type were more likely to use CIPs, as well as those who reported feeling a burning sensation on their skin. It is probable that the increased discomfort caused by the symptoms of this clinical form of the disease stimulated the use of different resources. Similarly, those who had follow-up with a physiotherapist used more CIPs, which may be related to the fact that some resources used for pain relief and massage are similar to those used in physical therapy. Supporting these relationships, a study of cancer patients found that the demand for complementary therapies is based on personal experiences. (Poonthananiwatkul et al., 2016) Other sociodemographic and clinical factors such as age, associated diseases and pain intensity were not associated with the use of CIPs in this study. In contrast, a study conducted in the US found that the use of CIPs in patients with pain was more prevalent in younger people, with less comorbidity and less pain. (Ashrafioun et al., 2018)

The lack of information about the existence and use of CIPs was reported as the main barrier to patient adherence to this type of treatment. This may be a reflection of the fact that less than 25% of Brazilian Medical Schools includes teaching about CIPs in their curriculum (Albuquerque et al., 2019). In addition, there is a lack of knowledge and insecurity in some health services managers about the use of CIPs (Barros et al., 2020). Health professionals must be able to advise and train patients in the use of CIPs, and have knowledge about their benefits and their potential adverse effects so that the public can be better informed about their use (Albuquerque et al., 2019). However, for this to happen health professionals need to receive the proper encouragement and preparation during their training and also be updated on this rapidly changing subject as part of their continuing education in the exercise of their profession.

Financial reasons, such as not being able to afford the CIPs or to be able to travel to the location where the service was being offered, also limited their use. In addition, a general lack of services was a significant problem, with institution's not having resources to deliver treatments. General infrastructure problems relating to transportation were also reported to be a problem. All these problems are accentuated by the fact that leprosy has a higher prevalence in populations with low economic conditions (Koç & Çınarlı, 2018). Greater financial investment is required to increase access to CIPs and encourage their use. Similar problems are present, even in high-income countries. In an American study, cancer patients cited the opening hours of the service, transportation to the service and their health status as barriers to the use of CIPs (de Assis et al., 2018). There are, therefore, many obstacles to overcome to improve the delivery of CIPs and implement better support for individuals with pain in health services.

This study has some limitations which should be noted. First, the sample was not representative of the population served by primary care. Second, the study did not follow the factors that interfere with adherence over time. We recommend that further studies use clinical trials to evaluate the effects of CIPs on the relief of pain, considering the periods before and after their administration. Finally, practices that check adhesion to CIPs for the treatment of pain over time need to be put in place.

5. Conclusion

Several distinct complementary and integrative practices are being used by individuals with pain arising from leprosy, and sociodemographic and clinical factors, as well as professionals monitoring can influence adherence to these practices. We recommend that more case-control studies be carried out to assess the intensity of pain relief before and after complementary and cohort practices to verify compliance and pain relief over time.

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