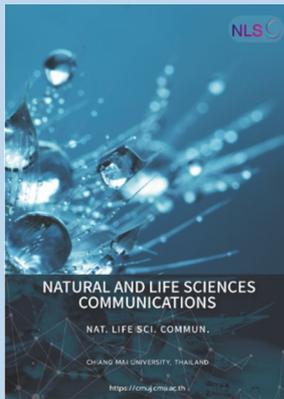


Research article

**Editor:**

Anak Iamaroon,
Chiang Mai University, Thailand

Article history:

Received: November 3, 2022;
Revised: May 1, 2023;
Accepted: May 8, 2023;
<https://doi.org/10.12982/NLSC.2023.043>

Corresponding author:

Adel Tabesh
E-mail: adeltabesh@gmail.com

Does Pemphigus Vulgaris Affect Oral Health Related Quality of Life?

Mohammad Reza Salehi¹, Adel Tabesh^{1,*}, and Amir Mohammad Mahdian²

¹ Department of Oral Medicine, Dental Research Center, Dental Research Institute, School of Dentistry, Isfahan University of Medical Sciences, Isfahan, Iran.

² Graduate Student, Dental Students' Research Committee, School of Dentistry, Isfahan University of Medical Sciences, Isfahan, Iran.

ABSTRACT

Pemphigus vulgaris (PV) is a chronic disease affecting oral mucosa. Oral health related quality of life (OHRQoL) is defined as a multidimensional construct that reflects comfort of people when eating, sleeping and engaging in social interaction, self-esteem, and satisfaction with respect to their oral health. The aim of this study was to measure OHRQoL and its correlation with disease severity of patients with PV. In this cross-sectional study, OHRQoL was measured by chronic oral mucosal disease questionnaire (COMDQ) in 72 patients (45.91 ± 11.45 years old) with PV include 45 (62.5%) women and 27 (37.5%). Finally, the obtained data were analyzed by statistical software. The mean total score of COMDQ in patients with PV was 72.41 ± 9.23 . Moreover, mean daily dose of prednisolone corticosteroid was 0.619 ± 0.395 mg/kg. COMDQ score in women was significantly higher than men ($P < 0.001$). COMDQ total scores significantly correlated with daily dose of corticosteroid ($P < 0.001$). Our study suggested that OHRQoL in patients with PV was not acceptable, and it was worse in the female gender that have more severe disease. Therefore, medical management of the underlying disease, as well as social and emotional care facilities seem necessary to improve OHRQoL in PV patients.

Keywords: Pemphigus vulgaris, Oral health, Quality of life



Open Access Copyright: ©2023 Author (s). This is an open access article distributed under the term of the Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution, and reproduction in any medium or format, as long as you give appropriate credit to the original author (s) and the source.

Funding: The authors are grateful for the research funding provided by the Isfahan University of Medical Sciences, Isfahan, Iran.

Citation: Salehi, M. R., Tabesh, A., and Mahdian, A. M. 2023. Does pemphigus vulgaris affect oral health related quality of life?. Natural and Life Sciences Communications. 22(3): e2023043.

INTRODUCTION

Pemphigus vulgaris (PV) is a chronic mucocutaneous disease that affects oral mucosa in approximately 90% patients with oral involvement (Balighi et al., 2022a). The disease involves patients in their middle age or later, and can be fatal due to extensive blisters in skin and mucosal surfaces of body and high risk of secondary infection. The blisters are formed subsequent to desmosomal rupture between epithelial cells, which results from autoimmune disruption of desmoglein proteins (Balighi et al., 2022b).

Corticosteroid remain the cornerstone of therapy in many patients for their immune-suppressing properties. Such drugs include azathioprine, mycophenolate mofetil, immunoglobulin and many others that may be used to treat PV dependent to each individual response of patients (Patil et al., 2023). As corticosteroid cause vast side-effects, the drug maintenance dosage is kept as low as possible with the help of adjuvant drugs. However, in severe cases, high dose regimens are inevitable to suppress PV and have to be prescribed despite side-effects (Balighi et al., 2022c). Such a severe disease may deteriorate life quality a great deal.

Oral health related quality of life (OHRQoL) is a multi-dimensional phenomenon influenced by factors regarding both general and oral health of patient. It is also impacted considerably by psychological and socio-economic determinants (Ni Riordain et al., 2016). OHRQoL is measured subjectively by patient-centered questionnaires (Wiriyakijja et al., 2020). Chronic oral mucosal disease questionnaire (COMDQ) is a disease-specific questionnaire developed and validated to measure OHRQoL in chronic diseases affecting oral mucosa, such as oral lichen planus and vesicular conditions like PV, mucous membrane pemphigoid, etc (Shirzad et al., 2018).

Several studies have evaluated quality of life in patients with chronic oral mucosal (Calabria et al., 2021; Rencz et al., 2015). In a previous questionnaire-based study by Rajan et al. have reported that even after treatment, chronic oral mucosal diseases negatively affect patients' OHRQoL (Rajan et al., 2014). In another study by Nassab et al. have suggested that chronic oral mucosal conditions affected patients' OHRQoL in various areas (Nassab et al., 2021). In a recent questionnaire-based study by Butt et al. have reported that chronic oral mucosal diseases can impact patients' OHRQoL and well-being (Butt et al., 2023). However, one of the main part of body involved by the PV disease is oral tissue, which may have a considerable deteriorating effect on life quality of patients. OHRQoL in patients with PV has not been sufficiently noticed, especially by means of a disease-specific questionnaire valid and reliable for such a specific purpose. Therefore, the present questionnaire-based study was aimed to measure OHRQoL in patients with oral PV using COMDQ, as well as its correlation with their daily dosage of corticosteroid consumption.

MATERIALS AND METHODS

Study Participants

This cross-sectional study was carried out from September 2020 to March 2021 on patients with PV referred to Oral Medicine Department, Isfahan University of Medical Sciences, Isfahan, Iran. We enrolled 72 patients (45.91 ± 11.45 years old) with PV include 45 (62.5%) women and 27 (37.5%). The inclusion criteria were a confirmed diagnosis of PV, corticosteroid consumption, oral involvement of the disease, and literacy to fill out the questionnaire. The exclusion criteria were co-occurrence of other oral mucosal diseases, maxillofacial deformities, systemic disease other than PV, and history of head and neck radiotherapy/chemotherapy. The demographical and clinical features of the selected patients (gender, age, education level, disease duration, and daily dose of corticosteroid consumption)

were recorded. The prednisolone dose was calculated as milligram per kilogram (mg/kg) of body weight as a corticosteroid. The study protocol was passed by the local ethics committee (ethical code IRI.MUI.RESEARCH.REC.1399.387). All patients were asked to sign the informed consent form before participating.

Chronic Oral Mucosal Disease Questionnaire (COMDQ)

OHRQoL in patients with PV was investigated by COMDQ. This questionnaire consists of 26 questions in 4 domains: pain and functional limitation (9 questions), medications and treatment (6 questions), social and emotional (7 questions), and patient support (4 questions). The total score is 104 that score of each item varies from 0-4. Higher numbers indicate worse OHRQoL.

Statistical Analysis

The obtained data were analyzed by SPSS software (version 24), and presented as mean and standard deviation (SD). The statistical analyses were performed by T-test and Pearson correlation coefficient. The statistically significant level was calculated as $P < 0.05$.

RESULTS

The mean daily dose of prednisolone corticosteroid consumption was 0.619 ± 0.395 mg/kg. The mean disease duration was 2.51 ± 0.93 years. The patients with high school education and university education were 34.7% and 43.1%, respectively.

The statistical analysis indicated that all OHRQoL scores in women were significantly more than men ($P < 0.05$), except for the domain "patient support" ($P > 0.05$). OHRQoL scores (total and domain) were significantly correlated with daily dose of corticosteroid consumption ($P < 0.001$), except for the domain "patient support" ($P > 0.05$). In addition, total and domain scores of OHRQoL were in significant correlation with disease duration ($P < 0.05$), except for the domain "patient support" ($P > 0.05$). Table 1 shows OHRQoL scores of patients.

Table 1. COMDQ total and domain scores, and their relation to study variables.

COMDQ domain	Mean score (\pm SD)	Vs. gender (p-value)	Vs. corticosteroid dose (p-value, r)	Vs. disease duration (p-value, r)
Pain & functional limitation	24.760 (\pm 4.530)	0.002*	<0.001* $r = 0.455$	0.014* $r = -0.289$
Medications & treatment	18.340 (\pm 2.900)	0.010*	<0.001* $r = 0.472$	0.013* $r = -0.292$
Social & emotional	21.900 (\pm 3.660)	<0.001*	<0.001* $r = 0.596$	<0.001* $r = -0.617$
Patient support	7.360 (\pm 2.150)	0.220	0.120	0.110
Total	72.410 (\pm 9.230)	<0.001*	<0.001* $r = 0.601$	<0.001* $r = -0.474$

COMDQ: Chronic Oral Mucosal Disease Questionnaire; SD: Standard Deviation; (*): Statistically significant

DISCUSSION

Oral Health related Quality of Life is a multi-dimensional issue related to oral health satisfaction, general health, life style, as well as psycho-social parameters (Camolesi et al., 2022). Oral mucosal diseases such as oral PV may affect oral

health and its related quality of life to a great extent, as they interfere with one's daily activities and urge the patients to seek treatment for alleviation of symptoms (Sabeti et al., 2022). The present study evaluated OHRQoL among oral PV patients. The majority of patients were women, and the mean age of them in the fifth decade of life, which is in accordance with other studies (Naseer et al., 2014; Hübner et al., 2016; Ghiasi et al., 2017; Sajedianfard et al., 2021). Of note, 43.1% of patients had university educations, which is not in line with a previous study (Nasimi et al., 2017), and may embolden the impact of education stress on PV. Mean daily dose of prednisolone in the present study was 0.619 mg/kg, which is generally in accordance with or higher than maintenance doses introduced in similar articles concomitant with adjuvant therapies. Although several drugs such as azathioprine, mycophenolate mofetil, cyclophosphamide, dapsons, methotrexate, and immunoglobulin has been used to treat PV with various success rates, corticosteroid are still the cornerstone of PV treatment (Cholera and Chainani-Wu, 2016; Gregoriou et al., 2015).

COMDQ is a valid means of evaluating OHRQoL in oral mucosal diseases (Shirzad et al., 2018). General questionnaires in the field of OHRQoL have the advantage of high external validity, and therefore can be comprised between different conditions. However, disease-specific tools evaluate life quality parameters exactly impacted by the specified oral health condition, and therefore are more valid in assessment of patient treatment needs subjectively. According to the results of the present study, COMDQ seems to be a promising mean of OHRQoL evaluation in PV. The present study showed a greater impact of PV on OHRQoL in women than men. It is known that the disease is more prevalent in women (Naseer et al., 2014; Hübner et al., 2016; Ghiasi et al., 2017; Sajedianfard et al., 2021), but disease severity has not shown gender difference in the literature. Therefore, it seems that women have experienced more impacts due to their more sensitive vulnerability regarding social and emotional aspects of OHRQoL.

The amount of corticosteroid consumption was significantly correlated with OHRQoL in the present study. In other words, patients taking higher doses of prednisolone, which is an indication of more severe underlying medical problem, reported worse OHRQoL. Of course, severe PV deteriorates oral mucosa severely (Balighi et al., 2022a). It seems that COMDQ has detected the detrimental effect of oral health on the life quality of patients, as well as a similar study showing same results using oral health impact profile-14 (OHIP-14) (Bilgic et al., 2020). According to this fact, management of PV oral ulcers sounds a vital and inevitable remedy to improve OHRQoL in PV.

Increase in PV disease duration had a significant and inverse correlation with COMDQ score. In other words, longer disease duration was concomitant with better OHRQoL in PV patients. With the elapse of time, patients might have learned to live along with their controlled disease in a way that their OHRQoL improved in comparison to the first months of their condition. In addition, as main and adjuvant drug doses have to be optimized for each individual patient, medical management of the disease may show its maximum effect, with minimum side effects, after some time of its initiation. Of note, the patient support domain of COMDQ was not significantly affected by any of the mentioned study variables. Medical domains (Pain & functional limitation, Medications and treatment) of COMDQ are in close relationship with insurance policies and health care availability. The social and emotional domain depicts to what extent the patient can tolerate the impact of disease on his/her social or emotional life (Shirzad et al., 2018).

On the other hand, patient support is somehow based on the ability of others to provide patient needs. In the eastern culture of Persian families in Iran, other family members usually provide sufficient support for the ill member in several ways. In fact, it is important for them to provide any possible supportive familial care for the patient (Pakpour et al., 2016). This fact might have set the patient support domain free, irrespective to study variables. In contrast, other domains are severely impacted, urging prompt attention to improve OHRQoL in PV.

The present study was carried out within limitations of a cross-sectional investigation. Therefore, the temporal trend of the disease activity from its onset was not reachable. As the patients had been under treatment before the time of investigation, we could not evaluate the real severity of oral involvement due to the PV disease then. The only means of assessing the disease severity was the amount of corticosteroid each individual patient had to take to control PV. It is recommended that future studies measure COMDQ in PV patients near the onset of their disease, which might better evaluate the role of active oral involvement on their OHRQoL.

CONCLUSION

In general, our study suggested that OHRQoL was not acceptable in PV patients, and it was worse in more severe cases of the disease. Alleviating underlying medical condition and medical care availability as well as social and emotional care support seem necessary to improve OHRQoL in PV patients.

AUTHOR CONTRIBUTIONS

Mohammad Reza Salehi assisted in conducting the experiments. Adel Tabesh performed the statistical analysis and data visualization and wrote the manuscript. Amir Mohammad Mahdian designed and conducted all of the experiments. All authors have read and approved of the final manuscript.

CONFLICT OF INTEREST

The authors declare that they hold no competing interests.

REFERENCES

- Balighi, K., Ashtar Nakhaei, N., Daneshpazhooh, M., Aryanian, Z., Aslani, S., Balighi, S. and Azizpour, A. 2022a. Pemphigus patients with initial negative levels of anti-desmoglein: A subtype with different profile?. *Dermatologic Therapy*. 35: e15299.
- Balighi, K., Hatami, P., Sheikh Aboli, M.J., Daneshpazhooh, M., Ghiasi, M., Mahmoudi, H.R. and Aryanian, Z. 2022b. Multiple cycles of rituximab therapy for pemphigus: a group of patients with difficult-to-treat disease or a consequence of late rituximab initiation?. *Dermatologic Therapy*. 35: e15249.
- Balighi, K., Shams-Davatchi, C., Ghobadi, S., Daneshpazhooh, M., Lajevardi, V., Mahmoudi, H., Aryanian, Z., Teymourpour, A., Seirafi, R., Beigmohammadi, F. and Tavakolpour, S. 2022c. Retrospective study of gingival involvement in pemphigus: A difficult to treat phenomenon. *Dermatologic Therapy*. 35: e15475.
- Bilgic, A., Aydin, F., Sumer, P., Keskiner, I., Koc, S., Bozkurt, S., Mumcu, G., Alpsoy, E., Uzun, S. and Akman-Karakas, A. 2020. Oral health related quality of life and disease severity in autoimmune bullous diseases. *Nigerian Journal of Clinical Practice*. 23: 159-164.
- Butt, D.Q., Khattak, O., Chaudhary, F.A., Bader, A.K., Mujtaba, H., Iqbal, A., Din, S.U., Alanazi, G.R.A., Sghaireen, M.G. and Ahmad, W. 2023. Oral health-related quality of life in patients with chronic oral mucosal diseases: Reliability and Validity of Urdu version of chronic oral mucosal disease questionnaire (COMDQ). *Healthcare*. 11: 606.

- Calabria, E., Adamo, D., Leuci, S., Pecoraro, G., Coppola, N., Aria, M. and Mignogna, M.D. 2021. The health-related quality of life and psychological profile in patients with oropharyngeal Pemphigus Vulgaris in complete clinical remission: A case-control study. *Journal of Oral Pathology & Medicine*. 50: 510-519.
- Camolesi, G.C.V., Marichalar-Mendía, X., Padín-Iruegas, M.E., Spanemberg, J.C., López-López, J., Blanco-Carrión, A., Gándara-Vila, P., Gallas-Torreira, M. and Pérez-Sayáns, M. 2022. Efficacy of photobiomodulation in reducing pain and improving the quality of life in patients with idiopathic burning mouth syndrome. A systematic review and meta-analysis. *Lasers in Medical Science*. 37: 2123-2133.
- Cholera, M. and Chainani-Wu, N. 2016. Management of pemphigus vulgaris. *Advances in Therapy*. 33: 910-958.
- Ghiasi, M., Daneshpazhooh, M., Ismonov, M. and Chams-Davatchi, C. 2017. Evaluation of autoimmune bullous diseases in elderly patients in Iran: A 10-Year Retrospective Study. *Skinmed*. 15: 175-180.
- Gregoriou, S., Efthymiou, O., Stefanaki, C. and Rigopoulos, D. 2015. Management of pemphigus vulgaris: Challenges and solutions. *Clinical, Cosmetic and Investigational Dermatology*. 8: 521-527.
- Hübner, F., Recke, A., Zillikens, D., Linder, R. and Schmidt, E. 2016. Prevalence and age distribution of pemphigus and pemphigoid diseases in Germany. *The Journal of Investigative Dermatology*. 136: 2495-2498.
- Naseer, S.Y., Gill, L., Shah, J. and Sinha, A.A. 2014. Gender-based variability in disease presentation in pemphigus vulgaris. *Journal of Drugs in Dermatology*. 13: 1225-1230.
- Nasimi, M., Garib, M.J., Teymourpour, A., Ghodsi, Z. and Ghandi, N. 2017. Socioeconomic status of patients with pemphigus vulgaris. *Journal of Biostatistics and Epidemiology*. 3: 1-6.
- Nassab, A.R.G., Navabi, N., Pour, M.M., Charrosta, N. and Hashemipour, M.A. 2021. Quality of life in patients with chronic oral mucosal conditions: A qualitative research. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*. 21: e0092.
- Ni Riordain, R., Hodgson, T., Porter, S. and Fedele, S. 2016. Validity and reliability of the chronic oral mucosal diseases questionnaire in a UK population. *Journal of Oral Pathology & Medicine*. 45: 613-616.
- Pakpour, A.H., Kumar, S., Scheerman, J.F., Lin, C.Y., Fridlund, B. and Jansson, H. 2016. Oral health-related quality of life in Iranian patients with spinal cord injury: A case-control study. *Injury*. 47: 1345-1352.
- Patil, S., Hosmani, J., Khan, Z.A., Yadalam, P.K., Ahmed, Z.H., Bhandi, S. and Awan, K.H. 2023. Advancement in therapeutic strategies for immune-mediated oral diseases. *Disease-a-Month*. 69: 101352.
- Rajan, B., Ahmed, J., Shenoy, N., Denny, C., Ongole, R. and Binnal, A. 2014. Assessment of quality of life in patients with chronic oral mucosal diseases: a questionnaire-based study. *The Permanente Journal*. 18: e123.
- Rencz, F., Gulácsi, L., Tamási, B., Karpati, S., Pentek, M., Baji, P. and Brodszky, V. 2015. Health-related quality of life and its determinants in pemphigus: A systematic review and meta-analysis. *British Journal of Dermatology*. 173: 1076-1080.
- Saberi, Z., Tabesh, A. and Darvish, S. 2022. Oral health-related quality of life in erosive/ulcerative oral lichen planus patients. *Dental Research Journal*. 19: 55.
- Sajedianfard, S., Handjani, F., Saki, N. and Heiran, A. 2021. Family dermatology life quality index in patients with pemphigus vulgaris: A cross-sectional study. *Indian Journal of Dermatology, Venereology and Leprology*. 87: 375-378.

- Shirzad, A., Bijani, A., Mehryari, M., Motallebnejad, M. and Mohsenitavakoli, S. 2018. Validity and reliability of the persian version of the chronic oral mucosal diseases questionnaire. *Caspian Journal of Internal Medicine*. 9: 127.
- Wiriyakijja, P., Porter, S., Fedele, S., Hodgson, T., McMillan, R., Shephard, M. and Ni Riordain, R. 2020. Development and validation of a short version of chronic oral mucosal disease questionnaire (COMDQ-15). *Journal of Oral Pathology & Medicine*. 49: 55-62.

OPEN access freely available online

Natural and Life Sciences Communications

Chiang Mai University, Thailand. <https://cmuj.cmu.ac.th>

Supplementary

پیوست ها

پیوست یک: پرسشنامه COMDQ و فرم جمع آوری اطلاعات

پرسشنامه کیفیت زندگی وابسته به سلامت دهان در بیماران مبتلا به پمفیگوس

شماره پرونده: جنسیت: دوز کورتیکواستروئید مصرفی روزانه:

سن: تحصیلات: طول دوره‌ی بیماری:

درد و محدودیت عملکرد					
خیلی زیاد	زیاد	متوسط	کمی	هرگز	
					۱- غذا و نوشیدنی‌های تند و ترش چقدر باعث ناراحتی شما می‌شود؟
					۲- بیماری دهان شما چقدر باعث می‌شود که غذاها و نوشیدنی‌های تند و ترش را کمتر مصرف کنید؟ *
					۳- خوردن غذاها و برشته و خشک چقدر باعث ناراحتی شما می‌شود؟
					۴- بیماری دهان شما چقدر باعث می‌شود که غذاها و برشته و خشک را کمتر مصرف کنید؟
					۵- غذاها و نوشیدنی‌های گرم و سرد چقدر باعث ناراحتی شما می‌شود؟
					۶- مشکل دهانی شما چقدر باعث می‌شود که غذاها و نوشیدنی‌های گرم و سرد را کمتر مصرف کنید؟
					۷- مشکل دهانی شما چقدر باعث می‌شود هنگام مسواک زدن و نخ دندان، احساس ناراحتی کنید؟
					۸- مشکل دهانی شما چقدر باعث می‌شود که کمتر از مسواک و نخ دندان، استفاده کنید؟
					۹- هنگام استفاده از دندان مصنوعی، مشکل دهانتان چقدر باعث احساس ناراحتی شما می‌شود؟

خیلی زیاد	زیاد	متوسط	کمی	هرگز	درمان (شامل دهانشویه، ژل، کرم، پماد، تزریق، قرص، تزریق آهسته وریدی)
					۱- برای انجام فعالیت‌های روزمره (صحبت کردن، خوردن و غیره) چقدر حس می‌کنید که نیاز به دارو دارید ؟
					۲- چقدر از داروهایی که برای بیماری دهانی خود استفاده می‌کنید راضی هستید ؟
					۳- چقدر نگران عوارض داروهایی هستید که برای بیماری دهانی خود استفاده می‌کنید ؟
					۴- از اینکه یک داروی استاندارد برای بیماری دهانی شما وجود ندارد چقدر رنج می‌برید ؟
					۵- استفاده از داروی مربوط به بیماری دهانتان، چقدر در زندگی روزمره برای شما مشکل است ؟
					۶- چقدر از اینکه بیماری شما علاج ندارد، رنج می‌برید ؟

خیلی زیاد	زیاد	متوسط	کمی	هرگز	روانی و اجتماعی
					۱- وضعیت دهانی شما چقدر باعث افسردگی شما می‌شود؟
					۲- بیماری دهان شما چقدر باعث نگرانتان می‌شود؟
					۳- بیماری دهان شما تا چه حد باعث استرستان می‌شود ؟
					۴- غیر قابل پیش بینی بودن بیماری دهانتان، چقدر آزارتان می‌دهد ؟
					۵- نامعلوم بودن عاقبت بیماری، چقدر شما را نگران میکند (پخش شدن بیماری، ایجاد سرطان) ؟
					۶- چقدر بیماری دهانتان شما را به آینده بدبین میکند ؟
					۷- چقدر به خاطر بیماری دهانتان فعالیت‌های اجتماعی را انجام نمی‌دهید (شرکت در مهمانی‌ها) ؟

حمایت بیمار					
خیلی زیاد	زیاد	متوسط	کمی	هرگز	
					۱- چقدر از اطلاعات مربوط به بیماری دهانتان، راضی هستید؟*
					۲- چقدر از حمایت خانواده در مورد بیماری دهانتان راضی هستید؟*
					۳- چقدر از حمایت دوستان و همکاران خود در مورد بیماری دهانتان راضی هستید؟*
					۴- وضعیت دهانی شما چقدر باعث انزوای شما می شود؟

* در این سوالات شاخص نمره دهی بر عکس می شود. گزینه << هرگز >> امتیاز ۴ و گزینه << خیلی زیاد >> امتیاز صفر را به خود اختصاص می دهند و سایر گزینه ها نیز به همین ترتیب تغییر می کنند.