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ORIGINAL ARTICLE

Factors that influence the quality of life in neuropathic, musculoskeletal, and oncological pain

Fatores que influenciam a qualidade de vida em dor neuropática, musculoesquelética e oncológica

Ana Carolina Rodrigues[1], Ana Marcia Rodrigues Cunha[2], José Eduardo Nogueira Forni[3], Lilian Andreia Chessa Dias[4], Paulo Rafael Condi[3], Marielza Regina Ismael Martins[5]

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ABSTRACT

BACKGROUND AND OBJECTIVES: The clinical practice of analgesia in chronic pain is often deficient or ineffective, either due to the subjectivity or presence of potentiating factors. The most common chronic pains are musculoskeletal, neuropathic, and oncological. This research aimed at understanding the aspects that intersperse the process of pain and how they interfere in quality of life.

METHODS: Descriptive, cross-sectional, exploratory study with a sample of 44 patients,15 with musculoskeletal pain, 15 with oncological pain and 14 with neuropathic pain, belonging to the Base Hospital Pain Clinic in São José do Rio Preto/SP. Data were collected through specific semi-structured interviews, self-assessment and application of instruments: Visual Analog Scale, Health-Related Quality of Life Questionnaire, Morisky and Green Drug Treatment Adherence Test, Questionnaire for Diagnosis of Neuropathic Pain, Epworth Sleepiness Scale, Tampa Kinesiophobia Scale, Beck Anxiety Inventory, and Beck Depression Inventory.

RESULTS: The data analysis revealed poor quality of life in 61.36% of the patients, and this situation was even more serious for patients with neuropathic pain. The association between quality of life and the analyzed factors was statistically significant in terms of adherence to treatment, pain levels, sleepiness, anxiety and depression. Individuals with neuropathic pain were more affected, except for kinesiophobia, which had more incidence in individuals with musculoskeletal pain.

CONCLUSION: Data revealed that all types of pain considerably decrease quality of life, and it's more evident in individuals with neuropathic pain.

Keywords: Cancer pain, Chronic pain, Musculoskeletal pain, Pain, Quality of life.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A prática clínica no tratamento da dor crônica é frequentemente deficiente ou ineficaz, seja pela subjetividade ou pela presença de fatores potencializadores. As dores crônicas mais comuns são a musculoesquelética, a neuropática e a oncológica. Este estudo teve como objetivo conhecer os aspectos que entremeiam o processo de dor e como tal condição interfere na qualidade de vida.

MÉTODOS: Estudo descritivo, transversal e exploratório que incluiu 44 pacientes, sendo 15 com dor musculoesquelética, 15 com dor oncológica e 14 com dor neuropática. Os dados foram coletados por meio de entrevista específica semiestruturada, autoavaliação e aplicação dos instrumentos: Escala Analógica Visual, *Health-related Quality of Life Questionnaire*, *Morisky and Green Drug Treatment Adherence Test*, *Questionnaire for Diagnosis of Neuropathic Pain*, *Epworth Sleepiness Scale*, *Tampa Kinesiophobia Scale*, *Beck Anxiety Inventory* e *Beck Depression Inventory*.

RESULTADOS: A análise dos dados revelou baixa qualidade de vida para 61,36% dos pacientes, sendo mais grave para os portadores de dor neuropática. A associação da qualidade de vida com os fatores analisados foi estatisticamente significante quanto à adesão ao tratamento, nível de dor, sonolência, ansiedade e depressão. Os indivíduos com dor neuropática foram os mais afetados, exceto pela cinesiofobia, que teve maior ocorrência nos indivíduos com dor musculoesquelética.

CONCLUSÃO: Os três tipos de dor diminuem consideravelmente a qualidade de vida dos pacientes, sendo a redução mais evidente nos portadores de dor neuropática.

Descritores: Dor, Dor crônica, Dor do câncer, Dor musculoesquelética, Qualidade de vida.

Ana Carolina Rodrigues – https://orcid.org/0000-0002-0883-5948;
Ana Marcia Rodrigues Cunha – https://orcid.org/0000-0001-9503-6337;
José Eduardo Nogueira Forni – https://orcid.org/0000-0003-1269-003X;
Lilian Andreia Chessa Dias – https://orcid.org/0000-0003-0250-9647;
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 Faculty, São José do Rio Preto, SP, Brazil.
2. São José do Rio Preto Base Hospital, Anesthesiology Department, São José do Rio Preto, SP, Brazil.
3. São José do Rio Preto Base Hospital, Orthopedics Department, São José do Rio Preto, SP, Brazil.
4. São José do Rio Preto Base Hospital, Social Service, São José do Rio Preto, SP, Brazil.
5. São José do Rio Preto Medical Faculty, Neurological Sciences Department, São José do Rio Preto, SP, Brazil.

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Correspondence to:
Avenida Brigadeiro Faria Lima, 5416
Neurological Sciences Department
15090-000 São Jose do Rio Preto, SP, Brasil.
E-mail: marielzamartins@famerp.br

INTRODUCTION

Chronic pain (CP) is defined by the International Association for the Study of Pain (IASP) as the persistence of pain for more than three months, with absent biological factors, associated with the combination of multiple aggregating and potentiating events[1]. Due to the subjective and individualistic aspect, it results in ineffective clinical practice of analgesia[2]. The most common types of CP are musculoskeletal, neuropathic and oncological pain[2,3].

The estimation is that one in five people in the world population experiences some form of CP and its limitations in daily and work activities throughout their lives[3], in addition to changes in sleep, self-esteem, mood, and depreciation of longevity[2,3]. Therefore, pain impacts the entire environment of an individual, becoming a public health problem.

A study[4] conducted in Brazil from 1990 to 2016 established a correlation between the morbidity profile and the impact on life expectancy of patients and demonstrated that chronic non-transmissible diseases are the main causes for the increase in lost years in the population. Pain was incorporated into virtually all diseases with morbidity and mortality at some point of the process.

Chronic musculoskeletal pain results from primary or secondary structural alteration to somatic lesions, an inflammatory process or biomechanical alterations[5]. Oncological pain, in turn, is related to both cancer and its treatment and, despite therapeutic advances[6,7], to relieve pain in these patients remains a challenge. Neuropathic pain is a consequence of somatosensory nervous system dysfunction or injury[8] and is closely related to other types of pain, such as musculoskeletal and oncological pain. Such association contributes to inadequate pain treatment[8,9].

The present study's objective was to expand the knowledge on the aspects that intersperse the process of pain, understanding which factors can me modified and what is the best treatment option, providing a better quality of life (QoL) for these patients.

METHODS

Descriptive, cross-sectional and exploratory study, including 44 patients from a pain clinic (PC) with three fronts of treatment: neuropathic, oncological and musculoskeletal pain. The patients were subdivided according to the type of pain and best ability of the clinical body.

The sample calculation was based on the number of patients seen monthly in the PC, being composed of 15 patients with musculoskeletal pain, 15 with oncological pain and 14 with neuropathic pain, which were included regardless of age or sex, screened by the Mini-Mental State Exam (MMSE) and that agreed with the Free and Informed Consent Term (FICT). The data were collected through a specific semi-structured interview composed of questions such as name, age, marital status, schooling, work status, diagnosis, drugs in use and self-assessment of Emotional Impact, Functional Impact, Quality of Sleep, Treatment Expectation and Resource Capacity. The following instruments were also used: visual analog scale (VAS), Health-related Quality of Life Questionnaire (SF12), Morisky and Green Drug Treatment Adherence Test (MGDTAT), Questionnaire for Diagnosis of Neuropathic Pain (DN4), Epworth Sleepiness Scale (ESS), Tampa Kinesiophobia Scale (TSK), Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI).

The research project was approved by the Research Ethics Committee of FAMERP (opinion nº 2.024.585) and performed in the Pain Outpatient Clinic, São José do Rio Preto Base Hospital. (FUNFARME/FAMERP).

Statistical analysis

The data were organized in spreadsheets using Microsoft Office Excel 2019. In order to perform the correlations of the quantitative variables, the Mann-Whitney test was used, with the help of the BioEstat 5.0 software, because the data are not considered parametric. A significance level of 5% was used. Descriptive analyses of qualitative variables were performed, with median and frequency.

RESULTS

The sample's sociodemographic and clinical profile presented a mean age of 53±11.31 years old, with a level of schooling below high school 59.08%, female 61.36% (n=27), married 70.46% (n=31), active work status 31.81% (n=14) and median pain intensity measured by the VAS of 7 points, being 54.54% (n=24) with CP and 25% (n=11) with painful post-Laminectomy syndrome.

Regarding the emotional impact caused by pain, 88.63% (n=39) described it as an unpleasant or disapproving feeling. Regarding the functional impact caused by pain, 90.90% (n=40) reported inability to perform work activities.

When asked about the existence of a support network or support for pain treatment, 45.45% (n=20) denied the existence of either. The supports listed were rehabilitation services, clinic support groups, psychiatric and psychological care. Of these, 83.33% (n=20) considered the services relevant for pain treatment, however, only 37.50% (n=9) were active during the period of the interview.

As for treatment expectations and goals, 79.54% (n=35) were maintaining follow-up to improve pain, while 11.36% (n=5) desired intervention or surgery and 9.09% (n=4) stated they had no expectations of improvement.

The majority, 61.37% (n=27), had poor adherence to treatment, reporting delays and/or forgetfulness in administration, adverse effects, lack of understanding of treatment or self-medication. The drugs in use for pain varied in quantity, from zero to six types, with a median of three. The most prescribed in descending order were gabapentin, methadone, amitriptyline, dipyrone and codeine.

The DN4 was positive in 65.90% (n=29) of the patients, being 44.82% (n=13) with musculoskeletal, 37.93% (n=11) neuropathic and 17.29% (n=5) oncological pain.

The QoL aspect was evaluated in the physical and mental domains. The physical aspect evaluated health in general, functional capacity for average activities, difficulties in performing such activities and how much pain interfered in the process, being 25 points below the average, in 77.27% (n=34). The mental domain, in turn, evaluated how emotional aspects, mental health, vitality and social aspects interfered in the performance of activities, revealing that 31.81% (n=14) were 25 points below the average. Figure 1 presents the comparison between the averages of each aspect for each type of pain.

Regarding the overall results for QoL, 61.36% (n=27) were 50 points below the mean with a standard deviation of 19.72. Values lower than 50 points refer to worse QoL. In musculoskeletal pain the mean was 40 points, in oncological 50 points and in neuropathic 37 points. Figure 2 shows the average scores of each domain and the general score for each specialty.

Abnormal sleepiness levels, according to ESS, were observed in 38.63% (n=17), being 41.1% (n=7) suffering from musculoskeletal, 35.29% (n=6) oncological and 23.52% (n=4) neuropathic pain. When asked about self-assessment of sleep quality, 77.27% (n=34) reported poor quality of sleep, and the following expression was common: "I don't sleep well even taking drugs".

Evaluation through the TSK showed that 40.90% (n=18) had average levels of kinesiophobia. Of these, 44.44% (n=8) were suffering from musculoskeletal, 16.66% (n=3) oncological and 38.88% (n=7) neuropathic pain. There were no high levels of kinesiophobia.

Data related to anxiety and depression obtained by the means of the BAI and BDI questionnaire were analyzed by a psychologist. The results showed that 31.81% (n=14) presented moderate to intense anxiety; of these, 14.28% (n=2) correspond to patients with musculoskeletal pain; 28.57% (n=4) oncological pain; and 57.14% (n=8) neuropathic pain. As for depression, 15.90% (n=7) presented moderate to severe depression, of which 28.57% (n=2) belonged to the group of musculoskeletal, 28.57% (n=2) oncological and 42.85% (n=3) neuropathic pain.

Through the Mann-Whitney test, factors were analyzed in pairs and considered statistically significant when p<0.05. Relations between pain intensity and treatment adherence (p<0.0001), QoL and pain intensity (p<0.0001), QoL and drug adherence (p<0.0001), QoL and anxiety level (p<0.0001) and QoL and depression (p<0.0001) were statistically significant. However, the relation between anxiety and depression (p= 0.7042), and QoL and kinesiophobia (p=0.8511) was not significant. The p-values obtained by associating the QoL variable and the other related factors are presented in Table 1.

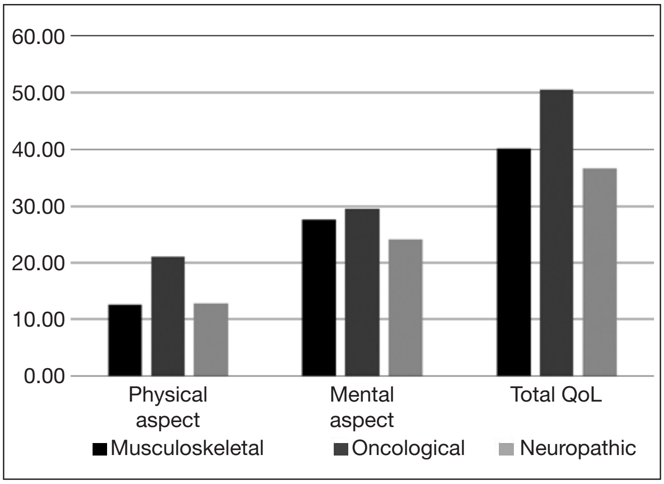

Figure 2. Types of pain according to domains related to QoL by SF-12

In an individualized way, there were some singularities in each type of pain. There was a prevalence of musculoskeletal pain in males (53%), patients suffering from painful syndrome after laminectomy (73%), positive DN4 (87%), abnormal sleepiness (47%) and kinesiophobia (53%). Patients with neuropathic pain presented more depression and anxiety (86%). There was a prevalence of CP (93%), higher availability of resource and effectiveness (60%), higher percentage of active patients (56%), complete high school (47%) and average intensity of 4.4 of pain assessed by VAS in patients with oncological pain.

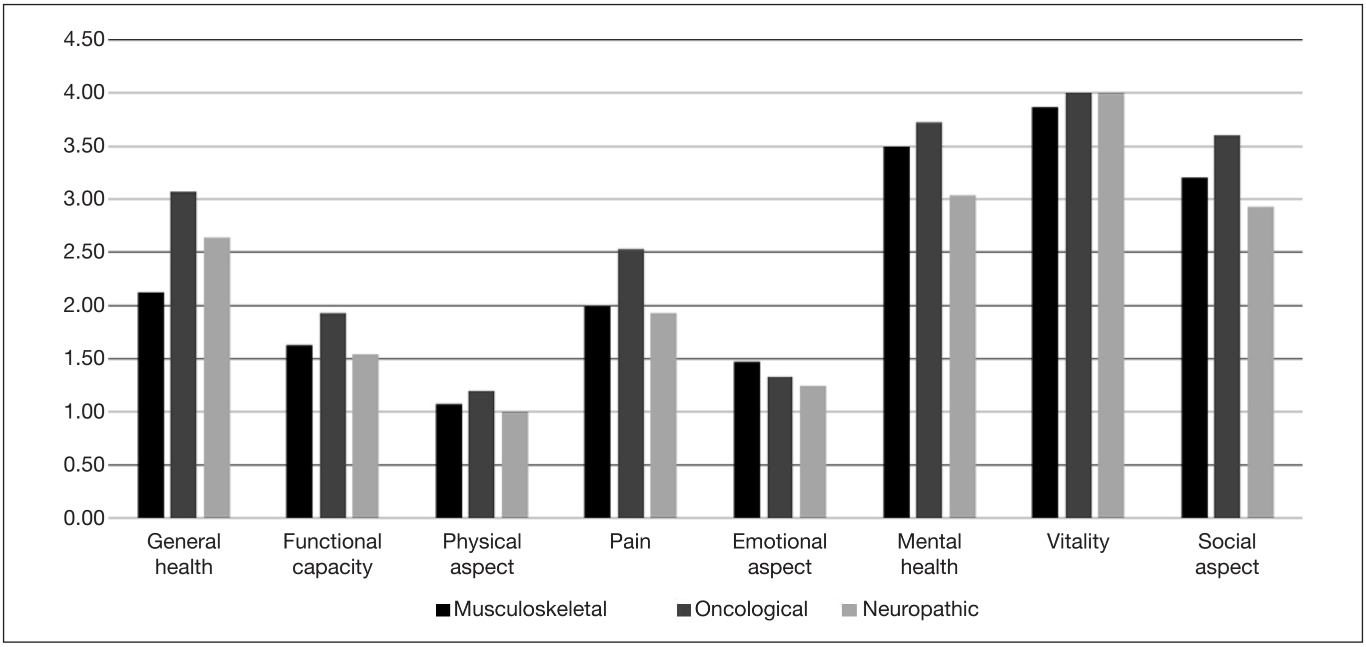

Figure 1. Types of pain according to the domains of influence of QoL by the SF-12

Table 1. Comparative analysis between factors and quality of life

Association with QoL	Musculoskeletal	Oncological	Neuropathic	General
	P-values*			
Pain intensity	<0.0001	<0.0001	<0.0001	<0.0001
Adherence to treatment	<0.0001	<0.0001	<0.0001	<0.0001
Anxiety	0.0001	<0.0001	0.0596	<0.0001
Depression	<0.0001	<0.0001	0.0004	<0.0001
Sleepiness	<0.0001	<0.0001	<0.0001	<0.0001
Kinesiophobia	0.7089	0.0890	0.0596	0.8511

*p<0.05 = statistically significant difference.

DISCUSSION

The studies that analyzed the sociodemographic data of CP patients in general present results similar to those obtained in this investigation, with prevalence of the female sex (61.36%), age range from 51 to 60 years old (36.36%), married individuals (70.46%), level of schooling below high school (59.08%), inactive work situation (68.19%) and median score of 7 for pain intensity[3,10,11]. These characteristics[12] make patients more prone to inadequate pain treatment. The prevalence of CP diagnosis (54.54%) was higher than the national[13]. It's important to highlight that the sample came from CP, however, other studies are needed to fully evaluate all epidemiological aspects of CP in Brazil[14].

The emotional impact of pain was reported by 88.63% of patients as demotivational and saddening. Such phenomena is related mainly to the functional impact reported as disabling for 90.90% of patients. The dysfunctional process increases the emotional impact[3,15], reflected in the self-reported desire of the patients for ''improvement of pain" and/or ''going back to work". When one analyzes the expectation regarding treatment, the desire manifested by the majority is the improvement of pain. These patients, due to long periods of inefficient and stressful treatments, only wish for an improvement in pain intensity so that they can return to their daily activities. The process of accepting CP, evidenced by the review[16], contributes to treatment, because the alignment between perspective and possibility is fundamental for efficient therapeutic planning.

The complexity of patients with CP goes beyond the traditional biomedical model, also encompassing the central sensitization (CS) process generated by constant exposure to pain. When treating CS in a single or short-term manner, the therapeutic failure rate is high, as can be observed in practice. The most commonly used drugs for analgesia were gabapentin, methadone, amitriptyline, dipyrone and codeine[17,18], which act centrally on the modulation of CS in response to pain. Although the medications used assist in the clinical treatment of these patients, the neuropsychic interaction of CS requires multiprofessional treatment capable of desensitizing the individual[19]. Moreover, the adverse effects of drugs, especially when several are used simultaneously, due to other associated comorbidities, worsen treatment adherence[20] which, intentionally or unintentionally, triggers attitudes such as changing the timing, dosage or totally abdicating prescribed drugs[21]. The lack of active participation of patients in their treatment has also been approached and criticized in other studies, considering that, for better results, the active role of the patient in the therapeutic plan is essential[22].

In a similar manner, although 83.33% considered non-pharmacological treatment important and significant in pain control, 62.50% were not adherent. For inactivity, the most reported factors were lack of financial resources and distance between residence and place of activity. For those who are active with non-pharmacological treatments, pain was less intense, adherence to pharmacological treatment was higher[23,24] and there was better QoL. Such result reinforces the value and effectiveness of pharmacological therapy associated with the multiprofessional[19,25].

The prevalence of abnormal sleepiness was higher in subjects with musculoskeletal pain, however, contrary to what was proposed by the study[26], the association of hypersomnia with this type of pain did not result in mood worsening. In contrast to another study[24], although 77.27% of patients self-reported bad quality of sleep, it did not correlate with the intensity of pain mentioned by the patient. Sleep was considered unrepairing or insufficient, which suggests greater susceptibility and less control of the process of pain[27,28].

The impact of the physical domain was significantly negative in the evaluation of QoL[29], being more relevant in musculoskeletal and neuropathic pain. In both, kinesiophobia, even at a medium level, was also predominant and independent of pain intensity. This intersection of factors explains the lower levels of physical activity, low adherence to non-pharmacological therapies, higher amount of drugs and, consequently, lower QoL[30,31].

According to obtained results, patients presented mild signs of anxiety in 68.19% and of depression in 84.10%. The study[32] showed that the persistence of these negative emotions, even at mild levels, is associated with the chronification of pain as a consequence of neuroanatomical alterations and modulation of the corticolimbic pathways. This result correlates with another study[33] that investigated how this predisposition is intensified by the organism's poor evolutionary adaptation to the stress factors of daily life. Although the association between anxiety and depression was not significant for the impact of QoL in patients with CP, the need for emotional monitoring, even at mild levels, is consolidated by the study[34], whose results reinforced the interrelationship of these factors with CP. These are components of great importance, not only for those who worsen pain, but especially for those who interfere with the tolerable limits of pain[35].

The neuropathic pain patients presented the lowest QoL values. This is due to the process of somatization of comorbidities[10,36]. Such association corroborates the difficulty in treating these patients, making them more susceptible to invasive pain control procedures, although they present a low success rate[37]. These individuals also present a higher prevalence of anxiety and depression when compared to other patients.

Individuals that suffer from oncological pain presented higher level of education, availability of resources and effectiveness, higher adherence to non-pharmacologic treatment[12,23] and lower pain intensity. Thus, with fewer factors that potentialize pain, they obtained a higher QoL score than the others. The study[12] also showed female prevalence, however, the analysis of data from the present study revealed lower frequency and intensity of neuropathic pain than the results obtained in that study. This difference may be due to the fact that those patients are active in cancer treatment, which may intensify the process of pain.

The prevalence of patients diagnosed with post-laminectomy pain syndrome (73%), such as musculoskeletal pain, is due to the dynamic activity of the clinic that subdivides the patients according to the type of pain and optimal activity of the clinical body.

The components that influence the patients' QoL include not only physical, but also biological, psychological and sociological domains. Knowledge and adherence of the patient in the construction of their treatment process are essential. The clinical team must not only emphasize the importance, but also objectively clarify what benefits can be obtained with good adherence to treatment. The coherent treatment of pain provides greater tolerability to the proposed treatment and, consequently, better QoL.

The limited sample made more detailed analyses and correlations impossible for generalization in the overall population. However, the results of the present study may contribute to a multidirectional understanding of pain modulation and suggest clinical treatment with reversible potential to improve QoL through behavioral and multidisciplinary interventions. Other studies that can analyze more broadly how these and other factors act in the process of pain are needed.

CONCLUSION

There was a considerable reduction in the patients' QoL, more evident in individuals with neuropathic pain. The physical aspect was of great impact and highlights the importance of physical rehabilitation for these patients. The factors that interfered in QoL reveal the need to build a therapeutic plan in which the expectation and individual need of each patient in face of their pain are considered.

AUTHORS' CONTRIBUTIONS

Ana Carolina Rodrigues
Statistical Analysis, Data Collection, Conceptualization, Resource Management, Project Management, Research, Methodology, Writing – Preparation of the original, Writing – Review and Editing, Software, Supervision, Validation, Visualization

Ana Marcia Rodrigues Cunha
Research, Methodology

José Eduardo Nogueira Forni
Research, Methodology

Lilian Andreia Chessa Dias
Research, Methodology

Paulo Rafael Condi
Research, Methodology

Marielza Regina Ismael Martins
Funding Acquisition, Conceptualization, Resource Management, Project Management, Research, Methodology, Writing – Preparation of the original, Writing – Review and Editing, Supervision, Validation, Visualization

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