BrJP. São Paulo, 2022 oct-dec;5(4):354-8

ORIGINAL ARTICLE

Lifestyle factors in patients with chronic neuropathic pain after COVID-19: a cross-sectional study

Fatores relacionados ao estilo de vida de pacientes com dor crônica neuropática pós-COVID-19: estudo transversal

Weltton Augusto da Silva Barbosa[1], Lilian Chessa Dias[2], Ana Marcia Rodrigues Cunha[2], Marcos D'all Aglio Foss[2], Paulo Rafael Condi[2], Marielza Regina Ismael Martins[1]

DOI 10.5935/2595-0118.20220058-en

ABSTRACT

BACKGROUND AND OBJECTIVES: Lifestyle after a social restriction caused by the COVID-19 pandemic pointed to influence on chronic pain scenarios. The aim of this study was to identify lifestyle factors related to patients with chronic neuropathic pain after COVID-19 infection.

METHODS: This is a cross-sectional observational analytical study with 62 patients diagnosed with chronic neuropathic pain and belonging to a Pain Clinic, where a form with sociodemographic data was applied and they were evaluated using the Neuropathic Symptoms and Signs Pain Scale (S-LANSS) and the Fantastic Lifestyle Questionnaire (FLQ), respectively, which provides a wide range of information regarding lifestyle behaviors.

RESULTS: The sample was composed of 62 participants, mean age 56.2±12.9 years, predominance of women (60%), married people (64%) and with children (80%). S-LANSS revealed 48 patients (77%) with neuropathic mechanisms on sensitivity examination, 80%(n=50) reported allodynia only in the painful area. Almost 80% of patients had regular lifestyle (n=48), with the activity and nutrition components being self-perceived negatively.

CONCLUSION: In the present study, patients with chronic neuropathic pain showed that the level of activity and the presence of alcohol compromised their lifestyle. These components are aspects of these patients lifestyle that must be understood and validated in order to think of countering strategies that can influence new forms of approach and organization of services.

Keywords: Chronic pain, Lifestyle, Quality of life.

RESUMO

JUSTIFICATIVA E OBJETIVOS: O estilo de vida após uma restrição social causada pela pandemia do COVID-19 apontou a influência sobre quadros de dores crônicas. O objetivo deste estudo foi identificar fatores relacionados ao estilo de vida de pacientes com dor neuropática crônica após infecção de COVID-19.

MÉTODOS: Trata-se de um estudo analítico observacional transversal com 62 indivíduos diagnosticados com dor crônica neuropática e vinculados a uma Clínica de Dor. Foram aplicadas fichas com dados sociodemográficos, as quais foram avaliadas por meio da escala de dor *Neuropathic Symptoms and Signs Pain Scale* (S-LANSS) e do Questionário de Estilo de Vida Fantástico (FLQ), respectivamente, que fornecem uma ampla gama de informações em relação aos comportamentos que caracterizam o estilo de vida.

RESULTADOS: A amostra foi composta por 62 participantes, com média de idade de 56,2±12,9 anos, predomínio de mulheres (60%), pessoas casadas (64%) e com filhos (80%). A S-LANSS revelou 48 pacientes (77%) com mecanismos neuropáticos no exame de sensibilidade, 80%(n=50) relataram alodinia somente na área dolorida. Quase 80% dos pacientes apresentaram estilo de vida regular (n=48), com os componentes de atividade e nutrição sendo autopercebidos negativamente.

CONCLUSÃO: No presente estudo, os pacientes com dor crônica neuropática mostraram que o nível de atividade e a presença de álcool comprometeram seu estilo de vida. Estes componentes são aspectos do estilo de vida desses pacientes que devem ser entendidos e validados, a fim de se pensar em estratégias de enfrentamento que possam influenciar novas formas de abordagem e organização de serviços.

Descritores: Dor crônica, Estilo de vida, Qualidade de vida.

INTRODUCTION

Lifestyle can be understood as a cultural and social way of living and corresponds to a set of all activities of daily living, capable of favoring health in a full and healthy way[1]. The World Health Organization (WHO) defines lifestyle as "a set of habits and

---

Weltton Augusto da Silva Barbosa – https://orcid.org/0000-0001-9932-1987;
Lilian Chessa Dias – https://orcid.org/0000-0003-0250-9647;
Ana Marcia Rodrigues Cunha – https://orcid.org/0000-0001-9503-6337;
Marcos Dall Aglio Foss – https://orcid.org/0000-0002-9821-8029;
Paulo Rafael Condi – https://orcid.org/0000-0002-2693-5387;
Marielza Regina Ismael Martins – https://orcid.org/0000-0002-1140-7581.

1. São José do Rio Preto Medical School, Post-Graduation in Nursing, São José do Rio Preto, SP, Brazil.
2. São José do Rio Preto Major Hospital, Pain Clinic, São José do Rio Preto, SP, Brazil.

Submitted on June 28, 2022.
Accepted for publication on November 16, 2022.
Conflict of interest: none – Sponsoring sources: Capes scholarship.

HIGHLIGHTS
- The lifestyle of chronic pain patients was altered post-COVID.

Correspondence to:
Marielza Regina Ismael Martins
E-mail: marielzamartins@famerp.br

customs that are influenced, modified, encouraged, or inhibited by the prolonged process of socialization. These habits include the prevention of chronic non-communicable diseases and other health risk factors such as physical inactivity, inadequate diet, smoking, and excessive alcohol consumption, as well as the use of psychoactive substances[2].

During the COVID-19 pandemic there was a need for changes in the lifestyle of the population, which generated stress due to loss of jobs or family members, an increase in psychiatric illnesses, and social isolation, resulting in an increase in consumption of alcohol, tobacco, and processed foods, and an increase in sedentary habits[3].

In a recent study[3], researchers routinely followed 50 patients who were exposed to the new coronavirus responsible for the pandemic and who also had neuropathic chronic pain (NCP) caused by peripheral or central lesions. All of the survivor patients reported a worsening of their neuropathic pain (NP) for several weeks or more. These researchers concluded that in the near future, prospective follow-up of patients with chronic pain (CP) affected by COVID-19 may determine whether the risk of pain exacerbation is distinct in neuropathic patients compared with patients without NP[3].

Some studies[4,5] revealed that CP patients infected with COVID-19, experienced exacerbation of their symptoms, which may be due to various factors including social threats, discontinuation of therapy, reduced access to treatment, and concerns about health outcomes. The psychosocial impact of COVID-19 and lockdown on patients with CP and the consequences in terms of therapeutic management have been outlined and altered the lifestyle of these patients[6].

According to the literature, the clinical and behavioral repercussions of COVID-19 led to changes in lifestyle and affected the mental health of citizens[7]. Regarding lifestyles, the social restriction led to a significant reduction in the levels of moderate to vigorous physical activity, an increase in the time spent in sedentary behavior, and a change in eating habits[7,8].

Therefore, according to existing studies, it can be said that lifestyle has a significant influence on human physical and mental health[9] and, in the case of patients with NCP, which often causes great suffering and disability, evaluating it becomes interesting since therapeutic management is a challenge and medications recommended as first-line treatments provide unsatisfactory relief in many patients[10].

Given this context, this study investigated the lifestyle of patients with NCP after being infected with COVID-19.

METHODS

This is an analytical, observational, cross-sectional study that followed Strengthening the Reporting of Observational studies in Epidemiology (STROBE) criteria, with application of two instruments at the time of the interview.

This study was carried out at the *Ambulatório da Clínica da Dor do Instituto de Câncer do Hospital de Base da Faculdade de Medicina de São José do Rio Preto* (Cancer Institute Pain Outpatient Clinic of the São José do Rio Preto Medical School Major Hospital - FAMERP), and the data collection period comprised the months of February to August 2021.

Sixty-two patients participated in the study from a total sample of 80 patients who performed monthly follow-ups in the Pain Outpatient Clinic of the Major Hospital in São José do Rio Preto, SP. The convenience sample was calculated with a sampling error of 5% and confidence level of 95%. Inclusion criteria were: having a diagnosis of NCP; being under treatment in the Pain Outpatient Clinic, regardless of treatment time; age over 18 years, regardless of gender; agreeing to participate in the study and signing the Free and Informed Consent Term (FICT). Patients with cognitive impairments, psychiatric comorbidities, disoriented or unable to verbalize were excluded.

First, an identification form was used, containing sociodemographic data such as: patient name, medical record number, age in complete years, origin, education, marital status, children, employment status, and profession. And when some information was needed, the electronic medical records were consulted.

To identify the patient's lifestyle, the Fantastic Lifestyle Questionnaire (FLQ)[11] was used, which consisted of 25 closed questions that explored nine domains: 1) family and friends; 2) physical activity; 3) nutrition; 4) smoking and drugs; 5) alcohol; 6) sleep and stress; 7) type of behavior; 8) introspection; 9) work. The coding of the questions was done by points, as follows: zero for the first column, 1 for the second column, 2 for the third column, 3 for the fourth column, and 4 for the fifth column. Questions with only two alternatives were scored with zero for the first column and four points for the last column. The sum of all the points resulted in a total score that classified individuals into five categories, which were: "Excellent" (85 to 100 points), "Very good" (70 to 84 points), "Good" (55 to 69 points), "Regular" (35 to 54 points), and "Needs improvement" (0 to 34 points). It was desirable that individuals reached the "Good" classification; the lower the score, the greater the need for change in the patient's lifestyle[9].

To assess NP, the Leeds Assessment of Neuropathic Symptoms and Signs Pain Scale (LANSS)[12] was used, which is a gold standard physical assessment, widely used in patients with neuropathic and chronic pain, and aims to differentiate cases of neuropathic pain from non-neuropathic pain, based on the analysis of the patient's sensitivity description and the examination of sensory deficits. Thus, five groups of symptoms are considered, among which the presence of dysesthesia, allodynia, paroxysmal pain, autonomic changes, and burning sensation at the site of pain are investigated. As a control for this evaluation, the area contralateral to the area where the pain is located was used. The answers to the LANNS are binary and refer to the pain experienced in the last week. The score ranges from zero to 24; if the value of this score is equal to or greater than 12, neuropathic mechanisms would be implicated with the patient's pain; if it is less than 12, neuropathy would be less likely. Participants who were diagnosed with NCP, were being treated at the Pain Clinic, regardless of treatment time, over 18 years of age, regardless of gender, and who had been contaminated with COVID-19, with mild and/or moderate symptoms was included.

The project was forwarded to the *Comitê de Ética e Pesquisa da Faculdade de Medicina de São José do Rio Preto* (Ethics and Research

Committee of the São José do Rio Preto Medical School - CEP/FAMERP) for consideration in attention to the ethical precepts in research on human beings, approved (protocol 015011/2019) under Opinion Number 3.307.768, on May 7, 2019.

RESULTS

The sociodemographic data obtained through the identification form are presented in table 1. The age of the 62 patients ranged from 30 to 85 years, with the highest percentage being female (60%). All patients had COVID-19 with mild and/or moderate symptoms in the years 2020/2021. Regarding marital status, 64% (n=40) were married and 80% (n=50) had children. As for education, the highest percentage of patients, 47% (n=29), had an elementary school education. In addition, a great part of the patients were away from work, 52% (n=32).

Table 1. Description of the sociodemographic variables of patients evaluated in the Pain Outpatient Clinic of *São José do Rio Preto* Major Hospital (n=62).

Variables	Frequency	%
Gender		
Female	37	60
Male	25	40
Origin		
São José do Rio Preto	36	58
Other Municipalities	26	42
Schooling		
Illiterate	3	5
Elementary school	29	47
High school	26	42
College education	4	6
Marital status		
Married	40	64
Single	14	23
Widower	2	3
Divorced	6	10
Children		
No	12	20
Yes	50	80
Employment situation		
Retired	15	24
Away from work	32	52
Active	8	13
Unemployed	7	11
Age (years)		
30 to 40	5	8
41 to 50	24	39
51 to 60	12	19
>60	21	34

Source: Research data

Through the LANNS scale, which determines how the nerves that carry pain information are functioning, table 2 shows the affirmative answers. As for the sensitivity test, in part B of the same scale, 80% (n=50) of the results showed allodynia only in the painful area, and 74% (n=46) of the cases indicated threshold alteration by stimulus with a needle only on the painful side. According to the scale used, neuropathic mechanisms were detected in 77% of cases (n=48).

Table 2. Positive responses to the questions of the LANNS scale, according to patients evaluated with chronic pain in the Pain Outpatient Clinic of *São José do Rio Preto Major* Hospital (n=62).

Questions	Yes (%)
Is your pain similar to a strange, unpleasant sensation on your skin? Do words like “needle prick”, “electric shock” and “tingling” best describe these sensations?	87% (n = 54)
Does your pain cause the sore part of your skin to change color? Do words like “blotchy” or “reddish or pinkish” describe the appearance of your skin?	19.3% (n = 12)
Does your pain make the affected skin sensitive to touch? Does the occurrence of unpleasant or painful sensations with a light touch or even the touch of clothing when getting dressed describe this abnormal sensitivity?	79% (n = 49)
Does your pain start suddenly or in spurts, for no apparent reason, when you are standing still without making any movement? Do words such “electric shock, sharp pain, or explosive pain” describe these sensations?	83% (n = 52)
Does your pain cause the temperature of your skin in the painful area to change? Do words like “heat” and “burning” describe these sensations?	61% (n = 38)

Source: Research data

Among the most frequent NP are low back pain, diabetic neuropathy, herpetic neuralgia, carpal tunnel syndrome, and others that are less frequent.

Regarding the FLQ, most post-COVID-19 patients had a “regular” lifestyle (n=48/77%). Almost 20% of patients (n= 12) expressed “needing help”, and only 3.7% (n= 2) cited a “good” lifestyle. In figure 1, the lifestyle subdomains of post-COVID-19

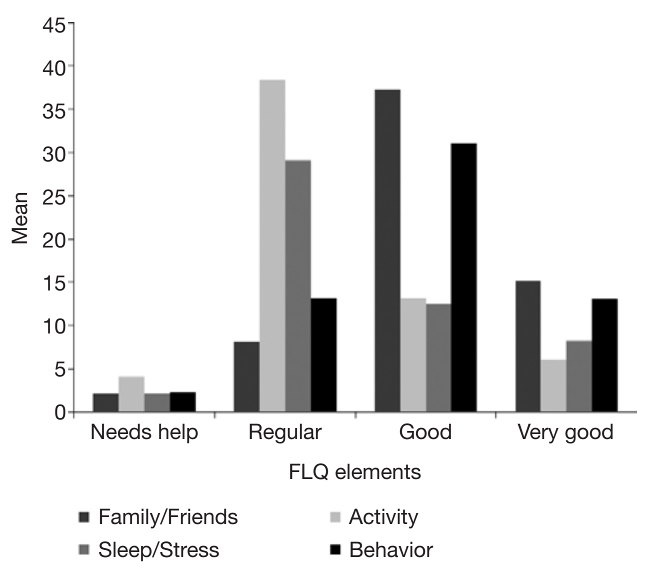

Figure 1. Analysis of part of the subdomains of the “Fantastic Lifestyle” questionnaire in patients evaluated with chronic pain in the Pain Outpatient Clinic of the *São José do Rio Preto* Major Hospital (n=62).

FLQ = Fantastic Lifestyle Questionnaire.

NP patients were analyzed, noting that the family/friends subdomain was the most highly rated.

As for the nutrition domain, in the question "am I within x kilograms of my considered healthy weight?", almost half of the patients answered more than 8 kg (n= 29). The cigarette and drugs domain showed that 12% (n= 8) of the patients still smoke more than 10 cigarettes/day. In the alcohol domain, only one (1.6%) patient had more than 20 doses of alcohol per week, three (4.8%) patients had 8 to 10 doses/week, and 58 (93.6%) never drank.

The data show that the evaluated patients aged below 55 years presented greater impairment in work capacity. In addition, the majority (64%) reported that their mental health was negatively impacted and listed feelings of frustration, boredom, and depression, identified by the subdomain of introspection, which makes up the lifestyle checklist (FLQ).

DISCUSSION

In the present study, a higher incidence of female patients, married, with a mean age of 56.2±12.9 years, ranging from 30 to 77 years was obtained. In a recent study conducted in the USA[14], about the incidence of NP, 24.925 people diagnosed with this pain were interviewed, resulting in a 52.2% female profile and a mean age of 51.5 years, corroborating the present data.

An observed study[15] reported similar results, with a mean age of 55.6 years, and another study[5] reaffirmed these results by mentioning that it is in agreement with literature data of a higher prevalence of NP over the age of 50.

Regarding schooling, in this study the predominance was of patients with an average of 3 to 8 years of schooling, which falls within the elementary school level, and these data are similar to those of a research[16] that observed the same prevalence in the diagnosis of NCP.

Regarding NCP, a study[17] reported that the exact prevalence of NP in the world population is unknown and, similarly, there are no precise data on the prevalence of this pain among Brazilians. Moreover, the same study indicated that the LANSS, which aims predominantly at identifying pain of neuropathic origin, as distinct from nociceptive pain and without the need for clinical examination, is the most used instrument.

As for lifestyle, which showed a need for improvement in the activity, alcohol, and nutrition domains, a study[18] revealed that evidence that weight loss (addressed in the nutrition domain) improves chronic pain is limited. However, there are indications that being underweight is a consideration in the management of patients with NCP.

Still in relation to lifestyle, the focus of this research, most patients reported having a regular way of living, presenting scores with negative significance, especially in the domains of activity and nutrition. A study[19] reported that in order to develop treatment plans and prevention strategies with NP patients, this kind of pain needs to be understood in the context of social, biological, psychological, and physical factors, in addition to the social patterns of lifestyle that constitute the main behavioral risk factors involved in chronic diseases and serious disabilities.

A research[20] showed that CP, like most diseases, generally arises from a succession or combination of multiple events, even when there is a solitary precipitating event in its genesis, such as an injury, for example. The aforementioned research further cites that there remain a number of factors that affect the duration, intensity, and the physical, psychological, social, and emotional effects of CP. Health-related behaviors and their outcomes are the most important modifiable risk factors in the genesis, duration, and impact of CP.

It was verified that NCP must be valued, requiring a comprehensive care, considering pain as a conditioner of quality of life (QoL) and taking into account the lifestyle of each population, because in this way scientific knowledge will be brought so that the directions of the actions occur efficiently.

The main limitation of this study is its cross-sectional design. Therefore, it is not possible to infer causality between lifestyle associations before and after COVID.

This study has limitations that must be explained: a reduced convenience sample was used; the data collection instruments in this study were applied by the researcher himself, which may have influenced, in some way, the answers of the participants; studies on the CP patients lifestyle are scarce, which makes it difficult to discuss the theme.

The strength of this study was to approach patients with CP who attend pain clinics and should be asked about their lifestyle, since social restriction has affected activity levels, sedentarism, eating habits, generated loss or interruption of health follow-up, among other problems. This can be understood as a warning to the current scenario for health professionals to contemplate this condition.

Thus, this study suggests addressing the lifestyle of patients with CP, making it possible to identify factors that can be improved or implemented in the treatment.

CONCLUSION

In the present study, patients with NCP showed that the level of activity and the presence of alcohol compromised their lifestyle. These components are aspects of these patients lifestyle, that should be understood and validated in order to think about coping strategies that can influence new ways of approaching and organizing services.

Thus, it is suggested that the lifestyle characteristics of patients that are reflected in behavioral aspects of social patterns be taken into consideration as factors that may influence treatment and outcome.

AUTHORS' CONTRIBUTIONS

Weltton Augusto da Silva Barbosa
Funding acquisition, Data collection, Conceptualization, Writing - Preparation of the original
Lilian Chessa Dias
Methodology, Validation, Visualization
Ana Marcia Rodrigues Cunha
Statistical analysis, Research, Supervision, Validation

Marcos D'all Aglio Foss
Writing - Review and Editing
Paulo Rafael Condi
Writing - Review and Editing
Marielza Regina Ismael Martins
Project Management, Writing - Preparation of the original, Writing - Review and Editing

REFERENCES

1. Vargas LM, Redkva PE, Cantorani JR, Gutierrez GL. Estilo de vida e fatores associados em estudantes universitários de educação física. Rev de Atenção à Saúde. 2015;13(44):17-26. DOI: https://doi.org/10.13037/ras.vol13n44.2693.
2. Nutbeam D. Health Promotion Glossary. Health Prom Glos. 1998;33(4):349-64.
3. Dermanovic Dobrota V, Hrabac P, Skegro D, Smiljanic R, Dobrota S, Prkacin I, Brkljacic N, Peros K, Tomic M, Lukinovic-Skudar V, Basic Kes V. The impact of neuropathic pain and other comorbidities on the quality of life in patients with diabetes. Health Qual Life Outcomes. 2014;3;12:171.
4. Almeida FC, Castilho A, Cesarino CB, Ribeiro RC, Martins MR. Correlação entre dor neuropática e qualidade de vida. BrJP. 2018;1(4):349-53.
5. Hadi MA, McHugh GA, Closs SJ. Impact of chronic pain on patients' quality of life: a comparative mixed-methods study. J Patient Exp. 2019;6(2):133-141.
6. Campos GWS. A reforma sanitária necessária. In: Berlinguer G, Teixeira SF, Campos GWS. Reforma Sanitária: Itália e Brasil. São Paulo: HUCITEC-CEBES; 1988.
7. Mattioli AV, Pinti M, Farinetti A, Nasi M. Obesity risk during collective quarantine for the COVID-19 epidemic. Obes Med. 2020;20:100263.
8. Górnicka M, Drywień ME, Zielinska MA, Hamułka J. Dietary and lifestyle changes during COVID-19 and the subsequent lockdowns among polish adults: a cross-sectional online survey PLifeCOVID-19 study. Nutrients. 2020;12(8):2324.
9. WHO [Internet]. Naming the coronavirus disease (COVID-19) and the virus that causes it [acesso em 09 jun 2022]. Disponível em: who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it.
10. Piercy KL, Troiano RP, Ballard RM, Carlson SA, Fulton JE, Galuska DA, George SM, Olson RD. The Physical Activity Guidelines for Americans. JAMA. 2018;320(19):2020-8.
11. Añez CRR, Reis RS, Petroski EL. Versão brasileira do questionário "Estilo de Vida Fantástico": tradução e validação para adultos jovens. Arq Bras Cardiol. 2008;91(2):102-9.
12. Bennett MI, Smith BH, Torrance N, Potter J. The S-LANSS score for identifying pain of predominantly neuropathic origin: validation for use in clinical and postal research. J Pain. 2005;6(3):149-58.
13. Villa LF, Cunha AM, Dias LA, Foss MH, Martins MR. Chronic neuropathic pain: quality of life, depressive symptoms and distinction between genders. BrJP. 2021;4(4):301-5.
14. Dale R, Stacey B. Multimodal treatment of chronic pain. Med Clin North Am. 2016;100(1):55-64.
15. Colloca L, Ludman T, Bouhassira D, Baron R, Dickenson AH, Yarnitsky D, Freeman R, Truini A, Attal N, Finnerup NB, Eccleston C, Kalso E, Bennett DL, Dworkin RH, Raja SN. Neuropathic pain. Nat Rev Dis Primers. 201716;3:17002.
16. Almeida FC, Castilho A, Cesarino CB, Ribeiro RC, Martins MR. Correlation between neuropathic pain and quality of life. BrJP. 2018;1(4):349-53.
17. Posso IP, Palmeira CC, Vieira EB. Epidemiologia da dor neuropática. Rev Dor. 2016;17(1):11-4.
18. Yamada K, Kubota Y, Iso H, Oka H, Katsuhira J, Matsudaira K. Association of body mass index with chronic pain prevalence: a large population-based cross-sectional study in Japan. J Anesth. 2018;32(3):60-7
19. Mills SEE, Nicolson KP, Smith BH. Chronic pain: a review of its epidemiology and associated factors in population-based studies. Br J Anaesth. 2019;123(2):e273-e283.
20. Van Hecke O, Torrance N, Smith BH. Chronic pain epidemiology – where do lifestyle factors fit in? BrJP. 2013;7(4):209-17.