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Original

Dealing with the unknown: perceptions, fears and worries of SARS-CoV-2 infection among hospital workers

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ABSTRACT

Objective: This study explores fears and worries regarding SARS-CoV-2 risk of infection and transmission to relatives, co-workers, and patients in relation to non-pharmacological preventive interventions among healthcare workers (including physicians, nurses, aides, cleaners, maintenance, and security staff) in a healthcare institution in Barcelona (Spain), during the first and second waves of the SARS-CoV-2 pandemic.
Method: The research used an explorative qualitative approach. Six focus groups and ten individual interviews were conducted online and audio-recorded, transcribed verbatim and analysed using thematic analysis and mixed coding.
Results: Forty professionals participated in the study. Four common themes emerged in all groups: challenges related to the lack of pandemic preparedness, concerns about personal protective equipment, unclear guidelines for case and contact tracing, and communication-related difficulties.
Conclusions: This study emphasizes the key recommendations to improve non-pharmacological preventive interventions to reduce workers' fears and worries about the risk of infection and spreading the infection to others, including families. Above all, these should include ensuring the availability, and correct use of adequate personal protective equipment, improve guidelines on case and contact tracing, and setting effective communication channels for all workers of the organization. These recommendations must be reinforced in maintenance and security personnel, as well as night shift nurses and aides, to also reduce health inequalities.

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Afrontar lo desconocido: percepciones, temores y preocupaciones del personal hospitalario ante la infección por SARS-CoV-2

Palabras clave:
SARS-CoV-2
Trabajadores sanitarios
Intervenciones preventivas no farmacológicas
Cualitativo
Desigualdades sanitarias

RESUMEN

Objetivo: Este estudio explora los temores y las preocupaciones respecto al riesgo de infección y transmisión del SARS-CoV-2 a familiares, compañeros de trabajo y pacientes en relación con las intervenciones preventivas no farmacológicas entre el personal hospitalario (incluido personal de medicina, personal de enfermería y auxiliares, y personal de limpieza, mantenimiento y seguridad) de una institución sanitaria de Barcelona (España), durante la primera y segunda oleadas de la pandemia por SARS-CoV-2.
Método: La investigación utilizó un enfoque cualitativo exploratorio. Se realizaron seis grupos focales y diez entrevistas individuales en línea, que se grabaron en audio, se transcribieron literalmente y se analizaron mediante análisis temático y codificación mixta.
Resultados: Participaron en el estudio 40 profesionales. En todos los grupos surgieron cuatro temas comunes: retos relacionados con la falta de preparación ante una pandemia, preocupaciones sobre el equipo de protección personal, directrices poco claras para el rastreo de casos y contactos, y dificultades relacionadas con la comunicación.

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Conclusiones: Este estudio hace hincapié en las recomendaciones clave para mejorar las intervenciones preventivas no farmacológicas con el fin de reducir los temores y las preocupaciones de los trabajadores sobre el riesgo de infección y de contagio a otras personas, incluidas las familias. Por encima de todo, estas deben incluir garantizar la disponibilidad y el uso correcto de equipos de protección individual adecuados, mejorar las directrices sobre el rastreo de casos y contactos, y establecer canales de comunicación eficaces para todos los trabajadores de la organización. Estas recomendaciones deben reforzarse en el personal de mantenimiento y seguridad, así como en el personal de enfermería y auxiliares del turno de noche, para reducir también las desigualdades sanitarias.

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Introduction

The COVID-19 pandemic has altered every segment of society all over the world since its outbreak, with consequences for almost every component of contemporary life, including, obviously, the working environment. The pandemic has been a challenge for occupational health and safety, and occupational health services.[1] Workers in healthcare institutions are a particularly vulnerable occupational group with a high risk of infection, who faced with hard scenarios and new moral dilemmas, worked under extreme pressure with changing qualitative and quantitative working demands, and especially during the first wave, not always with the adequate personal protective equipment (PPE) and other non-pharmaceutical preventive measures.[2,3]

Healthcare workers include a variety of occupations that play different roles. Workers in charge of direct patient's care, such as physicians and nurses, who have their own competencies and roles, and nurse aides and orderlies, who carry out support roles in healthcare, following a clear traditional hierarchy between occupations.[4] Also, workers from services such as cleaning, maintenance, and security without direct patient's care, who maintain the domestic side of life in these institutions.[5] Due to asymmetric power dynamics in the healthcare organizations, non-directly healthcare workers are usually invisible at the institution level (and at social and scientific levels too), entailing precarious working conditions and a deterioration of psychological well-being.[5,6] In addition, almost all hospitals tend to outsource such kind of services, in an economic logic of cost contention, which could aggravate the precariousness of these workers.[7]

Non-pharmacological preventive interventions, both at the community and hospital level, have been the most effective ways, specially before vaccination, to prevent SARS-CoV-2 transmission and to reduce the risk of infection among healthcare workers in healthcare institutions. Also, they buffered the pandemic negative mental health effects.[8] Non-pharmacological preventive interventions in healthcare settings include universal testing to early identification and isolation of individuals with suspected disease,[9] availability of appropriate PPE, changes in working conditions to reduce human to human contact at the workplace, and environmental disinfection, among others.[10]

Healthcare workers' physical and mental health problems have been thoroughly described,[11,12] and although with less extensive research, healthcare workers' perceptions towards non-pharmacological preventive interventions and fear of infection have been also studied. Reviews point out that healthcare workers fear and concerns were greatest in the early phases of pandemics and exacerbated by inadequate PPE, insufficient resources, and inconsistent information.[13,14] Nevertheless, the study of the pandemics' impact on all occupational categories of workers in healthcare institution is still limited.[6,15]

The Parc de Salut Mar (PSMar) in Barcelona, Spain, is a healthcare institution with eight health centres and around 4500 workers. Cleaning, maintenance, and security personnel are outsourced to external companies. During the first wave, as in most European hospitals, the PSMar had a serious shortage of essential PPE,[2] healthcare workers could only be tested for SARS-CoV-2 if they showed suspected symptoms, and the protocol was continuously being updated according to Spanish and European health authorities. It was not until mid-May that this situation began to be stabilised, so that PPE was fully available, all healthcare workers were tested and screened, and the protocol changes were scarce and manageable.

Understanding fears and concerns of all healthcare workers regarding non-pharmacological preventive interventions is a necessary step to provide occupational health for all workers affected directly or indirectly by the COVID-19 pandemic. The main goal of this study is to explore the perceptions, fears and worries regarding non-pharmacological preventive interventions and SARS-CoV-2 risk of infection and transmission to relatives, co-workers among healthcare workers in a healthcare institution in Barcelona, during the first and second waves of the SARS-CoV-2 pandemic.

Method

Design and participants

An explorative qualitative research design was adopted, composed of six focus groups across different occupational categories and ten in-depth interviews from March to July 2021.

Eligible participants were healthcare workers directly involved in patients care, which includes physicians, nurses, and aides from different services (such as internal medicine, infectious diseases, emergencies, and intensive medicine services), as well as healthcare workers involved in tasks such as cleaning, maintenance and security of the institution who worked at PSMar during 2020. Using purposive and snowball sampling, we recruited the initial eligible participants by contacting managers and units or service heads who in turn transferred the information to their staff. When needed and until saturation, we asked them to recruit additional subjects. The main segmentation variable for the groups' composition was the occupational category. Efforts have been made to assure representativeness by sex in all groups.

Data collection

Due to the social constraints resulting from the pandemic situation in Spain, all focus groups and interviews were conducted online through a virtual platform. All the focus groups lasted between 90 and 120 minutes and in-depth interviews between 30 and 45 minutes Both focus groups and interviews were stopped after reaching a saturation point. A semi-structured interview guide was designed (based on literature reviews[3,14,15]) to cover key areas of interest (see Interview question guideline in online Appendix). Discussions were led by a trained moderator and with an external observer.

Analysis

The audio recordings were transcribed ad verbatim by the trained moderator and reviewed by the observer for accuracy. Atlas.ti (version 22) was used to organize the data to enhance analysis. An explorative qualitative content analysis,[16] based on a socio-constructivist approach, was conducted independently by three research team members (RV, PD, MU), who read the initial transcripts independently, and then coded the data using a combination of deductive and inductive strategies.[17] One of the authors (MU) created the deductive portion of codes based on literature reviews,[3,14,15] which were first reviewed and then updated to include newer codes by the team members (RV, PD, MU). The coders met regularly to compare their codes to reach an agreed list of codes, which were then grouped into categories of a higher analytical order. Finally, a fourth co-author (MDR) with expertise in qualitative analysis reviewed the codification process.

As it has been strongly suggested, some techniques to strengthen the quality of the qualitative analysis[18] were used. These included regular discussion of emerging findings among the co-authors, triangulation of findings from individual interviews with those from focus groups, individual and team reflexivity.

Ethics

The study was approved by the PSMar Ethical Committee (final approval 9th October 2020). The final participants signed a consent form, which was collected by e-mail.

Results

Forty professionals participated in the study, 17 involved in the maintenance and performance of the institution (12 cleaning crew, three maintenance personnel, and two security staff), and 22 healthcare workers directly involved in patients care (ten physicians, nine nurses and three nurse aides); see Table I in online Appendix for profile information. Participants were mostly women (75.0%).

Following the content analysis of data, four common themes and 12 subthemes were identified and summarised below. Examples of quotes for each subtheme are presented in Tables II to V in online Appendix.

Lack of pandemic preparedness to deal with the unknown

All professionals involved in the study reported that neither them nor the healthcare institution had a pandemic preparedness during the first wave (Table II in online Appendix). They highlighted that fear due to lack of knowledge about the disease worsened both because they were unprepared to respond to a new situation and by to this institutional lack of pandemic preparedness (materialized in a lack of clear guidelines for managing the situation within the hospital, with constant changes of protocols, lack of PPE among others). So, they felt more vulnerable and uncapable to cope with the new working situation. Some of the participants recalled the general context of fear among the population due to the lack of knowledge about the course of the pandemic,[19] which was exacerbated among healthcare workers. Despite this, the participants accepted this situation, because they assumed the uniqueness of the situation (for which was difficult to be prepared) and their key role as frontline essential workers. During the second wave, participants had normalised many personal and work-related situations resulting from the pandemic (such as fatigue, pressure, and stress), but these scenarios resulting from a lack of preparedness generated discontent and misunderstanding.

Concerns about PPE

Given this lack of pandemic preparedness, during the first months since the outbreak, a wide range of non-pharmacological preventive interventions were designed and implemented by the health institution, intended to minimize the risk of infection. All participants in the study expressed concerns about PPE (see quotations in Table III in online Appendix), mainly, about the lack and inadequacy of PPE at the beginning of the pandemic (dangerous shortages were reported at national, European, and global levels[2]). This lack of proper PPE increased their anxiety about the possibility of becoming infected. The participants explained that, due to the limited availability of PPE, its distribution among healthcare workers was rationed, so that those working in so-called COVID-19 areas (with only infected patients) had always access to the highest available protection, while those working in areas that were theoretically free of COVID-19 had less access to PPE (though in fact, there were no COVID-19 free areas). Security and maintenance personnel reported extremely limited access to PPE during the first wave. During the second wave, the improvements regarding protective measures was reported by all participants.

All healthcare workers, except the night shift, pointed out that they received training on donning and doffing of PPE, either face-to-face or online, from the hospital (or the outsourced company). Despite this, those who had never worked with PPE before felt very insecure about donning and doffing PPE properly. The participants without experience explained that they developed strategies to ensure the correct use of PPE, such as with the supervision of another person, using a mirror, etc.

Furthermore, all the participants reported the discomfort of working with PPE during long working hours, as described in other studies,[13] basically the use of the coverall and of two face masks and glasses, which greatly increased the feeling of heat, sweating and fogging of glasses. Depending on the occupation, this feeling of discomfort was more extreme: nurses, aides, and cleaning staff, as they spend most of their time inside rooms in direct contact with patients, they usually could not remove their PPE for almost the entire work shift. On the other hand, security personnel reported the impossibility of donning PPE in emergency situations. Solutions should be considered to reduce this discomfort, such as involving workers in their choice between various options, or rotating tasks. Even so, all participants completely understood the importance of working with PPE to prevent transmission, as has been reported for other respiratory virus epidemics.[20]

Epidemiological surveillance

Another topic that emerged in all the groups was the epidemiological surveillance, which has been identified in the literature as essential to control epidemics and outbreaks, as well as to prevent nosocomial infection.[9] In our study, some subthemes of this issue showed notable differences between occupational groups and between the two waves (Table IV in online Appendix). On the one hand, healthcare and cleaning staff reported limited access to diagnostic tests (polymerase chain reaction [PCR]) during the first wave, whereas in the second wave this access was expanded (and provided by the hospital). On the other, maintenance and security staff had a perception of difficult access throughout the pandemic. In contrast, all participants reported a lack of information and clear criteria for conducting the PCR tests during the first wave, which increased the feeling of lack of control and mistrust, as well as slowing the early detection of cases and contacts.

Finally, almost all professionals who had to be quarantined or confined reported good follow-up by the hospital, except when they had to return to work, when they felt there was no clear criteria. Moreover, linked to the fact of being quarantined, isolated

professional reported a feeling of guilt, due to the increased pressure and work burden for remaining staff**,** as it has been described in other studies.[21,22]

Communication-related difficulties and supervision role

The problems arising from ineffective or non-existent communication channels at different levels of the organization (management, supervisors, and employees), both in terms of the preventive measures or the protocols to be applied, as well as communication with patients' families, emerged as fundamental aspects in all groups (Table V in online Appendix), although with differences according to occupations and across waves. Effective communication has been determined as a key aspect for the functioning of any health institution during epidemic crisis,[15,23] and for proper preventive activity and management. During the first wave, medical and nursing staff on day shift felt privileged to have direct and continuous information from the supervisors and management (vertical communication), even if it was quite confusing. During the second wave, communication problems were perceived and experienced with more anger and less understanding. The cleaning staff also felt very well informed throughout the pandemic, both by their outsourced company and the hospital. The professionals valued the constant and up-to-date communication of the supervisor, as has been referred to in other studies,[14,15,24] as this probably implied a better clarity of role and action. In contrast, night nurses and aides expressed a lack of communication with their supervisors, a reality that had already been described before the pandemic;[25] and security and maintenance group felt excluded from vertical communication, both by the company and the hospital, reporting that they received information only from healthcare staff. Finally, according to the participating healthcare and nursing staff, the effective communication depended on the management of the head of service or coordinator.

Conclusions

This study shows how healthcare workers feared of becoming infected and subsequently infecting close relatives, patients, and colleagues, which was exacerbated by the lack of PPE, organizational measures, knowledge, and practice in donning and doffing of PPE, and of clear guidelines on case and contact detection during the outbreak of COVID-19 pandemic. Otherwise, the effectiveness of these non-pharmacological preventive interventions depended largely on efficacy of communication and appropriate leadership. Over the weeks, improvement in the implementation of these measures was evident, helping to mitigate the perception of fear among healthcare workers. A decrease that was probably also influenced by increased awareness of the disease and healthcare workers resilience and coping strategies.[26] Even so, aspects that need further reinforcement were identified, as well as the vulnerability of certain groups of workers.

There was a substantial change regarding the perceptions of the four dimensions described between the first and the second wave. Thus, during the first wave, most professionals faced the uncertainty of the experienced situation, as well as the limitations in relation to preventive measures, through a coping process of acceptance, as has been reported in other epidemics.[27,28] As coping strategies can help to offset the negative effects of the pandemic on healthcare workers psychological distress,[29] non-pharmacological preventive interventions in hospitals could include, besides organizational measures, the improvement of positive coping strategies.

These results have a wide range of implications for the organization and management of healthcare institutions. First, it is crucial that hospitals have pandemic preparedness and emergency plans in place, as well ensure pandemic preparedness training for healthcare workers, not only to adequately respond and control the spread of the virus,[30] but to cope with the demands of their work and prevent symptoms of emotional distress[31]. Second, as it has been shown that a correct use of PPE reduces transmission of infection,[32] healthcare institutions, as part of the preparedness plan, should have enough stock to protect all workers,[33] as well as carry out regular training activities on how to donning and doffing PPE to increase workers' competence. Third, the healthcare institution should strengthen and clarify epidemiological surveillance protocols, as well as ensure sufficient staff to cover all sickness absences, a common challenge of healthcare systems even before the pandemic.[34] And fourth, training coordinators and supervisors so that they can establish effective communication with their staff.[35]

Finally, occupational bias has been detected, such that security and maintenance staff had difficulties accessing all non-pharmacological preventive interventions, which inevitably increased their fear and risk of infection and exacerbated a pre-existing sense of disrespect and lack of recognition. Security and maintenance staff is a scarcely studied group in occupational health, and these results point out the need to study them in more detail. Their perceived social invisibility, as well as being workers in an outsourced service (which has been associated with a higher precariousness of their working conditions[7]) could explain this difference in the access to basic preventive measures. To reduce this bias, it is necessary to reinforce the coordination regarding risk prevention between the institution and the outsourced company, as required by the Spanish legislation on occupational safety and health.[36,37]

This study has several limitations. A proportion of the participants were identified via snowball sampling, introducing a risk of bias, and reducing the representativeness of the sample and our findings. However, the risk is minimized, as we used this sampling method to reach informants who were difficult to find or with a specific profile. Additionally, due to the poor response rate from some medical specialties, the experiences of this group of healthcare workers may not be adequately or fully described by this study. Administration staff was not included in the design of the focus groups. It would be interesting to incorporate them in future research. Finally, the results cannot be generalized to all work centres, but in other similar Spanish healthcare institutions. The study has also strengths. First, it captures the experiences of healthcare workers during the first two waves, when there was still no vaccine, in relation to preventive measures, a fundamental element for the containment of the pandemic. Secondly, to our knowledge, it is one of the very few studies to analyse both care and non-care staff in a health institution, so that it can be a good starting point for future studies. And third, we used a robust qualitative methodology that was appropriate for the aims of the study.

Even now that the vaccine is available and has clearly impacted especially on the reduction of the disease severity, the design of adequate prevention strategies is essential to create healthy working environments against health crises. This study reflects the hospital learning curve on preventive measures during the first months of the pandemic and might help to draw recommendations to improve safety at work in health care institutions, and thus reduce workers' fears and risks. The improvement should be reinforced in maintenance and security personnel, as well as night shift nurses and aides, to also reduce health inequalities.

Availability of databases and material for replication

Data made available to persons upon reasonable request.

What is known about the topic?

Reviews point out that healthcare workers fear and concerns were greatest in the early phases of pandemics and exacerbated by inadequate personal protective equipment, insufficient resources, and inconsistent information. Nevertheless, the study of the pandemics' impact on all occupational categories of workers in healthcare institution is still very limited.

What does this study add to the literature?

The lack of pandemic preparedness and unclear guidelines on case/contact detection increased healthcare workers fears of infection, which could be reduced by ensuring the availability and good use of adequate personal protective equipment and by effective communication and appropriate leadership.

What are the implications of the results?

This improvement on non-pharmacological preventive interventions must reach all workers in the institution. Night nursing staff, and security and maintenance personnel need greater preventive efforts.

Editor in charge

J. Jaime Miranda.

Transparency declaration

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

Authorship contributions

M. Utzet: conceptualization and design of the study, collection of data, formal analysis, interpretation, writing, and approval of the final version. R. Villar: formal analysis, writing, discussion, and approval of the final version. P. Díaz: formal analysis, writing, discussion, and approval of the final version. M.P. Rodríguez Arjona: design of the study, collection of data, writing-revision, discussion, and approval of the final version. J.M. Ramada: conceptualization, revision, discussion, and approval of the final version. C. Serra: conceptualization, writing-reviewing, discussion, and approval of the final version. F. Benavides: conceptualization, writing-reviewing, discussion, and approval of the final version.

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Institutional review board statement

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of PSMar (Project ID 020/9379/I; 9/10/2020).

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Conflicts of interest

None.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.gaceta.2023.102335.

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