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COVID-19 IN WORKERS

OF MONTUFAR SOCIAL SECURITY HEALTH CENTER DUE TO INAPPROPRIATE USE OF PROTECTIVE CLOTHING

COVID-19 EN TRABAJADORES DEL CENTRO DE SALUD DE SEGURIDAD SOCIAL DE MONTUFAR POR USO INAPROPIADO DE ROPA DE PROTECCIÓN

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ABSTRACT

A recent outbreak of coronavirus infection cataloged as a pandemic in the first quarter of 2020, called SARS-COV-2, demonstrates the importance of proper handling of personal protective clothing in health workers, who work in the first line of care for people possibly infected. However, the lack of knowledge and management of patients with respiratory symptoms favors the contagion of medical personnel, reducing the productivity of health care centers. The objective of this research is to determine the relationship between COVID-19 infection in health personnel at the B San Gabriel health center of the Ecuadorian Institute of Social Security against the misuse of protective clothing due to the high incidence of infections. Through a longitudinal study using a participant observation method in the San Gabriel Health Center, Montufar canton, in the province of Carchi. Only 2 workers were not studied because they were in remote work mode, the other 32 workers were surveyed. It was found that there is a relationship between the inappropriate use of personal protective clothing and COVID-19 infection in health personnel, in addition, bad information and poor training on the subject are also associated.

Keywords: Workers, COVID-19, infection, personal protective clothing.

RESUMEN

Un reciente brote de infección por coronavirus catalogado como pandemia en el primer trimestre de 2020, denominado SARS-COV-2, demuestra la importancia del correcto manejo de la ropa de protección personal en los trabajadores de la salud, que trabajan en la primera línea de atención a las personas posiblemente infectadas. Sin embargo, el desconocimiento y manejo de los pacientes con síntomas respiratorios favorece el contagio del personal médico, reduciendo la productividad de los centros de salud. El objetivo de esta investigación es determinar la relación entre la infección por COVID-19 en el personal de salud del centro de salud B San Gabriel del Instituto Ecuatoriano de Seguridad Social frente al mal uso de ropa protectora debido a la alta incidencia de infecciones. Mediante estudio longitudinal con método de observación participante en el Centro de Salud San Gabriel, cantón Montufar, provincia de Carchi. Solo 2 trabajadores no fueron estudiados por estar en modalidad de trabajo remoto, los otros 32 trabajadores fueron encuestados. Se encontró que existe relación entre el uso inadecuado de ropa de protección personal y la infección por COVID-19 en el personal de salud, además, también se asocian mala información y mala formación en el tema.

Palabras clave: Trabajadores, COVID-19, infección, ropa de protección personal.

INTRODUCTION

SARS-COV2 was initially considered an epidemic associated with cases of respiratory infections of unknown origin detected for the first time in Wuhan, in the Chinese province of Hubei.

It was reported for the first time on December 31, 2019. The origin of this new disease was attributed to a new virus belonging to the coronavirus family. On February 11, 2020, the General Director of the World Health Organization WHO, Dr. Tedros Adhanom Ghebreyesus, announced that the disease caused by this new CoV was a "COVID-19", which is the acronym for "disease by coronavirus 2019 ".

On March 11, based on the fact that the number of COVID-19 cases outside of China had multiplied by 13, the increase being noticeable. In addition, the number of countries involved had tripled with more than 118,000 cases in 114 countries and more than 4,000 deaths, the World Health Organization declared COVID-19 a pandemic (Sedes et al., 2020).

The SARS-CoV-2 virus is highly contagious and its transmission occurs very quickly from person to person through droplets or secretions emitted through coughing and sneezing. It is known that respiratory droplets of more than five microns can be transmitted even at distances of up to two meters. In addition, the virus remains in fomites contaminated with secretions for hours and even days, entering through the mucous membranes of the mouth, nose, and even eyes (Pandey et al., 2020), (Mar Cornelio et al., 2021).

Commonly established first symptoms are fever, dry cough, tachypnea, that is, an increase in a respiratory rate greater than 20 breaths per minute, and shortness of breath or dyspnea. Other associated symptoms are diarrhea and less frequent gastrointestinal symptoms in approximately 20 to 25% of patients with SARS-CoV2 infection.

Confusion, chest pain, vomiting and nausea, sore throat, sneezing, nasal congestion, productive cough (i.e. with sputum), anosmia (which is the absence of the sense of smell and dyspepsia), and skin rash or discoloration of the fingers or toes and viral conjunctivitis have been reported. It can range from asymptomatic to severe disease with a rapid deterioration produced by an inflammatory response against SARS-Cov-2, aggravated by a possible bacterial or fungal infection, which is generally the reason why a patient requires mechanical ventilation (Lotfi et al., 2020), (Cordero et al., 2019).

The effective vaccine or treatment is still unknown and that it is specifically directed to this virus of the coronavirus family, and especially that it has been approved by the FDA (Food and Drug Administration), the governing body of medicines for use in humans. Therefore, the best solution to adequately control the pandemic will be the simultaneous application of preventive methods, sensitive diagnostic methods, and the use of currently available drugs, without neglecting the development of novel and effective treatments.

It is not known about the true effectiveness of the use of masks and correct hand hygiene as a method to reduce the spread of COVID-19, but it is known about other more common viral diseases such as influenza, in which it was evidenced that these measures were associated with a decrease in transmission.

In global research on SARS-CoV-2, it can be seen that a large percentage of people who have already been infected have been health professionals who are working with infected patients in various medical facilities, being the first line of care, during the global health crisis. This has been associated with the increased frequency of medical personnel being incorrectly trained in the protection against the virus and the lack of personal protective equipment or clothing that meets the necessary standards to adequately combat COVID-19. (Aleebrahim-Dehkordi et al., 2020), (Carralero et al., 2020).

Currently, the total number of healthcare workers infected with SARS-CoV-2 is unknown due to the increasing number of infections and the lack of global data on the problem.

Infrastructure and that all personal protective equipment is available in hospitals and health centers are considered of great importance. As the pandemic accelerates, access to Personal Protection Items (PPE) for health workers is a major concern, as resources are depleted and health personnel facing this battle are put at risk.

Members of the medical staff, while waiting for the equipment, attend to all patients who may or may not be infected, having a high percentage of asymptomatic patients, who present positive RT-PCR tests (Malagón-Rojas et al., 2020),(Garcia et al., 2021),(Arias et al., 2021) and being carriers that can infect more people, including health personnel. For which the health workers must receive the respective personal protection elements. Unfortunately, most of them do not meet the requirements to combat the pandemic. To this must be added work stress, burnout syndrome, in all health personnel who are suffering from anxiety due to the risk of transmitting the infection to their families (Daniel et al., 2021), (Nguyen et al., 2021).

DEVELOPMENT

This research focuses on analyzing the relationship between the misuse of personal protective clothing in the personnel who work in the B San Gabriel Health Center of the Ecuadorian Social Security Institute, and the contagion by COVID-19, through the qualitative method, which will serve to employ careful processes to get to generate a broader knowledge of the investigation being systematic and controlled (McLaren et al., 2021), (Tufiño-Loza et al., 2020). This methodology allows the improvement of the procedures and criteria used in the conduct of scientific research (Barach et al., 2021), (Boushra et al., 2020).

Therefore, using rigorous epistemic parameters, the origin of the qualitative method dates back to the application of systematic observation and interpretation of the facts. The choice of this type of methodology is based on three factors: first, how much the researcher intends to immerse himself in the subjective elements of the phenomenon; second, assess whether it is pertinent and necessary to do so; and third, how much the phenomenon requires to do so(Gomez et al., 2020),(Heer et al., 2021), (Al-Subhi et al., 2020; Smarandache & Broumi, 2020)2020.

In the research development process, the inductive method that goes hand in hand with the qualitative approach was also used. We will go from the particular to the general based on the problems presented during the SARS-COV-2 pandemic.

The research techniques used were the documentary technique, since the information obtained from surveys, carried out on the Typeform digital platform, within the B IESS San Gabriel Health Center, will be analyzed, deriving from the facts that are generated from the investigation in question; a field technique that helps us understand the social reality experienced in the period of confinement and make visible the degree of affectation to people within the field of health. A technique that will be carried out at the San Gabriel Health Center in the Carchi province, Montufar canton, where there the personnel who work in the indicated place will collaborate.

The survey investigates how they carry out their day-to-day care for respiratory symptomatic patients with personal protective clothing against COVID-19. The type B health center of the Ecuadorian Social Security Institute of San Gabriel, in the province of Carchi, has 34 workers, including administrative and operational personnel, in addition to the personnel attached to the ECU911 institution.

Inclusion criteria: the personnel who work in person in the type B health center of the Ecuadorian Institute of Social Security of San Gabriel, in the province of Carchi, were taken into account, with a total of 32 people who participated in this research (Agustí et al., 2018).

Exclusion criteria: the research was not carried out with 2 workers from the health unit, who are not in face-to-face work, but in the remote work mode. Based on what is described in the guide and general plan for the progressive return to the work activities, in which it is indicated that occupational health personnel and human talent units must evaluate the individual risk factors of workers belonging to priority care groups and in vulnerable conditions with supporting documentation supporting their condition, in which teleworking should be a priority. Two of the workers belong to an age group over 60 years of age, so they were assigned to remote work mode (Castañ-Abad et al., 2021), (Carralero et al., 2020).

The definition of keywords is important, for which we are guided by Compendium 333, an encyclopedic dictionary of terms and concepts related to the prevention of occupational hazards(Gomez et al., 2020; Palacios et al., 2021).

RESULTS

1.- Area in which the staff performs their functions, 32% ECU 911, 13% administrative, 13% physical rehabilitation, 13% medical staff, 10% nursing, 7% odontology, 6% clinical laboratory, 3% radiology and 3% pharmacy.

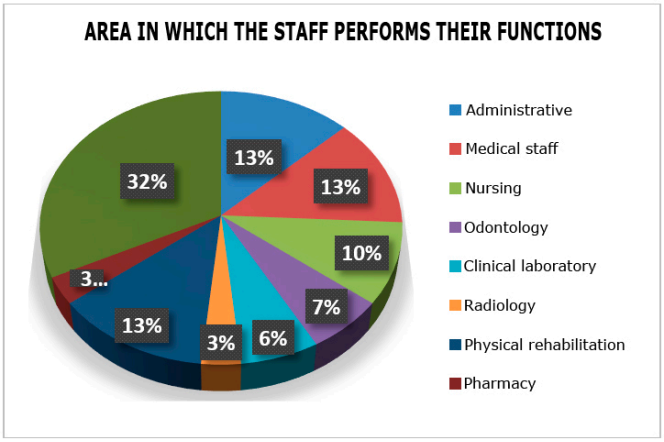

Figure 1. Area in which the surveyed personnel carry out their functions.

2.-Importance of knowing about the correct handling of personal protective clothing, 100% of the personnel consider that it is important.

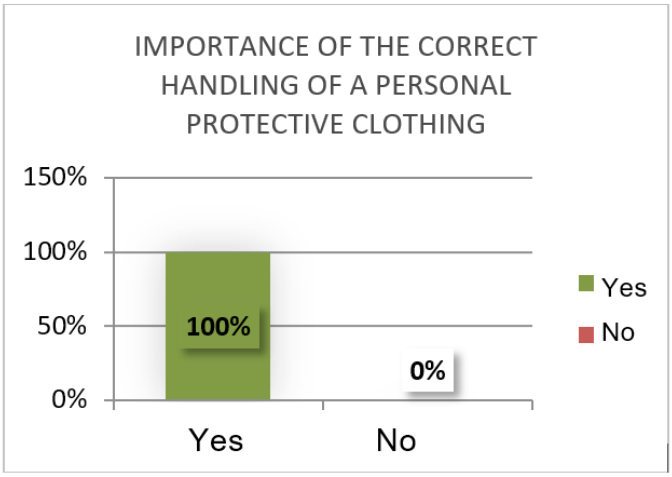

Figure 2. Importance of knowing about the correct handling of personal protective clothing.

3.- 91% of the health personnel of the B IESS San Gabriel Health Center indicate that, if training has been carried out on the correct use of PPC, during the pandemic, 9% indicate that no training has been carried out.

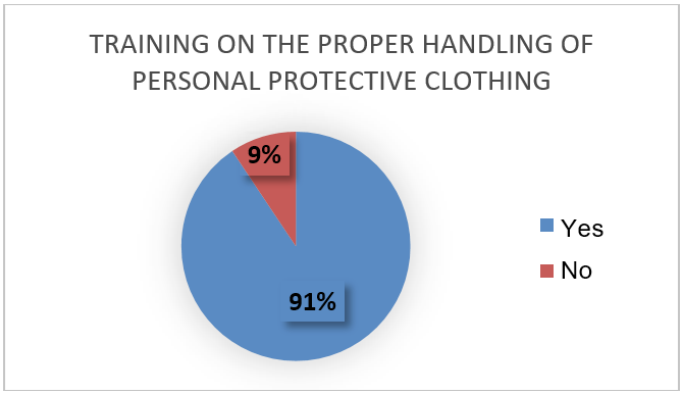

Figure 3. Training on the correct use of PPC.

4.- 4% of personnel indicate that the trainings have been regular, 32% indicate that they were good, 52% very good and 12% excellent.

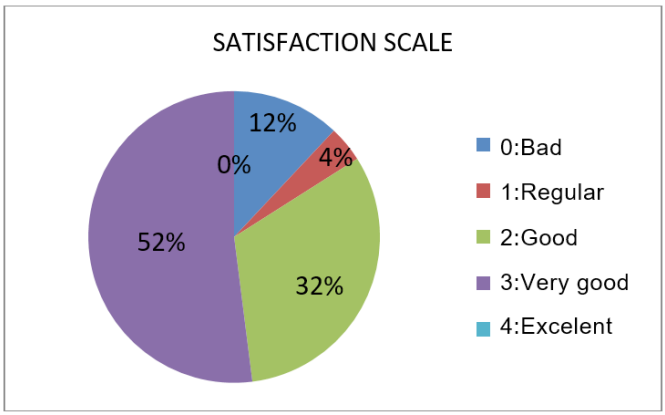

Figure 4. Staff satisfaction with the training received.

5.- The regularity with which disposable protective clothing is changed in the Health Center is 55% daily, 17% three times a week, 21% twice a week, and 7% once a month.

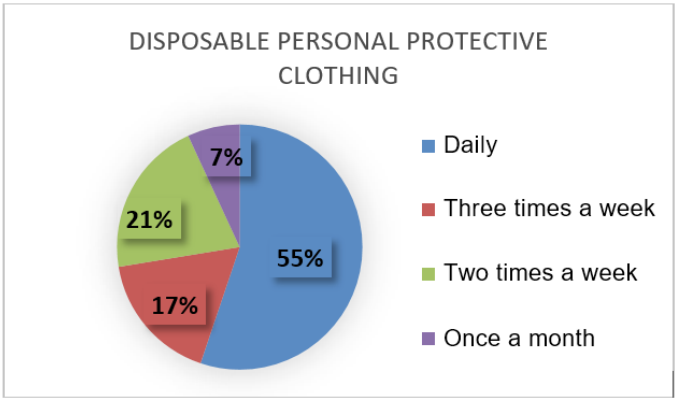

Figure 5. Frequency with which disposable protective clothing is changed.

6.- The personal protective clothing that health personnel use, 63% indicate that some of them were delivered by the unit for which they work, 31% indicate that all were delivered by the IESS, and 6% indicate that the protective clothing has not been delivered by the health center.

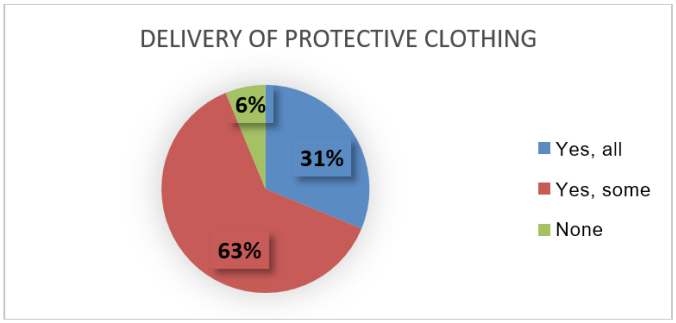

Figure 6. Delivery of protective clothing.

8.-Regarding the contagion of COVID-19, 72% have not been infected and 28% do have been infected.

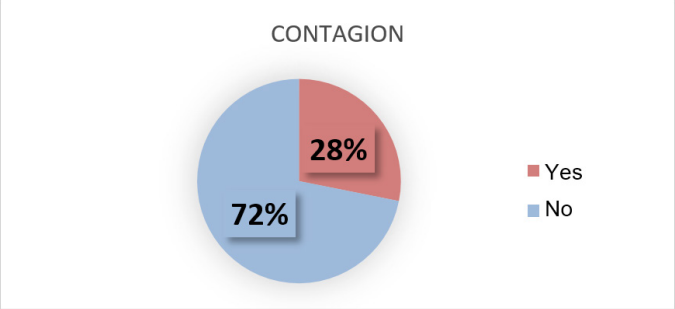

Figure 7. Personnel infected with COVID-19

8.- 74% of the personnel who have been infected indicate that it has been due to improper use of personal protective clothing, and 26% do not associate it.

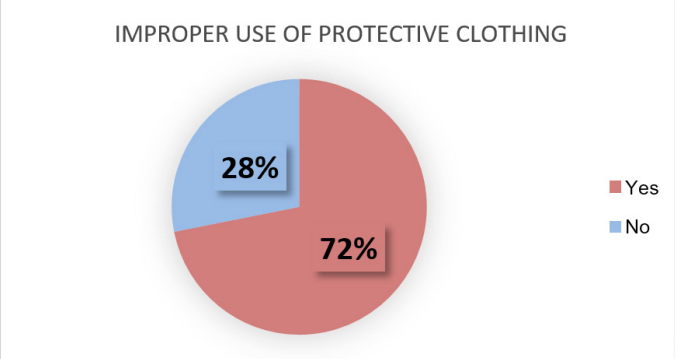

Figure 8. Contagion due to incorrect use of protective clothing.

DISCUSSION

The Health Center B of the Ecuadorian Institute of Social Security of the city of San Gabriel in the province of Carchi, provides coverage for general insurance, voluntary insurance, and pensioners; which provides coverage for illness, maternity, work risks, old age, death, and disability, unemployment, and unemployment insurance. It has a total of 34 workers, of which 2 are in the remote work mode because they belong to a vulnerable group since they are over 60 years old.

Of the 32 workers who are performing their duties in person throughout the COVID-19 pandemic, 53% are female and 47% male, most of the staff work at ECU911, which is attached to the Institute. Ecuadorian Social Security, 13% are medical personnel, 13% administrative, 13% physical rehabilitation, 7% odontology, 6% clinical laboratory, 3% radiology, and 3% pharmacy. 100% of the personnel consider it important to know about the proper handling of personal protective clothing. In addition, 91% indicate that they have been trained by the institution on this subject, 7% indicate that they have not received any type of training.

Regarding the quality of the training provided on this topic, it was possible to know that 4% consider regular training, 32% indicate that training was good, 52% very good and 12% think it was excellent, which indicates the importance of improving staff training to achieve 100% acceptance of the quality of the talks, to avoid inappropriate handling of personal protective clothing.

According to the guidelines of the Ministry of Public Health, it indicates that for the use of personal protection elements to be effective, it is necessary to guarantee the availability of quality supplies at the points of care. It is also essential that all personnel are trained adequately, both at the time of putting them on and at the time of removing these elements, being essential the behavior of health professionals who must be especially careful.

It was evidenced that workers change personal protection clothing irregularly, having divided criteria related to this issue, with only 55% changing their protection items on a daily basis, 17% three times a week, 21% twice a week, and 7% once a month. This indicates the deficit in knowledge on this subject, which implies a high risk of reusing garments that are disposable for daily use.

As for personal protective clothing that health personnel use, 63% indicate that some of them were delivered by the unit for which they work, 31% indicate that all were delivered by the health center to which they belong, and 6 % indicates that the garments have not been delivered by the health center. There are discrepancies around this issue because the institution does provide personal protective equipment and garments, regularly every week. However, certain supplies such as Visors and protective glasses were otherwise acquired by the workers.

In similar studies carried out in Spain, analogous percentages are noted that indicate that at the beginning of the pandemic there was a perception of high availability of the most basic personal protection elements such as a mask, gloves, along with elementary hand hygiene resources. However, a lack of certain protective equipment is declared, especially that related to FPP2/FPP3 masks, glasses, and complete personal protection elements. This could suggest that at the beginning of the pandemic there may have been professionals without a level adequate protection, as is the case in the institution in which the present study is carried out

Within the operating unit of social security, San Gabriel, a high contagion of personnel is observed, with 28% testing positive for COVID-19 confirmed by RT-PRC swab, 72%

have not been infected, for which it is carried out periodic rapid tests to staff, 72% have negative results in these tests.

The most critical point in the entire investigation is that people who have been infected by COVID-19 associate their contagion with the incorrect use of personal protective clothing, 76% indicate that they do not handle their protection elements correctly and only 26% do not associate it with infection. 74% of the personnel who have been infected indicate that it has been due to improper use of personal protective clothing, and 26% do not associate it.

CONCLUSIONS

Of the total number of servers and workers of the Type B Health Center of the Ecuadorian Social Security Institute of the Carchi province in the Montufar canton, 28% have been infected with COVID-19, 74%of which perceive a direct relationship between infection and the misuse of personal protective clothing, only 26% do not associate it with the deficient use of protective elements.

There is a direct association between SARS-COV2 infection in healthcare personnel and the inappropriate use of personal protective clothing. In addition, it is concluded that there is insufficient training for personnel, which also includes low control and monitoring regarding the proper use of personal protection elements.

The use of personal protective clothing is essential for workers in the health area who are on the first line of care for positive COVID-19 patients, both symptomatic and asymptomatic, and any suspicious case, there is a record that the institution provides of these items on a regular basis.

The servers and workers of health center B of the Ecuadorian Institute of Social Security indicate that they do not change with the frequency indicated by the norms and protocols as mandated by the governing body of the health system in the country, which is the Ministry of Public Health. Guides and protocols indicate that it is necessary to change disposable protective garments daily and even more frequently depending on the use that has been given to the protective element.

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