

Acupuncture in health workers' care during the COVID-19 pandemic: an integrative review

Acupuntura no cuidado do trabalhador da saúde durante a pandemia por COVID-19: uma revisão integrativa

Beatriz Angieuski Camacho¹
Orcid: <https://orcid.org/0000-0003-4027-2214>

Suellen Aparecida Patricio Pereira²
Orcid: <https://orcid.org/0000-0001-7645-4031>

Lucas Manoel Oliveira Costa³
Orcid: <https://orcid.org/0000-0001-7184-2318>

Daniele Vieira da Silva Blamires⁴
Orcid: <https://orcid.org/0000-0003-4802-3546>

Maria Aparecida de Sousa Moura⁵
Orcid: <https://orcid.org/0000-0001-5502-7401>

Júlia Oliveira Melo⁶
Orcid: <https://orcid.org/0000-0002-3014-9848>

Abstract

Objective: This study aimed at analyzing in the literature the scientific evidence available on the use of acupuncture in health workers' care during the COVID-19 pandemic. **Methods:** An integrative literature review was carried out based on articles from the Virtual Library database in Health (*Biblioteca Virtual em Saúde*, BVS). The search strategy for articles in Portuguese was: (Acupuncture) AND (Covid 19) AND (Worker's Health) AND (Health Personnel). For searches in English, the following strategy was used: (Acupuncture) AND (Covid 19) AND (Health Personnel) AND (Occupational Health). Primary articles, available in full, published between 2020 and 2022 in Portuguese or English, were selected. Those that did not answer the guiding question and were narrative, traditional, systematic and integrative review studies were excluded. **Results:** The search initially resulted in 59 articles, 40 with the search in English and 19 with the search in Portuguese. After applying the exclusion criteria, 6 articles were selected for the study. **Conclusion:** With the analysis, it was concluded that, when used as a resource in the health professionals' care, especially during the COVID-19 pandemic, acupuncture promoted a significant reduction in the stress and anxiety levels among the users.

Keywords: acupuncture. covid-19. health personnel. occupational health

Resumo

Objetivo: Este estudo objetivou analisar na literatura as evidências científicas disponíveis acerca da utilização da acupuntura no cuidado do trabalhador da saúde durante a pandemia de COVID-19. **Métodos:** Foi feita uma revisão integrativa de literatura a partir de artigos da base de dados da Biblioteca Virtual em Saúde (BVS). A estratégia de busca para os artigos em português foi: (Acupuntura) AND (Covid 19) AND (Saúde do trabalhador) AND (Pessoal de Saúde). Para as buscas em inglês, utilizou-se a seguinte estratégia: (Acupuntura) AND (Covid 19) AND (Health Personnel) AND (Occupational Health). Foram selecionados os artigos primários, disponíveis na íntegra, publicados entre 2020 e 2022 em português ou inglês. Foram excluídos os que não respondessem à questão norteadora e estudos de revisão narrativa, tradicional, sistemática e integrativa. **Resultados:** A busca resultou, inicialmente, em 59 artigos, 40 com a busca em inglês e 19 com a busca em português. Após aplicados os critérios de exclusão, foram selecionados 6 artigos para o estudo. **Conclusão:** Com a análise, concluiu-se que a utilização da acupuntura como recurso no cuidado aos profissionais de saúde, em especial durante a pandemia de COVID-19, quando utilizada, promoveu redução significativa nos níveis de estresse e ansiedade nos usuários.

Palavras-chave: acupuntura. covid-19. pessoal de saúde. saúde do trabalhador

¹ Universidade Cesumar. Graduação em Medicina. Departamento de Medicina. Maringá, Paraná, Brasil.

E-mail: beatrizcamacho@gmail.com

² Universidade Federal do Piauí. Pós-graduação em Farmacologia. Núcleo de Pesquisa em Plantas Medicinais. Teresina, Piauí, Brasil. E-mail: z.suellen@gmail.com

³ Instituto de Ensino Superior Múltiplo. Graduação em Enfermagem. Departamento de enfermagem. Timon, Maranhão, Brasil. E-mail: enflucasmocosta@gmail.com

⁴ Universidade Federal do Piauí. Mestrado em Ciências e Saúde. Centro de Ciências e Saúde. Teresina, Piauí, Brasil. E-mail: vieiradani.dvp@gmail.com

⁵ Faculdade Metropolitana de São Paulo. Especialização em Docência do Ensino Superior. São Paulo, São Paulo, Brasil. E-mail: radiomariaaparecida@gmail.com

⁶ Faculdade Ciências Médicas de Minas Gerais. Graduação em Medicina. Departamento de medicina. Belo Horizonte, Minas Gerais, Brasil. E-mail: juliamelo2000@gmail.com

Introduction

The 2019 coronavirus infection (COVID-19), initially reported in China in 2019, was declared a Public Healthcare Emergency of International Interest by the World Health Organization (WHO) in January 2020, reaching 80,000 confirmed cases in February of the same year¹. In this context, before long, the health system suffered a major impact, and it was constantly challenged by a disease that was little understood. The search for infection and stabilization of sick individuals, who often arrived at the hospital in severe conditions, became constant concerns for health professionals during this period.²

While the general population complied with isolation measures to prevent contamination, health professionals found themselves doing the contrary. The increased workload and psychological pressure inherent to the health situation were factors that contributed to the physical and psychological ailments of those workers.³ Among the professionals directly or indirectly linked to the fight against COVID-19, greater tendency to anxiety, depression, post-traumatic stress disorder, sleep disorders, fear of contamination and stress were found, in addition to a self-entrusted stigma, or entrusted by others, of the blame for exposing their family to the virus.⁴

Regarding sick health professionals, the available studies indicate that most interventions were individual and that each person themselves initiated it. As for the institutional approaches, although they can be less stigmatizing and more efficient, they appear to be less present and more studies are necessary for planning these actions.⁵ The Integrative and Complementary Health Practices (ICHPs), which include meditation, acupuncture, music therapy and other techniques, can be great allies for health promotion among health workers. That fact was verified in a study, which observed the positive impacts of those

practices on primary care professionals' mental and physical health.⁶

Acupuncture is an efficient therapy for improving workers' health and their quality of life, although new studies that clearly show the results of this technique are required.⁷ Given the above, the objective of this paper was to analyze, in the literature, the diverse scientific evidence available on the use of acupuncture in health workers' care during the COVID-19 pandemic.

Materials and Methods

Type of study and research design

This is an integrative literature review. This research was based on six stages: elaboration of the research question; search in the literature and sampling; definition of all the information to be collected from the studies selected; critical evaluation of the diverse evidence included; interpretation of the results; knowledge synthesis; and presentation of the review.

Thus, this study was conducted by the following question: "Was acupuncture used as a worker's care resource for health workers' own health during the COVID-19 pandemic peak?". The bibliographic survey was carried out in December 2022, by consulting the following databases: Medical Literature Analysis and Retrieval System on-line (MEDLINE via PubMed®), Bibliographic Index of Health Sciences (*Índice Bibliográfico de Ciências da Saúde*, IB ECS), Latin American and Caribbean Literature in Health Sciences (*Literatura Latino Americana e do Caribe em Ciências da Saúde*, LILACS) and Nursing Database (*Banco de Dados em Enfermagem*, BDENF) via the Virtual Health Library (*Biblioteca Virtual em Saúde*, BVS). We used BVS as a database for the research due to the availability of reference bibliographic data and complete texts, in addition to the international database.

In addition, we developed the descriptors and alternative terms associated



with AND and OR Boolean operators, which made it possible to reach greater specificity in the bibliographic survey. Therefore, specifically for this search, the following search strategy was structured for the Portuguese articles: (Acupuntura) AND (Covid 19) AND (Saúde do trabalhador) AND (Pessoal de Saúde). For the English search, the following strategy was used: (Acupuncture) AND (Covid 19) AND (Health Personnel) AND (Occupational Health).

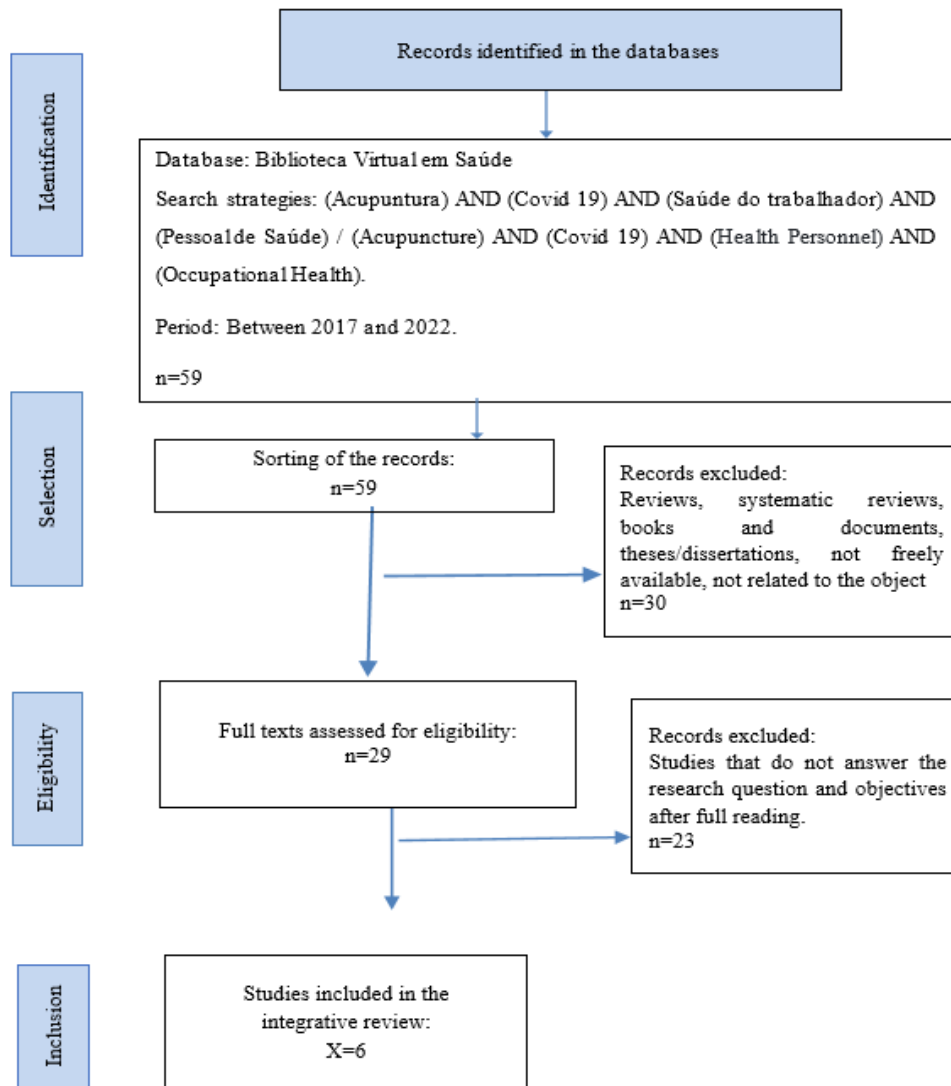
Inclusion and Exclusion Criteria

In this sense, the inclusion criteria adopted for selection of the articles were the following: primary articles, available in full, published between 2020 and 2022, and written in Portuguese and English. The exclusion criteria were as follows: studies that do not answer the guiding question and literature narrative review/traditional, systematic and integrative review studies. Furthermore, it is emphasized that duplicate articles were only counted once.

Procedures

Given that, Figure 01 characterizes the means by which the articles were obtained.

Figure 1. Flowchart corresponding to selection of the primary studies, according to the PRISMA recommendation. Teresina – PI, Brazil, 2022.



Source: The authors, 2022.

Results

Based on the surveys carried out from the clinical studies on the use of acupuncture as a complementary therapy for the health workers' care during the COVID-19 pandemic, 59 studies were initially found. Among them, 40 articles were found with the search strategy in

English and 19 with the one in Portuguese. After applying the exclusion criteria as described in the methodology, a total of 6 studies were left to be included in this review. It is emphasized that those studies were selected and organized according to their title, type of research, author, publication year, country and journal (Chart 1) and to author, year, objective of the article and main considerations (Chart 2).

Chart 1 - Characterization of the studies included in the review according to title, author, year, country and journal. Teresina, Piauí, Brazil, 2022.

No.	TITLE/TYPE OF RESEARCH	AUTHOR/YEAR	COUNTRY	JOURNAL
01	Uso da auriculoterapia em servidores da saúde no período de pandemia. (Quantitative)	Amorim <i>et al.</i> ⁸	Brazil	Brazilian Journal of Development
02	Auriculoterapia em profissionais de enfermagem na pandemia do coronavírus: estudo de casos múltiplos. (Quantitative)	Oliveira <i>et al.</i> ⁹	Brazil	Revista Eletrônica de Enfermagem
03	Efetividade da auriculoacupuntura na qualidade do sono de profissionais de enfermagem atuantes na COVID-19. (Quantitative)	Melo <i>et al.</i> ¹⁰	Brazil	Texto & Contexto Enfermagem
04	Pandemia COVID-19: relato do uso de auriculoterapia na otimização da saúde de trabalhadores de urgência (Qualitative)	Trigueiro <i>et al.</i> ¹¹	Brazil	Revista Brasileira de Enfermagem
05	Benefícios da auriculoacupuntura em profissionais de enfermagem atuantes na COVID-19 à luz da Teoria do Conforto (Qualitative)	Melo <i>et al.</i> ¹²	Brazil	Revista Escola Anna Nery
06	Saúde do trabalhador, práticas integrativas e complementares na atenção básica e pandemia da COVID-19. (Qualitative)	Pereira <i>et al.</i> ¹³	Brazil	Revista da Escola de Enfermagem da USP

Source: The authors, 2022



Chart 2- Articles' content analysis. Teresina, Piauí, Brazil, 2022.

Author (Year)	Objective of the Article	Main Considerations
Amorim <i>et al.</i> ⁸	To identify the main symptoms presented by the workers from the health area and auriculotherapy use efficacy during the COVID-19 pandemic.	This research noticed that, among the 30 patients cared for, the main reported symptoms were anxiety and stress. In this sense, treatment with auriculotherapy proved to be efficient, with a reduction in intensity of the symptoms, and validating that a non-invasive procedure is capable of promoting improvements in the health of workers that are subjected to a significant daily load of this occupational stress.
Oliveira <i>et al.</i> ⁹	This research aimed at assessing the effect before and after an auriculotherapy session in the anxiety, depression and stress levels in the Nursing professionals scheduled to work in assistance during the coronavirus pandemic.	It was possible to conclude that only one auriculotherapy was capable of significantly reducing some anxiety symptoms, as well as it assisted in the treatment of depression in Nursing professionals that worked in the front line to face the coronavirus pandemic.
Melo <i>et al.</i> ¹⁰	To assess the effectiveness of auriculoacupuncture in the improvement of sleep quality of health professionals that work fighting against the COVID-19 pandemic.	The intervention carried out by means of auriculotherapy in Nursing professionals was capable of promoting an improvement in sleep quality and sleep duration, up to 50%, as well as of reducing sleep changes and minimizing the use of sleep medications.
Trigueiro <i>et al.</i> ¹¹	To report the use of auriculotherapy in the optimization of emergency workers' health during the COVID-19 pandemic.	Auriculotherapy was a potential contributor when facing physical and psychoemotional situations. The study identified some benefits of its use, such as the following: stimulation of blood filtration by the kidneys to release toxins and improve circulation; regulation of the neurovegetative system, stimulating the sympathetic and parasympathetic functions, providing general body balance, as well as acting on the muscular system, provoking anti-inflammatory and relaxing actions.
Melo <i>et al.</i> ¹²	To analyze the benefits of auriculoacupuncture in Nursing professionals working in the COVID-19 pandemic in light of Katherine Kolcaba's Theory of Comfort.	Auriculotherapy provided tranquility and relief moments, as well as improvements in back pain and headaches. In addition to that, the study noticed an increase in sleep duration and muscle relaxation among the professionals.
Pereira <i>et al.</i> ¹³	To identify the possible repercussions of the COVID-19 pandemic on workers' health, the care strategies used and the offer of Integrative and Complementary Practices in health services in the COVID-19 context.	In this study, it was evident that the use of auriculotherapy in health professionals during the pandemic contributed to minimizing pain, reducing stress, depression, and anxiety symptoms and promoting the strengthening of bonds, in addition to improving the work environment.

Source: The authors, 2022

In this context, it was possible to show that the highest number of publications was in 2020 and 2022, in equal proportion (N=3), representing a total of 42.86% for each year. In addition to that, in the type of research

context, it was noticed that 57.14% of the articles were qualitative (N=4). It should be noted that all the above information is set out in Chart 1.

Discussion

ICPs have been part of the National Policy for Integrative and Complementary Practices (*Política Nacional de Práticas Integrativas e Complementares*, PNPIC), belonging to the Unified Health System (*Sistema Único de Saúde*, SUS) since 2006. Twenty-nine integrative and complementary modalities are offered and the most practiced ones are as follows: acupuncture, aromatherapy, auriculotherapy, homeopathy, medicinal plants and herbal medicine, body practices of Traditional Chinese Medicine and integrative community therapy. Their application occurs mainly in Primary Health Care; however, there are few national regulations in ICP practice and training; the practitioners mostly work on their own initiative.¹⁴

ICPs provide well-being and favor health, contributing relief to psychological symptoms such as stress, anxiety and insomnia. They also offer improvements in physical symptoms such as tiredness, lower limb edema, and pain in different parts of the body. They assist in the health-disease process of patients with different emotional profiles and physical manifestations, which are treated for a long period of time. They are safe and effective practices, recommended in isolation or in combination with other therapies.¹⁵

This study had the objective of analyzing the literature for diverse scientific evidence available on the use of acupuncture in health workers' care during the COVID-19 pandemic. Acupuncture is a therapy from Traditional Chinese Medicine and represents one of the most widely accepted components of integrative therapies in the Western world¹⁶. A number of studies support a positive result in execution of the technique in people who have been infected with COVID-19, mainly regarding the health workers who were on the front line of the fight against the pandemic.⁸

In the studies by Amorin *et al.*,⁸ Oliveira *et al.*,⁹ Melo *et al.*,¹⁰ Trigueiro *et al.*¹¹ and Melo *et al.*,¹² auriculotherapy use in health professionals who provided care to patients with suspected COVID-19 was analyzed. The drop in the frequency of stress, depression and anxiety among Nursing professionals was evident, in addition to the improvement in sleep quality. Regarding the occurrence of adverse effects after the procedure, the professionals did not report negative symptoms.

We noticed that auriculotherapy was highly effective in improving the general psychophysical condition and post-traumatic stress, becoming a significantly important strategy for the workers fighting against the coronavirus by helping them face the psychoemotional processes and repeatedly exacerbated stressors during the pandemic.¹³ Therefore, auriculotherapy acted as a way of welcoming and providing care to professionals, being considered a safe practice, little invasive and economic practice that has collaborated with workers' health made it possible for them to better care for their patients.^{9,10,11,12}

The technique used was the application of mustard seeds in the following auricular points: antidepressant, joy, anxiety, *shenmen*, muscle relaxation, heart, lung, kidney, endocrine and Sympathetic Nervous System (SNS). The seeds were fixed with microporous ribbons, to remain in the points for five consecutive days. The acupoints should be stimulated three times a day.⁹ Kurebayashi *et al.*¹⁷ explain that the auricle is intensely innervated, with trigeminal, facial and vague nerves. And, by stimulating the auricle, the seeds sensitize diverse regions of the brain. Each auricular point has a corresponding brain area. From brain activation, the nerve network transmits the signal to certain regions of the body and organs, generating the expected actions.

The results found by the Pereira *et al.*¹³ study showed that the pandemic modified the work routine, increased the



load and generated feelings of insecurity, demand and fear in the professionals. With this, the pandemic also showed the need to prioritize workers' health. Therefore, the article dealt with the construction of support networks and systematized the offer of ICPs such as acupuncture to health professionals and the population, in order to promote self-care, mental health and better quality of life.

The use of acupuncture and other ICPs during the pandemic contributed the following positive points: strengthening bonds; improving ambiance; improving the service provided by professionals, as those who work without pain and have a good quality of sleep, become more productive; contribution to management, for making employees feel cared for and welcomed by the service; and sense of empowering and helping co-workers in their physical and emotional affections.¹⁰

The auriculotherapy technique was also analyzed a comfort instrument.¹⁰ Comfort is a concept closely linked to Nursing care, connected to its origin, and assumes significant importance in the health sciences and in Nursing in particular. In the Theory of Comfort, nurses can identify the need for comfort from people who are under their care and conceive comfort measures.^{18,19}

The categories for protocol comfort identification were the following: *Auriculoacupuncture as a comfort measure; Physical and psychospiritual comfort and performance in COVID-19 assistance; and From organizational support to individual commitment to health.* After analyzing all the categories according to the reports by each participant, many different situations can be perceived which contribute to the physical and emotional wear out of those professionals, such as scarcity of inputs and personnel and intense work pace. After holding the sessions there were positive results in terms of comfort and improvement for the complaints reported by each individual. In addition, associated with the positive return of the acupuncture

technique, positivity was also pointed to the concept in the Theory of Comfort.¹⁰

Conclusion

The study pointed out that applying acupuncture was important during the pandemic period, as it is a complementing means that offers low cost and fast application, with little adverse effects, capable of promoting relaxation, focus and tranquility, bypassing the anxious disorders triggered by the pandemic, as well as allowing for an increase in care productivity. Thus, using this alternative method was essential for coping with the COVID-19 pandemic, enabling means to overcome physical and psychosocial problems, as well as signaling the importance of continuous mental health care.

Bibliographic references

- 1- World Health Organization. Situation Report -38 SITUATION IN NUMBERS total and new cases in last 24 hours [Internet]. Disponível em: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200227-sitrep-38-covid-19.pdf?sfvrsn=9f98940c_2
- 2- Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Bio Medica Atenei Parmensis*. 2020; 91(1): 157-160. Disponível em: <http://dx.doi.org/10.23750/abm.v91i1.9397>.
- 3- Santos KMR dos, Galvão MHR, Gomes SM, Souza TA de, Medeiros A de A, Barbosa IR, et al. Depressão e ansiedade em profissionais de enfermagem durante a pandemia da covid-19. *Escola Anna Nery* [Internet]. 2021;25(SPE). Disponível em: <https://doi.org/10.1590/2177-9465-EAN-2020-0370>.
- 4- Sachdeva A, Nandini H, Kumar V, Chawla RK, Chopra K. From stress to stigma – Mental health considerations of health care workers involved in COVID19 management. *Indian Journal of Tuberculosis*. 2021; 69(4): 590-595. Disponível em: <http://dx.doi.org/10.1016/j.ijtb.2021.09.007>.
- 5- Muller AE, Hafstad EV, Himmels JPW, Smedslund G, Flottorp S, Stensland SØ, et al. The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Research*. 2020; 293. Disponível em: <http://dx.doi.org/10.1016/j.psychres.2020.113441>
- 6- Silva MJL, Bernardo HF, Costa VRS. Auriculoterapia no tratamento da insônia em profissionais de enfermagem durante a pandemia da COVID-19 em um hospital público do Distrito Federal. *Rev Bras Interdiscip Saúde – ReBIS*. 2022; 4(1):27-34. Disponível em: <https://revistarebis.rebis.com.br/index.php/rebis/article/view/331>.
- 7 - Pedro DRC, Ribeiro BM dos SS. Acupuntura em trabalhadores: revisão integrativa da literatura. *Revista de Saúde Pública do Paraná*. 2021 Apr 30;4(1):151–62; Disponível em: <https://doi.org/10.32811/25954482-2021v4n1p151>
- 8- Amorim ECS, Boareto JP, Freitas IRS, Martins EAP. Uso da auriculoterapia em servidores da saúde no período de pandemia. *Revista Brasileira de Desenvolvimento*. 2022; 8(4):23064–73. Disponível em: <https://doi.org/10.34117/bjdv8n4-021>.
- 9 - De Oliveira CMC, De Assis BB, Mendes PG, Lemos IC, De Sousa ALC, Chianca TCM. Auriculoterapia em profissionais de enfermagem na pandemia do coronavírus: estudo de casos múltiplos. *Revista Eletrônica de Enfermagem*. 2021;23. Disponível em: <https://doi.org/10.5216/ree.v23.65678>.
- 10 - Melo GAA, Lira Neto JCG, Silva RA, Martins MG, Pereira FGF, Caetano JA. Efetividade da auriculoacupuntura na qualidade do sono de profissionais de enfermagem atuantes na COVID-19. *Texto Contexto Enferm*. 2020;29. Disponível em: <https://doi.org/10.1590/1980-265X-TCE-2020-0392>.
- 11 - Trigueiro LT, Araújo AL, Moreira TMM, Florêncio RS. Pandemia COVID-19: relato do uso de auriculoterapia na otimização da saúde de trabalhadores de urgência. *Rev Bras Enferm* [Internet]. 2020; 73(Suppl2):e20200507. Disponível em: <http://dx.doi.org/10.1590/0034-7167-2020-0507>.
- 12 - Melo GAA, Lira Neto JCG, Martins MG, Pereira FGF, Caetano J.A. Benefícios da auriculoacupuntura em profissionais de enfermagem atuantes na COVID-19 à luz da Teoria do Conforto. *Esc Anna Nery*. 2020;24. Disponível em: <https://doi.org/10.1590/2177-9465-EAN-2020-0311>.



- 13 - Pereira EC, Rocha MPD, Fogaça LZ, Schweitzer MC. Saúde do trabalhador, práticas integrativas e complementares na atenção básica e pandemia da COVID-19. *Revista da Escola de Enfermagem da USP*. 2022;56. Disponível em: <https://doi.org/10.1590/1980-220X-REEUSP-2021-0362>.
- 14 - Tesser CD, Sousa IMCD, Nascimento, MC. Práticas integrativas e complementares na atenção primária à saúde brasileira. *Saúde em debate*. 2018;42:174-88. DOI: <https://doi.org/10.1590/0103-11042018S112>.
- 15 - Dascal MDPO, Silva IS. Impactos das práticas integrativas e complementares na saúde de pacientes crônicos. *Saúde debate* [Internet]. 2018;42(118):724-35. Disponível em: <https://doi.org/10.1590/0103-1104201811815>.
- 16 - Campos CCP, Douro ECS, Ferreira AV, Cunha RG. Benefícios da acupuntura no tratamento da dor lombar: uma revisão de literatura [Internet]. *Revista NBC*. 2020;10(20). Disponível em: <https://www.novafisio.com.br/efeito-analgésico-da-acupuntura-no-tratamento-da-dor-lombar-gestacional-uma-revisao-sistemática>.
- 17 - Kurebayashi LFS, Turrini RNT, Souza TPBD, Marques CF, Rodrigues RTF, Charlesworth K. Auriculoterapia para redução de ansiedade e dor em profissionais de enfermagem: ensaio clínico randomizado. *Revista Latino-Americana de Enfermagem*. 2017;25. Disponível em: <https://doi.org/10.1590/1518-8345.1761.2843>.
- 18 - Kolcaba K, Dinamarco MA. Comfort theory and its application to pediatric nursing. *Pediatric Nursing*. 2005;3(3):187-94. Disponível em: <https://pubmed.ncbi.nlm.nih.gov/16060582>.
- 19 - Bispo LDG, Chagas BGS, Resende LT, Melo MS, Nascimento, VSA. Assistência de enfermagem durante a puericultura à luz da teoria do conforto. *Research, Society and Development*. 2022;11(12). DOI: <http://dx.doi.org/10.33448/rsd-v11i12.34426>.

How to cite this article:

Camacho BA, Pereira SAP, Costa LMO, Blamires DVS, Moura MAS, Melo JO. Acupuncture in health workers' care during the COVID-19 pandemic: an integrative review. *Rev. Aten. Saúde*. 2024; e20248978(22). doi <https://doi.org/10.13037/ras.vol22.e20248978>

