Impact of the COVID-19 pandemic on the non-cancer chronic pain and its management in the elderly

Impacto da pandemia do COVID-19 na dor crônica não oncológica e sua gestão em pessoas idosas

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ABSTRACT

BACKGROUND AND OBJECTIVES: Chronic non-cancer pain is considered a public health problem, affecting 37% of the Portuguese population. Pain treatment represents a fundamental human right. However, during the COVID-19 pandemic, the vast majority of these patient care services were considered non-urgent or non-emergent, and clinical appointments and treatment were postponed or un-scheduled. Imposed restrictions, such as measures to prevent a COVID-19 infection, became counterproductive with regard to the management of chronic pain. Its impact should be emphasized especially in the older population, due to the associated physical and psychological comorbidities. This study aimed to analyze the impact of the COVID-19 pandemic on the pain of older people in four aspects: i) intensity, treatment and management of pain; ii) mental health; iii) lifestyles; iv) quality of life.

METHODS: Review in Pubmed, SCOPUS and SCIELO databases using the terms: chronic non-cancer pain, pain management, aged and COVID-19. 86 articles were found and 13 were selected. Articles included cumulatively addressed chronic pain, represented original research of a clinical nature, and analyzed the impact of the COVID-19 pandemic on the management of chronic pain. Preference was given to studies with participants aged 65 years or older. Studies in adults with no mention of age in the context of the COVID-19 pandemic impact on aspects influencing chronic pain and its management were also included. Only one article exclusively studied the senior population.

RESULTS: The pandemic affected: i) increased pain intensity (n=10), changes in its pharmacological and non-pharmacological treatment (n=3) and its management, that is, the adaption of the health professionals and patients (n=1); ii) negatively affected mental health: symptoms of stress and anxiety/depression (n=9), psychological distress (n=4), social isolation/loneliness (n=6); iii) lifestyles: physical activity (n=4), sleep quality (n=4) and physical performance (n=5); iv) reduction of quality of life (n=5). Despite the heterogeneous results, a worsening of pain and mental health was found, as well as alteration of styles and quality of life and disruption of medical services.

CONCLUSION: The restrictions imposed by the pandemic affected several areas of pain in the short term. Telemedicine has emerged as an adopted solution, but the barriers in the senior population, such as lack of digital literacy and lack of technological equipment, cannot be overlooked. The lack of knowledge of the specific impact of COVID-19 on the pain of the senior population calls for more research that focuses on the long-term consequences, as well as the solutions to be adopted in order to contain the damage in this vulnerable population.

Keywords: Aged, Chronic pain, COVID-19, Pain management.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor crônica não oncológica é considerada um problema de saúde pública, afetando 37% da população portuguesa. O tratamento da dor representa um direito humano fundamental. Entretanto, durante a pandemia do COVID-19, a grande maioria destes serviços de assistência ao paciente foi considerada como não urgente ou não emergente, sendo consultas e tratamentos clínicos adiados ou desmarcados. Restrições impostas, como medidas de prevenção da infecção por COVID-19, tornaram-se contraproducentes no que se refere à gestão da DC. O seu impacto deve ser realçado principalmente na população mais idosa, devido às comorbidades associadas quer físicas quer psicológicas. O objetivo deste estudo foi analisar o impacto da pandemia do COVID-19 na dor de pessoas idosas

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HIGHLIGHTS

- Worsening of pain and mental health, change in lifestyles and decreased quality of life. Disruption of medical services generated by the pandemic period reinforce the need for a holistic and individual approach to health care.
- Impact of the pandemic on chronic pain management has been little explored in older people.
- Need for further research focusing on long-term consequences, as well as the solutions to be adopted in order to contain injuries or dysfunctions in this vulnerable population.

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em quatro aspectos: i) intensidade, tratamento e gestão da dor; ii) saúde mental; iii) estilo de vida; iv) qualidade de vida.
MÉTODOS: Revisão nas bases de dados Pubmed, SCOPUS e Scielo usando os termos: *chronic non-cancer pain*, *pain management*, *aged* e COVID-19. Foram encontrados 86 artigos e selecionados 13. Foram incluídos artigos que cumulativamente versavam sobre DC, representavam pesquisa original de natureza clínica e analisavam o impacto da pandemia do COVID-19 na gestão da DC. A preferência foi dada a estudos com participantes com idade igual ou superior a 65 anos. Também foram analisados estudos realizados em adultos sem menção de idade no âmbito do impacto da pandemia do COVID-19 sobre os aspetos que influenciam a DC e a sua gestão. Apenas um artigo estudou exclusivamente a população idosa.
RESULTADOS: A pandemia afetou: i) aumento da intensidade da dor (n=10), alterações no seu tratamento farmacológico e não farmacológico (n=3) e a sua gestão, isto é, a adaptação dos profissionais de saúde e dos doentes (n=1); ii) negativamente a saúde mental: sintomas de estresse e ansiedade/depressão (n=9), distresse psicológico (n=4), isolamento social/solidão (n=6); iii) estilos de vida: atividade física (n=4), qualidade do sono (n=4) e desempenho físico (n=5); iv) redução da qualidade de vida (n=5). Apesar dos resultados heterogêneos, verificou-se: agravamento da dor e saúde mental, alteração dos estilos e qualidade de vida, disrupção dos serviços médicos.
CONCLUSÃO: As restrições impostas pela pandemia afetaram vários domínios da dor em curto prazo. A telemedicina surgiu como uma solução adotada, não podendo descurar os entraves na população idosa, como a falta de literacia digital e falta de equipamentos tecnológicos. O desconhecimento do impacto específico da COVID-19 na dor da população idosa sugere mais investigação que incida sobre as consequências em longo prazo, assim como as soluções a adotar de modo a conter lesões ou disfunções nesta população vulnerável.
Descritores: COVID-19, Dor crônica, Idoso, Gestão em saúde.

INTRODUCTION

Chronic pain (CP) results from a pathophysiological process that persists beyond the apparent healing of the lesion that caused it, lasting more than 3 months[1]. Pain is not part of normal aging, although it is often accepted by the older adults as part of the physiological process and is therefore not reported[2]. Considered a public health problem, CP affects 20% to 35% of the world's population[1,3].
In Portugal, the prevalence of CP in the adult population is 37%, according to the definition of the International Association for the Study of Pain[4]. CP is significantly associated with demographic variables, especially age, and the senior population is one of the most vulnerable groups[4]. A recent Portuguese study revealed that: i) CP affects 34% of the individuals followed in Primary Health Care; ii) more than 46% of the people with CP are older than 65 years; iii) more than 95% of the patients are undertreated[5].
CP patients have the highest overall morbidity rate, with years of life lost due to health issues, disability, or early death[2]. The quality of life (QoL) of the CP population is compromised due to various factors, including limitation of activities of daily life and social isolation, decreased socialization and functional ability, sleep disturbances and psychiatric disorders such as high levels of anxiety, depression, and vulnerability to stress[1, 6,9].
The management of CP patients emerges as a priority in the provision and humanization of health care[6].There are technical guidelines about the management of CP in seniors[10], which recommend a multidisciplinary therapeutic approach, requiring - through integrative medicine - a multidimensional assessment and holistic management[7,11]. Pain management is a fundamental human right, and the proper management of CP is imperative for the realization of this right[12,13].
On March 11, 2020, COVID-19 was declared a pandemic by the World Health Organization. Emergent and urgent medical consultations were prioritized, while elective services and non-urgent health access were postponed. Non-essential social services were also suspended[6,14]. As for the management of CP, care in most specialist services was found to be non-urgent and non-emergent, and follow-up appointments and medical interventions were postponed or unscheduled[6,7,15-17].
In the context of health care delivery, there was redistribution of available material, hospital, and human resources to emergency units, intensive care, and dedicated COVID-19 areas, reducing accessibility, with particular impact on patients not infected by COVID-19, and increased waiting time for care[6,7,14,16]. The impact of the pandemic on CP has been little explored, especially in the case of older adults.
The present study's objective was to analyze the impact of the COVID-19 pandemic on pain in seniors encompassing four aspects: 1) pain intensity, treatment and management; 2) mental health; 3) lifestyle; and 4) quality of life.

METHODS

The criteria of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses and the flow chart were essential to guide the process[18]. The search was performed by January 19, 2022 in the Medline (Pubmed), Scopus, and Scielo electronic databases with the following terms:
- Concept 1: ("chronic pain" [tw] OR "total pain" [tw] OR "chronic non cancer pain" [tw] OR "chronic pain"[Mesh] OR "pain management"[Mesh] OR "non oncological pain" [tw]);
- Concept 2: ("elderly people" [tw] OR "old people" [tw] OR "aged" [Mesh]);
- Concept 3: ("covid-19" [tw] OR "Sars-cov-2" [tw] OR "COVID-19"[Mesh].

Articles included cumulatively addressed CP, represented original research of a clinical nature, and analyzed the impact of the COVID-19 pandemic on the management of CP. Preference was given to studies with participants aged 65 years or older. Studies in adults, with no mention of age, were also reviewed for the impact of pandemic COVID-19 on aspects influencing CP and its management.

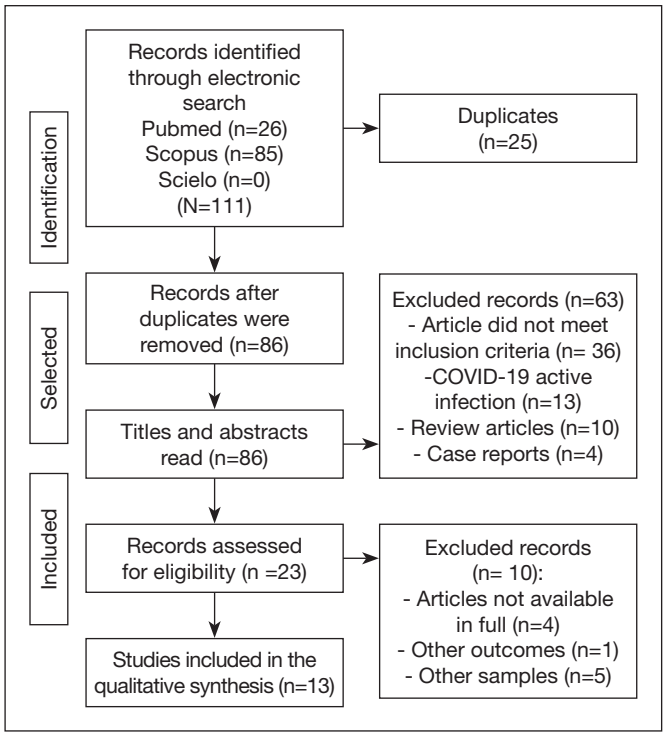

Figure 1. Diagram of the article selection process

Articles related to pediatric age and active infection of COVID-19 were excluded. A total of 86 articles were selected and 13 articles were analyzed in full. These articles were carefully systematized in the data extraction (Figure 1).

Most studies come from Europe (n=8), mainly from the UK and Spain. Four studies come from North America and Asia is represented by one Japanese study. The largest sample (n=25482) was congregated in Japan[19] and the smallest in Switzerland (n=61)[20].

The mean age ranged from 43.98±13.38[21] to 81.50±5.60 years[22]. It is noteworthy that the authors[22] were the only ones who studied the population aged 65 years or older separately. The range of age intervals varied from 15 years (minimum) in the Japanese study[19] to 96 years (maximum) in the English study[23].

The most evaluated variable was pain intensity (n=10), as well as its pharmacological and non-pharmacological treatment (n=3) and pain management (n=1). The impact of the COVID-19 pandemic on mental health was also assessed, specifically: symptoms of stress, anxiety or depression (n=9); psychological distress (n=4); social isolation and loneliness (n=6). The impact of the pandemic on lifestyle was addressed regarding: level of physical activity (n=4); quality of sleep (n=4); and physical performance (n=5). The impact of the pandemic on QoL was considered in five studies (Table 1).

Table 1. Studies on the impact of the COVID-19 pandemic on chronic pain in the elderly people (n=13)

Author; (Study country)	Selection of subjects	Sample size; predominant gender; Mean age (SD); [age gaps]	Type of study; duration of study	Main objectives	Main aspects found
Yamada et al.[19] (Japan)	Subjects registered with a survey agency.	n= 25482; Female: 50.27%; 48.80 (17.30) years; [15-79] years.	Cross-sectional; online survey; from 8/25/2020 to 9/30/2020.	Investigate the association between loneliness, social isolation and pain (head, neck, shoulder, upper limb, lower back and legs) following the restrictions imposed by the COVID-19 pandemic.	A positive association was found between loneliness/perception of social isolation and: incidence of pain; pain intensity and CP prevalence. The possibility of other consequences such as psychological stress and depressive symptoms was highlighted.
Harnik et al.[20] (Switzerland)	Patients followed in a Pain Clinic.	n= 61; Female: 57.40%; 56.89 (16.16) years; [NA-NA] years.	Telephone questionnaire; from 03/31/2020 to 07/30/2020	Evaluate patients' acceptance of telemedicine during the COVID-19 pandemic and examine the correlation of this acceptance with pain intensity and anxiety.	The mean level of acceptance of telemedicine was 6.25 (from 0 to 10). Acceptance of telemedicine correlated to: 1) negatively, with the current mean level of pain, worries and fear of COVID-19; 2) positively, with the individual's general condition.
García-Esquinas et al.[22] (Spain)	Participants from four cohorts of older adults residents in the community.	n= 3041; Female: 57.70%; 69.90 (8.00) to 81.50 (5.60) years; [65-NA] years.	Face to face and telephone interview; from 04/27/2020 to 06/22/2020	Identify the changes in lifestyles, physical and mental health among seniors between the seventh and fifteenth week after the onset of confinement by the COVID-19 pandemic.	There was reduced physical activity and increased sedentary lifestyle, which reversed after the end of confinement. There was worsening of CP and moderate decline in mental health, which continued after the end of the restrictions. During the pandemic, the risk of having less healthy lifestyles or worse mental health was higher in males and individuals with: more comorbidities; social isolation or feelings of loneliness; worse living conditions.

Continue...

Table 1. – continuation

Author; (Study country)	Selection of subjects	Sample size; predominant gender; Mean age (SD); [age gaps]	Type of study; duration of study	Main objectives	Main aspects found
Macfarlane et al.[23] (England)	Epidemiological records of people with axial spondyloarthritis or psoriatic arthritis and participants in a trial who had regional pain and risk of CP.	n=1054 (477 with ≥56-74 years, 125 with ≥75 years); Male: 55.00%; 59.00 (NA) years; [18-96] years.	Questionnaire; from 06/2020 to 12/2020	Quantify the change in QoL, disease-specific indicators, health and lifestyles before and during the COVID-19 pandemic in individuals with musculoskeletal symptoms and diseases.	There was a significant decrease in QoL, increased fibromyalgia symptoms, and reduced sleep disturbances. There was a deleterious effect on QoL due to pain intensity and mental health impact. There was increased anxiety in patients with psoriatic arthritis.
Lassen et al.[24] (Germany)	Patients with an appointment at a tertiary multidisciplinary pain center.	n= 112; Female: 68.75%; 55.00 (13.10) years; [NA-NA] years.	Observational, questionnaire-based; from 05/05/2020 to 07/17/2020	Short-term influence of the pandemic COVID-19 on patients with CP.	About 73% of patients presented a worsening of pain intensity. The "social relations" dimension was the most affected in the pain experience. No clinically relevant demographic and medical parameters associated with the impact of pandemic COVID-19 were detected.
Fallon et al.[25] (England)	Through online outreach.	n= 519; Female: 90.56%; 43.98 (13.38) years; [18-79] years.	Electronic questionnaire; 04/17/2020 to 05/12/2020	Investigate how COVID-19 restrictions affected individuals with CP compared to a healthy control group.	CP patients presented worsening of pain and more loneliness, anxiety and depressed mood, as well as reduced levels of exercise. Perceived increased pain was related to perceived reduced exercise. Catastrophizing pain was related to self-perception of pain intensity, mediating the relationship between reduced mood and pain.
Pagé et al.[26] (Canada)	Through patient associations, pain organizations, research networks, and media.	n= 3159 (205 with ≥70 years); Female: 83.50%; 49.70 (NA) years; [18-NA] years.	Online survey; 04/16/2020 to 05/31/2020	Investigate the factors associated with changes in pain and psychological distress in people with CP during the COVID-19 pandemic.	About 47% had CP for ≥10 years. Increased pain intensity was associated with changes in treatment (pharmacological or otherwise). Psychological distress was associated with: pandemic-related negative emotions; high levels of perceived global stress; high levels of health-related stress and insecurity of individuals. In seniors, worsening pain and psychological distress were less prevalent.
Licciardone[26] (USA)	Through "Pain Registry for Epidemiological, Clinical, and Interventional Studies and Innovation".	n= 476 (158 with ≥61 years); Female: 73.30%; 54.00 (13.20) years; [22-81] years.	Longitudinal prospective, observational; from 12/2019-03/2020 to 06/2020-09/2020	Measure changes in treatment utilization (non-pharmacologic and pharmacologic) and associated outcomes in patients with chronic low back pain during the first six months of the COVID-19 pandemic.	Worldwide, decreased use of treatments for chronic low back pain did not negatively affect pain or functional outcomes during the first 6 months of the pandemic.
Licciardone[27] (USA)	Through "Pain Registry for Epidemiological, Clinical, and Interventional Studies and Innovation".	n= 528; Female: 74.1%; 53.90 (13.00) years; [NA-NA] years.	Longitudinal prospective, observational; from 10-14 weeks between pre- and post-pandemic period	Determine whether limited access to health care during the COVID-19 pandemic impacted treatment utilization (non-pharmacological, nonsteroidal anti-inflammatory drugs, and opioids) and affected pain intensity and physical disability in patients with chronic low back pain.	Worldwide, the mean scores for change in pain intensity and physical disability before and after the COVID-19 pandemic were not significant. There was an impact of the pandemic on accessibility to non-pharmacological treatments, especially by the older adults population.

Continue...

Table 1. – continuation

Author; (Study country)	Selection of subjects	Sample size; predominant gender; Mean age (SD); [age gaps]	Type of study; duration of study	Main objectives	Main aspects found
Consonni et al.[30] (Italy)	Patients with chronic migraine, small fiber neuropathy and their healthy family members monitored in an outpatient clinic.	n= 80 (neuropathy- 25, migraine- 42, healthy- 13); Female: 65%; 55.84 (13.10), 49.00 (10.30) and 52.67 (17.30) years, respectively: neuropathy, migraine and healthy family members. [NA-NA] years.	Questionnaire (email, telephone or face-to-face); from 05/02/2020 to 06/11/2020	Investigate the impact of distress associated with pandemic COVID-19 on patients with CP, namely the effects on physical and psychological health of changes in individual habits and reconfiguration of health care.	Individuals with disease had lower QoL, less physical health, and a more catastrophic attitude toward pain than healthy individuals. During the pandemic, patients with neuropathy reported greater decline in clinical symptoms, concerns about contagion, and discomfort with changes in disease/CP management than individuals with migraine. The results highlighted individual variability and the influence of psychological state on the response to the COVID-19 pandemic.
Nieto et al.[31] (Spain)	Through: researchers' social networks, social media, mass email, patient associations, regional CP associations.	N= 502 (12.40% with >60 years); Female: 88.00%; NA (NA) years; [18-89] years.	Cross-sectional; online survey; from 04/27/2020 to 05/25 /2020	Comprehend the impact of the constraints imposed by the COVID-19 pandemic on patients with CP, to analyze the overall changes in their health, and to explore changes in coping pain strategies.	During the pandemic there was worsening of emotional distress, sleep disturbance, and pain interference with physical activities. There was improvement or maintenance of support received from others. Individuals living with someone in a dependent situation had significantly worse outcomes in health (overall), physical ability, and social activities.
Steptoe and Di Gessa[33] (England)	Through the "English Longitudinal Study of Ageing".	n= 4887; Female: 56.90%; 72.13 (8.00) years; [52-NA] years.	Longitudinal, cohort; from 06/03/2020 to 07/26/2020	Evaluate the emotional and social experience of seniors with physical disability during the first months of the COVID-19 pandemic.	About 41.53% of the participants suffered from CP. During the COVID-19 pandemic, significantly, individuals with prior disability in performing activities of daily life had more symptoms of depression and anxiety, more sleep disturbances, worse QoL, and more perceived loneliness. People with mobility impairments had fewer social contacts with their families.
Polenick et al.[34] (USA)	Through databases ("The Healthier Black Elders Center Participant Resource Pool of African American" and University of Michigan), researchers' contacts, social networks.	n= 701; Female: 73.60%; 64.57 (08.84) years; [50-94] years.	Cross-sectional; online survey; 05/14/2020 to 07/09/2020	Study the factors associated with loneliness during the COVID-19 pandemic in adults with chronic illness and aged ≥50 years.	Several patients with chronic arthritis (60.9%), CP (34.7%), osteoporosis (19.5%). A positive association was found between loneliness and: anxiety symptoms and functional limitations. Emotional support was noted to be a protective factor of feelings of loneliness.

CP = chronic pain; SD = standard deviation; NA = not available; QoL = quality of life.

IMPACT OF THE COVID-19 PANDEMIC ON PAIN INTENSITY, TREATMENT, AND MANAGEMENT

Pain intensity

Most studies identified negative changes regarding pain.

Study[24] reported increased pain intensity and disability related to the considered baseline level of pain before the COVID-19 pandemic in 73% of patients. Another study[21] reported a self-perceived increase in pain intensity. Authors[26] showed that pain intensity increased in 69% of patients[26]. Worsening of pain was more reported in individuals with employment, more perception of pandemic risk, stress, and with changes in CP treatments (pharmacological, physical, psychological)[25].

Moderate to strong direct correlations were found between intensity of pain and variables such as frequent worries, fear of inadequate pain treatment in the future, fear of uncontrolled pain, and belief in a future worsening of the general condition[20]. The strongest positive correlation was found regarding general condition[21].

White participants reported improved low back pain intensity compared to African American individuals during the first six months of the pandemic. Less consistently worse outcomes were seen in pain intensity with increasing age, and no correlation was shown between worsening pain and age[27].

During the COVID-19 pandemic, there was an increase in pain in patients with small fiber neuropathy[28].

The authors[31] reported increased pain intensity related to changes in the management and treatment of CP, i.e., in the way the pain manifested itself and its management, either self-management or changes in health care.

Pain management (pharmacological or nonpharmacological)

The results regarding the pharmacological approach were contradictory.

During the pandemic, there was an increase in drug use (46.7%) in pain patients[29]. One study showed a reduction in the use of non-steroidal anti-inflammatory drugs that was associated with an increase in the intensity of low back pain[26,27]. Increased age was associated with increased opioid use during the pandemic[27].

There was a significant reduction in the use of non-pharmacological measures, namely physical therapy, massage therapy, and spinal manipulation for a six-month period of the COVID-19 pandemic[26,27]. African American participants reported decreased use of yoga and spinal manipulation[27]. Increasing age was associated with decreased use of all non-pharmacological treatments except physical therapy treatments[27].

Pain management

Study[20] found a negative association between acceptance of telemedicine and pain intensity, indicating that patients were intensely overloaded by the restrictions imposed by the COVID-19 pandemic on pain management. There is further evidence that those suffering the most from CP may be the most affected by the restrictions imposed and telemedicine may not be sufficient in their management[20].

IMPACT OF THE COVID-19 PANDEMIC ON MENTAL HEALTH

Symptoms of stress, anxiety, and depression

During the pandemic, there was a worsening in the psychological state of individuals, albeit in the short term, with increased symptoms of anxiety and depression[21,23]. It should be noted that none of the studies analyzed the pandemic's long-term impact. Individuals with previous disabilities when performing activities of daily life had more clinical symptoms of depression and anxiety than people without disabilities[30].

For patients, sadness could be a trigger for pain. The same could happen in the case of worries about the future, fear of being infected, feelings of insecurity, and negative thoughts[31]. More worries, either general or about the future development of pain, were associated with higher pain intensity[29]. Fear of having a severe coronavirus infection had a moderate positive correlation with fear of uncontrolled pain[20].

Patients had increased stress and negative emotions during the pandemic, which were associated with worsening of pain[25]. The authors[22] pointed out that moderate decline in mental health in seniors occurred mostly in individuals who lived alone, had functional limitations, or cognitive disorders[22].

The study[30] found that negative psychological reactions were common. Patients with chronic migraine complained of agitation and anxiety that were associated with feelings of loneliness, depressed mood, and catastrophizing[28]. During the COVID-19 pandemic, anxiety was more present in cases of loneliness[31] and correlated negatively with acceptance of telemedicine[20].

Psychological distress

Psychological distress acted as one of the triggers related to pain intensity[29]. Patients with chronic migraine were found to have more psychological distress than those with small fiber neuropathy[28].

The authors[26] reported moderate to severe levels of psychological distress in 43.2% of the sample[26]. This distress was mostly associated with negative emotions related to the pandemic, high levels of perceived stress on a worldwide level, high levels of health-related stress, and insecurity of individuals[26] These authors observed that the seniors were less likely to report their psychological distress[25]. Seniors with physical disability were more likely to suffer from psychological distress[30].

Social Isolation and Loneliness

Most patients complained of feelings of loneliness during the pandemic[21]. For patients, loneliness could act as a pain trigger[29]. There was a positive association between perceived loneliness and pain intensity[19]. The authors[30] verified feelings of loneliness in patients with chronic migraine[28]. The duration of pain was negatively associated with reduced social support received[29].

During the COVID-19 pandemic, individuals with prior disabilities when performing activities of daily life had more perceived loneliness than individuals without disabilities[30]. It was also found that people with mobility disorder had fewer social contacts (real and written) with their families than people without disorder[30].

Authors[31] reported that 66.4% of the sample had moderate to severe loneliness, which developed with concerns about a possible COVID-19 infection and financial stresses because of the pandemic[31].

IMPACT OF THE COVID-19 PANDEMIC ON LIFESTYLE

Physical activity

Pain had a significantly greater effect on physical activity, leading to its decrease, of patients who had a close person recently deceased from COVID-19[29]. The most important lifestyle change during the COVID-19 pandemic was reduced physical activity, with a likelihood of reversal after the end of isolation[22,25]. For patients, sedentary lifestyle could act as a pain trigger[21]. The authors[31] reported that 55% of the sample reported changes in the way they deal with their pain, with increased rest and stretching time[31].

The study[23] obtained heterogeneous results regarding the impact of the COVID-19 pandemic on physical activity[23].

Quality of sleep

One of the studies found that during the COVID-19 pandemic, sleep quality had worsened[22]. The opposite was found by the authors[23]. Although this discrepancy was not analyzed, it may be related to interindividual variability and increased leisure time as well as time spent at home.

Sleep disturbances were observed in patients as a pain trigger[29]. During the COVID-19 pandemic, individuals with prior disability in performing activities of daily life had more sleep disturbances than people without disabilities[30].

Physical performance

In this context, the studies presented contradictory results. Two studies found that increased pain intensity interfered with the physical ability of patients during the pandemic[26,29], unlike study[29]. However, it should be noted that African American and female participants reported worse disability outcomes during the pandemic[27].

Individuals with greater mobility impairment had worse outcomes related to mental health[30]. The study[30] reported that patients with small-fiber neuropathy had more physical disabilities than those with chronic migraine when comparing these same populations in the same study. In the small-fiber neuropathy group, the higher levels of physical disability were associated with changes in health care due to the restrictions imposed by the pandemic and the relationship between neurologist and patient[28].

IMPACT OF THE COVID-19 PANDEMIC ON QUALITY OF LIFE

During the COVID-19 pandemic, there was a decrease in quality of life[23]. The study[29] found decreased QoL in virtually all parameters analyzed[27]. The authors[30] highlighted that participant with chronic migraine had impaired quality of life[28]. Individuals with previous disabilities when performing activities of daily life had worse QoL than people without disability[30].

Only the authors[24] did not establish a significant change in the QoL of individuals, and this was similar to the pre-pandemic situation[24].

According to this review of 13 studies on CP, during the COVID-19 pandemic there was a general increase in pain intensity, although the results were not homogeneous.

A bidirectional relationship was found between pain and mental health problems. Patients with CP have higher levels of anxiety and depression[9,11,33]. These symptoms are relevant as they contribute to increase pain intensity and disability[19,33,34].

During the COVID-19 pandemic, periods of stress, tension, and uncertainty developed with a widespread worsening of anxiety and depression[19-29,32]. One of the studies that confirmed the relationship was conducted in disabled patients, and this should be taken into account in holistic pain management in senior populations[30,35].

The prevalence of pain, as well as disability, increases with age[36]. About one third of adults over 60 in developed countries live with disability[30]. Seniors with physical disabilities have more symptoms of depression, anxiety and sleep disturbances, reduced social contact, more loneliness, less satisfaction and purpose in life, and lower QoL[30]. During the COVID-19 pandemic, there was a significant decrease in QoL[22-24,26-28,37,38].

The presence of CP and mental health comorbidities alone increase the risk of social isolation. A reduced social resource network, with implications for pain intensity and interference, contributes to the vulnerability of the senior population[1,16]. Increased social isolation and loneliness are associated with reduced QoL and physical and psychological disorders, which can worsen CP[19,21,28,30-32].

There is a dynamic and bidirectional interaction between pain and sleep. On the one hand, CP can cause sleep disturbances, and on the other hand, sleep disturbances can reduce pain thresholds, with severe consequences including intensification of pain[7,8,39]. During the pandemic, there were contradictory results regarding the quality of sleep, even if only evaluated in the short term, and it is not yet possible to infer its true impact[22,23,29,30,32].

The analysis of the interference of pain in the activities of daily life shows that older adults with physical disabilities are particularly susceptible to the risk of suffering psychological stress[25,28-30]. This symptom is also highlighted as a response to the existential threat of the pandemic, which can alter an individual's perception of pain[8,25,40].

During the COVID-19 pandemic, a significant increase in analgesics consume is not described in the articles reviewed; however, concern about the availability and access to drugs was highlighted, as well as an increase in opioid use with increasing age presented in the studies[20,26,27,32,41-44].

As an integral part of the interdisciplinary and multimodal treatment of CP, the non-pharmacological approach should include educational and exercise programs with an impact on subjective pain control[25,45-47]. It is important to emphasize that studies have shown a marked detachment from face-to-face appointments and clinical procedures, although their impact on short-term worsening pain has not been shown[20,26,27,41]. In fact, it is pointed out that CP is unlikely to go into remission on its own[33].

One of the solutions adopted in face of the restrictions imposed by the pandemic was the use of telemedicine[20,29,41,45]. However, in the older population, low digital literacy, lack of internet access, and scarcity of technological equipment were some of the greater barriers, which may have hindered the attempt of CP treatment in these populations at risk[48,49]. In addition, the lack of physical and emotional contact with health care professionals, as well as the lack of welcoming and relational involvement, may have contributed to worsen the intensity of pain, hindering the humanization of medical care.

This review has several limitations. Only three databases were used, as mentioned in the methods, which may limit the research presented. Most studies have heterogeneous methodologies and took advantage of online surveys in the face of the constraints of the COVID-19 pandemic. Only one study solely aggregated individuals ≥65 years old[22]. Other studies relating to non-senior populations were included; however due to their large age range and mention of senior population they were considered useful in com-

prehending the impact of the COVID-19 pandemic on psychological functioning and pain and data from this age group were used. Most of the studies reviewed evaluated the impact of the pandemic in the short term, urging the need for further studies, with extended temporality, that allow for the assessment of the true impact of the COVID-19 pandemic restrictions on CP patients. In addition, a large proportion of the studies obtained their participants online, which may constitute a selection bias, leaving out older, more vulnerable individuals, those with lower socioeconomic status, or those living in rural areas without internet[37,50,52].

The COVID-19 pandemic impact may be much more severe, as there are possibly many patients with CP and other specific diseases who did not participate in the included studies and thus are not represented in this article. This is the case with very old people, dependent individuals, more vulnerable people, who are in residential facilities, psychiatric hospitals, prisons etc. where certainly the impact of the pandemic was also severe and therefore needs further research[2,51]. There is an urgent need for intervention with the senior populations with CP and further research in order to: i) analyze the long-term consequences of CP, both in a post-pandemic situation and in the context of long-COVID; and ii) study the solutions to be adopted in order to address the documented harms.

CONCLUSION

The restrictions imposed by the COVID-19 pandemic were associated with short-term harmful consequences in several domains of CP, negatively affecting: pain intensity, treatment, and management; mental health; lifestyles; and QoL. This review showed that the impact of the pandemic on the management of CP has been little explored in older people, particularly those who are more vulnerable, have physical and/or cognitive deficits, reside in institutions, etc.

AUTHORS' CONTRIBUTIONS

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Data Collection, Resource Management, Research, Methodology, Writing - Review and Editing
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