

ORIGINAL ARTICLE

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

Pavel V. Chernyshov¹  | Liliia Kolodzinska²

¹Department of Dermatology and Venereology, National Medical University, Kiev, Ukraine

²Privat Practice, Khmelnytskyi, Ukraine

Correspondence

Pavel V. Chernyshov, Department of Dermatology and Venereology, National Medical University, Bulvar Shevchenko, 13, 01601 Kiev, Ukraine.
Email: chernyshovpavel@ukr.net

Abstract

Frequency of hand disinfection and adverse skin reactions among health care workers dramatically increased since the COVID-19 outbreak and consensus recommendations on hand hygiene were presented. The aim of the present study was to check the efficacy of the European Academy of Dermatology and Venereology (EADV) Task Force (TF) on Contact Dermatitis (CD) recommendations in a real life and to search if providing products mentioned in that recommendations may increase its efficacy. Doctors and nurses who worked with patients during COVID-19 pandemic and use hand disinfectants received adopted recommendations of the EADV TF on CD only or together with mentioned in that recommendations gel with ethanol and glycerin and emollient. Prevalence of adverse skin reactions on hand disinfectants at baseline was 80.21%. In a month significant improvement of health-related quality of life (HRQoL) and self-assessed improvement of hand skin ($P < .01$ for both) was reported in "products" group only. Number of participants that had no impact on their HRQoL became higher and the Dermatology Life Quality Index scores lower than in "recommendations only" group ($P = .03$ and $P = .02$, respectively). Our results showed that recommendations of the EADV TF on CD may significantly improve HRQoL and hand skin status in health care professionals but provision with products mentioned in that recommendations is crucial.

KEYWORDS

contact dermatitis, COVID-19, hand disinfection, health care professionals, pandemic, quality of life, sars-cov-2

1 | INTRODUCTION

Frequency of hand disinfection and adverse skin reactions increased significantly among health care workers after the COVID-19 outbreak^{1,2} with up to 97.0% prevalence rate of skin damage caused by enhanced infection-prevention measures among first-line health care workers.³

Several professionals' groups on contact dermatitis presented their consensus recommendations on hand hygiene and adverse cutaneous reactions prevention during COVID-19 pandemic.^{4,5} These statements recommend in particular to use alcoholic solutions with glycerin followed by additional regular use of a fragrance-free emollient.

Nurses are often the primary point of care and are predisposed to acquire or transmit infections such as COVID-19. Their adherence to

infection prevention and control guidelines is vital in combatting the current COVID-19 pandemic.⁶ One small pre COVID-19 study on the hand skin of nurses working in the operating room and a control group of female administrative employees demonstrated that nurses had significantly lower stratum corneum hydration, higher trans-epidermal water loss and health-related quality of life (HRQoL) impairment. Meanwhile subjective evaluation of skin sensitivity was identical in both groups.⁷ Recent study on occupational hand eczema among health care workers during the COVID-19 pandemic showed that only 14.9% of health care workers actively recognized the symptoms as an onset of the disease.¹

The psychosocial effects of the COVID-19 pandemic, an increase in contact dermatitis and several other skin diseases because of stress, disinfectants and protective equipment use, especially in health care workers, all contribute to significant HRQoL impairment.⁸

The aim of this study was to check HRQoL related to disinfectants use among health care professionals during COVID-19 pandemic, its differences between nurses and doctors and possibility of its improvement by providing recommendations only vs recommendations and purifying hand gel with ethanol and glycerin and emollient balm.

2 | METHODS AND MATERIALS

Doctors and nurses from Kiev city, Kiev region, Khmelnytskyi city and Khmelnytskyi region who regularly worked with patients during COVID-19 pandemic, use hand antiseptics at their working places and did not have to use exact antiseptic type, had no officially registered occupational skin diseases and did not complain on skin diseases were invited to answer questions on age, working experience in medicine, average frequency of antiseptic use per working day, history of redness, fissures, oozing, vesiculation and itch related to hand disinfection (T1). After that all participants received adopted recommendations of the European Academy of Dermatology and Venereology (EADV) Task Force on Contact Dermatitis⁴: to use hydro alcoholic solutions with glycerin followed by additional regular use of a fragrance-free emollient; to protect the hands with a fragrance-free, lighter moisturizing lotion during the day after each handwashing procedure and a fragrance-free, lipid rich moisturizer before bedtime.

One group of participants received free of charge purifying hand gel with ethanol and glycerin and instructions to use it regularly instead of other antiseptics and emollient balm with instruction to apply it on the hands after each contact with water and/or before going to sleep during a month (group 1). Another group consisted of nurses and doctors from a single hospital received only emollient balm with instruction to apply it on the hands after each contact with water and/or before going to sleep during a month (group 2). Other participants did not receive any products at this stage (group 3). In a month all participants were asked to make self-assessment of their hand skin status and to report if they had any skin problems related to hand disinfection during last month (T2). At this time point participants from group 3 were proposed to receive free of charge mentioned above products with the same instructions as were given to group 1 and group 2.

Dermatology-specific HRQoL was assessed at T1 and T2. Dermatology-specific HRQoL was assessed by the Dermatology Life Quality Index (DLQI) questionnaire. The DLQI questionnaire is designed for use in adults. It is self-explanatory and can be simply handed to the patient who is asked to fill in without the need for detailed explanation. The DLQI has 10 questions and 6 headings: symptoms and feelings, daily activities, leisure, work and school, personal relationships and treatment. The DLQI is calculated by summing the score of each question resulting in a maximum of 30 and a minimum of 0. The higher the score, the more QoL is impaired. Following meaning of the DLQI scores have been proposed: no effect (score 0-1), small effect (score 2-5), moderate effect (score 6-10), very large effect (score 11-20) and extremely large effect on patient's life (score 21-30). If two or more questions are left unanswered the questionnaire is not scored.^{9,10} Basic validation of the Ukrainian version of the DLQI was previously performed.^{11,12} The EADV Task Forces on Quality of Life (QoL) and Patient Oriented Outcomes (PO) and Occupational Skin Disease recommend to use the DLQI as a dermatology-specific instrument in studies investigating the impact of occupational skin diseases on HRQoL.¹³

Data are presented as mean \pm SD. Wilcoxon matched pairs test, unpaired *t*-test with Welch correction, Fisher's exact test (two-sided) and Spearman nonparametric correlation (Spearman *r*) were used for statistical analysis. The results were considered significant if $P < .05$.

The EADV Task Force on QoL and PO recommends using the word "quimp"¹⁴ (quality of life impairment) in routine clinical work and research¹⁵ and the word has been used in this article. The study was approved by local ethics committee.

3 | RESULTS

Answers from 102 health care workers were received (T1). In two cases substantial part of questions was leaved unanswered and one nurse reported no hand disinfectants use. Data from 99 health care workers was analyzed. There were 65 nurses, 31 doctors and 3 persons who leaved this question unanswered. There were no differences between nurses' and doctors' age, working experience in medicine, average frequency of antiseptic use per working day, total DLQI scores and separate DLQI items scores (Table 1). There were also no statistical differences of the DLQI scores according to the DLQI banding system between nurses and doctors. Almost all participants except two doctors reported increase of hand disinfectants use during COVID-19 pandemic. More doctors reported hand skin problems since the start of COVID-19 pandemic and history of redness related to hand disinfection (Table 2). While, fissures, oozing, vesiculation and itch related to hand disinfection in anamnesis did not differ between nurses and doctors. Age and working experience in medicine did not correlate with average frequency of antiseptic use per working day in nurses ($r = -0.18$, $P = .15$ and $r = -0.10$, $P = .43$, respectively) and doctors ($r = 0.02$, $P = .92$ and $r = 0.05$, $P = .81$ respectively). Correlations of age, working experience in medicine, average frequency of antiseptic use per working day with total DLQI scores and separate DLQI items scores in nurses and doctors are presented in Table 3.

TABLE 1 Differences between nurses' and doctors' age, working experience in medicine, average frequency of antiseptic use per working day, total DLQI scores and separate DLQI items scores

	Nurses (n = 65)	Doctors (n = 31)	P
Mean age (years)	33.11 ± 11.32	36.03 ± 12.00	.26
Working experience in medicine (years)	12.00 ± 10.88	13.87 ± 12.41	.48
Average frequency of antiseptic use per working day	16.03 ± 14.43	12.83 ± 12.83	.16
Mean total DLQI score	4.28 ± 5.66	3.71 ± 3.84	.57
How itchy, sore, painful or stinging has your skin been?	0.74 ± 0.58	0.82 ± 0.73	.59
How embarrassed or self-conscious have you been because of your skin?	0.48 ± 0.57	0.60 ± 0.77	.41
How much has your skin interfered with you going shopping or looking after your home or garden?	0.35 ± 0.61	0.48 ± 0.64	.37
How much has your skin influenced the clothes you wear?	0.19 ± 0.60	0.37 ± 0.78	.23
How much has your skin affected any social or leisure activities?	0.29 ± 0.53	0.38 ± 0.47	.47
How much has your skin made it difficult for you to do any sport?	0.23 ± 0.50	0.28 ± 0.63	.67
Has your skin prevented you from working or studying?	0.71 ± 1.01	0.57 ± 0.95	.52
How much has your skin created problems with your partner or any of your close friends or relatives?	0.26 ± 0.51	0.34 ± 0.62	.51
How much has your skin caused any sexual difficulties?	0.13 ± 0.43	0.11 ± 0.44	.82
How much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?	0.32 ± 0.65	0.35 ± 0.69	.83

TABLE 2 History of redness, fissures, oozing, vesiculation and itch related to hand disinfection and hand skin problems since the start of COVID-19 pandemic in nurses and doctors

	Nurses (n = 65)		Doctors (n = 31)		P
	Yes	No	Yes	No	
Ever had redness related to hand disinfection	47	18	30	1	<.01
Ever had fissures related to hand disinfection	38	27	22	9	.27
Ever had oozing related to hand disinfection	13	52	7	24	.79
Ever had vesiculation related to hand disinfection	8	57	2	29	.49
Ever had itch related to hand disinfection	47	18	25	6	.46
Hand skin problems since the start of COVID-19 pandemic	35	30	27	4	<.01

Age and working experience in medicine showed significant positive correlations with single DLQI item on clothes. Another single DLQI item on difficulties in sport negatively correlated with the age of doctors. Single DLQI item on problems with partner, close friends or relatives positively correlated with frequency of antiseptic use per working day in nurses. No other significant correlations were found.

At T2 respond rates were 84.44% for group 1, 80% for group 2 and 71.79% for group 3 with 38, 12 and 28 participants who have answered at T1 and T2, respectively. There were no significant differences between group 1 and group 3 at T1. In contrast, participants of group 2 had higher mean age and working experience in medicine and fewer hand skin problems since the start of COVID-19 pandemic. Mean DLQI score improvement at T2 in group 2 was not significant

(4.75 ± 5.10 at T1 and 3.0 ± 4.33 at T2, $P = .21$). No significant changes of separate DLQI item scores in group 2 were reported. Skin problems during past month were reported by 7 and self-assessed improvement of hand skin was reported by 8 participants from group 2 (significantly more than in group 3, $P = .02$) at T2. Number of participants that had no negative impact according to the DLQI binding increased in group 2 from 2 at T1 to 7 at T2. Because of significant differences at T1, low number of participants and no significant quimp improvement at T2 we decided not present data from group 2 in further detailed comparative analysis between groups but to discuss it in a paragraph on limitations.

Total mean DLQI scores and separate DLQI item scores of participants from groups 1 and 3 at T1 and T2 are presented in Table 4.

TABLE 3 Correlations of age, working experience in medicine, average frequency of antiseptic use per working day with total DLQI scores and separate DLQI items scores in nurses and doctors

	Age (years)		Working experience in medicine (years)		Frequency of antiseptic use per working day	
	Nurses	Doctors	Nurses	Doctors	Nurses	Doctors
Mean total DLQI score	r = 0.10 P = .42	r = 0.05 P = .79	r = 0.18 P = .16	r = 0.01 P = .99	r = 0.11 P = .39	r = 0.02 P = .94
How itchy, sore, painful or stinging has your skin been?	r = -0.01 P = .98	r = 0.11 P = .55	r = 0.04 P = .75	r = 0.11 P = .55	r = 0.10 P = .46	r = -0.01 P = .98
How embarrassed or self-conscious have you been because of your skin?	r = 0.15 P = .25	r = -0.15 P = .41	r = 0.21 P = .10	r = -0.23 P = .22	r = 0.15 P = .22	r = -0.01 P = .95
How much has your skin interfered with you going shopping or looking after your home or garden?	r = 0.10 P = .44	r = 0.29 P = .19	r = 0.18 P = .16	r = 0.12 P = .52	r = 0.23 P = 0.08	r = 0.01 P = .97
How much has your skin influenced the clothes you wear?	r = 0.13 P = .31	r = 0.37 P = .04	r = 0.17 P = .19	r = 0.37 P = .04	r = 0.13 P = .31	r = 0.02 P = .92
How much has your skin affected any social or leisure activities?	r = 0.17 P = .18	r = 0.20 P = .28	r = 0.24 P = .06	r = 0.17 P = .36	r = 0.06 P = .64	r = 0.15 P = .42
How much has your skin made it difficult for you to do any sport?	r = -0.01 P = .94	r = -0.37 P < .05	r = 0.03 P = .82	r = -0.25 P = .19	r = -0.03 P = .81	r = -0.01 P = .94
Has your skin prevented you from working or studying?	r = 0.12 P = .35	r = 0.21 P = .25	r = 0.18 P = .15	r = 0.19 P = .30	r = -0.03 P = .83	r = 0.18 P = .35
How much has your skin created problems with your partner or any of your close friends or relatives?	r = 0.09 P = .47	r = -0.29 P = .11	r = 0.16 P = .20	r = -0.27 P = .15	r = 0.32 P = .01	r = 0.03 P = .87
How much has your skin caused any sexual difficulties?	r = 0.15 P = .24	r = -0.15 P = .41	r = 0.19 P = .13	r = -0.05 P = .81	r = 0.22 P = .09	r = 0.18 P = .34
How much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?	r = 0.08 P = .51	r = 0.09 P = .63	r = 0.20 P = .11	r = 0.12 P = .53	r = 0.17 P = .19	r = -0.09 P = .63

TABLE 4 Mean DLQI scores and separate DLQI item scores of participants from group 1 and group 3 at T1 and T2

	Group 1 (n = 38)			Group 3 (n = 28)		
	T1	T2	P	T1	T2	P
Mean total DLQI score	3.32 ± 4.58	1.53 ± 2.40	<.01	3.96 ± 3.84	3.64 ± 4.03	.61
How itchy, sore, painful or stinging has your skin been?	0.76 ± 0.75	0.34 ± 0.48	<.01	0.68 ± 0.61	0.57 ± 0.69	.46
How embarrassed or self-conscious have you been because of your skin?	0.50 ± 0.69	0.21 ± 0.41	.03	0.71 ± 0.81	0.57 ± 0.63	.38
How much has your skin interfered with you going shopping or looking after your home or garden?	0.31 ± 0.53	0.16 ± 0.37	.15	0.50 ± 0.58	0.43 ± 0.63	.67
How much has your skin influenced the clothes you wear?	0.11 ± 0.51	0.08 ± 0.27	.99	0.36 ± 0.62	0.14 ± 0.36	.15
How much has your skin affected any social or leisure activities?	0.26 ± 0.60	0.13 ± 0.41	.30	0.36 ± 0.49	0.36 ± 0.56	.99
How much has your skin made it difficult for you to do any sport?	0.29 ± 0.57	0.16 ± 0.37	.20	0.18 ± 0.39	0.11 ± 0.32	.56
Has your skin prevented you from working or studying?	0.50 ± 0.86	0.08 ± 0.28	<.01	0.57 ± 0.96	0.68 ± 0.94	.76
How much has your skin created problems with your partner or any of your close friends or relatives?	0.29 ± 0.57	0.11 ± 0.31	.12	0.25 ± 0.52	0.36 ± 0.49	.46
How much has your skin caused any sexual difficulties?	0.03 ± 0.16	0.08 ± 0.27	.38	0.04 ± 0.19	0.11 ± 0.32	.50
How much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time?	0.29 ± 0.61	0.18 ± 0.46	.50	0.32 ± 0.55	0.32 ± 0.55	.99

Total DLQI scores and three separate DLQI items (on symptoms, embarrassment and self-consciousness and problems at work) scores significantly decreased in group 1 at T2. Mean DLQI scores did not differ significantly between group 1 and group 3 at T1 ($P = .53$) but were significantly different at T2 ($P = .02$). Number of participants of group 1 and group 3 that had no impact on their HRQoL according to DLQI banding did not differ at T1 (18 from 38 for group 1 and 9 from 28 for group 3, $P = .31$) but was significantly different at T2 (27 from 38 for group 1 and 12 from 28 for group 3, $P = .03$). There was no difference in the number of participants from group 1 and group 3 who had have reported hand skin problems during last month (23 from 38 for group 1 and 18 from 28 for group 3, $P = .96$) but significantly more participants from group 1 reported self-assessed improvement (29 from 38 and 6 from 28 respectively, $P < .001$) at T2.

4 | DISCUSSION

Our results showed high prevalence of hand skin problems in nurses and doctors that is consistent with results of other studies on skin complications in health care workers during COVID-19 pandemic.^{1,3} To the best of our knowledge it is the first study on hand skin complications in health care workers during COVID-19 pandemic that compared data on nurses and doctors. There was no difference in frequency of antiseptics use, quimp and most of the skin symptoms in anamnesis between nurses and doctors. However, doctors reported higher frequency of hand redness related to antiseptics use in anamnesis and problems with hand skin during COVID-19 pandemic. Only nurses showed correlation of antiseptic use per working day with problems with partner, close friends or relatives. The nature of this phenomenon is not clear. We can speculate that it may be explained by more active involvement of nurses into household activities outside the city. They may not consider contact dermatitis manifestations caused by excessive hand disinfection as a disease, as was previously reported in other studies,¹ but still may not wish or even may not be able to complete the work in the garden in full causing negative reactions of their family members. However, the DLQI item on problems with looking after home or garden did not correlate significantly with frequency of antiseptic use per working day. Correlation of doctors' age and working experience in medicine with problems with clothes probably related to higher financial possibilities and more strict demands to self-appearance of this age group of doctors. Negative correlation of doctors' age with problems in sport probably shows that only young doctors are going in for sport.

Our results showed that providing nurses and doctors with recommendations on hand hygiene and adverse cutaneous reactions prevention during COVID-19 pandemic may be not enough to increase their HRQoL and self-reported hand skin status assessment. Meanwhile, providing doctors and nurses, in addition to mentioned above recommendations, with products mentioned in that recommendations (hydro alcoholic solutions containing glycerin and a fragrance-free emollient) may significantly improve their HRQoL and self-reported hand skin status assessment. Moreover, in a month significantly more

nurses and doctors who received antiseptics and emollients had no negative impact on their HRQoL according to the DLQI binding system and negative impact on work, symptoms, embarrassment and self-consciousness significantly decreased. The HRQoL of those nurses and doctors who received antiseptics and emollients improved and became significantly better than in group that received recommendations only. These results should be taken in consideration while planning measures to decrease adverse cutaneous reactions prevention in general and especially during COVID-19 pandemic.

Despite significant improvement of HRQoL in the group of nurses and doctors that received recommendations, antiseptics and emollients HRQoL in 28.95% of them remained impaired (DLQI score > 1). They should continue to follow preventive recommendations, should be consulted and treated by dermatologist and may also benefit from methods to improve the HRQoL of dermatology patients, beyond medicines presented in the position paper of the EADV Task Force on QoL and PO.¹⁶ The DLQI of 0-1, corresponding to "no effect on patient's life" according to the DLQI banding descriptions may be considered as a difficult to reach but important treatment goal.¹⁷

QoL assessment in dermatology is a rapidly developing field with a gradual shift from theory to practice¹⁸ with many possibilities for its practical use.¹⁹ For example, HRQoL measurement may help not only to assess treatment results but also to visualize problems on individual and more general levels. In case of our study HRQoL assessment results confirmed efficacy of basic recommendations, identified participants who need dermatologic consultation in addition to basic recommendations and showed importance of inclusion into preventive programs psychological advices for nurses focused on relations with partner and relatives. Before COVID-19 pandemic treatment and educational programmes for patients with occupational skin diseases have been shown to be highly effective, resulting in long-lasting improvement of clinical signs and HRQoL.¹³ The EADV Task Force on QoL and PO highlights the importance of prevention programmes for health care professionals working with COVID-19 patients. This is an urgent task. Both internet and face to face options can be used for this purpose based on local realities.⁸ Inclusion to such programmes elements specific for narrow professional groups may be beneficial. It is now a popular tendency to make specific recommendations for narrow subgroups of patients to increase its efficacy.^{20,21} Our results may also be used in development of occupational skin diseases-specific HRQoL instruments.

5 | LIMITATIONS

Our study was organized in a single country and had an open-label design. We did not study compliance and adherence to treatment in study participants. We do not know to which extend participants followed provided recommendations. It is possible that some participants may use emollient inconsistently. This fact together with low number of participants in group 2 may be a reason of not significant HRQoL improvement in that group.

6 | CONCLUSIONS

Nurses and doctors had very high prevalence of adverse skin reactions on hand disinfectants with HRQoL impairment. Reported frequency of hand disinfection during working day and HRQoL did not differ between nurses and doctors. More doctors reported hand skin problems since the start of COVID-19 pandemic. Providing doctors and nurses, in addition to recommendations, with products mentioned in those recommendations (hydro alcoholic solutions containing glycerin and a fragrance-free emollient) may significantly improve their HRQoL and self-reported hand skin status assessment.

ACKNOWLEDGMENTS

The authors have no financial support for this study. Lipikar balm AP + m and purifying gel with 70% ethanol and glycerin were provided by brand La Roche-Posay. The brand had no access to study planning, data collection and results.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Pavel V. Chernyshov  <https://orcid.org/0000-0001-7275-4651>

REFERENCES

- Guertler A, Moellhoff N, Schenck TL, et al. Onset of occupational hand eczema among healthcare workers during the SARS-CoV-2 pandemic: comparing a single surgical site with a COVID-19 intensive care unit. *Contact Dermatitis*. 2020;83:108-114.
- Lin P, Zhu S, Huang Y, et al. Adverse skin reactions among healthcare workers during the coronavirus disease 2019 outbreak: a survey in Wuhan and its surrounding regions. *Br J Dermatol*. 2020;183:190-192.
- Lan J, Song Z, Miao X, et al. Skin damage among health care workers managing coronavirus disease-2019. *J Am Acad Dermatol*. 2020;82(5):1215-1216.
- Balato A, Ayala F, Bruze M, et al. European task force on contact dermatitis statement on coronavirus disease-19 (COVID-19) outbreak and the risk of adverse cutaneous reactions. *J Eur Acad Dermatol Venereol*. 2020;34:e353-e354.
- Rundle CW, Presley CL, Militello M, et al. Hand hygiene during COVID-19: recommendations from the American Contact Dermatitis Society. *J Am Acad Dermatol*. 2020;S0190-9622(20)32256-8. <https://dx.doi.org/10.1016/j.jaad.2020.07.057>. [Epub online ahead of print].
- Lotfinejad N, Peters A, Pittet D. Hand hygiene and the novel coronavirus pandemic: the role of healthcare workers. *J Hosp Infect*. 2020;105:776-777.
- Hachem JP, De Paepe K, Sterckx G, Kaufman L, Rogiers V, Roseeuw D. Evaluation of biophysical and clinical parameters of skin barrier function among hospital workers. *Contact Dermatitis*. 2002;46:220-223.
- Chernyshov PV, Tomas-Aragones L, Augustin M, et al. Position statement of the European Academy of Dermatology and Venereology Task Force on Quality of Life and Patient Oriented Outcomes on quality of life issues in dermatologic patients during the COVID-19 pandemic. *J Eur Acad Dermatol Venereol*. 2020;34:1666-1671.
- Finlay AY, Khan GK. Dermatology life quality index (DLQI): a simple practical measure for routine clinical use. *Clin Exp Dermatol*. 1994;19:210-216.
- Hongbo Y, Thomas CL, Harrison MA, Salek MS, Finlay AY. Translating the science of quality of life into practice: what do dermatology life quality index scores mean? *J Invest Dermatol*. 2005;125:659-664.
- Chernyshov PV. Health-related quality of life in adult atopic dermatitis and psoriatic patients matched by disease severity. *G Ital Dermatol Venereol*. 2016;151:37-43.
- Chernyshov PV. Creation and cross-cultural adaptation of the Ukrainian versions of SKINDEX-29, SKINDEX-16 questionnaires, Psoriasis Disability Index and further validation of the Ukrainian version of the Dermatology Life Quality Index. *Lik Sprava*. 2009;1-2:95-98.
- Chernyshov PV, John SM, Tomas-Aragones L, et al. Quality of life measurement in occupational skin diseases. Position paper of the European academy of dermatology and venereology task forces on quality of life and patient oriented outcomes and occupational skin disease. *J Eur Acad Dermatol Venereol*. 2020;34:1924-1931.
- Finlay AY. Quimp: a word meaning "quality of life impairment". *Acta Derm Venereol*. 2017;97:546-547.
- Chernyshov PV, Linder MD, Pustišek N, et al. Quimp (quality of life impairment): an addition to the quality of life lexicon. *J Eur Acad Dermatol Venereol*. 2018;32:e181-e182.
- Finlay AY, Chernyshov PV, Tomas Aragonés L, et al. Methods to improve quality of life, beyond medicines. Position statement of the European Academy of Dermatology and Venereology Task Force on Quality Of Life and Patient Oriented Outcomes. *J Eur Acad Dermatol*. 2020;34(8):1666-1671. <https://dx.doi.org/10.1111/jdv.16914>.
- Chernyshov PV, Zouboulis CC, Tomas-Aragones L, et al. Quality of life measurement in hidradenitis suppurativa: position statement of the European Academy of Dermatology and Venereology task forces on Quality of Life and Patient-Oriented Outcomes and Acne, Rosacea and Hidradenitis Suppurativa. *J Eur Acad Dermatol Venereol*. 2019;33:1633-1643.
- Chernyshov PV. The evolution of quality of life assessment and use in dermatology. *Dermatology*. 2019;235:167-174.
- Finlay AY, Salek MS, Abeni D, et al. Why quality of life measurement is important in dermatology clinical practice: An expert-based opinion statement by the EADV Task Force on Quality of Life. *J Eur Acad Dermatol Venereol*. 2017;31:424-431.
- Vestergaard C, Wollenberg A, Barbarot S, et al. European task force on atopic dermatitis position paper: treatment of parental atopic dermatitis during preconception, pregnancy and lactation period. *J Eur Acad Dermatol Venereol*. 2019;33:1644-1659.
- Lambert JLW, Segaert S, Ghislain PD, et al. Practical recommendations for systemic treatment in psoriasis according to age, pregnancy, metabolic syndrome, mental health, psoriasis subtype and treatment history (BETA-PSO: Belgian Evidence-based Treatment Advice in Psoriasis; part 1). *J Eur Acad Dermatol Venereol*. 2020;34:1654-1665.

How to cite this article: Chernyshov PV, Kolodzinska L.

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. *Dermatologic Therapy*. 2020;33:e14396. <https://doi.org/10.1111/dth.14396>