

# What do Patients Use for Treating Their Oral Ulcers? And How do these Treatments Affect Their Quality of Life?

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## Abstract

**Objectives:** Oral ulceration forms a major category of oral lesions. Due to its effect on the quality of life, the patients seek treatment using various substances. This study investigated the types of treatments used by a sample of patients having all types of oral ulcers and its positive and negative effects on the patients' lives.

**Methods:** This cross-sectional study included patients having different types of oral ulcers. Participants provided information about their previous treatments, the source of recommendation of its use and side effects linked to them. They filled the oral health impact profile-14 questionnaire to report the change in their quality of life after treatment. The patients' educational and social levels were tested as predictors for the use of non-conventional treatments.

**Results:** Correct pharmaceutical treatments were administered by 34% of the participants; the most effective of which were systemic and topical steroids by ulcerative oral lichen planus patients; and vitamin supplements in recurrent aphthous stomatitis patients. The majority (64.2%) of the previously treated patients used non-conventional treatments, the most widely used of which was Tahini. Half of the patients using non-conventional treatments suffered side effects. The source of information of the self-medication was attributed mainly to the patients themselves, followed by friends and family members.

**Conclusion:** This study reflects the widely spread habit of self-medication in our sample of patients having oral ulcers. It highlights the negative influence of these remedies.

**Keywords:** Aphthous; non-conventional treatments; OHIP-14; OHRQoL; Oral Health Impact Profile; Tahini.

**Abbreviations:** OHRQoL: Oral Health-Related Quality of Life, EM: Erythema Multiforme, PV: Pemphigus Vulgaris, OLP: Oral Lichen Planus, RAS: Recurrent Aphthous Stomatitis, SPSS: Statistical Package for the Social Sciences.

## Introduction

An oral ulcer represents a breach in the oral epithelium exposing the underlying nerve endings [1]. Oral ulcers

may arise due to a wide array of local and systemic problems. They are classified according to etiology into reactive ulcers, ulcers due to infectious disease (Viral, bacterial, fungal and



protozoal), ulcers due to immunological diseases and neoplastic ulcers [2,3].

Despite the huge discrepancy in the course and cause of the different types of oral ulcers, they all share the main presentation, namely high degrees of pain and stress. They further impair the patient's oral health-related quality of life (OHRQoL) [4].

Generally, patients were proven to seek problem-based treatment. Alternatively, in conditions which have little effect on OHRQoL, the odds of patients' seeking treatment are reduced. Thus, patients suffering from pain and stress secondary to oral ulcers are expected to seek treatment to relieve their symptoms [5,6].

The treatment of choice differs by the difference of type of the oral ulcer. Each type has its broad line of treatment that induces the best possible results and prognosis [7,8]. However, patients were reported not to stick to the dentist's prescribed treatments. They were found to use pharmaceutical, non-pharmaceutical (non-conventional) and over-the-counter treatments as self-medication. Studying the types of treatments used by the patients can be a measure of patients' awareness of the disease [9].

A single previous study -held in Jordan- investigated the types of treatments that patients having recurrent aphthous stomatitis used [9]. However, to the best of our knowledge, the current study is the first to investigate the different previous treatments used by patients having all types of oral ulcers and the effect of these treatments on the patients' quality of life

## Materials And Methods

### Study settings and design.

This report reveals some aspects of the cross-sectional study [4] including adult patients attending the oral diagnosis clinic at Faculty of Dentistry. The study protocol was registered on clinicaltrials.gov by an ID of NCT03167632. It was approved by the research ethics committee of institution where the study was held with an ID of 15-04-05.

### Participants.

The 62 included patients -having different types of oral ulcers- were recruited in a consecutive order to minimize selection bias. The study included adult patients ( $\geq 15$  years

old), not having any problems in mouth opening that may hinder oral examination.

Each eligible patient received an explanation of the study and signed an informed consent. Then, a questionnaire was filled, including questions about the predictors and outcomes. Afterwards, conventional oral examination was performed to ensure the presence of the oral ulcer and to diagnose it.

### Variables and data measurement.

Predictors included patient's educational level. It was sub-grouped into (a) illiterate, (b) primary, (c) secondary, (d) university and (e) higher education [10]. Second, the patient's social level was categorized by the residence into either an urban or a rural area [11]. The last predictor was the type of oral ulcer that the patient had. It was diagnosed based on the diagnostic criteria of the WHO [12].

On the other hand, the study outcomes included reporting the types of treatments (conventional and non-conventional) previously used. It further tested the effectiveness of these treatments through the change of OHRQoL after the use of the treatments. It was measured by Oral Health Impact Profile (OHIP-14) questionnaire [13]. The questionnaire assesses: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. Each dimension of the seven was measured by two questions. The response for each question was answered in a five-point scale with 0 = never, 1 = hardly ever, 2 = occasionally, 3 = fairly often and 4 = very often. In each dimension, the patient's response was multiplied by preset weights to analyze each subscore. The seven subscores were then summed to calculate OHRQoL score of each subject.

As another measure for the treatment effectiveness, the patients were asked about the lengths of ulcer-free periods they experienced after the use of treatments. It was categorized into: (i) days, (ii) weeks, (iii) months, (iv) years, (v) never recurred and (vi) never resided.

Lastly, the study tested some parameters regarding the use of non-conventional remedies; including the association between these remedies and the patient's social and educational levels, the sources of information and causes of using these remedies, and its reported side effects. The data



of all patients was fed into Microsoft Access database ©2016 (Microsoft Corp, New Mexico, USA) for Windows. The record of each patient was given a specific ID number to keep the confidentiality of the records.

#### Statistical methods:

Statistical analysis of data was undergone using the SPSS software program for Windows release (Statistical Package for the Social Sciences, version 16.0, SPSS Inc., Chicago, IL, USA). Absolute and relative frequency distributions were carried out for all variables. Mean values with standard deviations were reported for continuous variables. Fischer's exact test was used to assess the differences among qualitative variables.  $P < 0.05$  was considered to indicate

statistical significance.

## Results

### Participants and descriptive data.

The study included 23 males and 39 females: with mean age of 33.5 years ( $\pm 16.2$ ). The 62 cases had different types of oral ulcers that were diagnosed as: reactive ulcers, recurrent viral ulcers, erythema multiforme (EM), pemphigus vulgaris (PV), ulcerative form of oral lichen planus (OLP), recurrent aphthous stomatitis (RAS) and oral cancer. **Table (1)** includes the data of the predictors of the study: the patients' educational and social levels, and the diagnosis of their oral ulcers.

**Table (1):** Baseline data (predictors) of the study participants.

	N	%
<b>Education</b>		
<b>Illiterate</b>	19	30.6
<b>Primary</b>	9	14.5
<b>Secondary</b>	17	27.4
<b>University</b>	15	29
<b>Higher education</b>	2	3.2
<b>Residence</b>		
<b>Urban</b>	36	58.1
<b>Rural</b>	26	41.9
<b>Oral ulcer</b>		
<b>Reactive</b>	10	16.1
<b>EM**</b>	4	6.5
<b>RAS†</b>	31	50
<b>Recurrent viral</b>	6	9.7
<b>OLP‡</b>	6	9.7
<b>PV§</b>	3	4.8
<b>Oral cancer</b>	2	3.2

\*\*EM: Erythema Multiforme; †RAS: Recurrent Aphthous stomatitis; ‡OLP: Oral Lichen Planus; §PV: Pemphigus Vulgaris

### Outcome data.

#### 1. Types of treatments and frequency of its use:

Previous treatments for the oral ulcers were received by 85.5% of the study participants. From those previously treated patients, 66% received incorrect treatments. The 14.5% who did not receive previous treatment reported having bearable symptoms that did not need treatment. The

most frequently used remedies by the study participants included topical analgesics followed by a wide array of non-conventional treatments, the mouthwash and systemic antibiotics **Table (2)**.

**Table (2):** The number of patients using each type of treatments and their percentage from patients receiving treatment.

	Reactive n (%)	EM n (%)	RAS n (%)	Viral n (%)	OLPn(%)	PV n (%)	Oral Cancern (%)	Total n (%)
Topical analgesics	4 (7.5)	2 (3.8)	20 (37.7)	1 (1.9)	5 (9.4)	3 (5.7)	1 (1.9)	36 (67.9)
Mouthwash	3 (5.7)	3 (5.7)	6 (11.3)	1 (1.9)	4 (7.5)	2 (3.8)	1 (1.9)	20 (37.7)
Topical steroids	1 (1.9)	0 (0)	2 (3.8)	0 (0)	2 (3.8)	0 (0)	0 (0)	5 (9.4)
Systemic steroids	0 (0)	0 (0)	1 (1.9)	0 (0)	2 (3.8)	0 (0)	0 (0)	3 (5.7)
Topical antifungal	3 (5.7)	2 (3.8)	7 (13.2)	1 (1.9)	3 (5.7)	0 (0)	0 (0)	16 (30.2)
Systemic antifungal	1 (1.9)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1.9)
Antibiotics	1 (1.9)	1 (1.9)	7 (13.2)	2 (3.8)	4 (7.5)	1 (1.9)	1 (1.9)	17 (32.1)
Systemic analgesics	3 (5.7)	1 (1.9)	5 (9.4)	0 (0)	2 (3.8)	0 (0)	1 (1.9)	12 (22.6)
Vitamin supplements	0 (0)	0 (0)	3 (5.7)	0 (0)	0 (0)	0 (0)	0 (0)	3 (5.7)
Non-conventional	6 (11.3)	2 (3.8)	19 (35.8)	0 (0)	4 (7.5)	2 (3.8)	1 (1.9)	34 (64.2)
Tahini	5 (14.7)	2 (5.9)	18 (52.9)	0 (0)	4 (11.8)	2 (5.9)	1 (2.9)	32 (94.1)
Honey	0 (0)	0 (0)	6 (17.6)	0 (0)	1 (2.9)	0 (0)	0 (0)	7 (20.6)
Molasses	2 (5.9)	0 (0)	1 (2.9)	0 (0)	1 (2.9)	0 (0)	0 (0)	4 (11.8)
Cold milk	1 (2.9)	0 (0)	2 (5.9)	0 (0)	0 (0)	0 (0)	0 (0)	3 (8.8)
Coffee powder	1 (2.9)	0 (0)	1 (2.9)	0 (0)	0 (0)	0 (0)	0 (0)	2 (5.9)
Eating bread yeast	0 (0)	0 (0)	2 (5.9)	0 (0)	0 (0)	0 (0)	0 (0)	2 (5.9)
Others	1 (2.9)	2 (5.9)	7 (20.6)	0 (0)	1 (2.9)	0 (0)	0 (0)	11 (32.4)

Some patients reported the use of more than one type of non-conventional treatments. Tahini was the most frequently used remedy; that was topically applied by 94.1% of the patients using non-conventional remedies. Next, came the topical use of honey (20.6%), molasses (11.8%), cold milk (8.8%), coffee powder (5.9%), Aspirin (5.9%) and eating bread yeast (5.9%).

Other reported remedies included the topical use of systemic antibiotics, jam, bread dough, castor oil, cooking oil, qarad (fruit of Acacia trees), fenugreek, hennah, khabat (Tapinanthus parasitic herb) with goat milk, lemon, matchstick tips, raisin and sesame. Some patients also reported using warm saline and tea mouthwashes. Lastly, one patient tried to treat the ulcer by scrapping it with gauze.

## 2. Effectiveness of previous treatments:

The treatment effectiveness was assessed through the change in OHRQoL after the use of the treatment and the time interval of ulcer-free period after stoppage of treatment. Patients reported the best improvements after the use of systemic steroids followed by topical steroids by ulcerative

OLP patients, and vitamin supplements in RAS patients. Otherwise, patients reported no or minimal improvement of their OHRQoL. However, the difference in changes in OHRQoL caused by all used treatments was not statistically significant **Table (3)**.

Regarding the ulcer-free period after stoppage of treatment, one patient having ulcerative OLP reported years of ulcer-free period after systemic steroid therapy, while another typical case reported months of ulcer-free period. A single patient having RAS reported months of ulcer-free period after the administration of vitamin supplements. Otherwise, all patients having recurrent ulcers reported no change in ulcer recurrence periods.

## 3. Non-conventional treatments:

### a) Association between non-conventional treatments in one side and social and educational levels in the other side:

According to **Table (2)** 64.2% of the previously treated patients used non-conventional treatments. **Table (4)** shows the absence of any significant difference between patients who used and those who did not use non-conventional

treatments regarding their social or educational level.

**Table (3):** The change in each aspect of OHRQoL after the use of different treatment options. Stated in the table are the improvements of each aspect in mean (Standard deviation).

	Functional limitation	Physical pain	Psychological discomfort	Physical disability	Psychological disability	Social disability	Handicap	Total OHIP-14
Topical analgesics	0.23 (0.53)	0.61 (0.97)	0.33 (0.54)	0.38 (0.75)	0.35 (0.65)	0.37 (0.81)	0.27 (0.68)	2.58 (4.38)
Mouthwash	0.11 (0.37)	0.32 (0.5)	0.22 (0.46)	0.25 (0.55)	0.14 (0.42)	0.19 (0.3)	0.1 (0.54)	1.32 (2.64)
Topical steroids	0.71 (0.85)	1.07 (1.36)	0.56 (0.6)	0.5 (0.5)	0.48 (1.15)	0.95 (1.71)	0.71 (0.97)	4.97 (6.54)
Systemic steroids	1.33 (1.16)	2.45 (2.14)	1.05 (0.94)	1.49 (2.18)	1.4 (1.25)	2.16 (2.02)	1.57 (1.36)	11.4 (10)
Topical antifungal	0.28 (0.57)	0.63 (1.05)	0.35 (0.68)	0.47 (1.09)	0.41 (0.64)	0.46 (0.74)	0.47 (0.8)	3.06 (5.2)
Systemic antifungal	0.23 (0.53)	0.51 (1.02)	0.25 (0.52)	0.44 (1.06)	0.28 (0.54)	0.36 (0.66)	0.31 (0.59)	2.44 (4.81)
Antibiotics	0.23 (0.53)	0.51 (1.02)	0.25 (0.52)	0.44 (1.06)	0.28 (0.54)	0.36 (0.66)	0.31 (0.59)	2.44 (4.81)
Systemic analgesics	0.28 (0.48)	0.79 (1.1)	0.76 (1.27)	0.4 (0.57)	0.36 (0.67)	0.59 (1.01)	0.43 (0.75)	3.71 (4.96)
Vitamin supplements	0.34 (0.29)	0.78 (0.38)	0.45 (0)	1 (0)	0.66 (0.58)	1 (0)	0.73 (0.24)	4.96 (1.02)
Non-conventional	0.24 (0.62)	0.52 (1)	0.27 (0.61)	0.3 (0.84)	0.3 (0.69)	0.39 (0.9)	0.33 (0.82)	2.38 (4.96)
<i>P</i> -value*	0.66	0.25	0.35	0.59	0.74	0.28	0.44	0.47

\**P*-value <0.05, tested by ANOVA test.

**Table (4):** The number of patients who used and those who did not use non-conventional treatments; and their percentage from patients who received previous treatments. Odds ratios are adjusted for patients' educational and social levels.

	Used n (%)	Did not use n (%)	O.R.**	95% Confidence Interval		<i>P</i> -value*
				Lower	Upper	
<b>Education</b>						
Illiterate	13 (24.5)	4 (7.5)	Ref.	-	-	0.535
Primary	4 (7.5)	3 (5.7)	2.44	0.38	15.81	
Secondary	7 (13.2)	7 (13.2)	3.25	0.7	15.07	
University	9 (16.9)	4 (7.5)	1.44	0.28	7.34	
Higher education	1 (1.9)	1 (1.9)	3.25	0.16	64.61	
<b>Residence</b>						
Urban	18 (33.9)	11 (20.8)	Ref.	-	-	0.728
Rural	16 (30.2)	8 (15.1)	0.818	0.264	2.54	

\**P*-value <0.05, tested by Fischer's exact test; \*\* O.R.: odds ratio

**b) Sources of information and causes of use:** The patients who previously received non-conventional remedies reported to use it based primarily on their own information (with 22.6% of the previously treated patients) followed by a friend's or a family member's recommendation (with 16.9% of the previously treated patients).

On the other hand, pharmaceutical treatments were prescribed

by a pharmacist, a friend or oneself in 21.4% of cases. In the rest of cases, it was prescribed by dental and medical professionals.

Some patients who used non-conventional treatments reported more than one cause of its use. 70.6% justified its use by their belief of its effectiveness. 35.3% used it after conventional treatments proved to be ineffective. Other



causes were temporary use till visiting the dentist, use of a safe and natural treatment, and self-medication of simple oral condition that -they believe- does not need consultation.

**c) Reported side effects:** Despite being non-conventional, 50% of these treatments were reported to cause no side effects. 29.4% reported causing burning sensation (attributed to warm saline mouth wash and topical application of Tahini, honey, aspirin, lemon, matchstick tips, coffee powder, bread dough and castor oil to RAS; and topical application of Tahini to ulcerative form of OLP and to oral cancer), 11.8% worsened the symptoms (by eating bread yeast in patients having RAS, scrapping the ulcers of EM and applying systemic antibiotics topically on RAS) and 2.9% reported sticking to the mouth (by Tahini on ulcerative form of OLP). Although topical application of Tahini and honey caused burning sensation in some patients, others reported relief of symptoms after their use on RAS and reactive ulcers.

## Discussion

Oral ulcers have significant impact on the lives of the affected patients. As a result, they tend to use several types of remedies aiming to reduce their suffering [14]. Therefore, this cross-sectional study was performed to investigate the types of treatments used by adult oral ulcer patients. The study further investigated the positive and negative effects of these treatments on the patients' lives.

The current study revealed that 85.5% of the included oral ulcer patients received previous treatments; while the rest of the patients could bear their symptoms and, therefore, received no treatment. The percentage of previously treated patients is significantly high when compared to the formerly reported 50.4% [9] and 45.1% [15]. The two aforementioned percentages were reporting the prevalence of previous treatments among patients having one specific type of oral ulcers, namely RAS. Therefore, the two percentages showed consistency altogether, while showed inconsistency with the results of the present study including all types of oral ulcers. The types of previous treatments included both conventional and non-conventional remedies. Among conventional treatments, the current study revealed the most frequently used were topical analgesics (67.9%), followed by mouthwash (37.7%), then systemic antibiotics (32.1%).

These results are consistent with that of Sawair's study [9], except that Sawair reported the third most common conventional treatment was topical steroids; while the percentage of use of antibiotics was only 3%.

On the other hand, non-conventional treatments came in the second place among the most frequently used treatments by 64.2%. This percentage outnumbers the previously reported 32.2% [9] by about the double. The discrepancy between the results can also be explained by the difference in scope of the studied populations between only RAS patients [9] and all range of oral ulcers in the present study. It also can be justified by another finding of the present study revealing that 35.3% of the patients using non-conventional treatments reported its use after unsatisfactory results of conventional treatments.

Tahini occupied the top of the list of the most frequently used non-conventional treatments by 60.4% of the previously treated patients. Afterwards, a long list of substances has been reported. From this list, topical use of coffee, castor oil, lemon, saline mouthwash and attempts to squeeze the ulcer are common between our study and Sawair's [9].

Tahini is a name given to a certain sauce used in the Arab world. It is mainly formed of ground sesame seeds. Being sticky with thick consistency, patients having any type of oral lesion generally tend to apply it as an insulator for the lesion from the oral cavity irritants. [9,16] Another commonly used non-conventional remedy is honey. It has a complex composition that reduces inflammation and promotes re-epithelialization in different oral lesions [17]. Both substances -Tahini and honey- contain a mixture of vitamins, antioxidants and minerals [16,17].

In the present study, both substances were applied topically by the patients. The effects of the 2 substances were reported to have a positive influence for some patients causing relief of symptoms. In contrast, negative effects were attributed to them by causing further burning sensation. Non-conventional treatments may be relieving to patients in some conditions, but concerns arise about its use with no valid guidelines. There is no proof if it interacts with conventional treatments or even causes oral manifestations. Although our results showed that in 50% of cases it caused no side effects, 11.8% reported worsening of their symptoms secondary to its use. Thus, patients should receive education and awareness about



their oral problems, treatment options and the risks of self-medication [9].

On the other hand, Sawair [9] reported other non-conventional remedies not reported in our study. Being non-conventional, these types of treatments vary greatly according to the beliefs of the population in which it is used. This can be emphasized by the report of 70.6% of our patients using non-conventional treatments that their belief in its effectiveness was the motive for its use. While the previous study [9] reported the main motive was the belief that it is natural and safer than conventional therapies.

Generally, some patients prefer self-medication thinking that their condition is simple and will heal spontaneously. Others do not consider it a dental problem. Few patients get tired of visiting dentists with no effective treatment, so they decide their own treatment would be more effective. On the other hand, some patients choose self-medication due to their limited access to dental services, especially residents of rural areas and patients with low socio-economic status [9,11,15]. Surprisingly, our results showed no significant difference between patients using and those not using non-conventional treatments regarding their social or educational level. In contrast, Sawair, 2010 [9] reported higher frequency of use of non-conventional treatments in rural areas and in lower income populations. This reflects either the lower level of awareness of oral health in our sample or the higher level of curiosity to try different treatment options regardless to their educational or social levels.

This discrepancy can also be explained by one of our study limitations. The available options for the social level in our questionnaire were only "urban" and "rural" residence based on a previous Australian study [18]. "Slum" residence was a missing option although Egypt was proven to have 39.9% of its urban population living in slums [19]. So, the answer "urban" in our study did not always reflect a higher social level.

Also in contrast with Sawair, 2010 [9] who reported patient's relatives as the primary source of information about non-conventional treatments, our study reported the patients themselves come in the first place as source of information followed by a friend or a family member. These findings also

emphasize the habit of self-medication in our study participants.

Furthermore, among patients treated by conventional pharmaceutical therapy, 21.4% used it according to recommendations of a pharmacist, a friend or themselves. Self-medication is not restricted to non-conventional treatments only but includes pharmaceutical ones as well.

To the best of our knowledge, no other previous studies were found to investigate the effectiveness of previous treatments used by patients having oral ulcers. In the current study, patients reported no or minimal improvement in OHRQoL and ulcer-free period by all types of used treatments, unless for systemic steroids, topical steroids and vitamin supplements.

The poor effectiveness of previous treatments was justified by the finding that 66% of the previously treated patients received incorrect treatments for their conditions. Furthermore, 30.2% of the previously treated patients used topical antifungals and 32.1% used systemic antibiotics as the main lines of treatment, when none of the detected ulcers was fungal or bacterial in origin. Therefore, incorrect treatments were not expected to ameliorate the OHRQoL or to increase the ulcer-free periods.

## Conclusion

The majority of patients having oral ulcers use remedies for their conditions. In the studied population, patients having oral ulcers tend to medicate themselves using both pharmaceutical and non-pharmaceutical options. The results revealed that self-remedies did not cause significant improvement of the patients' conditions and in half of the cases, caused side effect. Higher awareness among the patients about their conditions and the harm that self-medication would cause is expected to help patients receive proper treatments for their conditions and, thereby, improve their quality of life.

**Conflict of interest:** None.

## Contribution list:

All the authors have substantial contribution in the work:

- Conception and design of the study by A.G.
- Clinical study and acquisition of data by A. G., M.Z.I.
- Analysis and interpretation of data by A.G., S.G., E.A.M.



- Drafting the article by A. G., M.Z.I.
- Revising the manuscript critically for important intellectual content by S. G., E.A.M.
- Reading and approval of the final version to be submitted by all the 4 authors

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