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Actions of reference centers in occupational health to deal with the covid-19 pandemic in the state of São Paulo, Brazil

Ações dos centros de referência em saúde do trabalhador (CEREST) para o enfrentamento da pandemia de covid-19 no estado de São Paulo

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Abstract
INTRODUCTION: Faced with the need to implement an action plan to protect and promote worker health, important public policies in Brazil ensure the right to health, including during the exercise of one's profession. OBJECTIVE: To analyze actions developed by Occupational Health Reference Centers (OHRCs) to combat the Covid-19 pandemic from March 2020 to March 2021 in the state of São Paulo, Brazil. METHODS: A quantitative descriptive analysis was carried out on the frequency of actions carried out by OHRCs to combat the Covid-19 pandemic through the recruitment of regional OHRCs in the state of São Paulo. RESULTS: Most OHRCs operated with usual hours; some had a reduced staff; in-person activities were interrupted for the majority, maintaining the reception of complaints, collection actions and monitoring of contingency plans, coordination with services health and worker representatives, death investigation, access to databases and active case searches, among other actions. The present study also found barriers to the actions of OHRCs during the pandemic, such as problems related to management, human resources, the use of the Information System, establishment of a causal link between Covid-19 and work, a lack of infrastructure and low adherence of services to health surveillance actions. CONCLUSIONS: Given the possibilities of actions taken and the barriers overcome, the interventions and actions of OHRCs beyond the pandemic were important.
Keywords: public health surveillance; occupational health; outcome and process assessment, health care.

Resumo
INTRODUÇÃO: Diante da necessidade de implementação de um plano de ação na Saúde, a fim de proteger e promover saúde ao trabalhador, encontramos no Brasil importantes políticas públicas, assegurando os direitos à saúde, bem como no exercício da profissão. OBJETIVO: Analisar as ações desenvolvidas pelos Centros de Referência em Saúde do Trabalhador (CERESTs) para o enfrentamento da pandemia de covid-19 de março de 2020 a março de 2021 no Estado de São Paulo. MÉTODOS: Foi realizada análise descritiva quantitativa da frequência das ações realizadas pelos CERESTs para enfrentamento da pandemia de Covid-19 através do recrutamento dos CERESTs regionais do Estado de São Paulo. RESULTADOS: Foi verificado que a maioria dos CERESTs permaneceu com horário de funcionamento habitual, parte tiveram redução da equipe, atividades presenciais foram interrompidas para a maioria, mantendo o acolhimento de denúncias, ações de cobrança e monitoramento dos planos de contingência, articulações com serviços de saúde e representantes de trabalhador, investigação de óbito, acesso a banco de dados, busca ativa de casos, entre outras ações analisadas. O presente estudo também permitiu encontrar barreiras para a atuação do CEREST na pandemia, envolvendo problemas de gestão, recursos humanos, utilização dos Sistema de Informação, estabelecimento de nexo causal entre Covid-19 e trabalho, falta de infraestrutura e baixa adesão dos serviços às ações de vigilância em saúde. CONCLUSÃO: Visto as possibilidades de ações realizadas e as barreiras encontradas, nota-se a importância das intervenções e da atuação do CEREST para além da pandemia
Palavras-chave: vigilância em saúde pública; saúde do trabalhador; avaliação de processos e resultados em cuidados de saúde.

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Introduction

The onset of the transmission of Covid-19 – disease caused by the new coronavirus – occurred among people and workers at a wholesale market in Wuhan, China[1]. Soon after, healthcare providers became a high-risk group, with a higher incidence among nurses, first responders and intensive care workers. However, incidents spread from healthcare providers to workers in sectors such as tourism, the hospitality industry, transport, security workers, drivers and crew on board ships[2]. Thus, the importance of sanitary measures in the workplace was urgent for mitigating the pandemic on the global scale.

On February 26, 2020, the first case of Covid-19 was confirmed in Brazil in an older man who had traveled to Italy. The second case was due to contamination attributed to the professional practice of a domestic worker[3]. During the pandemic, work assumed a central role due to the need for collective strategies in an attempt to contain or halt the spread of the disease through social distancing[4]. In this scenario, as coordinating centers for surveillance and technical support actions regarding the relationship between work and health within the National Network for Comprehensive Occupational Health Care[5], Occupational Health Reference Centers (OHRCs) included Covid-19 in the epidemiological investigation of work-related illnesses[6].

The actions of OHRCs in combating the Covid-19 pandemic were based on Brazilian national documents, which constituted the theoretical framework of the present study: Technical Guidelines for the Investigation and Notification of Work-Related Cases of Covid-19[7]; Epidemiological Surveillance Guidelines for Work-Related Covid-19[8]; Brazil's PAHO/WHO Biannual Work Plan 2020-2021[9]; Technical Notes on the notification of work-related diseases caused by coronavirus infection from the Worker's Health Surveillance Division of the Municipal Health Department of the City of São Paulo, published on May 13, 2020[10]; Circular Letter SEI No. 1088/2020/ME with General Guidelines for Workers from the Brazilian Ministry of the Economy[11]; Contingency Plan of Oswaldo Cruz Foundation (Fiocruz) on March, 2021[12]; and Contingency Plan of Brazilian Ministry of Health on February, 2020[13].

According to recommendations given by the Public Ministry of Labor, the role of OHRCs in the Covid-19 pandemic involved procedures such as identifying individuals technically responsible for preparing and implementing the pandemic contingency plan at companies, proposing virtual meetings for dialogue regarding the situation of the company in terms of prevention, demand protocols and actions in the work environment to detect cases of contamination by Covid-19, procedures adopted to deal with contamination and the monitoring of the contingency plan[14]. Other responsibilities of OHRCs included requiring companies to draw up action protocols for preventing and protecting workers from Covid-19 contamination, preparing a list of employees (permanent, outsourced or self-employed) identified as at risk for hospitalization and forwarding this list to management for inclusion in the protection plan through the adoption of work arrangements (teleworking, changing workplaces, granting leave, etc.)[15]. OHRCs

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were also responsible for monitoring actions protocols adopted by companies, compliance with regulatory standards for protection and prevention in the workplace (Environmental Risk Prevention Programs and Occupational Health Medical Control Program)[16], actions to manage suspected and confirmed cases of Covid contamination, as well as active searches involving case identification and testing, followed by placing such cases on leave, referral to necessary medical care, contact tracing, early diagnosis of work-related health problems, communication actions and training[17].

Justification for Study

The pandemic highlighted frailties in the Brazilian healthcare system, including the weakening of public and social policies aimed at comprehensive care and the lack of investment in the public health care system[18], underscoring the importance of the system and all the advances achieved during its construction[19]. Likewise, the pandemic also enabled this reflection on occupational health, valuing the actions of National Network for Comprehensive Occupational Health Care and, consequently, OHRCs, and at the same time highlighted barriers to the actions of these centers[20].

Materials and Methods

This is a primary, observational, cross-sectional, descriptive study employing qualitative-quantitative methods. According to Minayo[21], the qualitative method approaches reality based on questions asked by the researcher. The quantitative method analyzes the magnitude of phenomena through observable indicators and trends, but cannot assist in understanding the values, beliefs and meanings that facts have for individuals. The qualitative method can be applied to gain an understanding of perceptions and opinions, expanding the possibilities of data analysis and strengthening conclusions with regards to the findings[22]. Thus, quantitative and qualitative approaches are complementary, as numerical properties (frequencies) and qualities (relationships, representations, points of view) are attributes of all phenomena, making it possible to paint an overall picture of the issue studied by assuming different perspectives[23].

3.1 Setting

This study covered OHRCs in the state of São Paulo, Brazil. Considering the public emergency scenario due to the Covid-19 pandemic, the study was carried out in a virtual format.

3.2 Participants

Currently, there is one state OHRC and 42 municipal/regional OHRCs in the state of São Paulo, implemented with the aim of providing a service to the working population[24]. The coordinators of the 42 active municipal/regional OHRCs were invited to participate in the study. The initial invitations were made via telephone contact, followed by an institutional e-mail. The OHRC coordinators were given access to the general description of the project and the statement of informed consent for the participation of the institution.

The inclusion criterion was being coordinator of a municipal/regional OHRC in the state of São Paulo. The following exclusion criteria were considered: coordinator declining to participate in the study, not having a coordinator and

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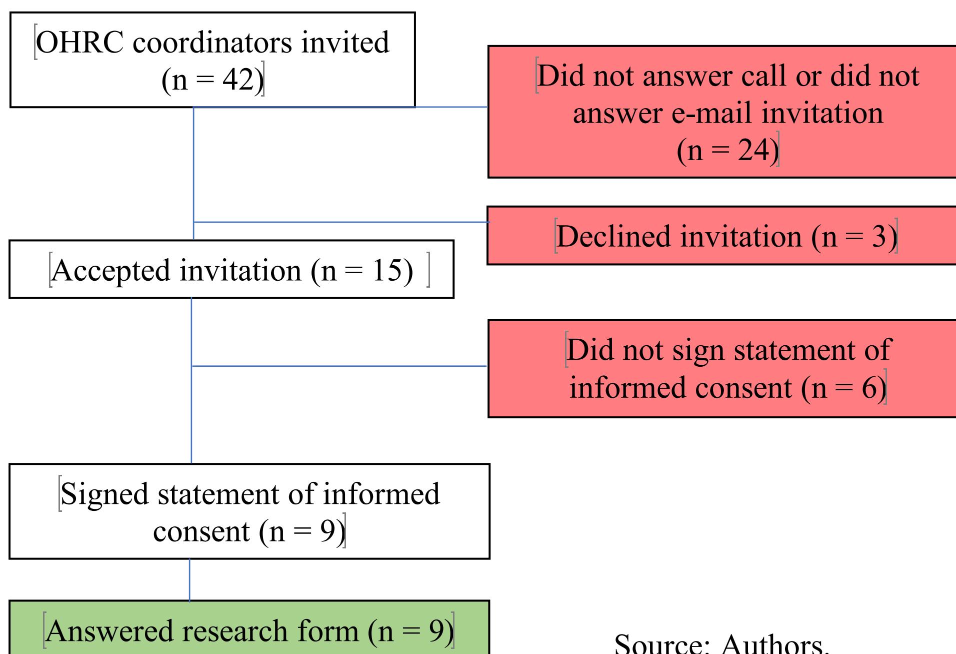
coordinator who did not answer the electronic questionnaire.

Nine coordinators agreed to participate and answered the research form (Figure 1).

Figure 1: Participant inclusion and exclusion flowchart.



Source: Authors.

This project is in accordance with Resolution No. 466 of the Brazilian National Board of Health and in accordance with CIRCULAR LETTER No. 2/2021/CONEP/SECNS/MS, which ethically guides research carried out online, and received approval from the Human Research Ethics Committee (CAAE 46505021.1.0000.5413).

3.3. Data Collection

Data were collected using Google Forms. The form was composed of open-ended questions addressing the actions of the OHRC performed from March 2020 to March 2021, including the municipalities covered, organizational aspects of the service during the pandemic and length of time the coordinator was in the role. Following the research form, a list of worker health actions to combat the Covid-19 pandemic was presented so that the respondent could mark the actions developed. This list was made up of actions related to combating Covid-19 and was prepared based on the theoretical references of the present study. At the end of the form, two open-ended questions were presented – one on barriers to carrying out these actions and the other to identify other actions developed. None of the research questions were mandatory.

The form allowed a single response by the research participant and took around 20 minutes to complete. The form was prepared by the research team based on the theoretical framework, having previously

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been validated by an occupational therapist, specialist in occupational health and safety at a regional OHRC in the state of São Paulo.

3.4. Data analysis

Quantitative data were analyzed using descriptive analysis (mean, standard deviation, absolute and relative frequency). Qualitative data were analyzed using thematic content analysis, following the phases of pre-analysis, material exploration and treatment of results[21].

Results

Nine coordinators of nine regional OHRCs in the state of São Paulo of both sexes with a higher education answered the forms. No coordinator was from a municipal OHRC. The OHRCs had an average of 15 ± 12 municipalities within in their territorial coverage (Table 1). The time that the interviewees had been in their current role was on average 8.00 ± 5.44 years.

Table 1: Municipalities within territorial coverage of each OHRC.

OHRC	Number of municipalities covered by regional OHRC
OHRC 1	47
OHRC 2	38
OHRC 3	19
OHRC 4	16
OHRC 5	15
OHRC 6	14
OHRC 7	13
OHRC 8	11
OHRC 9	7

Source: Authors.

Most OHRCs (n = 6, 67%) maintained their usual hours from March 2020 to March 2021; one (11%) OHRC did not answer this question. However, more than half of the participating OHRCs (n = 5, 55%) had their teams working a lower number of hours or reduced the number of staff members at the OHRC due to transfers for Covid-19 assistance and surveillance actions, sick leave, allocation to remote work due to being in the risk group for serious cases of Covid-19 illness and retirement.

At eight OHRCs (88.9%), actions that had been carried out in person were interrupted during the most restrictive periods of the pandemic: training/qualification/health education at health services and workplaces, technical visits, inspections, health care assistance, home care, reception and group care.

Surveying the actions taken to combat the pandemic (Table 2), the reception of complaints (100%); inspection, collection and monitoring actions of contingency plans (78%); reception of

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work-related cases of Covid-19 (67%); and coordination with health services and worker representatives (67%) were carried out by the majority of OHRCs. However, actions involving access to databases, the investigation of Covid death cases and active searches for cases of contamination were carried out less frequently (33%). Notification in the Mandatory National Notifiable Disease Information System was also carried out less frequently (44%).

Table 2: Actions carried out from March 2020 to July 2021.

	Yes	No	No answer
Receiving complaints from various sources	9 (100%)	0	0
Inspect whether companies practice daily checks on workers' health status	7 (78%)	2 (22%)	0
Require company technicians to develop Contingency Plans/Protocols/Actions	7 (78%)	2 (22%)	0
Monitoring Covid-19 Contingency Plans at companies	7 (78%)	2 (22%)	0
Networking with health services	6 (67%)	2 (22%)	1 (11%)
Networking with workers' unions	6 (67%)	2 (22%)	1 (11%)
Reception of suspected and confirmed cases of work-related Covid-19	6 (67%)	3 (33%)	0
Monitoring groups of workers at risk of serious Covid-19 illness	5 (56%)	4 (44%)	0
Request review of Environmental Risk Prevention Programs and Occupational Health Medical Control Program	5 (56%)	4 (44%)	0
Notification in Mandatory National Notifiable Disease Information System of cases of Covid-19 contamination	4 (44%)	4 (44%)	1 (11%)
Access to database of cases of Covid-19	3 (33%)	5 (56%)	1 (11%)
Investigation of deaths due to Covid-19	3 (33%)	5 (56%)	1 (11%)
Active search of Covid-19 cases	3 (33%)	6 (67%)	0

Source: Authors.

Other actions carried out by OHRCs involved guidance and training, mental health actions, preparation of technical materials and investigation activities. Among the actions carried out, 'guidance and training' was the most cited (n = 4, 44%), with training carried out with the Specialized Services in Occupational Safety and Medicine at hospitals to guide

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notifications in the Mandatory National Notifiable Disease Information System being the most frequent. There were also reports of training for primary health care workers and universities, preparation of guidelines for companies and workers and on-site visits to health establishments for guidance on the correct use of personal protective equipment (PPE).

Mental health actions were also carried out, including psychological monitoring of workers and offering a communication channel between workers and the OHRC, as demonstrated in the following discourses from coordinators:

“We have a psychological support project for health professionals who work on the front line and suffer from mental illness as a result of work situations experienced during the pandemic.” (OHRC5)

“Implementation of a "LISTENING" service, which is a direct communication channel for workers to quell doubts, reduce anxieties and improve self-care.” (OHRC2)

The preparation of technical materials was also cited, such as the issuance of documents to services with recommendations on forwarding data to OHRCs, documents with information regarding the occurrence of diseases, injuries, accidents and suspicion of work-related Covid-19, subsequent protocols for analysis and, lastly, investigation, which was cited when there had been outbreaks of Covid-19 in work environments.

The barriers encountered by OHRCs during the pandemic were related to Health Management, Human Resources, Information System, Establishment of Causal Links, Infrastructure and Adherence.

Health Management was the most cited category (ten core meanings) encompassing three main themes: lack of definition of competencies of OHRC, fragmentation of the public healthcare system and its lack of governance. The lack of definition of competencies of the OHRCs in dealing with the pandemic was a barrier identified by the difficulty in recognizing the responsibilities of the OHRCs. This barrier was maintained during the pandemic due to the delay in publishing official documents and the fact that OHRCs were not mentioned in the main documents for combating the pandemic. The fragmentation of the public healthcare system was represented by the difficulty in communication among epidemiological surveillance teams; among the health management sector, primary care services and epidemiological surveillance sector; among the points of care of the health care network; between OHRCs and other services; and in actions outside the municipal headquarters of the OHRCs. The lack of governance was identified by divergences between the guidelines provided by the different spheres of government; among legal, legislative and executive entities; and the lack of consistent guidelines between the OHRC and epidemiological surveillance.

The second category of barriers frequently cited was that related to human resources (eight meaning cores), involving three main themes: lack of technical staff, overload of services and exhaustion of professionals. The lack of technical staff was considered a barrier by OHRCs due to

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the reduced number of professionals, resulting in insufficient human resources to carry out actions to combat the pandemic. The overload of epidemiological and health surveillance sectors and healthcare services to provide care for patients with Covid-19 required the displacement of professionals from different services to support surveillance and care services. The exhaustion of professionals was due to the increase in work demand, the adverse conditions of the pandemic, as well as physical and emotional exhaustion. Information systems were also mentioned (seven meaning cores), encompassing three themes: not having access to data systems, lack of notification by services and limitations of the system to monitor workers' health. Not having access to data systems culminated in a lack of knowledge on cases of worker illness and difficulty in accessing specific databases. The lack of notification by services, lack of engagement by institutions and sectors of the public health care network to send data and carry out actions and the lack of effective requirements, accountability and obligation to provide data were also considered. According to one of the coordinators:

"Overcrowded urgent and emergency services that stopped reporting cases of work accidents." (OHRC5).

Moreover, the National Information System used to notify and monitor cases of Covid-19 did not have a place for data related to the worker and occupation, except for cases of health and safety professionals.

The establishment of a causal nexus between work and Covid-19 illness was cited as a barrier (three meaning cores), encompassing the lack of a protocol on the national level for establishing the causal nexus, the lack of a guidelines for the establishment of the causal nexus and the particularities of Covid-19, which made it difficult to recognize when the contagion occurred at work.

Infrastructure was another category cited (two meaning cores), encompassing two main themes: insufficient resources and lack of PPE. Audiovisual resources were insufficient for both remote care and live streaming. The lack of PPE for the technical team occurred at the beginning of the pandemic.

Another category was company adherence. At the beginning of the pandemic, there was resistance from companies to adhere to the recommendations offered by the OHRCs.

Discussion

During the Covid-19 pandemic, the OHRCs maintained their operations despite the reduction in staff due to the demands of the pandemic and administrative issues. At most OHRCs, in-person activities were interrupted, but actions to combat the pandemic were incorporated, in addition to maintaining virtual actions.

The OHRCs carried out the actions planned to combat the pandemic, such as receiving complaints, requiring and monitoring contingency plans and the reception of work-related cases of Covid-19. Carrying out these actions confirms the relevance of OHRCs in the National Network for Comprehensive Occupational Health Care, especially during public health emergencies, such as the pandemic.

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Notably, OHRCs interventions also took place in several states besides São Paulo to combat the pandemic. For instance, OHRCs in the city of Salvador, state of Bahia, in addition to investigating cases to identify possibilities of contamination and establish their work-relatedness, also carried out interventions to analyze health situations and promoted discussions on the labor and social security rights of the population[6]. In the state of Rio Grande do Norte, interventions were carried out based on complaints, along with testing for preventive and control measures, health education to improve personal and collective hygiene habits, training in the use of PPE as well as the adaptation of work processes and the work environment[25].

In addition to the actions recommended for the OHRCs, other actions to combat the pandemic proved necessary in the state of São Paulo given the precarious working conditions and psychosocial risks[26], such as health education to control contamination at essential workplaces, mental health care, the creation of technical materials and workplace investigation in cases of outbreaks of Covid-19 contamination. Carrying out these actions could be an advance towards meeting the needs of the pandemic context and overcoming the dominant inspection practice, which appears to be dominant in the activities of OHRCs[27].

In this sense, the decentralization of the National Network for Comprehensive Occupational Health Care meets the needs of each situation. All actions identified were relevant to combating the pandemic as a comprehensive approach to workers' health, taking into account their psychosocial burden[3], the need to reduce the transmission of the virus and public health actions aimed at controlling the pandemic[4]. However, surveillance actions were the least reported actions by OHRCs in the state of São Paulo to combat the pandemic. In other Brazilian states, there was greater involvement of OHRCs in workplace inspections. At OHRCs in the city of Salvador, actions were carried out to qualify the epidemiological investigation process as well as guide and report cases to the Mandatory National Notifiable Disease Information System[6]. The active search for cases of Covid-19 was another action with lower adherence of OHRCs in the state of São Paulo. However, the unavailability of tests to search actively for infected workers contributed to the difficulty of this action[28].

The present study identified barriers to the actions of OHRCs in the state of São Paulo in confronting the pandemic. Some barriers were management problems, human resources, use of the information system, criteria for establishing the causal link between work and Covid-19, lack of infrastructure and low adherence of health care services to health surveillance actions.

Health management barriers were often reported by the participants. Among these, the difficulty in understanding the role of OHRCs, which was identified in the literature prior to the pandemic[29], was mentioned by the OHRC coordinators. According to Leão and Vasconcelos[29], there is a lack of clarity regarding the mission of the National Network for Comprehensive Occupational Health Care, which should include management actions to improve care actions, including standardization, information, teaching, research, social and

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intersectoral relations and the proposal of policies. Limited technical training and a lack of specialized support from health professionals are recognized problems for the implementation of the National Occupational Health Policy[5].

Among the barriers related to health management, fragmentation of the public health care system was also highlighted as a major problem in the state of São Paulo. This was caused by the lack of coordination between the institutions responsible for workers' health actions. The organization of health care networks requires planning, monitoring, the evaluation of individual and collective actions, health surveillance, the integration of primary care services into network work processes and the evaluation of network actions[30]. Considering the new waves of Covid-19, which require the continuity of preventive actions in work environments, communication among the different spheres of the public health care system is also necessary for recovery, the prevention of permanent disabilities and the physical, psychosocial and professional rehabilitation of affected workers[31].

Considering the need for intersectoral coordination, fragmentation among the Ministry of Labor, social security and the public health care system was notable, resulting in a lack of data and information sharing for monitoring workers' health[5]. Furthermore, there were difficulties in coordinating actions across the entire regional coverage and in coordination beyond the host municipality of the OHRC. One factor that may have contributed to the difficulty in regional Covid notification was the fact that regional coverage of OHRCs is specific and sometimes different from the regionalization adopted by the public health care system[5].

However, different experiences are reported in Brazilian states regarding OHRCs actions. In Sobral, state of Ceará, health surveillance was coordinated by OHRCs in order to identify risks, share protocols for individual and collective workers' protection, monitoring and training, sanitary, environmental and nutritional inspections and case notifications in compliance with technical recommendations[32].

Failure in governance was another barrier reported by the OHRC coordinators and was characterized by divergences between the guidelines provided by the different spheres of government, between legal, legislative and executive bodies and the lack of consistent guidelines between OHRCs and epidemiological surveillance[33]. The failure of public health care system governance also reveals the lack of coordination and cooperation among the different sectors and levels of government involved in the emergency response, which also involves social participation and the accountability of local authorities[34]. During the pandemic, there was a lack of national coordination, including judicialization in the field of normative and administrative measures related to Covid-19[35].

During the pandemic, the lack of human resources on OHRC teams was intensified due to illness, death and being on leave from work as well as an increase in health care assistance[20]. Although underfunded since its creation, the public health care system offered the necessary basis to face the pandemic. However, the lack of financial resources became more evident, generating an insufficient number of human resources as well as a lack of trained teams and specialized professionals in emergency services[34].

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The difficulty in establishing a causal link between Covid-19 and work was another barrier mentioned by the participants. High transmissibility and community transmission require investigation and confirmation of the relationship with work. Documents such as those from the Secretary of State of Bahia indicated the need to “characterize the working conditions and environments and the chronological history of the case and all contacts that can be identified; using clinical epidemiological reasoning, temporal plausibility and considering what exposure situation presents the greatest risk or is most likely”[7]. A flowchart for the work relatedness recognition of Covid-19 infection was published by the Broad Front in Defense of Worker’s Health[33]. However, ensuring rights and recognizing the causal link requires expert analysis[31]. Despite this, progress had been made in this recognition, resulting in 20,797 work-related cases of Covid-19 in 2020[36], mainly among healthcare workers.

The limitations of the Health Information System related to Covid-19 notification contributed to underreporting work-related cases of Covid-19, as there was no inclusion of specific fields for recording occupation and economic activity. This information would facilitate the identification of the relationship between the illness and work[6]. In addition to limiting epidemiological results, the lack of information on occupation in information systems reveals the invisibility of work and workers in society[37]. Furthermore, even after mandatory completion of the occupation field in health information systems, there is inadequate completion, which maintains a condition of unawareness with regards to the actual number of workers infected by Covid-19 as well as limiting the identification of more urgent and exposed groups[28] and an analysis of the social impacts of the pandemic on work[37].

Lastly, the lack of infrastructure and the low adherence of services to health surveillance actions were also highlighted. Previous studies on influenza have associated these barriers with work overload, poor facilities and social norms[4], equivalent to the conclusions of the present study.

The present study had low participation by OHRCs and its results may not represent the actual situation of operations and all barriers experienced by OHRCs in the state of São Paulo in the period from March 2020 to March 2021. Despite this, the findings reveal important information on the performance and importance of OHRCs to their respective regions.

Conclusion

Our findings revealed the wealth of strategies and the arsenal of possibilities preserved in the workers' health policies as well as the weaknesses of the related services. Therefore, knowing the advantages of the policies as well as the roles and importance of OHRCs is the first step towards more assertive strategies and faster responses to health issues involving the work environment.

In addition to the individual implications of the illness caused by Covid-19, there were also collective complications that caused impacts on the lives of the population and exposed management

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weaknesses of the public health care system. Given the countless possibilities for actions carried out and all the barriers encountered in their execution, it is worth highlighting the importance of the execution and intervention carried out by OHRCs as well as the need to recognize their responsibilities, together with the strengthening of the National Network for Comprehensive Occupational Health Care.

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