

**A CHALLENGE FOR
OCCUPATIONAL
HEALTH: PREVENTION
OF HAND DERMATITIS
IN HEALTH
PROFESSIONALS**

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INTRODUCTION

Currently, times are challenging for health organizations, this field is experiencing situations that threaten the survival of organizations, as new struggles are put to the test on a daily basis. The different factors of the work context are highly correlated with the health and well-being of workers, in this sense, interventions to promote health in the workplace, with a focus on interventions to prevent different occupational diseases, more specifically in cases of Occupational disease of Contact Dermatitis, in Health Professionals, is a persistent challenge in the current COVID 19 pandemic scenario.

In this context, the National Occupational Health Plan (PNSO) – extension 2018-2020 is clear and concise when it characterizes Occupational Health/Safety and Occupational Health with the purpose of preventing professional risks, protecting and promoting the health of the worker. It adds that Occupational Health (OS) aims to ensure healthy work environments, through strategies for identifying, assessing and controlling existing risks in the workplace, monitoring workers' health and promoting health in the workplace..

The relative effectiveness of the work-based health promotion intervention has an impact on health/disease-related outcomes, duration of incapacity for work, quality of life, as well as economic outcomes. In health, quality builds an important goal to be achieved by the different institutions that make up the National Health Service (SNS). In this sense, the consequences of a good care practice are evident when they determine health gains for the clients for whom the interventions are intended and, therefore, for the health organizations.

In the current opinion article/literature review, the choice falls under the theme: The prevention of hand dermatitis in health

professionals, a challenge for Occupational Health. In this explanation, I intend to achieve the following objectives: To explicitly identify relevant considerations about the PNSO, policies and legislation applicable to Occupational Nursing (ET) and the importance of planning and the specificities of Occupational Health Services (SSO); analyze and interpret the problem of the occupational disease of dermatitis of the hands in health professionals, namely nurses, considering the pertinence of the increase in this problem during the current COVID 19 pandemic. the reduction of dermatitis on the hands of nurses.

METHODOLOGY

In carrying out this methodology, I adopted a literature review, “*aiming to put the researcher in direct contact with what was described on a given subject*” (1). In this sense, this review followed the following steps: selection of the theme; establishment of inclusion and exclusion criteria for articles (sample selection); definition of information to be extracted from selected articles, analysis of results; discussion and presentation of results.

The question that guided the bibliographical research was enunciated: *How do the prevention programs for dermatitis of the hands, carried out by nurses in the workplace, translate into results in the reduction of this occupational disease?*

In this bibliographic review, the choice falls under the theme: *Occupational Dermatitis of the Hands (DOM), in Health Professionals - Nurses*. Initially, I researched the meaning of the designations: “*Dermatitis of the Hands*”, “*Intervention Program*”, “*Occupational Health*” and “*Nurses*”, later carrying out a brief contextualization of the DOM scenario, in times of the COVID 19 Pandemic, to better support the state-of-the-art content structure. In this explanation, I intended to

achieve the following objectives: to catalog the occupational disease of hand dermatitis and its prevalence in health professionals - nurses, not only in the COVID 19 pandemic era (since, the pandemic era being a recent period, found little content and not, exactly, intervention programs in SO), I also carried out a complementary literature review. It is my aspiration to unveil the contribution of OR intervention programs in the area of prevention of hand dermatitis in health professionals; pertinence of the OS program; suggestions and results.

The survey of bibliographic productions took place during the month of November and December 2021, using the main databases for research: Google Scholar; EBSCO Host; Medline; Web of Science; CDR and Repository of "Universidade do Porto". The terms used to search for articles were: active learning methodologies and health education. So were _ used you next descriptors : "intervention programs"; "occupational health"; "dermatitis of the hands"; "nurses" and the operators boolean ((("methods"[MeSH Terms] OR "methods"[All Fields] OR "intervention"[All Fields]) and programs[All Fields]) AND ("occupational health"[MeSH Terms] OR ("occupational"[All Fields] AND "health"[All Fields]) OR "occupational health"[All Fields]) AND (("dermatitis"[MeSH Terms] OR "dermatitis"[All Fields]) AND ("hand"[MeSH Terms] OR "hand"[All Fields] OR "hands"[All Fields])) AND ("nurses"[MeSH Terms] OR "nurses"[All Fields])).

At the time, the selection criteria were public and freely accessible articles (available free of charge), including studies available in full (with abstracts and full texts), written in Portuguese or English, referring to the period from January 2016 to December 2016. 2021 (in the last five years, aimed at health professionals, articles containing the aforementioned descriptors in their titles or

abstracts. The origin of the articles selected from a total of only four studies, as they are those that allude to prevention programs for occupational dermatitis in hands, in health professionals. I didn't just choose the pandemic period, because this time interval is very restricted and there is little evidence.

Exclusion criteria were articles aimed at other professional groups; articles that only make a brief description of hand dermatitis and articles that, after reading the text, do not refer to theoretical conceptions about intervention programs in relation to hand dermatitis, in health professionals. The following were also excluded during the search: all duplicate production, editorials, letters to the editor, as well as epidemiological bulletins.

In addition to the literature review articles, complementary bibliography was also used. The bibliographic review of scientific studies was carried out during the month of December 2021.

Figure 1 represents the flowchart of the bibliographic review, of the searches for primary studies, which were the basis for the realization of this narrative.

THE PREVENTION OF HANDS DERMATITIS IN HEALTH PROFESSIONALS A CHALLENGE FOR OCCUPATIONAL HEALTH

The concept of occupational health, according to the General Directorate of Health (DGS) corresponds to a set of interventions carried out by professionals specialized in various areas whose common objective is the prevention of occupational risks, the protection and promotion of workers' health, ensuring the their safety, well-being, comfort and integrity and the encouragement of healthy work environments (3).

Working conditions and work contexts have undergone a distant evolution, however, constant over time and occupational nursing

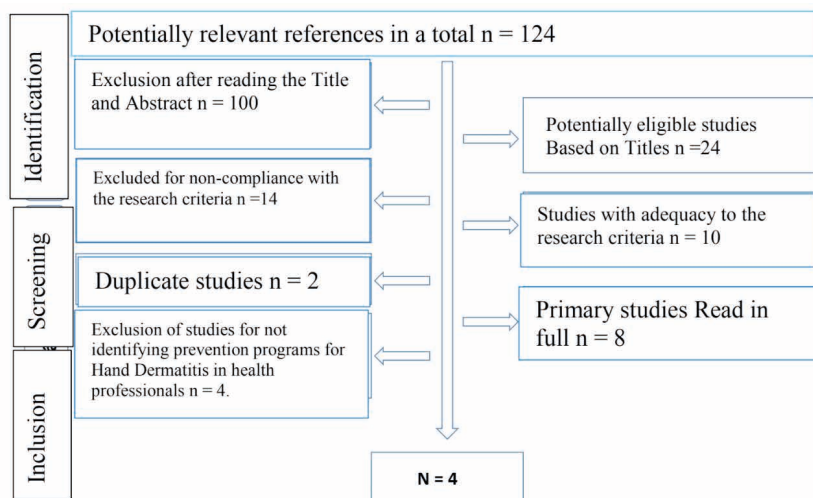


Figure 1 - Article selection flowchart.

Source: Adapted by Prism of Moher (2). Survey data, 2021.

Author(s) Publication year of study	Kind of study Origin of the Study	Title of Publication	Main goal Population	Main Conclusions
Markus Reinholz; Benjamin Kendziora; Surina Frey; Eva Maria Op Franziska Rue FF; Benjamin Maximilian; Clanner-Engelshofen; Markus V. Heppt ; Lars Einar French; Andreas Wollenberg <i>Eur J Dermatol</i> 2021	Study observational Germany	<i>Increased prevalence of irritating hand eczema in health care workers in a dermatological clinic due to increased hygiene measures during the SARS-CoV-2 pandemic</i>	Investigate the prevalence and symptoms of eczema on hands, as well as hygiene measures and concepts of care, in German health professionals. Population: 66 nurses and doctors	Emollients were applied more frequently during the COVID-19 Pandemic, but this was not enough to prevent hand eczema in this study group. There is still no effective standardized therapeutic regimen described that would prevent or reduce occupational hand eczema in health care workers. Preventive measures, such as increased use of emollients must be recommended to health professionals. If there are symptoms of hand eczema, the use of moisturizing cream alone is insufficient and drugs such as anti-inflammatories must be included in the therapeutic regimen to reduce the long-term damage and development of occupational hand eczema. Washing hands for 20 seconds with soap is more dangerous for the skin than using disinfectants with lipid-restoring ingredients. In addition, educational programs can be successful, e.g. water temperature in hand hygiene and determination of hand eczema co-risk factors. This study is limited by the fact that the number of participants was small, recruitment was monocentric, and allergic contact sensitization was not assessed by patch testing. However, it clearly shows an increase in hand eczema toxic irritants in the time of the COVID-19 pandemic.

<p>Pavel V. Chernyshov and Liliia Kolodczinski Wiley – Dermatologic Therapy 2020</p>	<p>Prospective Study Kiev – Ukraine</p>	<p>Prospective study on hand dermatitis in nurses and doctors during COVID-19 pandemic and its improvement by use of adopted recommendations of the European Academy of Dermatology and Venereology Task Force on Contact Dermatitis</p>	<p>Check health-related aspects Quality of Life related to disinfectants in use among healthcare professionals, during the COVID-19 pandemic, and differences between nurses and physicians; Verify possibilities for improvement, providing only recommendations vs recommendations and purifying hand gel with ethanol; glycerin and emollient balm.</p> <p>Population: 102 health professionals (doctors and nurses)</p>	<p>In the case of the evaluation of the Quality of Life study of health professionals, the results confirmed the effectiveness of the basic recommendations, identified the participants who need a dermatological consultation, in addition to the basic recommendations, and showed the importance of including preventive measures, counseling programs psychological for nurses with a focus on relationships with partners and family. Treatment and educational programs for health professionals with occupational skin diseases have proven to be highly effective, resulting in lasting improvement in clinical signs and Quality of Life for these professionals.</p>
<p>Maryam Soltanipoor; Thomas Rustemeyer; Judith K. Sluiter ; John Hines; Federico Frison ; Sanja Kezic Wiley – Contact Dermatitis 2018</p>	<p>Randomized controlled clinical trial Netherlands</p>	<p><i>Evaluating the effect of electronic monitoring and feedback on hand cream use in healthcare workers: Healthy Hands Project</i></p>	<p>Investigate whether an intervention program, based on supply of hand creams and regular feedback on cream consumption and whether it leads to a reduction on the severity of dermatitis of the hands, in nurses.</p> <p>Population: 19 wards with 6 to 58 nurses per ward. Total 501 nurses.</p>	<p>It is the first trial to report the effectiveness of a prevention program in the healthcare environment focusing on the application of creams combined with continuous monitoring and feedback on the skin on self-care performance. This intervention has been reported to improve hand dermatitis with the use of cream. Nonetheless, the intervention showed overall positive effects on the severity of hand dermatitis symptoms, supporting the benefits of creams in the workplace, particularly in healthcare workers with mild hand dermatitis. As occupational health interventions tend to be complex and context dependent, evaluation was based strictly on the main objective and secondary results in the total group may not reflect the overall benefit of the intervention. The present study did not focus on the barriers and facilitators of hand cream use; however, the fact that using cream, despite resulting in some improvement during the evaluation, still remains quite low, and disturbing. To successfully design prevention strategies for hand dermatitis in the future, further investigation of these factors is essential.</p>

<p>Ira Madan; Vaughan Parsons; Barry Cookson; John English; Tina Lavender; Paul McCrone; Carolle Murphy; Georgi Ntani; Lesley Rushton; Julia Smedley; Hywel Williams; Alison Wright; David Coggon <i>Trials – Open Access</i> 2016</p>	<p>Clinical Trial randomized controlled UK</p>	<p><i>A behavior change package to prevent hand dermatitis in nurses working in the National Health Service: results of a cluster randomized controlled trial</i></p>	<p><i>Care Intervention in Nurses</i> trial tested the hypothesis that a behavior changes intervention package, along with the provision of hand moisturizers, could reduce the point prevalence of hand dermatitis compared with standard care among nurses who work on the NHS. The secondary objective was to assess the impact of the intervention on participants' beliefs and behavior regarding hand care, and the cost-effectiveness of the intervention compared to normal care.</p> <p>Population: 845 nursing students in clinical teaching + 1111 ICU nurses.</p>	<p>Intervention components are supported by evidence, appear to have no adverse effects, and are relatively inexpensive. Therefore, these principles must continue to complement prevention strategies for hand dermatitis in nurses. Employers must provide health care nurses with ready access to moisturizing hand creams. The Tested Type Program adds little to best practice, and must not be adopted without other supporting evidence.</p>
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Table I - Summary of the evidence found in the studies.

Source: Prepared by the author.

discovers its evolutionary trajectory in this reality. The beginning of this area of nursing practice emerged at the end of the 19th century, when pioneer nurses in work contexts were recognized in northern Europe. In Portugal, this path of Occupational Nursing was also experienced, and is now recognized as an added competence differentiated by the body that oversees its practice, the Order of Nurses.

In Portugal, and although nurses have always adopted a different attitude with regard to prevention and promotion of health and hygiene and safety in the workplace, it was only at the end of the 20th century that the occupational nurse was able to see for the first time its competences in the area of occupational health outlined in legislative matters. Law number: 7/95 of March 29, was a precursor in this sense, regulating the profile of competences of occupational nurses when, in paragraph 6) of its article 23, it states: “Consider an occupational nurse, the nurse with the specialized higher education course in Public Health Nursing with specific training in the field of occupational health.” (4). Later, the legal regime for the promotion of safety and health at work, with Law No. 102/2009, of 10 September, warned of the fact that occupational nursing lacked separate regulation, when it mentioned that this professional area remained without “specific legislation” describing its development (5).

In this follow-up, the DGS attributed to occupational nurses a set of which included: participation in defining the company’s health policies; collaboration in the planning and evaluation of health programs; participation in workers’ health surveillance, together with the occupational physician; the provision of nursing care in the workplace, namely in the provision of first aid, administration of prescribed medication and in the referral of urgent cases to health units; collaborating with other professionals in identifying occupational

risks and monitoring intervention plans to reduce exposure or limit occupational harm; training and information on workers’ health; the development and evaluation of work-related health promotion programs and other general health programs in the organization.

The National Occupational Health Plan was instructed for the period 2013/2017. Resulting in an extended interval, so that new advances could appear in relation to the regulation of the practice of occupational nursing, the General Directorate of Health (DGS) advances with Guideline No. 009/2014, of June 3rd. This document enshrines that “*The activity of the Occupational Nurse is aimed at managing the health of workers or groups of workers. (...) It focuses on the promotion and protection of health and well-being in the workplace, on prevention of accidents and illnesses related to or aggravated by work, with the purpose of promoting healthy and safe work environments*” and that, in order to obtain authorization to exercise it, it would be necessary to have a set of training criteria and technical skills recognized for the job. effect (06).

A new era begins for the specificity of Occupational Nursing and the regulation of its practice, requiring specialized training to respond to the specific needs of work contexts. In turn, DGS/Occupational Health publishes Technical Information 10/2015, the content of which aimed to “*establish a framework for the minimum curricular content within the scope of “Occupational Nursing”, which must guide the training to be provided*”.

The National Occupational Health Plan - 2018/2020 extension, subsists in line with the 2020 National Health Plan, in the different areas: healthy policies; citizenship in health; equity and adequate access to health care; achieve health gains. And it recognizes that occupational health migrates in the different areas and health programs, and can positively promote them with its intervention. Its

strategic foundation is the excellence of the OR with special relevance to the practice of quality in the care provided to workers, this foundation adjusts the protection of professional risks, the protection of the health and well-being of workers and the promotion of work environments healthy.

The Order of Nurses, after continued work in this area, emerges from the Regulation of Differentiated Increased Competence in Occupational Nursing, article 2, line e), concisely designates in its descriptor that Occupational Nursing is the “*area of professional practice aimed at managing the health and safety of workers in their relationship with the work environment. It focuses on well-being, on the promotion, protection, surveillance and recovery of health, as well as on the prevention of professional risks, accidents, occupational diseases and diseases related and/or aggravated by work, in partnership with the workers, with the purpose of promoting healthy and safe working environments, taking into account the individual characteristics of the job and the socio-employment environment*” (7).

In this context, it is important to reveal that Health Planning is a process of intervention on the socioeconomic reality or on one of its multiple aspects – health, for example – which, in order to become an institutionalized practice, lacks a broad base of acceptance (legitimate, social), which is only possible through a broad information effort (8).

These authors corroborate that the need for health planning arises due to several factors, particularly: scarce resources, which implies a better and more efficient use of them; the causes of problems that require immediate intervention; the need to circumscribe priorities; isolated interventions that must be avoided, the fact that there are expensive infrastructures that can support several pieces of equipment at the same time and the existence of equipment that can have multifaceted uses.

Health Planning consists of “*...rationalization in the use of scarce resources with a view to achieving the established objectives, in order to reduce the health problems considered as priorities, and implying the coordination of efforts from the various socio-economic sectors...*” (8).

Occupational Health Services (SSO) have certain specificities, where leadership commitment and worker participation are involved in ethical conceptions and underlying values. Factors such as the physical work environment, resources for personal health, company involvement in the community and the psychosocial work environment are pillars for achieving health gains. Occupational health (OS) is a right recognized in the Basic Health Law (Law n.º 95/2019, of September 4) which all workers must benefit from during their professional life. Its purpose is the prevention of professional risks and the protection and promotion of workers’ health and involves several areas of specialization (occupational medicine, occupational nursing, occupational safety, occupational hygiene, occupational psychology, ergonomics, among others).

Specific medical activities enable effective primary, secondary and tertiary prevention of diseases and injuries; employ specialized knowledge and experience in the field of management. Assessment of the work environment and its impact on workers’ health is inseparable from the other task of management. A multidisciplinary approach is essential in SO, to ensure compliance with legislation for employers, as well as the financial benefits related to insurance in terms of health, safety and risk control (9).

Occupational Hand Dermatitis (DOM) is an inflammatory disease as a response of the skin of the hands after contact with various irritating agents, factors such as: water, detergents, soaps, solvents, gloves, which can cause direct damage to the

skin (10) and it develops when the skin's regenerative capacities are exhausted and contact with irritating agents continues (10). These investigators reiterate that BMD is not a life-threatening disease and the mild forms generally do not interfere with daily life, however the more severe cases translate into considerable impacts on the workers' quality of life.

In this framework, occupational skin diseases are frequent in professions with exposure to skin hazards. They reiterate that occupational dermatoses are among the most frequent occupational diseases in health professionals (11). And it is clear that DOM disease can cause significant functional impairment, lead to discomfort and work interruptions in healthcare organizations. At the same time, it is essential to design interventions and primary preventive strategies, whether physical or behavioral, to prevent DOM in health professionals.

In Europe and the USA, epidemiological data on the incidence of occupational dermatitis of the hands are available on the Occupational Skin Disease Registry website of the Ministries of Labor. However, other sources are case series and cross-sectional studies of hand dermatitis. Despite differences in definitions and ways of recording, the pattern of occupational dermatoses is similar, with regard to dermatitis on the hands of health professionals.

DOM can be considered as a serious health problem for health professionals, although a wide range of skin care, namely strategies and policy guidelines have been developed in recent years to minimize this risk. However, its effectiveness and cost-effectiveness remain hidden. Evidence suggests that an intervention based on the theory of planned behavior and implementation designs can guide improved hand care behaviors (12).

The prevention of SOM in the health

sector is fundamental for health professionals and for the safety of care provided to clients. Guidelines for the prevention of occupational skin diseases have been established in several countries, with the following hierarchical structure of prevention: elimination, reduction of exposure to the hazard or substitution of a hazardous substance by the use of organizational or technical measures, and, when these are scarce, apply personal and behavioral protection measures (10).

Healthcare workers are a vulnerable work group and are at increased risk of developing DOM disease due to their frequent exposure to wet work and irritating solutes, unprotected exposure, high frequency of handwashing procedures or prolonged occlusion of the hands. gloves (12).

Although the DOM of health professionals is not a recent occupational disease, its problem is relevant and has been showing an exponential spread in recent years, with a notorious worsening in the current time of the COVID 19 pandemic. It is estimated that the annual costs related to presenteeism, absenteeism and disability pensions are increasing (13).

Occupational skin diseases, mainly involving contact with irritating substances – dermatitis, are common work-related diseases and are particularly localized to the hands. Environmental exposure and personal susceptibility largely contribute to the development of hand eczema. According to several authors, hand eczema is characterized by a manifestation of contact, called dermatitis of the hands, and is one of the most common occupational diseases in industrialized countries, representing up to 90% of all occupational skin diseases (12).

In the Netherlands, in 2016, the Dutch Society for Medical Occupation established a guideline for the prevention of DOM which emphasized the importance of the skin barrier

for the prevention of DOM and recommended the regular use of skin products such as ointments and emollients. Various skin care programs were introduced after this date into hospital settings to help prevent occupational skin disease (13).

In recent times, the health sector has been troubled, in December 2019, in *Wuhan*, China, the first cases of pneumonia caused by a coronavirus appeared, which the World Health Organization (WHO) called the new coronavirus 2019 and the disease COVID 19, on January 2020 and on March 11, 2020, the WHO declared a COVID 19 pandemic. This disease is seen in all age groups and the clinical features vary from asymptomatic state to pneumonia, with acute respiratory distress and failure syndrome of multiple organs.

Health professionals who are at the forefront of the fight against COVID 19, are in the high-risk group for the transmission of the coronavirus, these workers are aware that they must protect themselves with extra care in hand hygiene and the use of equipment personal protection equipment (PPE), namely gloves as part of personal hygiene measures, these in turn can cause an increase in the frequency and severity of various dermatoses (14). In addition, the anxiety levels of health professionals have increased in this pandemic, a process that can also induce some psychodermatoses.

Researchers consolidate the same idea, that the time of the COVID-19 pandemic contributed to damage to the skin on the hands of health professionals, dermatoses occurred induced by various risks, namely long working hours, unnecessary hand washing and improper infection control. It is considered that the dermatoses are caused by the use of gloves, mainly because of the occlusion and hyper-hydration of the skin due to the dysfunction of the epidermal barrier (15).

In this premise, they corroborate that high levels of anxiety, exaggerated or irrational protective behaviors, and some measures against COVID 19, can trigger or aggravate the appearance of several dermatological complaints (14).

Other researchers add that the psychosocial effects of the COVID-19 pandemic are signaled in the increase in hand dermatitis and several other skin diseases due to stress (16). SOM complaints can be reduced with the use of PPE at optimal times, reasonable hygiene, basic protective measures and psychosocial support for health professionals (14).

It is clear that hand hygiene measures in the general population and in particular health professionals, namely nurses, have increased considerably since the outbreak of the COVID 19 pandemic, so understanding the prevalence of symptoms of occupational dermatitis of the hands becomes an issue. contemporary and relevant theme. The pandemic has led to a significant increase in the incidence of irritating hand eczema, so hand eczema preventive measures in healthcare workers must be intensified (17).

In some studies, it is clear that dermatological complaints, such as hand eczema, may be correlated with increased hygiene measures and levels of anxiety among health professionals during the COVID 19 outbreak, a notable situation due to hand hygiene 10 times /day and with times of this procedure greater than 10 seconds (14).

The frequency of hand disinfection and adverse skin reactions among healthcare workers has increased dramatically since the COVID-19 outbreak, with a 97% prevalence rate of healthcare workers' skin damage caused by improved infection prevention measures among first-line health care. The use of disinfectants and protective equipment by health professionals also contributed to a significant impairment of the quality of life of

this working class (16).

Therefore, the research carried out in Iraq evaluated the frequency of occupational dermatoses in nursing professionals, resulting from hygiene care practices and the use of PPE among health professionals who worked during the current pandemic, making it possible to verify the impact of the pandemic in situations of dermatitis of the hands. This dermatosis has increased exponentially due to frequent hand washing, prolonged use of gloves and excessive use of disinfectants (18).

However, complaints of dermatitis on the hands can be reduced with the use of Personal Protective Equipment (PPE) at the ideal times, reasonable hygiene, basic protection measures and psychosocial support for health professionals, so that they can have positive results in the implications for some dermatological complaints (14).

The assessment of quality of life in dermatology is a rapidly developing field, in a study carried out in Kiev - Ukraine, the application of the Dermatological Quality Index Questionnaire for measuring quality of life, could evaluate not only the results of the treatment, through the photographic record, but was also able to visualize the problems in individuals at a more general level. This way, it was possible to verify the quality of life related to the disinfectants in use among health professionals, during the COVID 19 pandemic, as well as the differences between nurses and doctors and possibilities for their improvement, providing recommendations versus recommendations and purifying gel for hands with ethanol, glycerin and emollient balm (16).

Several measures can be used to decrease the incidence of hand dermatitis, including the use of mild soaps, which are equally effective in viral spread, and frequent use of moisturizer and physical barriers, especially after hand washing to protect the skin and

decrease the irritation. These researchers advocate that depending on the severity of the lesions, dermatitis must be treated with emollients and/or topical steroids, and antihistamines can also be used to reduce itching (18). The higher prevalence of dermatitis in health professionals is due to the use of PPE, namely gloves, and the attributed causes are: mechanical friction, long-term occlusion, maceration and allergic contact.

In the premise of World Health Organization, educational health aims to promote personal skills, empower and educate people on health topics to increase control of their own health. It is clear that preventive educational programs for health professionals with occupational skin diseases have been shown to be highly effective, resulting in lasting improvement in clinical signs and quality of life for health professionals (16).

Therefore, in Germany, this theory is called into question (17) in the study carried out, emollients were applied more frequently during the COVID-19 pandemic, however, it was not enough to prevent eczema of the hands, in the group under study. Therefore, there is still no effective standardized therapeutic scheme described, which aims to prevent or reduce occupational hand eczema in the health care of these workers. On the other hand, they corroborate and reinforce that preventive measures, such as increasing the use of emollients, must be recommended to health professionals. Sometimes, in the symptoms of hand eczema, the use of emollient alone is insufficient and drugs such as anti-inflammatories must be included in the therapeutic regimen to reduce the long-term damage and development of occupational hand eczema.

In the Netherlands, in 2018, the first trial emerges to report the effectiveness of a SOM prevention program in the healthcare environment, focusing on the application of

creams combined with continuous monitoring and feedback given by participating nurses on the state of the skin in the performance of the self care. The intervention was later reported to improve DOM with the use of cream in work settings (13).

Nevertheless, this intervention showed overall positive effects on the severity of hand dermatitis symptoms, supporting the benefits of creams in the workplace, particularly in healthcare workers with mild hand dermatitis. Because occupational health interventions tend to be complex and context-dependent, the evaluation was based strictly on the primary endpoint, and secondary outcomes in the total group may not reflect the overall benefit of the intervention. The present study did not focus on the barrier factors and facilitators of the use of hand cream. However, the fact that using the cream, despite causing some improvement during the evaluation, its benefit still remains quite low, and disturbing. To successfully design prevention strategies for hand dermatitis in the future, further investigation of these factors will be essential.

In the area of hand dermatitis prevention programmes, the *Skin Care Intervention in Nurses trial*, was one of the pioneers and figures in the UK, this tested the hypothesis that an intervention plan for behavioral change, together with the provision of moisturizers for hands, which could reduce the point prevalence of hand dermatitis compared to standard care among other nurses. The secondary objective of this study was to assess the impact of the intervention on participants' beliefs and behavior regarding hand care, and the cost-effectiveness of the intervention compared to normal care (19).

These investigators attest that the components of the intervention are supported by evidence, are proven to have no adverse effects, and are relatively inexpensive. Therefore, these principles must continue

to complement hand dermatitis prevention strategies in hospital organizations. In healthcare, administrators must provide nurses with easy access to moisturizing hand cream. However, health professionals tested in this program added little result to these practices. Such strategies must not be adopted without other supporting evidence to enrich an investigation of this scope.

The situation of nurses' DOM in the work context, in addition to the adverse effects on the lives of health professionals, affected nurses, can also negatively influence the safety of clients, leading to cross-infection, as can be seen in studies carried out on this subject, the health professionals with hand dermatitis avoid the use of hand disinfectants, because of the burning sensation when disinfectants are used on damaged skin and the belief that disinfectants will further aggravate symptoms (13), health professionals health care organizations neglect the use of disinfectant, which leads to cross-infection and therefore huge expenses in the health organization.

Alluding to the focus on self-management of the nursing team in promoting measures to prevent hand dermatitis, it is an intervention that will aim to reduce the DOM and its symptoms. I consider that preventive self-management of DOM by nurses is essential, because education alone may not have a positive effect on the severity of the disease, so self-management of preventive measures for DOM will lead to health gains in this area. In this context, treatment and educational programs for health professionals with occupational skin diseases have proven to be highly effective, resulting in lasting improvement in clinical signs and quality of life for nurses and physicians (16).

FINAL CONSIDERATIONS

Based on the exposition of these studies and intervention programs in the area of DOM

for health professionals, first-line prevention must be based on strategies for the technical-organizational control of dangers, providing hand cream dispensers, placed in accessible places in the wards/treatment rooms, thus promoting the replacement of hazards by substances that are less toxic, less irritating and less allergenic for some professionals. The encouraging changes in the behavior of nurses, such as the awareness of these professionals about the DOM and the need for self-management, involves knowledge about the measures of frequency of hygiene, disinfection and hydration of the hands with regard to exclusive personal protection.

Raising awareness through education/training on hand protection can address many aspects of preventing DOD, including advice on how to apply protective creams, moisturisers and use of gloves. Practice training can also be included as part of the educational interventions of exposed nurses, these are the so-called behavioral interventions supported by a psychological approach to promote the dissemination of knowledge about skin protection (10). Providing knowledge about skin protection can help nurses at risk of SOM to adopt appropriate preventive behavior.

In this premise, I consider that the potential benefit of education for skin protection is indirect, because the benefit will also depend on the recommended measures and the particularities of each one. I reiterate, knowledge alone does not guarantee the adoption of preventive behavioral measures, it may be reasonable to include in behavioral changes some psychological elements that aim to overcome impediments/barriers and promote nurses' motivation for preventive measures to protect the skin.

I believe that the success of any initiative that aims to change the beliefs, attitudes and behaviors of professionals must involve strong leadership, support from management and

hospital infection control teams. Currently, the roles of managers in promoting hand care among health professionals are recognized, and in the current context this involvement must be even more legitimized and promoted.

It appears that future research must focus on how it will be possible for the culture of the work context to be changed, in order to allow nurses to know the importance of taking good care of their hands, especially the use of hand moisturizer and how the evidence of this practice is being carried out throughout the shifts (19).

In epilogue, I consider that the benefit of each DOM preventive measure when used individually or in a group, under the conditions of current work contexts, is still unclear. An educational intervention can positively influence the specific knowledge of the disease and the prevalence of DOM, it is advised that future research aim to adapt primary prevention for specific target groups, with reinforcement in skin protection education, frequency of exposure and approaches specified by different services and gender.

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