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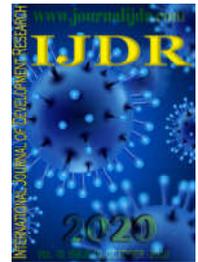
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RESEARCH ARTICLE

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PROTECTIVE MEASURES OF CONTAGION AND DISSEMINATION IN CIVIL CONSTRUCTION FOR COVID-19

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ABSTRACT

The objective of study was to identify the contention measures for contagion and dissemination in civil construction against Covid-19. The study is an integrative, qualitative review, based on data from the scientific literature published in the Virtual Health Library (VHL), SciELO and Google academic databases consulted in September 2020. The studies were selected from DeCS, with the respective descriptors and synonyms: "Construction Industry" and "Coronavirus Infections". Articles indexed in these databases were selected according to the theme. They are literature review, books, chapters, manuals, technical reports. Articles that were unrelated to the guiding question of the study were excluded. The analysis included only one manual, which revealed that there must be a mobilization of the company to guarantee and manage the safety of employees and that basic actions such as instruction of signs and symptoms of the disease, adequacy of infrastructure and workload are necessary at construction sites. There is also evidence of the scarcity of published material on the subject, since the analysis was based on only one manual available in the consulted literature. This fact reveals the importance and need for further studies in the area, since the civil sector is necessary to maintain the economy.

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INTRODUCTION

COVID-19, belonging to the family of viruses that cause respiratory updates, was detected in Wuhan, China, in December 2019. It was assessed as SARS-CoV-2, meaning "Severe Acute Respiratory Syndrome Coronavirus 2" (severe acute respiratory syndrome of coronavirus 2) due to the similarity with the SARS-CoV virus, the causative agent of the SARS epidemic, in 2002. Its contagion has grown exacerbated without a number of cases, deaths and affected countries, causing the World Health Organization (WHO) to declare that the event constituted a Public Health Emergency of International Importance (Trejo-Gabriel-Galán, 2020). Its involvement can be associated with mild and moderate respiratory diseases, but in other strains of the virus they can cause more severe conditions, such as the Severe Acute Respiratory Syndrome (SARS) and the Middle East Respiratory Syndrome (MERS) (Trejo-Gabriel-Galán, 2020).

The transmission of the coronavirus usually occurs through the air or through personal contact with contaminated secretions, such as saliva droplets, sneezing, coughing, phlegm, close personal contact, such as touching or shaking hands, contact with contaminated objects or surfaces, followed by contact with mouth, nose or eyes. The Ministry of Health warns that Covid-19 may be asymptomatic. This means that part of the infected people may not even know they are sick and, therefore, will not be diagnosed. This characteristic makes it difficult to contain the disease, because if the infected person is not diagnosed, it is not possible to have social isolation, in which the patient is isolated from anyone else. (Kucharski et al., 2020). The Covid-19 (Coronavirus) pandemic requires immediate action by the whole of society and this means that there will be impacts on the administrative sector as well as on construction sites. (Kucharski et al., 2020). However, a complete halt in activities would be extremely harmful from an economic point of view, so following the guidelines for social isolation given by the World Health Organization (WHO) and the Ministry of Health becomes, in practice, impossible.

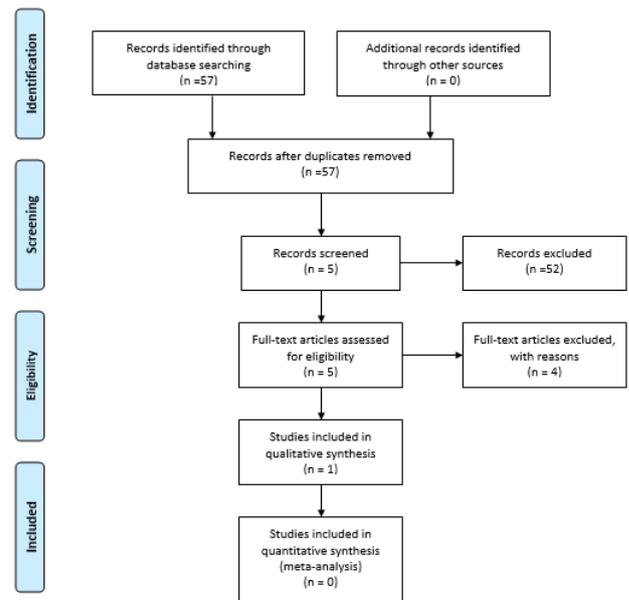
In Brazil, the civil construction industry is one of the strongest and in the beginning of 2020, the forecasts for the civilian sector were the best. The Ministry of Regional Development's estimate released that it would invest 69.5 billion reais in housing and sanitation.(Jornal Migalhas, 2020). Considering the negative impacts caused by the COVID-19 pandemic in Brazil, it is estimated that the sector will continue to have positive expectations in the medium and long term, as it prospered in the second half of 2019 and given that, most companies have capital to resume growth after the end of the "quarantine".(Mises Brazil, 2020). The reflex of coronavirus in civil construction was not only evident in Brazil. Spain and Italy, European countries most affected by the virus, announced that this sector would be one of the first to resume activities, considering the economic impact. This is noted due to the late stoppage of this sector in several countries(Repórter Brazil, 2020). In Spain, the decree of social isolation from other sectors of society began to apply on March 16, but for construction sites, the decree became effective on March 30. The period of social isolation was short-lived, as from April 13, some companies resumed their activities and took the opportunity to compensate for the hours that workers would have to spend due to paid leave(Repórter Brazil, 2020). In Italy, civil construction is also part of the second wave of easing of the quarantine and, therefore, returned to activities on May 4.

China released a note bringing the calculation a loss of nearly US\$43 million, with construction companies closing sales stands and consumers postponing property deals. It also brought an estimate that house searches have started to be postponed since January 26, as soon as the isolation started (Jornal Estadão, 2020). In Brazil, civil works did not stop due to Covid-19, so it was certainly necessary to adopt measures to prevent and contain the spread of the virus among sector employees (Brazil, 2020). Considering the virus's deadly capacity, the people's adaptive need to the work to be performed, the literature suggests that some measures are being taken by civil construction businessmen, such as expanding work shifts in order to avoid crowding in public transport or in construction cafeterias, as well as the mandatory use of masks and alcohol gel inside construction sites. It is estimated that the actions taken in the scope of the work can strengthen concepts of virus prevention for their homes and communities, creating a greater social awareness of civilian workers (Repórter Brazil, 2020).

Bearing in mind that civil activities were not interrupted in Brazil and in other countries, there was only a brief stop during the quarantine period, protection measures against Covid-19 need to be publicized and disseminated, as the health of workers is essential. Therefore, it is necessary to gather and disseminate information and guidance on the virus, the disease and what has been done to minimize its impacts on civil construction due to its importance in the social and economic scope of the country. Given the above, this article aims to identify the contention measures for contagion and dissemination in civil construction against Covid-19 available in the literature.

MATERIALS AND METHODS

For the preparation of this article, the methodology of the integrative literature review was used, which seeks to verify and summarize what the available scientific production is right



Elaboration: the authors, 2020

Figure 1. Flow diagram of the studies selected for the study (PRISMA)

about the theme in question, in order to know what is known about the subject and support new studies (Mendes, 2008). In this way, for the elaboration of the review, six stages were carried out: the first stage constitutes the definition of the main research questions; in the second stage, the inclusion and exclusion criteria were defined; in the third stage, databases were selected and scientific articles were searched; in the fourth, data analysis was performed; in the fifth stage the discussion of the findings was carried out and finally in the sixth stage the synthesis of the review will be presented. The guiding question of this review is: What are the contention measures for contagion and dissemination in civil construction against Covid-19 available in the literature? To perform the searches in the databases, the MeSH (Medical Subject Headings) and their respective synonyms for "Construction Industry" and "Coronavirus Infections" were used. Access to virtual databases took place in September of 2020.

Sorting and selection of articles: The screening of eligible articles was carried out by two reviewers, seeking to ensure methodological rigor in the selection of articles in the databases. The electronic bases for consultations were SciELO, the Virtual Health Library (VHL) and Google Scholar. Published and indexed studies were used in the database referred to above.

Inclusion and exclusion criteria for articles: Inclusion criteria were: articles published on the theme and published until the search date. There was no language restriction. Also included were studies of integrative and literature review, books, chapters and book reviews, manuals, technical reports. Articles that had no relation to the guiding question of the study were excluded, as well as files in videos and photos.

Analysis and presentation of articles: The screening and selection of articles were presented by a study flow diagram (PRISMA) and later there was an extraction of the concepts covered in each article and the works according to their content (Moher, Liberati, Tetzlaff, Altman, 2009).

Subsequently, the results were presented in a table and discussed with the findings of the literature.

Ethical aspects: As this is a secondary study of literature, the present study does not require analysis because it is a review of the scientific literature (Brazil, 2016).

RESULTS AND DISCUSSION

In the searches in the databases, 57 articles were retrieved, 6 on the VHL website (1 on LILACS and 5 on multimedia resources) and 51 on Google Scholar. Initially, screening by title was performed and 52 articles were excluded in this step. Sequentially, the screening followed by reading the abstracts and 2 articles were excluded, where after reading in full, 1 article was included in the analysis, as shown in the flow diagram of selected studies (Figure 1). Subsequently, the concepts covered in the article were extracted and the work was described according to its content. In this integrative literature review, an article published in the year 2020 was inserted in the analysis, which provides for the contention measures for contagion and dissemination in civil construction against Covid-19. The publication comprises a manual from the Pan American Health Organization (Paho, 2020) that is in the Spanish language.

Regarding the contention measures for contagion and dissemination, it is noted that the literature found indicates that access to the work site should be intended only for people necessary for the practical execution of the work, avoiding the presence of visitors and administrative employees who can carry out their home activities home-office (Paho, 2020). The company responsible for the work must carry out the temperature measurement of all employees and make sure that they wash their hands beforehand to allow entry to the construction site. The literature guides the need to include an employee to promote and disseminate awareness among employees, to promote the prevention, exposure and spread of the virus among employees. The action of this employee should highlight the importance of washing your hands properly and frequently, avoiding splashing when sneezing, coughing and cleaning your nose, thus controlling the primary source of contagion, as well as guiding employees on the importance of avoiding handshakes, hugs and other forms of close contact in the work (Paho, 2020).

It is recommended that this employee inform and monitor the minimum distance of 1 meter between employees (entrance to the construction site, meetings, lunch, etc.) and instruct employees on the correct use and not sharing or exchanging personal protection items (PPE) (Paho, 2020). É necessário que a empresa executora da obra se certifique que há suprimentos em quantidade suficiente ao número de funcionários em campo, tais como sabonete líquido, toalhas desinfetantes descartáveis, álcool em gel ou álcool líquido. É necessário instalar lavatórios em diversos pontos da obra, munidos de toalhas e lenços descartáveis com recipientes ou sacos fechados para a eliminação de toalhas e lenços (Paho, 2020). It is important that the company provides the necessary PPE's to combat Covid in the quantity and quality needed, such as masks, disposable gloves and goggles so that there is no chance of sharing material. The use of disposable gloves is mandatory depending on the nature of the task to be performed by the worker such as workers responsible for handling food and beverages, cleaning tasks in general, vehicle drivers,

security guards, etc (Paho, 2020). The literature recommends that the contractor elaborates a mapping of workers in the field, in order to verify employees who have chronic diseases, such as diabetes, hypertension, heart problems, asthma, allergies, cancer, etc. This record must be periodic and based on the employee's health history, as well as the employee's exposure to risks (for example, travel, infected people in the family) and symptoms compatible with incubation or development of the virus. The construction site must have work organization in order to distribute the personnel according to the minimum distance and, thus, it is established, if necessary, the execution of work shifts and rotation of employees to minimize the movement of people in the project area also facilitate traceability and control, in case of identifying any possible contagion. This guidance extends to cafeterias, which must have specific times for teams or groups for meal times, to avoid crowds and ensure that people feel a space between meals. It is necessary to enable a locker room for men and women at the construction sites, as employees must provide the change of clothes when entering and leaving the shift. Employees should also be instructed on the signs and symptoms of the disease and inform the site supervisor if they develop a cold, even if it is mild, or fever above 37.3 ° C or if any family member living with the employee shows signs and symptoms from Covid. As protective measures, this employee must remain at home for at least 14 days following the protocols established by the local authorities (Paho, 2020).

Final considerations

It is estimated that the construction companies are deepening their worker's health and safety actions in the construction sites to contain the Covid-19's progress and provide worker safety with information based on local and national recommendations. The psychological aspects of employees must also be considered, as the moment has a series of emotional and social implications. The risks involved, the need to mobilize to face the pandemic, the emergence of preventive measures and the prospect of difficult days ahead make the moment a delicate period, which requires responsibility, caution and collaboration. The analysis revealed that there must be a mobilization of the company to guarantee and manage the safety of employees and that basic actions such as instruction of signs and symptoms of the disease, adequacy of the infrastructure and workload are necessary at the construction sites. The present work highlights the scarcity of published material on the subject, since the analysis was based on only one manual available in the consulted literature. This fact reveals the importance and need for further studies in the area, since the civil sector is necessary for maintaining the economy, estimating that people work safely and have access to information based on science.

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