

A review of chronic pain impact on patients, their social environment and the health care system

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Abstract: Chronic pain (CP) seriously affects the patient's daily activities and quality of life, but few studies on CP have considered its effects on the patient's social and family environment. In this work, through a review of the literature, we assessed several aspects of how CP influences the patient's daily activities and quality of life, as well as its repercussions in the workplace, and on the family and social environment. Finally, the consequences of pain on the health care system are discussed. On the basis of the results, we concluded that in addition to the serious consequences on the patient's life, CP has a severe detrimental effect on their social and family environment, as well as on health care services. Thus, we want to emphasize on the need to adopt a multidisciplinary approach to treatment so as to obtain more comprehensive improvements for patients in familial and social contexts. Accordingly, it would be beneficial to promote more social- and family-oriented research initiatives.

Keywords: pain, everyday problems, social relationships, family environment, health services

Introduction

Chronic pain (CP) is recognized as a major public health problem, producing a significant economic and social burden.¹⁻⁴ Moreover, this condition not only affects the patient (both as a sensory and emotional problem) but it also affects his/her family and social circle.^{5,6} The biopsychosocial model, considered essential in pain, provides a framework for understanding how different diseases are related through an assessment of sensorial, cognitive/affective, and interpersonal factors. Thus, considering this framework, it has been shown that CP is often associated with other processes that, in turn, affect pain strongly⁷ (Figure 1).

Studies performed in different settings have demonstrated that CP affects between 10% and 30% of the adult population in Europe.^{1,8} Indeed, a recent study showed a 16.6% prevalence of this condition among the general population in Spain, with at least one person affected in every four Spanish homes.⁴ The experience of pain interferes with different aspects of the patient's life,⁹ negatively affecting their daily activities, physical and mental health, family and social relationships, and their interactions in the workplace (Figure 1). This problem also affects the health care system and what is known as economic well-being,^{1,9-15} the strong burden associated with CP not only deriving from health care costs but also from the loss of productivity and from compensatory payments to patients as a result of the disability that pain produces.¹⁶

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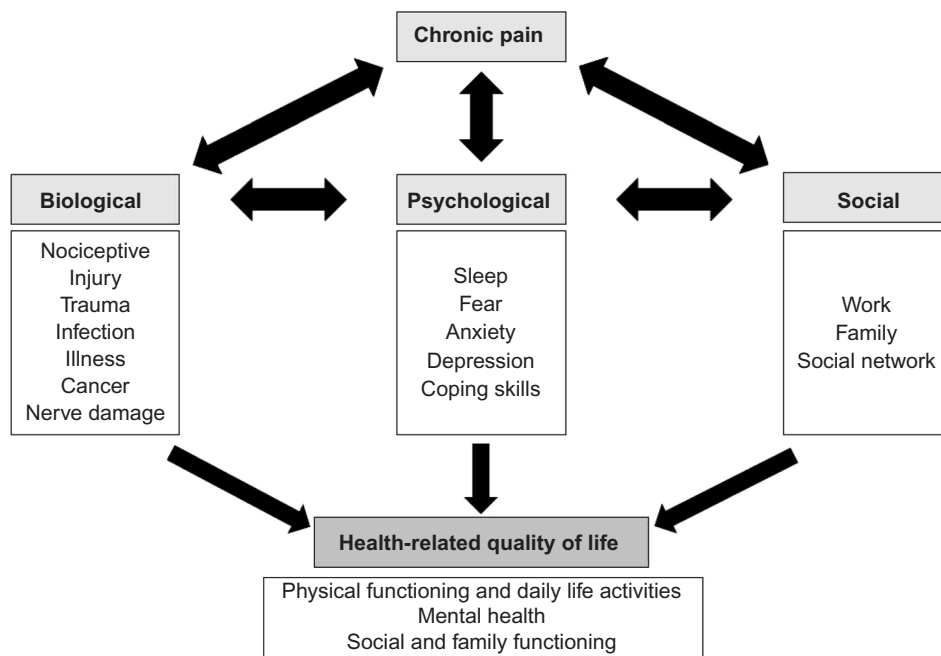


Figure 1 Biopsychosocial model of pain and consequences on the quality of life.

Despite their relevance, few studies have addressed all these aspects of CP in a comprehensive and multidimensional manner, and studies that specifically analyze the impact of pain on the family environment are scarce.

In this review, our goal was to describe the effect of CP on the individual, their family and social environment, as well as on the health care system. To achieve this, we initially address the consequences of CP on the patient’s daily activities and health-related quality of life (HRQoL), before reviewing the repercussions of CP at the workplace, and in the family and social environment. Finally, we discuss the consequences of CP on the health care system.

Methods

A search was undertaken to identify papers published between 1995 and 2014 in English and Spanish languages in the following electronic databases: Web of Knowledge, PubMed, and Science Direct. Several combinations of the following keywords were used: chronic pain, social consequences, daily problems, physical activity, quality of life, sleep, work, family, and health care system. Thus, the search terms used were: “chronic pain” AND (“social consequences” OR “daily problems” OR “physical activity” OR “quality of life” OR “sleep” OR “work” OR “family” OR “health care system”).

The selection process of the papers was based on prespecified criteria for including and excluding studies (eligibility criteria) on the basis of the aim and the methodology used. Thus, a paper was eligible only when the main aim of the

Table 1 Quality criteria for the assessment of the observational studies (criteria to be answered with yes/no/unclear)

Criteria
Adequate description of study design and setting
Adequate description of eligibility criteria (include description of diagnostic criteria for chronic pain condition)
Study population is representative of target population (sample size, sample selection, demographics)
Adequate description of outcomes (and how/how often measured), exposures, predictors
Adequate description of statistical methods (include description of potential confounders and effect modifiers and how they were dealt with)
Adequate description of study participants
Adequate description of losses to follow-up (for longitudinal studies), loss to follow-up less than 10% at 12 months or less than 25% for longer follow-up
Results reported as unadjusted and confounder-adjusted including precision

study matched the topics of this review, and also only if it was a review or a cross-sectional study. To standardize the information collected, we decided to include only longitudinal studies when they provided relevant information not found in other papers. Clinical trials, studies in animal models, studies that only assessed the prevalence or the incidence of CP, or those that analyzed only risk factors were excluded.

Furthermore, the quality of the studies selected was evaluated according to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist.¹⁷ This assessment conforms to a basic set of criteria related to potential sources of bias in observational studies (Table 1).

A study was considered as high quality if the authors met all the criteria or missed only one criterion, medium quality if they missed two or three criteria, and low quality if they missed four or more criteria.

Three of the authors independently reviewed the titles and abstracts of the papers to identify the studies that best fulfilled the selection criteria. All duplicate items were removed using the bibliographic tool RefWorks. The references of all the studies retrieved were checked to identify any studies that had not been detected by the computerized search, a procedure that led to the inclusion of several more studies that fulfilled the selection criteria.

The most relevant information (design, participants, sample size, question relevance) was collected from each of the studies and was listed in a table along with a study's quality details. The results of this review were summarized from included studies by classifying them according to defined questions. Rather than a systematic exhaustive approach, this review employed a narrative method to synthesize the most relevant, reliable, and recent studies about the impact of CP.

Results

A total of 78 studies were selected for this review. Of them, 68 met the criteria previously described and were included in the description of the results of this study.

Specific information for each of the papers included in the review are described in Table 2, which shows that 17 papers were valued as low quality according to the criteria used. However, seven of these lower quality studies were finally included because we felt that they provided interesting information that was addressed only scarcely in other papers.

The effects of pain on the patient

Effects on physical function and daily activities

Several studies have analyzed the effect of CP on patient's lives, highlighting the strong correlation between this condition and reduced physical activity.^{18,19} In fact, the intensity, duration, or location of pain have a decisive influence on a patient's physical performance, diminishing their physical activity and even causing disability, which in turn affects other aspects of their daily life.²⁰

In a study carried out on individuals with chronic back pain, the ability to perform daily activities was limited to just under a third of the individuals (31.7%),¹¹ while elsewhere, physical deterioration was evident in 50% of patients with nononcological pain.¹⁰ In a survey across Europe,¹ most individuals who experienced CP suffered different limitations, with the ability to perform intense physical exercise, walk, perform domestic chores, participate in social activities,

Table 2 Details and methodological quality of selected studies

Studies	Design	Participants	n	Question relevance	Methodological quality assessment
Breivik et al ¹	Observational survey	Adult general population aged ≥ 18 years	4,839	Activities of daily living, work, costs	Low
Langley et al ²	Cross-sectional study. Internet survey	Adult general population	5,039	Quality of life, health care system, work	Medium
Leadley et al ³	Review	-	-	Costs	-
Dueñas et al ⁴	Cross-sectional nationwide study	Adult general population aged ≥ 18 years	1,957	Activities of daily living, family, work	High
Closs et al ⁵	Qualitative study, focus groups	Adults patients with neuropathic pain	11	Family, social, and working relations	Low
Ojeda et al ⁶	Cross-sectional nationwide study	Adult general population aged ≥ 18 years	1,957	Family	High
Reid et al ⁸	Review of primary studies or systematic reviews	-	-	Quality of life, costs	-
Langley et al ⁹	Cross-sectional study. Internet survey	Adult general population	5,039	Quality of life, health care system	Medium
Miro et al ¹⁰	Cross-sectional survey	Population aged over 65 years	592	Activities of daily living	Medium
Bassols et al ¹¹	Cross-sectional study. Telephone survey	Adults general population	1,964	Health care system	Medium
Blyth et al ¹²	Cross-sectional study. Telephone survey	Chronic pain patients aged ≥ 18 years	484	Work, disability	High
Langley et al ¹³	Cross-sectional study. Internet survey	Adult general population	5,039	Quality of life, health care system	Medium
Langley et al ¹⁴	Cross-sectional study. Internet survey	Adult general population	5,039	Work	Medium
Smith et al ¹⁵	Cross-sectional survey	General population aged over 25 years	3,605	Physical activity	Medium
Nakamura et al ¹⁷	Cross-sectional study. Internet survey	Adult general population aged ≥ 18 years	11,507	Activities of daily living, quality of life, and social relations	Low

Table 2 (Continued)

Studies	Design	Participants	n	Question relevance	Methodological quality assessment
Dansie and Turk ¹⁶	Narrative review	–	–	Physical activities; quality of life	–
Lerman et al ¹⁸	Longitudinal study	Adult chronic pain patients	428	Disability	Medium
Azevedo et al ¹⁹	Cross-sectional nationwide study	Adult general population aged ≥18 years	5,094	Disability, work	High
Jones et al ²⁰	Cross-sectional study. Internet survey	Women with fibromyalgia aged 31–78 years	1,735	Activities of daily living, physical activities	Medium
McBeth et al ²¹	Prospective population-based cohort study	Chronic widespread pain patients aged 25–65 years	3,315	Physical activity, quality of life	Medium
Amris et al ²²	Cross-sectional study	Adult women with chronic widespread pain	257	Activities of daily living	High
Rivera and Gonzalez ²²	Validation study	Women with fibromyalgia aged 18–65 years	102	Physical activity, work	Medium
Boonen et al ²³	Follow-up study, randomized trials	Adults with fibromyalgia, chronic low back pain, or ankylosing spondylitis	291	Health care system, costs	High
Donnez et al ²³	Experimental, intervention	Adult women with fibromyalgia	30	Physical activity, work	Low
van Weering et al ²⁴	Cross-sectional study	Chronic low back pain patients aged 18–65 years	52	Activities of daily living	Medium
Stewart et al ²⁵	Cross-sectional study	Working adult patients with pain	28,902	Work	High
Gerstle et al ²⁴	Descriptive correlational research	Adults with chronic nonmalignant pain	36	Quality of life	Low
Carmona et al ²⁶	Observational survey	General population aged ≥20 years	2,192	Physical activity, quality of life, health care system and social relations	High
Campos and Vazquez ²⁷	Cross-sectional study	Adult women with fibromyalgia	76	Quality of life	Medium
Lopez-Silva et al ²⁸	Cross-sectional study	Primary care patients aged >18 years	170	Quality of life, work, costs	Low
García-Campayo et al ²⁹	Cross-sectional nationwide study	Primary care patients	1,150	Quality of life, health care system	High
Davies et al ³⁰	Cross-sectional study	Adult population	269	Quality of life	Medium
Tuzun ³¹	Narrative review	–	–	Quality of life, work, family	–
O'Brien et al ³²	Prospective study	Female with chronic pain	22	Sleep	Medium
Quartana et al ³³	Cross-lagged panel analysis	Adult patients with temporomandibular joint disorders	53	Sleep	High
Català et al ³⁴	Epidemiological observational population-based cross-sectional study	Adult general population ≥18 years	5,000	Activities of daily living	Medium
Kovacs et al ³⁵	Longitudinal/cohort study	Workers patients with low back pain	165	Work, disability, quality of life	Medium
Ubago Linares et al ³⁶	Cross-sectional survey	Fibromyalgia patients	214	Work, physical activity	Medium
Patel et al ³⁷	Systematic review of observational studies	–	–	Work	–
Breivik et al ³⁸	Review	–	–	Health care system, quality of life, work physical activity	–
Tomero et al ³⁹	Cross-sectional	Working population	6,264	Work, costs	Medium
Liedberg and Henriksson ⁷⁵	Qualitative study, interviews	Adult women with fibromyalgia	39	Work	Low
Costa-Black et al ⁴⁰	Review	–	–	Work	–
Watson et al ⁴¹	Follow-up study	Working population	2,291	Work, costs	Medium
Sicras-Mainar et al ⁴³	Cross-sectional study	Fibromyalgia patients	1,081	Health care system, costs	High
Salido et al ⁷⁶	Cross-sectional study	Adult women with fibromyalgia	51	Work	Low
Collado et al ⁴⁴	Epidemiological study	Fibromyalgia patients aged 16–64 years	325	Family, work	High

(Continued)

Studies	Design	Participants	n	Question relevance	Methodological quality assessment
McCluskey et al ⁴⁵	Qualitative study, interviews	Claimants and significant others	–	Family	Low
Porter et al ⁴⁶	Cross-sectional study	Patients with osteoarthritis and their partners	38	Family	Low
Moulin et al ⁴⁷	Observational survey	Adult general population	2,012	Family, work, social relations	Medium
Hill et al ⁴⁸	Observational survey	General population aged ≥15 years	3,001	Quality of life	Medium
Tuzun et al ⁴⁹	Cross-sectional study	Fibromyalgia patients, myofascial pain syndrome patients, and controls	99	Quality of life	Medium
Henwood and Ellis ⁵⁰	Qualitative study, focus groups	Adult patients with chronic neuropathic pain	24	Physical activities, activities of daily living	Low
da Cruz et al ⁵¹	Cross-sectional study	Caregivers of patients with chronic pain	30	Family	Low
Bigatti and Cronan ⁵²	Cross-sectional study	Spouses of fibromyalgia patients and spouses of controls	288	Family, quality of life, health care system	Medium
Neumann and Buskila ⁷⁷	Cross-sectional study	Relatives of fibromyalgia women and relatives of controls	118/124	Family, quality of life, physical activities	Low
Söderberg et al ⁷⁸	Qualitative study, interviews	Husband of fibromyalgia patients	5	Family	Low
Miller and Cano ⁵³	Observational survey	Adult general population	1,179	Family	High
Ferrell ⁵⁴	Review	–	–	Family	–
Ferrell et al ⁵⁵	Quasi-experimental study	Patients with cancer pain and family caregivers	231	Family	Medium
Hinds ⁷⁹	Qualitative study, interviews	Families of cancer patients	83	Family	Low
Redinbaugh et al ⁵⁶	Cross-sectional study	Pain patients and caregivers	31	Family, quality of life, activities of daily living	Medium
Yeager et al ⁵⁷	Cross-sectional study	Cancer patients and caregivers	86	Family	Medium
Miaskowski et al ⁸⁰	Cross-sectional study	Caregivers of cancer patients and caregivers of pain-free patients	86/42	Family	Medium
Woolf et al ⁵⁸	Observational survey	Patients with musculoskeletal pain and primary care physicians	5,803/1,483	Quality of life	Medium
Azevedo et al ⁶¹	Cross-sectional nationwide study	Adult general population aged ≥18 years	5,094	Health care system	High
Perez et al ⁶²	Observational multicenter study	Patients with chronic peripheral neuropathic pain	1,703	Health care system, costs	High
Levinson et al ⁶³	Observational survey	General population aged ≥21 years	4,859	Health care system	Medium
Blyth et al ⁶⁴	Observational survey	General population aged ≥16 years	17,543	Health care system	High
Keeley et al ⁶⁵	Prospective study	Low back patients	108	Quality of life, health care system	Medium
Failde et al ⁶⁶	Cross-sectional nationwide study	Adult general population aged ≥18 years	1,957	Health care system	High
Dellarozza et al ⁸¹	Cross-sectional study	Older patients with chronic pain	1,271	Health care system	Low
Toliver-Sokol et al ⁶⁷	Cross-sectional study	Pain adolescents (12–18 years) and community adolescents	117	Health care system, physical activity	Medium
Andersson et al ⁶⁸	Cross-sectional study	General population aged 25–74 years	1,806	Health care system, activities of daily living	Medium
Von Korff et al ⁶⁹	Cross-sectional study	Pain patients and controls	372	Health care system	Medium
Garcia-Martinez et al ⁸²	Qualitative cross-sectional survey	General Practitioners and managers	96	Health care system	Low
Collantes-Estevez and Fernandez-Perez ⁷⁰	Observational multicenter study	Patients with osteoarthritis	2,228	Activities of daily living	Medium
Aguera et al ⁷¹	Cross-sectional study	Adult patients with unexplained pain	3,189	Health care system	High

and maintain an independent lifestyle being the activities most affected.

Similar results were also observed in other studies on specific groups of patients, such as those suffering from fibromyalgia or those with generalized pain. In these cases, the limitations experienced are more severe, with patients experiencing significant difficulty in performing essential activities, such as getting up or sitting down.^{21–23}

It is important to note that CP patients (as opposed to pain-free individuals) are often unconscious of their level of activity, given that objective and subjective measures of their physical activity differ.²⁴ This is interesting, since if patients overestimate their level of activity, they might feel it to be sufficient, and thus the intention or motivation to change their behavior and augment their activity would disappear.^{2,25} The intention or motivation to change is one of the key predictors of behavioral modifications according to the theoretical models normally employed.² This is why making patients conscious of their behavior may ensure that they adopt a healthier lifestyle, becoming more active and diminishing the disability caused by their pain.

Effects on health-related quality of life

A patient's quality of life, both mental and physical, is another measure of the negative repercussions of pain.⁹ Several studies carried out on patients with fibromyalgia, rheumatoid arthritis, or low back pain have shown that these conditions often cause a notable deterioration in the patient's quality of life,²⁶ each affecting the physical component of the HRQoL and with a stronger impact on the mental component of the HRQoL, particularly in fibromyalgia patients.²⁷ Similarly, when comparing the HRQoL of acute pain and CP patients with that of pain-free individuals, CP patients achieve worse scores in all the dimensions of HRQoL compared to individuals who suffer from acute pain or have no pain.²⁸

Some links between pain intensity and HRQoL have been defined in pain patients, demonstrating that the stronger the intensity of pain the lower the HRQoL.^{9,29,30} Moreover, patients with severe and frequent pain have a poorer quality of life than patients with moderate and less frequent pain, their pain having a greater impact on the physical dimensions than on the mental ones.⁹ Alternatively, pain intensity, symptoms of anxiety or depression, and emotion-focused coping strategies are the variables that most affected the HRQoL of fibromyalgia patients.²⁷

Sleep disturbances are commonly experienced by CP patients, and they are closely related to HRQoL. Sleep disorders may increase levels of stress, and accordingly,

such disturbances can make it difficult for patients to perform simple tasks, and they may even impair their cognitive ability, in turn affecting everyday activities in the workplace and at home.³¹

In a prospective study involving a group of women affected by CP,³² a bidirectional association between sleep and pain was demonstrated, whereby one night of poor sleep was followed by an increase in pain intensity the following day. Likewise, a day of greater pain intensity was followed by a night with sleep disturbances. Furthermore, when the connection between insomnia and pain levels was examined, the increase in problems caused by insomnia in a month augmented the average daily level of pain experienced in the subsequent months.³³ These findings suggest that the correct diagnosis of sleep disorders and their adequate treatment are important in the management of individuals who suffer from CP, which also may be a means to improve patient's HRQoL.

Work, social, and family-related consequences of pain

Work-related consequences

The impact of pain in the workplace is an important issue to be considered in CP patients. Studies carried out in different countries have shown that patients who are affected by pain present problems of absenteeism. Not only must they often change their occupational duties or post, but they may even end up losing their job as a result of their pain symptoms.^{1,12,19,34–37} In Spain, 24.4% of individuals who suffered from CP had requested sick leave in the previous year, and 12% had left or lost their job because of it.⁴ Moreover, when individuals with CP do not take time off from work despite being in pain, there is a reduction in their efficiency and productivity,^{2,25} an effect that is amplified as the intensity of pain increases.^{2,37} Indeed, it has been demonstrated that such presenteeism reduced productivity by 21.5% in a group of individuals with mild pain, as opposed to the individuals who suffered moderate (26%) and severe pain (42.9%) in whom these percentages were progressively higher.²

Other studies have also documented that absenteeism, presenteeism, early retirement, and disability related to CP³⁸ present a burden at least as great as conditions that are conventionally prioritized as public health concerns.³⁸

When the occupational consequences of different types of pain were analyzed, the processes that produced most days of sick leave are backache, followed by pain caused by rheumatic diseases.³⁹ Neuropathic pain may also affect satisfactory performance at work and cause greater absenteeism, thereby lowering productivity and adversely affecting

the ability to fulfill certain obligations. These effects on the working environment make it difficult for patients to maintain a normal lifestyle.⁵ Furthermore, it has been shown that a longer duration of work absenteeism is associated with poor recovery and no health benefit.⁴⁰

In low back pain patients, it has been reported that, specifically in the 45- to 65-year-old age group, low back pain is one of the most frequently cited medical reasons for work loss. In addition, it has been shown that although 20% of working-age individuals seek medical help and only 20% report sickness absence related to back pain, this small percentage accounts for most of the health care costs and socioeconomic burden of these individuals.⁴¹

Similarly, it has been shown that between 43% and 78% of fibromyalgia patients are in sick leave, and the total disability status ranges between 6.7% and 30%.^{36,42,43} Recently, in a study carried out in Spain, it has been revealed that almost half of fibromyalgia patients had lost their capacity for work, 23% had obtained a disability pension for recognized incapacity for work status, and only 30% of them had work adaptations.⁴⁴

Another important point between pain and work is the evidence that some of the relatives beliefs and behaviors appeared to pose an obstacle and impede the affected individual from returning to work.⁴⁵ Thus, relatives sometimes shared and even reinforced certain feelings, such as a fear of pain or the development of a new work-related injury, and they may be pessimistic about the possibility of the patient going back to work. In some cases, family members are resigned to the negative consequences that backache has on occupational activity, and they are skeptical as to the possibility of finding a position adapted to the needs of the patient and/or a comprehensive attitude on the part of superiors. It is notable that instead of concentrating exclusively on individual risk factors associated with long-term absenteeism, it is necessary to analyze the way in which the people surrounding the patient and the social environment might contribute to the appearance or persistence of pain, as well as the consequences it produces.⁴⁵ Despite its importance, this issue has received little attention in the literature to date.

Social and family-related consequences

In addition to the aforementioned consequences, CP can also affect a patient's social interactions,⁴⁶ restricting their leisure activities and social contacts. Indeed, it has been reported that half of the patients in pain indicated that their condition had prevented them from attending social or family events,⁴⁷ and similarly, almost half of the individuals with pain symptoms

had less contact with their family.¹ Studies on patients with osteoarthritis or fibromyalgia have shown that pain as well as physical and emotional problems have a significant impact on social functioning.^{48,49} Likewise, a decline in physical capacity and mental health has been observed in patients with neuropathic pain, which contributes strongly to their impaired social integration. In addition, the negative emotions, irritability, and feelings of anger that often affect these patients have a negative impact on interpersonal relationships and the levels of stress in families.⁵⁰ In a qualitative study carried out on neuropathic pain patients, difficulties in planning social activities in advance due to the unpredictable nature of pain were identified as the main cause of their social limitations.⁵

The disability produced by pain and the dependency that it often causes can also have consequences for the family and friends. To be more specific, family members often find that they need to undertake activities, such as care duties, supervision, or participation in and evaluation of treatments, and they must become involved in decision making when consulting doctors.⁵¹ As a result of these new obligations, which they often find difficult to cope with, relatives may suffer negative effects that produce a physical and psychological deterioration: feelings of sadness, being overburdened, frustration, and impotence.^{6,52} Indeed, the social, professional, and daily life of these family members are also greatly affected.^{6,46,52,53} In a recent study, it was observed that a high proportion of the relatives of CP patients suffered anxiety or sadness and that they had stopped taking part in social activities because of the presence of pain in their family.⁶ The suffering of a loved one due to pain has also been reported elsewhere to be an overwhelming experience for the family members who look after them,⁵⁴ and often the pain or anguish that the patients suffer is felt indirectly, transformed, imagined, or distorted by caregivers, who think it is worse than it really is.

A number of studies that analyzed the impact of oncological and nononcological pain on relatives who act as caregivers also found that over 30% of the individuals surveyed admitted that they could not cope with the pain-related problems affecting their relative.⁵⁵ Many of them had problems with anxiety and depression,⁵⁶ and depression in the caregiver was linked to a stronger intensity of pain in the patient. It was also demonstrated that 60%–70% of those who care for patients who suffer from CP displayed one or more related pathologies⁵⁴ and that the discomfort suffered by the caregiver was sometimes even greater than that reported by the patient themselves.⁵⁷

Indeed, when the impact of pain from the perspective of family members and patients is compared, it is seldom

concordant.^{57,58} Nevertheless, both groups agree that the experience of pain has harmful effects on both. In general, the existence of CP has a negative effect on the family environment, which is perceived more intensely by the relatives than by the patient, especially by family members who are caregivers.⁶ However, the perception of sadness in the family, mood swings, and the deterioration in leisure activities, along with sleep disturbances, all as a result of the presence of pain, are factors that both the patient and their relatives identify as having the greatest impact on the family.⁶

Furthermore, in a recent study,⁴⁴ it has been observed that changes that occur in the lives of family members as a result of the problems in the individual with fibromyalgia are not only determinants of the family dynamics but also the degree of family satisfaction. In this sense, in this work, it has been shown that 23% of patients reported low levels of satisfaction with their family life and 59% reported many difficulties in the relationship with their partner.⁴⁴

Interestingly, from a neurobiological point of view, there is a link between a person suffering from pain and impact to the environment, specifically the family or relatives. For example, some seminal findings, from Mogil's group⁵⁹ in Montreal, clearly have demonstrated that this influence might be due to a phenomenon of empathy. In fact, it seems that some central nervous system areas are implicated in this process, ie, the amygdala, the insula, and the anterior cingulate cortex. These areas are included in the "pain matrix".⁶⁰

The consequences of pain on health care systems

The impact of pain on health care systems has been addressed in several studies. There is evidence that pain constitutes an economic burden associated with considerable direct and indirect costs to health care systems and that it is one of the main reasons for medical appointments.^{34,58,61,62} In particular, it is responsible for considerable expenditure and consumption of resources in primary care.^{13,63-65} Indeed, in one study, 60% of CP patients reported that they had visited their doctor between two and nine times in the months prior to the study, and 11% had done so at least ten times.¹ In addition, most of the patients (70%) went to their General Practitioner (GP), while 27% (23% in Spain) visited a specialist and only 2% were treated by a pain specialist.¹ Similar results were obtained elsewhere,⁶⁶ with 92.9% of the study participants having seen a health care professional at least once because of their pain symptoms, the average number of appointments in the previous year being 3.5. Again, most of them saw a GP

(47.3%) or a specialist (47.7%), and only 4% were seen by a doctor in a hospital pain unit. A recent study in Portugal reported an average of six medical consultations per year among CP individuals, twice the mean seen in the general Portuguese population, and only a minority of these patients were attended to by a pain specialist.⁶¹

Very few studies have analyzed the factors linked to health care service use due to pain symptoms. Nevertheless, a greater severity and higher frequency of pain, the presence of comorbidities (physical as well as mental), and the existence of a high level of pain-related limitations and disability are factors that most strongly influence the use of health care resources by these patients.^{62,64,65,67} In Sweden⁶⁸ and the USA,⁶⁹ age, pain severity, poor self-rated health, comorbidity, psychological distress, and access to health care were the main determinants of medical visits. Likewise, in Portugal, while pain severity, affective factors, and socioeconomic determinants were the main drivers behind health care use, only the socioeconomic and affective determinants were relevant for users of nonpharmacological treatment modalities.⁶¹

It has also been reported⁶⁶ that people who leave or lose their job as a result of pain, as well as those who perceive that their pain affects their family, are those that use the health care system the most. Furthermore, a number of studies have demonstrated that pain is often inadequately diagnosed and treated in primary care, with an overuse of medical appointment and health care resources. Thus, it is justified that a more specific training of professionals who work at this level of care is needed.^{70,71}

Conclusion

CP has significant consequences for patients, as well as for their families, and their social and professional environment, causing deterioration in the quality of life of patients and those close to them. Thus, we want to emphasize the need to adopt a comprehensive and multidisciplinary approach to improve the patient's condition and circumstances, contemplating both pharmacological treatments and non-pharmacological measures. To achieve this goal, it will be necessary to promote research initiatives that analyze the social factors affecting pain patients and gain information that complements clinical finding, aspects that have so far received little attention.

The assessment of the impact of pain on patients' activities of daily living and its repercussion in the family or at work, as demonstrated in the analysis of the results presented in this review, should be especially considered as a means to improve the patient and family's HRQoL.

The high prevalence of CP, and its serious medical and nonmedical consequences, means that those responsible for health care policies should pay particular attention to this problem. Specifically, effective health policies must be developed to prevent and manage pain, minimizing or avoiding the disability that it causes to the patient and its effects on their environment. Moreover, understanding pain as a public health priority will help to explain its close links with the social and economic aspects of health.

Disclosure

The authors report no conflicts of interest in this work.

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