Mental health and workers in the context of the COVID-19 pandemic: an international literature Survey

Pedro Henrique Conte Gil

Universidade Federal do Rio Grande do Sul – UFRGS

https://orcid.org/0000-0003-1158-8199

Marta Elisete Ventura da Motta

Universidade de Caxias do Sul – UCS

http://orcid.org/0000-0001-5551-2343

Maria Emília Camargo

Universidade de Caxias do Sul – UCS

https://orcid.org/0000-0002-3800-2832

Lisarb do Amaral Ribeiro

Centro Universitário da Serra Gaúcha – FSG

https://orcid.org/0000-0003-0801-4098

Tiane Camargo

Universidade Franciscana – UFN

https://orcid.org/0000-0003-2423-3928

Abstract

In March 2020, the World Health Organization (WHO) declared that Covid-19 reached the pandemic level. In this regard, quarantine measures were applied by governmental organizations. Such measures had a negative impact on the mental health of the whole population, and thus, of the workers. This study aims to survey the international literature on aspects of mental health in workers in the context of the Covid-19 pandemic, available in the Scopus database. The methodology used is classified as exploratory, descriptive, and quantitative with a bibliometric approach. After searching and applying inclusion and exclusion criteria, a total of 217 documents were retrieved. For analysis, 7 thematic axes were organized, pointing out the main findings of each topic. As results, it was found that there is an important academic production on mental health aspects of health professionals, and less investigations with workers from other contexts. Still, it was identified that Brazilian researchers have played an important role in the production of this knowledge. It is concluded that the entire scientific community is engaged, especially in the health field, to conduct investigations addressing aspects of mental health and workers in the context of the Covid-19 pandemic.

Keywords: Mental health; workers; pandemic; Covid-19; Survey.

1. INTRODUCTION

The World Health Organization (WHO) declared, in March 2020, that Covid-19, caused by the new coronavirus (Severe Acute Respiratory Syndrome Coronavirus 2 - Sars-Cov-2), achieved the pandemic level (Fiocruz, 2020). According to the Organization, pandemics are outbreaks of new diseases that reach spread on a global scale, a higher level than the well-known epidemics, which affect a specific region and make a small amount of the population sick.

The first case of Covid-19 infection was reported in China in early December 2019 (Xiao, 2020). In Brazil, the first case was notified about three months later, on February 25, 2020 (Brazil, 2020). By the timing of finishing this article, on December 2, 2020, 64,367,697 confirmed cases and 1,489,897 deaths have been documented worldwide (WHO, 2020). On that same date, Brazil had 6,436,650 confirmed cases and 174,531 deaths (Brazil, 2020).

It is known that pandemics, in general, have social implications from the micro to the macro-systemic level, imposing, during the time that they last, new organizations, habits and mobilizations of different orders to contain their spread (Morens, Folkers, & Fauci, 2009). In this context of social aspects, the Ministry of Health (Brazil, 2020) broadcasted several recommendations to the population to alert them about transmission, prevention, and procedures in case of contagion due to the disease. Thus, the main proposal for coping with the spread of the virus was social distance, with the population being instructed to stay at their homes and leave them only in cases of need (such as, for example, going to the market, pharmacy, health care, and urgencies).

Due to their polysemy and, sometimes, the arbitrariness of their use, it is important to differentiate the concepts of social distance, social isolation, and quarantine in the context of a pandemic. According to Wilder-Smith and Freedman (2019), social distance is the idea of mitigating contacts and physical approximations between individuals of a population, in order to diminish the speed of contagion; isolation refers to a way of separating people already infected with the virus from those who are not infected or are asymptomatic; and, finally, quarantine as a way to decrease the circulation of people who have potentially been exposed to the disease. In order to delay and insure the peak incidence and the number of deaths from the pandemic, many countries have adopted containment measures, such as the isolation of suspected cases, the closure of educational institutions, the social distance of people considered to be at-risk groups, as well as quarantine of the entire population (Brooks et al., 2020, Ferguson et al., 2020).

These containment measures have implied in negative factors to the population, such as risks to the mental health. In this moment, it turns to be important to highlight that mental health is a broad concept and difficult to be defined, such as its determinants (Alves & Rodrigues, 2010). In the same way that health is not just about the absence of disease, mental health is not restricted to the absence of mental disorders or

syndromes (Scliar, 2007). For this reason, mental health has been understood as a product of multiple and complex interactions, which involves biological, psychological, and social factors. Furthermore, it is expressed and evaluated through different constructs in the literature, such as aspects that denote favorable conditions (e.g. well-being, quality of life, resilience, etc.) and adverse conditions (e.g. anxiety, depression, post-traumatic stress, etc.)(Alves & Rodrigues, 2010).

In the relationship between mental health and isolation, the literature review by Brooks et al. (2020) identified that the negative effects of quarantine include symptoms of post-traumatic stress, confusion, and anger. Other study has identified that the fear of being infected with a virus of rapid and wide-spread, potentially fatal, ends up affecting the psychological well-being of many people (Asmundson & Taylor, 2020; Carvalho et al., 2020). Nevertheless, symptoms of depression, anxiety and stress are perceived in the general population (Wang et al., 2020) and, specifically, in health professionals (Zhang et al., 2020).

Regarding to the workers' mental health, specifically in the context of the Covid-19 pandemic, it was found that health professionals, who work as frontiers in dealing with the new coronavirus, have been significantly affected (Teixeira et al., 2020). In addition to the risk of contamination, which put them away from work, the close relationship with illness and death has resulted in intense psychological distress. These, most of times, is manifested in generalized anxiety disorders, sleep disorders, fear of getting ill and contaminating colleagues and family members.

Although, it is perceived that not only health professionals have experienced negative effects, resulting from the pandemic situation, but also workers in general (Shojaei & Masoumi, 2020). Concerns about financial difficulties and the possible lack of basic supplies, have caused damage to the psychological well-being of these population.

In this sense, there are scientific productions available which involves: drivers of private transport applications (Uchôa-de-Oliveira, 2020), deliverers by application (Manzano & Klein, 2020), domestic workers (Pinheiro, Tokarski, & Vasconcelos, 2020), workers who maintained their activities in the pandemic period (Modesto, de Souza, & Rodrigues, 2020), workers unable to do their work at a distance, or in an informal situation (Barbosa, Costa, & Hecksher, 2020), university professors (da Silva, Estrela, Lima, & Abreu, 2020) and also workers in general in a home-office situation, who started to exercise their functions remotely (Lizote, Teston, Martendal, Tobias, & Assi, 2020). Most of these findings converge to the same results, pointing out negative impacts on aspects associated with the workers' mental health. Even though these effects are often attributed to a certain plurality of secondary reasons, invariably, they are all associated with the Covid-19 pandemic context.

It is important to point out that there is significant range of scientific production in worldwide literature about the Covid-19 pandemic. The main reason for this consists on a significant number of institutions, universities, research groups and researchers from all over the world, have abdicated their private interests and turned their attention to the new demands generated by the current context. In quantitative terms, until

October 2020, about 168,546 publications on the pandemic were registered. Of these, 4,029 were produced in Brazil, being the country that ranks the 11th place among those that produced the most scientific articles on the current pandemic situation (GLOBO, 2020).

Therefore, given the extensive production of publications on the Covid-19 pandemic, a material that can map studies that investigate the different impacts of the pandemic on the population's health becomes deeply relevant. The present study proposes to meet this demand, aiming to carry out a survey of the international literature on aspects of mental health in workers in the context of the Covid-19 pandemic, available in the Scopus database.

2. METHOD

The present study has an exploratory, descriptive, and quantitative design (Ciervo, Bervian, & Silva, 2007) with a bibliometric approach (Hayashi, 2012). Research with this methodological design makes it possible to map the available scientific literature of a certain area of knowledge (Silva, Hayashi, & Hayashi, 2011). Through the construction of bibliometric indicators, the results make it possible to analyze academic productions by different authors, institutions, and regions in the world.

As a procedure, the search for documents was conducted in the Scopus database. This source was chosen because it is one of the main repositories of publications that index scientific journals from different areas of knowledge. Specially for this work, indexes which investigates aspects of the worker's mental health and their relationship with the current Covid-19 pandemic context.

Regarding the period, the time frame of this study is based on the WHO declaration, when the Organization characterized Covid-19 as a pandemic level (March, 2020), a measure that is closely associated with the beginning of social distancing measures (quarantine) worldwide (WHO, 2020). In this way, the search was restricted to the year 2020, until November 28, 2020, date of the recovery of the documents from the database. The descriptors used were: "mental health" AND "workers" AND "covid-19".

Documents identified in this search were categorized with the support of the Rayyan software. At first, the year of publication (2020) and open-access materials were considered as inclusion criteria.

Then, after reading the title, articles that did not involve the following criteria, were excluded:
(1) the Covid-19 pandemic
(2) aspects related to mental health and
(3) workers in the context of their work.

Those that remained dubious for the evaluators, the abstract was read for verification. After this, according to the criteria above, the document was included or excluded from the final sample. The remaining articles of this process comprised the analysis of this article. The details of this selection process are shown in the

flowchart below (Figure 1).

All inclusions and exclusions from the documents involved at least two judges, authors of the article, simultaneously and independently. In situations of disagreement, a third judge (also author) was consulted for decision making.

Figure 1 – Flowchart of the search process and selection of articles
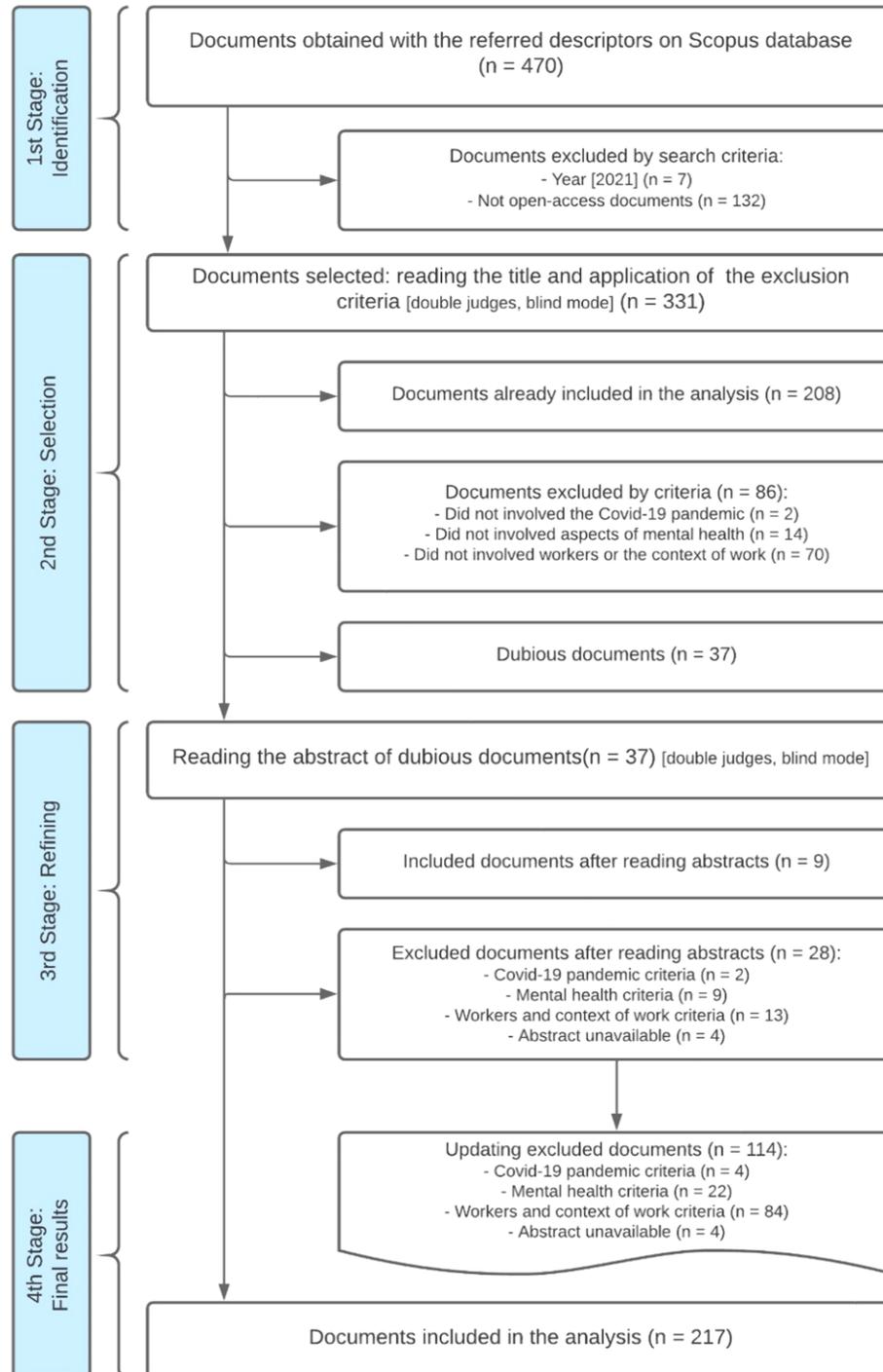
Source: elaborated by the authors

3. ANALYSIS AND DISCUSSION OF RESULTS

The results of the present article, a survey of the international literature on aspects of mental health and workers in the context of the Covid-19 pandemic, will be presented in 7 axes. These are (1) Access type and year; (2) Publication stage and document type; (3) Language and Country/Territory; (4) Authors and most cited publications; (5) Main journals, study area and institutions; (6) Main worker-participants and (7) Main aspects of Mental Health.

In addition to the results data being presented descriptively, discussions on the findings are proposed, with special attention to materials published in Brazil or by Brazilian researchers.

3.1 Access type and year

In the first stage of the search, the descriptors "mental health" AND "workers" AND "covid-19" were used in the SCOPUS database. Thus, a total of 470 records was obtained, without the application of any filter for refinement. Of these, 331 (70.4%) were open access, while the remainder (n = 139, 29.6%) were restricted access. In this sense, it is questioned that, even though the Covid-19 pandemic is considered one of the greatest humanitarian crises in the history of the world, having impacted and mobilized all spheres of societies, almost a third of the knowledge produced about it is freely inaccessible to the population. In the face of so many misunderstood and false information regarding the pandemic (Duarte, 2020), it is important to disseminate and propagate committed and consistent science in order to mitigate misinformation and enable coping strategies, a condition that is directly or indirectly facilitated by free access documents.

Also related to the first stage of the search, without the application of the year filter (2020) to restrict the materials, it was found that 463 records (98.5%) were from 2020. However, the search had a projection of studies to be made available in 2021 (n = 7 articles, 1.5% of documents). Undoubtedly, it was expected that most documents on the subject would be in 2020 year, since most research institutions interrupted their ongoing investigations to address current demands of the pandemic (WHO, 2020).

The analysis of the following axes will be based on the result of documents found after the application of all inclusion and exclusion criteria, 217 materials.

3.2 Publication stage and document type

Within the documents selected for the final analysis (n = 217, 46.1% of the first stage records), it was observed that of these, 171 (78.8%) were in the final stage of publication and the remaining (n = 46, 1.2%) in in-press mode. As for the type of document, 154 (71%) were articles, 26 (12%) literature reviews, 16 (7.3%) latters, 10 (4.6%) notes, 8 (3.7%) editorials, 2 (0.9%) data paper and 1 (0.5%) conference paper. Bearing in mind that the mental health of workers in the Covid-19 pandemic is a recent and emerging issue, which robust evidence on its numerous implications is still needed, it was decided to include records that

were not articles. This decision included documents from different sources, providing a more comprehensive mapping of publications on the subject.

3.3 *Language and Country/Territory*

Most of the documents were published in English (n = 212, 95.92%), followed by Portuguese (n = 3, 1.35%) and Spanish (n = 3, 1.35%), German (n = 2, 0.90%) and Russian (n = 1, 0.45%). However, in this sense, 221 records (1.84% more) are counted, which indicates there are documents which had publications in more than one language.

Regarding the origin of the publication of the materials, a certain diversity of countries or territories is identified. In this sense, China leads with the largest number of publications (n = 38, 17.51%), followed by the United States (n = 35, 16.12%) and the United Kingdom (n = 30, 13.82%). Brazil is on the list of the ten countries that most produced materials about this survey study, with 8 documents published (3.86%). Check below (Figure 2) better details on these ten countries with the largest number of publications.

Figure 2 – Documents by country or territory
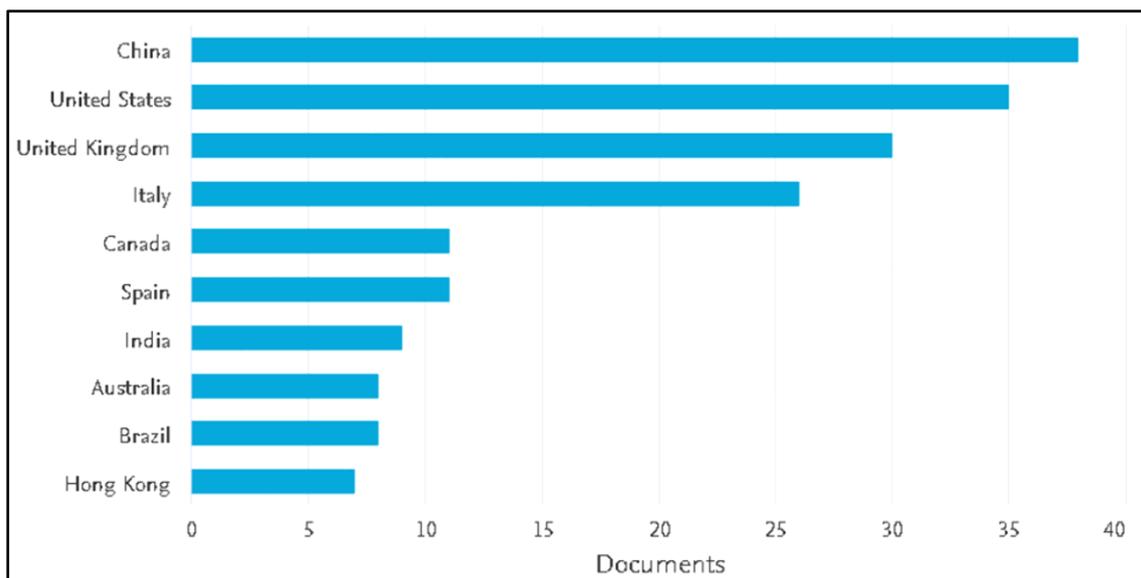
Source: Scopus results (2020)

3.4 *Authors and most cited publications*

Greenberg was the author who most published materials on aspects of mental health and workers in the context of a pandemic, available from Scopus. Beyond that, Greenberg is the only one with 4 (1.84%) publications of the total documents of the present survey, considering all of them investigates aspects of health professional's mental health. Among its materials, the most cited article was "Managing mental health challenges faced by healthcare workers during covid-19 pandemic" (Greenberg, Docherty, Gannapragasam, & Wesseley, 2020), accounting 243 quotes.

Regarding to the other authors (n = 159), 10 (6.28%) of them had 3 publications, 38 (23.9%) had 2, and the

others 111 (69.82%) had 1 publication. Below (Figure 3), the authors who published between 4 and 3 materials about the study's theme are presented.

Figure 3 – Documents by author
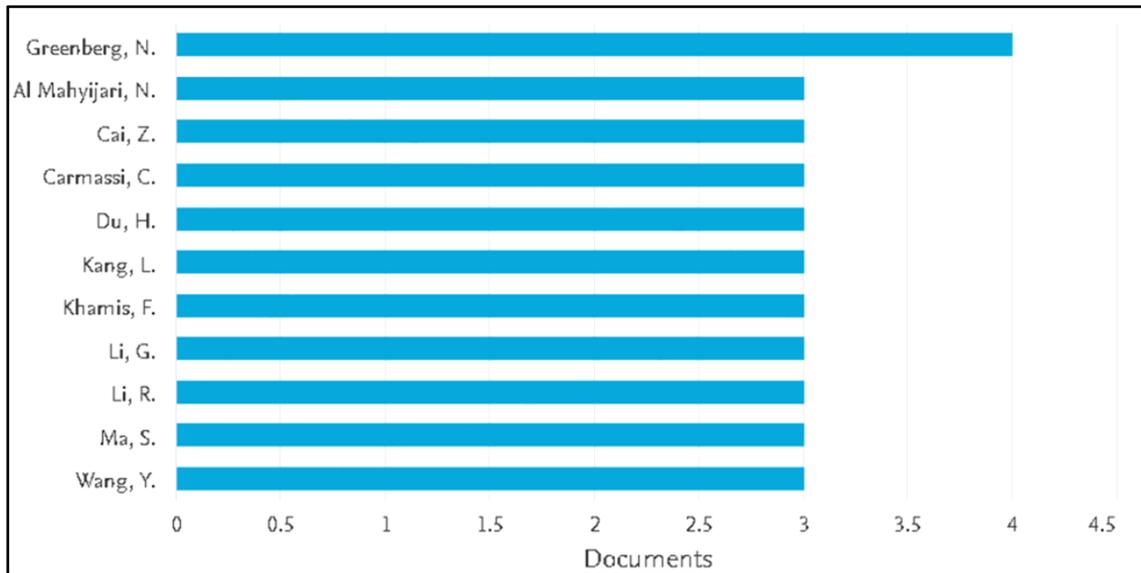
Source: Scopus results (2020)

In the context of citations, there were differences in the number of citations between the first ten studies. The first place (Lai et al., 2020) accounts 781 citations, while the tenth (Williamson, Murphy, & Greenberg, 2020) 31. The ten publications with most citations are described below (Table 1). The Brazilian documents, although not being inside this range, involved 58 different authors and co-authors.

Table 1 – Documents and citations

Position	Document	Citations
1	Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019 (Lai, Ma, Wang, (...), Hu, 2020.)	781
2	Managing mental health challenges faced by healthcare workers during covid-19 pandemic (Greenberg, Gnanapragasam, & Wessly, 2020)	243
3	Mental Health and Psychosocial Problems of Medical Health Workers during the COVID-19 Epidemic in China (Zhang,, Wang, , Yin, , (...), Wang,, 2020)	108
4	Survey of Insomnia and Related Social Psychological Factors Among Medical Staff Involved in the 2019 Novel Coronavirus Disease Outbreak (Zhang,, Yang, Liu, (...), Zhang, 2020)	73
5	Mental Health Outcomes Among Frontline and Second-Line Health Care Workers During the Coronavirus Disease 2019 (COVID-19) Pandemic in Italy (Rossi, Socci, Pacitti, (...), Rossi, 2020)	53

6	COVID-19 Pandemic: Stress Experience of Healthcare Workers: A Short Current Review (Bohlken, Schömig, Lemke, (…), Riedel-Heller, 2020)	43
7	Dealing with psychological distress by healthcare professionals during the COVID-19 pandemia (Petzold, Plag, Ströhle, 2020)	41
8	Mitigating the psychological impact of covid-19 on healthcare workers: A digital learning package (Blake, Bermingham, Johnson, Tabner, 2020)	34
9	The COVID-19 pandemic: Major risks to healthcare and other workers on the front line (Sim, 2020)	33
10	COVID-19 and experiences of moral injury in frontline key workers (Williamson, Murphy, Greenberg, 2020)	31

Source: elaborated by the authors, based on Scopus results (2020)

3.5 Main periodicals, field of study and institutions

The documents identified in the database search, are published in several journals (n = 127 in total). The International Journal of Environmental Research and Public Health occupies the first position in quantity of publications (n = 30, 18.86%), followed by the Psychological Trauma Theory Reserach Practice and Policy with 8 (3.68%) publications. The third place is disputed among 3 other journals, with 7 (3.22%) publications each.

Table 2 shows the journals with the most documents published (n = 12, 9.44%), considering the ones which had at least 3 materials referred in each. Journals that presented only 1 or 2 records (90.56%) were not included.

Table 2 – Journals with more publications

Position	Journal	Materials
1	International Journal of Environmental Research and Public Health	30
2	Psychological Trauma Theory Research Practice and Policy	8
3	Frontiers in Psychiatry	7
3	Frontiers in Psychology	7
3	International Journal of Social Psychiatry	7
6	Plos One	5
7	Globalization and Health	4
7	Indian Journal of Psychiatry	4
9	Asian Journal of Psychiatry	3
9	Disaster Medicine and Public Health Preparedness	3
9	Journal of Medical Internet Research	3
9	Sustainability Switzerland	3

Source: elaborated by the authors, based on Scopus results (2020)

Considering the eight documents produced by Brazilian researchers, they are linked to eight different journals. These journals are: Science and Collective Health, Clinics, International Journal of Environmental Research and Public Health, Journal of Medical Internet Research, *Revista Brasileira de Enfermagem*, *Revista da Sociedade Brasileira de Medicina Tropical*, *Revista Enfermagem* and Revista Latino Americana de Enfermagem.

Regarding the study area, the predominance was upon Medicine (56%), followed by Psychology (12.7%) and Environmental Sciences (11.1%). Such data seems to reinforce that the health field is the one that is most concerned with producing knowledge in relation to mental health, which, in fact, are the fields that are concerned with investigating it directly.

However, it is necessary to consider mental health as a phenomenon in an interdisciplinary dimension, proposing intersections between different fields of knowledge, such as Social Sciences. This objective could promote advances in biomedical conceptions, dichotomized and separation between the emotional and physical aspects of mental health (Scliar, 2007).

Figure 4 – Documents by subject
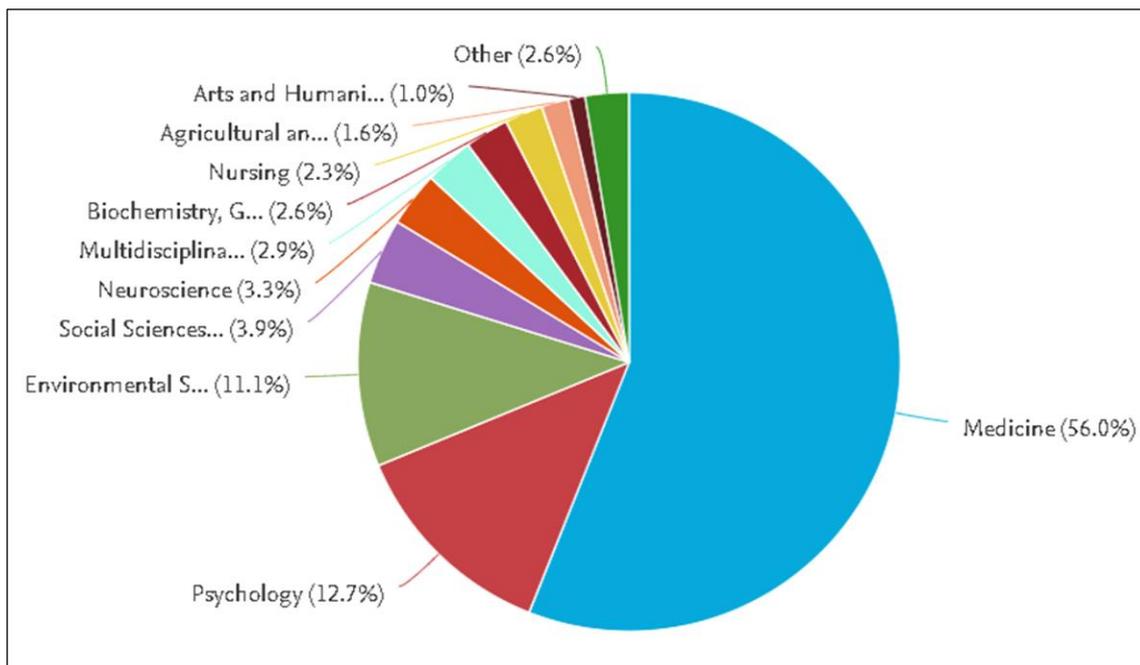
Source: Scopus results (2020)

The institutions which presented the most quantity of publications were: Tongji Medical College, King's College London, Huazhong University of Science and Technology, with six published documents (2.8% each), followed by the University of Toronto and Renmin Hospital of Wuhan University with five published documents (2.3% each), Chinese University of Hong Kong and Monash University with four documents (1.84% each) and Southern Medical University, Harvard Medical School and Hong Kong Polytechnic University with three documents (1.38% each).

In relation to Brazil, 14 different institutions were identified, with 1 document published by each. The institutions were: Federal University of Rio de Janeiro, Federal Fluminense University, Paulista State University, Federal University of Rio Grande do Sul, University of São Paulo, Federal University of Bahia, Hospital de Clínicas from Porto Alegre, Federal University of Santa Catarina, University of Passo Fundo, Oswaldo Cruz Foundation, Federal University of Goiás, State University of Maringa, State University of Campinas, Health Institute of São Paulo.

3.6 Main participants-workers

Due to the complexity of this section, it was decided to organize the records according to the different study work-participants accessed by the publications. Therefore, it is proposed to divide the materials into four distinct groups, which are:

(a) Health Professionals (HP) (n = 137 documents, 64% of the sample); (b) Specified HP (n = 42, 19%); (c) Comparisons between HP and others (n = 9, 4%) and (d) Other workers (n = 29, 13%).

The composition of the groups is detailed below, accordingly to the equality or similarity of participants-workers of the studies:

(a) Health Professionals (HP): unspecified HP (n = 118, 86.1%), HP front-line (n = 13, 9.5%) and HP front-line and secondary line (n = 6, 4.4%).
(b) HP Specialist: doctors (n = 10, 23.8%), residents of many specialties (n = 7, 16.6%), nurses (n = 6, 14.3%) and other 10 HP specialist categories (representing n = 19, 45.3%).
(c) Comparisons between HP and others: HP and other workers (n = 6, 66.67%), HP and patients (n = 2, 22.22%) and HP, patients, and others (n = 1, 11.11%).
(d) Other workers: general workers (n = 9, 31%), migrant workers (n = 4, 13.8%), military workers (n = 3, 10.3%) and other 11 workers' categories (representing n = 13, 44,9%).

Regarding specifically to the 8 Brazilian published documents, it was identified that 6 (75%) involved general health professionals, 1 (12,5%) frontline professionals and 1 (12,5%) general workers (non-health professionals).

Considering that groups (a), (b) and (c), involve mainly HPs, it is observed that most studies (n = 188, 86.63%) aimed to investigate aspects of the mental health of the working population from the health field. There is a high relevance in investigating such population, since they face very high risks of exposure to Covid-19 and, consequently, suffer from the inherent impacts on their mental health. However, it is known that the pandemic invariably had repercussions on all other workers and work contexts (Duarte et al., 2020). In this sense, pointing out the disparity in the production of knowledge about other workers, it is clear the relevance of conducting investigations regarding mental health aspects on workers outside the health context.

3.7 Main aspects of Mental Health

In the same sense as the previous axis, there is an expressive construct related to mental health. Thus, it is suggested following agglutination of elements, based on an analysis that constitutes 5 different groups:

(a) Mental Health (MH) and its general aspects (n = 156 documents, 72% of the sample); (b) Stress (n = 31, 14%); (c) Anxiety or Depression (n = 17, 8%); (d) Well-being (n = 8, 4%) and (e) Resilience (n = 5, 2%).

Again, the composition of the groups is detailed below, accordingly to the equality or similarity of the MH aspects assessed by the studies:

(a) Mental Health (MH) and its general aspects: MH general aspects (n = 89, 57%), MH and Psychological Impacts (n = 34, 21.8%), MH and Psychosocial factors (n = 9, 5.8%), MH and Psychological interventions (n = 9, 5.8%) and 5 other categories (n = 15, 9.6%).
(b) Stress: General stress (n = 15, 48.4%), Post-traumatic stress (n = 8, 25.8%), Stress and Burnout (n = 5, 16.1%) and 2 other categories (n = 3, 9.7%).
(c) Anxiety or Depression: Anxiety/Depression (n = 10, 58.9%), Anxiety (n = 5, 29.4%) and Depression (n = 2, 11.7%).
(d) Well-being and (e) Resilience were aspects that did not vary, each one being a distinct and specific group.

Regarding specially about the 8 studies conducted in Brazil, it was perceived that most documents involved general aspects of mental health (n = 4, 50%) and the rest concentrated on investigating depression, anxiety and lifestyle (n = 1, 12.5%), stress (n = 1, 12,5%), psychological interventions for HP (n = 1, 12.5%) and well-being (n = 1, 12.5%).

Based on groups (a), (b) and (c), most of documents (n = 204, 94%) are related to investigate aspects perceived as adverse in the workers mental health, in the context of the Covid-19 pandemic. Aspects favorable to mental health, represented by groups (d) and (e), had fewer records. These results demonstrate that research has been concerned with further investigating the damage caused by the pandemic, which is essential. However, it is pointed out that it is also important to produce more publications about favorable conditions, such as positive aspects of mental health. In this sense, conducting studies that address the possibilities of coping, through psychological interventions, can propose alternatives to mitigate the impacts of the pandemic caused to the mental health of workers in the most varied contexts.

5. FINAL CONSIDERATIONS

Taking into perspective the several publications about the Covid-19 pandemic, this article proposed to carry out a survey of the international literature regarding to aspects of mental health in workers in the current context, available in the Scopus database. From the application of the inclusion and exclusion criteria, a

total of 217 records were obtained. The main limitation of the study is the use of only one database, Scopus, for the survey of documents. For this reason, it is suggested that further surveys be conducted, covering different international databases.

The results were organized and presented in seven axes: (1) Access type and year; (2) Publication stage and document type; (3) Language and Country/Territory; (4) Authors and most cited publications; (5) Main journals, study area and institutions; (6) Main worker-participants and (7) Main aspects of Mental Health. In addition to the analysis of the results of each referred axis, with their respective percentages of the total quantity and of the main findings, a space was dedicated to the description and discussion of publications in Brazil or by Brazilian researchers.

In summary, the findings indicate that most articles were published in English; in China's territory; Greenberg was the researcher who most published materials; the study with the most citations was conducted by Lai et al. (2020); the International Journal of Environmental Research and Public Health was the journal that most published documents about the MH; records predominantly are from the field of Medicine and Psychology.

As for the workers, most were health professionals, without the studies inferring their specifications. In the context of mental health, likewise, most records did not specify which aspect of mental health they sought to investigate. For this reason, this study confirms that there is a concern and commitment to produce knowledge, mainly by the health field, about the mental health of workers in the context of Covid-19.

Finally, Brazil had 8 publications retrieved in the search for this study. In this sense, Brazilian studies appear in the indexes of several axes presented here, since the country is located within the ten territories with more productions on the subject. Thus, it can be inferred that there is an engagement of Brazilian researchers in corroborating with science.

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