

Prehospital Self-treating of Orofacial Swelling: Observed Clinical Presentation of Patients

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ABSTRACT

Objective: To assess the type of self-pretreatment instituted among patients with orofacial swelling before presentation.

Methods: An observational study; population included all facial swellings that received self-intervention by patients before hospital visit to the Oral and Maxillofacial unit of Edo Specialist hospital. There were no exclusions.

Results: 131 patients met inclusion criterion, 60% females. Age was 3 to 85 years; majority of patients (25%, n=33) was between 10-19 years of age. Odontogenic lesions accounted for 79% (104) of facial swellings. Duration of intervention varied from one day to 10 years; significantly, one to 6 days was recorded for 55% for all categories of intervention- 78%(18/23) of patients using pharmaceutical fell into this category-. This was followed by 15% at up to 2 weeks duration. Intervention was pharmaceutical only for 18%(23), non-pharmaceutical in 45%(61) and 37% (47) combined both. Most frequently used pharmaceutical intervention was antibiotics 19% (26); 24% (31) utilized analgesic but 9(7%) of them used it topically and warm salt mouth bath was used by 13%(17). Thermotherapy, the topical application of moist heat soaked cloth in direct contact to orofacial skin and intraoral mucosa accounted for 34% (45) of non-pharmaceutical intervention followed by therapeutic balm massage by 31% (41). Two percent (3) each, removed worms or had incisions before hospital visit.

Observed effect on clinical presentation was extensibility of orofacial soft tissues resulting in diffuse soft swelling in 30% (39) extra-orally; fleshy soft mucosa swelling intraorally in 7.6%(10) and intraoral white tissue in 9% (12) patients.

Conclusion: Age was significantly associated with self-medication, peaking at the 10 to 19 years age group. Non-pharmaceutical agents were utilized more and for much longer. The use of pharmaceutical agents although shorter-terminating at 4 months- was continuous while the much longer utilization of the non-pharmaceutical agents lasting up to 10 years was intermittent. Overall, majority of patients rendered self-treatment for less than one week

Over-zealous use of interventions across all categories resulted in alteration of orofacial skin and mucosa in some patients. Noted effects on orofacial mucosa and skin varied from ulceration, whitish lesion and distension giving rise to alarming intraoral and extraoral distention.

Keywords: pre-hospital self -treatment, tissue extensibility, thermotherapy.

Received: 23-September-2025

Revision: 2-November-2025

Accepted: 10-December-2025

Citation: Osaghae IP. Prehospital Self-treating of Orofacial Swelling: Observed Clinical Presentation of Patients. *Nig J Dent Res* 2026; 11(2):127-135. <https://dx.doi.org/10.4314/njdr.v11i2.4>

INTRODUCTION

Self-medication has been observed to play an important role in delayed dental visitation.¹ Prior to

dental consultation, a variety of local intervention may be utilized by patients before eventual hospital visitation;^{2,3} such interventions may be

pharmaceutical, non-pharmaceutical or a combination of both.³ Pharmaceutical drugs are designated to elicit a specific reaction; non-pharmaceutical medicines on the other hand usually tend to have several broad complementary or synergistic actions at the same time and are often non-specific.^{4,5}

Orofacial swelling has been identified as one of the major reasons for which patients attend the dental clinic;⁶ pain and fever are among the symptoms experienced, and orofacial swelling is known to be a clinical presentation of neglected dental care.⁷ Analgesics and antibiotics are routinely employed to avoid the need for dental visitation.⁸

Menthol has been used as a topical pain reliever since ancient times;⁹ additionally, medicinal plants and herbal practices have been used to treat infections and other non-infectious diseases in Nigeria for decades.¹⁰ These patients that self-medicate, delay hospital consultation with a feeling that the ailment is minor; that those symptoms will resolve on their own or a general lukewarm attitude towards the problem.¹¹ This resultant late consultation can range from days to years.³

Self-medication is a common occurrence in developing countries;^{12,13} prescription drugs are readily available over the counter from retail shops,¹³ and incorrect administration of drugs is one of the risks associated with self-medication.¹⁴

Patients with orofacial pain are frequently found to overuse non-prescription analgesics.¹⁵

Key determinants of dental attendance in developing countries include low educational level, poor perception of oral health needs and poor awareness of existing services.⁶

As documented severally,^{1,2,3,12} studies on self-medication before hospital visitation have been carried out in Nigeria and in other countries; this study's outline will be a comprehensive reveal of pretreatment before dental visitation which will include self-medication and other therapeutic forms of intervention. A note will be added on the observed effect on clinical presentation on the orofacial skin and mucosa. Furthermore, this study aims to stir up dental public health policies for the implementation of targeted interventions to discourage pretreatment and encourage early hospital visits for patients.

MATERIALS AND METHODS

This study was prospective in nature. It was a descriptive cross-sectional study undertaken for

patients that presented with orofacial swellings to the Oral and Maxillofacial unit of central hospital that is presently domiciled in Edo Specialist hospital. The timeline was from March 2015 to March, 2025.

The patients that received self-intervention before hospital visit for their facial swelling were identified and separated. These were regarded as the study population.

Information elicited included age, gender, inception of intervention before hospital consultation; type of intervention and the duration. Additionally, routes of administration, frequency of usage; formulation and method of use were elicited. The origin of the lesion and any observed change in the orofacial skin and mucosa were also noted.

Operational definition of Terms:

Prehospital treatment was categorized into pharmaceutical and non-pharmaceutical interventions.

All pain relief medication was grouped as "analgesics" for ease of tabulation.

All types of antibiotics was grouped as "antibiotics" for ease of tabulation.

All types of vitamins was grouped as "vitamins" for ease of tabulation.

The different types of therapeutic Balms were grouped as "balms" for ease of tabulation.

Warm Salt Mouth Bath (WSMB) was regarded as pharmaceutical as it is a recommendation by dentists usually.¹⁶

Cloth and towel soaked with hot water for massage of orofacial skin and mucosa were categorized as Moist Warm Compress (MWC).

Surgical procedures performed by non-medical personnel was categorized as non-pharmacological intervention.

Monotherapy was regarded as the use of a single drug to treat, while polytherapy was ascribed to the use of more than one drug or therapy at a time.

Ethical approval was received from the Edo state ministry of health after application.

Data analysis

Data was collated and entered into excel spread sheets. Descriptive analysis was used to determine the proportion of patients in each category of data collected. Proportions were expressed as percentages.

They were then presented, as frequency tables and graphs.

Note: proportions expressed in tables 2 and 3 are not absolute figures as patients used single therapy or different types at the same time.

RESULTS

The total number of patients was 131 (Table 1a & b). Out of 131 patients as indicated by table 1a, 60%(79) were females and 40%(52) males; ratio, 3:2. Age was 3 to 85 years with a mean age of 34.3 years. The frequency of occurrence of the 10 to 19 years age group was found to be 25% (33) as majority; followed by 19% (25) for 20-29 years and then 17%(22) 40- 49 years old age groups.

Infection of odontogenic origin accounted for 79%, representing 104 patients as the majority, while that of 21% (27) patients were of non-odontogenic origin. Forty seven percent (61) patients in the majority utilized only non-pharmaceutical agents; while 36% (47), employed a combination of pharmaceutical and non-pharmaceutical agents.

Eighteen percent (23), representing a minority of this study population, pre-treated with only pharmaceutical agents before hospital visitation. Table 1b summarizes the pattern of utilization of intervention by patients before hospital consultation. Approximately 61% of patients that consumed pharmaceutical agents utilized a single type while about the same percentage (61%) of patients using non-pharmaceutical agents practiced poly therapy.

Figure 1 detailed the duration of pretreatment. Duration for intervention varied from one day to 10 years; significantly, one to 6 days was recorded for 55% across all categories of intervention whether pharmaceutical, non-pharmaceutical or a combination of both. This was followed by 15% for up to 2 weeks duration. For patients that utilized only pharmaceutical agents, majority (18/23), used them for less than one week that. One patient took medicines for 2 weeks; another, 1 month and yet another for 4 months. Utility of pharmaceutical agents was for much shorter period of time and usage was continuous as elicited from patients' history. Intervention using pharmaceutical agents terminated at the 4th month for this category of patients.

More than half of patients (32/61) that utilized non-pharmaceutical therapy, pretreated for much longer; with 2 patients intervening for up to 10 years duration before hospital consultation. History elicited from this category of patients revealed that from 4 months

upwards of the long duration, intervention employed was intermittent.

Patients that utilized a combination of pharmaceutical and non-pharmaceutical intervention were observed to follow the same pattern of duration as those that utilized non-pharmaceutical intervention. Duration of pretreatment was up to 5 years in one patient. History revealed as well that from 8 months upwards, utility of intervention was intermittent.

The types of pharmaceutical agents used are summarized by table 2. Majority 20%(26) of patients utilized antibiotics followed by analgesics by 24.%(31) of patients. Although, 31 patients utilized analgesics, only 17% (22) swallowed it.

Of note is that, history of utilization revealed that patients that procured Anacin®, applied it topically to the oral mucosa. In total, 12 % (16) did not know the name of the medicine taken by them; some described them as tablets, drugs, medication, syrup or injection.

Table 3a&b showed non-pharmaceutical intervention, MWC accounted for majority of therapeutic intervention by 35% (46) of patients; this was followed by utilization of balm by 29% (38) and shea butter by 21% (27) of patients. These agents were used to massage the orofacial region. Patients were in majority that utilized therapeutic agents for massage; anointing oil and palm oil were used to massage as well. Agents used as mouth rinse by majority of patients 15% (19) were herbs, followed by fuel by 4%(5) patients, and combination of battery acid/spirit also by 4%(5) patients. Minority of patients 2% (3) removed worms and 1.5%(2) had their swelling incised. It should be noted in tables 2 and 3 that these agents were used singly or/and in combination, therefore these figures are not absolute, but are relative for ease tabulation and understanding.

Table 4 summarized unusual presentation noted in patients that intervened before dental visit. Clinically, it was observed that there was alarming distensibility of orofacial skin and mucosa in the same patient or separately for different patients. Although, the swelling appeared alarming, these patients did not exhibit any clinical signs of distress.¹⁷ Figure 2a, depicts marked mucosal distension in a patient that used balm, anointing oil and hot water to massage intraoral mucosa and extra-oral skin.

Oral white lesion was noted in 10 patients that applied analgesics and /or balm directly on mucosa as shown by Figure 2b.

Table 1a: Frequency of social and health demographics

Variable	Frequency	Percent
Sex		
Male	52	39.7
Female	79	60.3
Age (years)		
0-9	4	3.1
10-19	33	25.2
20-29	25	19.1
30-39	14	10.7
40-49	22	16.8
50-59	14	10.7
60-69	15	11.5
70-79	3	2.3
80-89	1	0.8
Source of infection		
Odontogenic	104	79.4
Non-odontogenic	27	20.6
Pretreatment category		
Pharmaceutical agents only	23	17.5
Non-pharmaceutical agents only	61	46.7
Combination of pharmaceutical and non-pharmaceutical agents	47	35.9

Table 1b: Pattern of therapy

Therapy	Pharmaceutical (n=23)	Percent	Non-pharmaceutical (n=61)	Percent
Monotherapy	14	60.9	24	39.3
Polytherapy	9	39.1	37	60.7

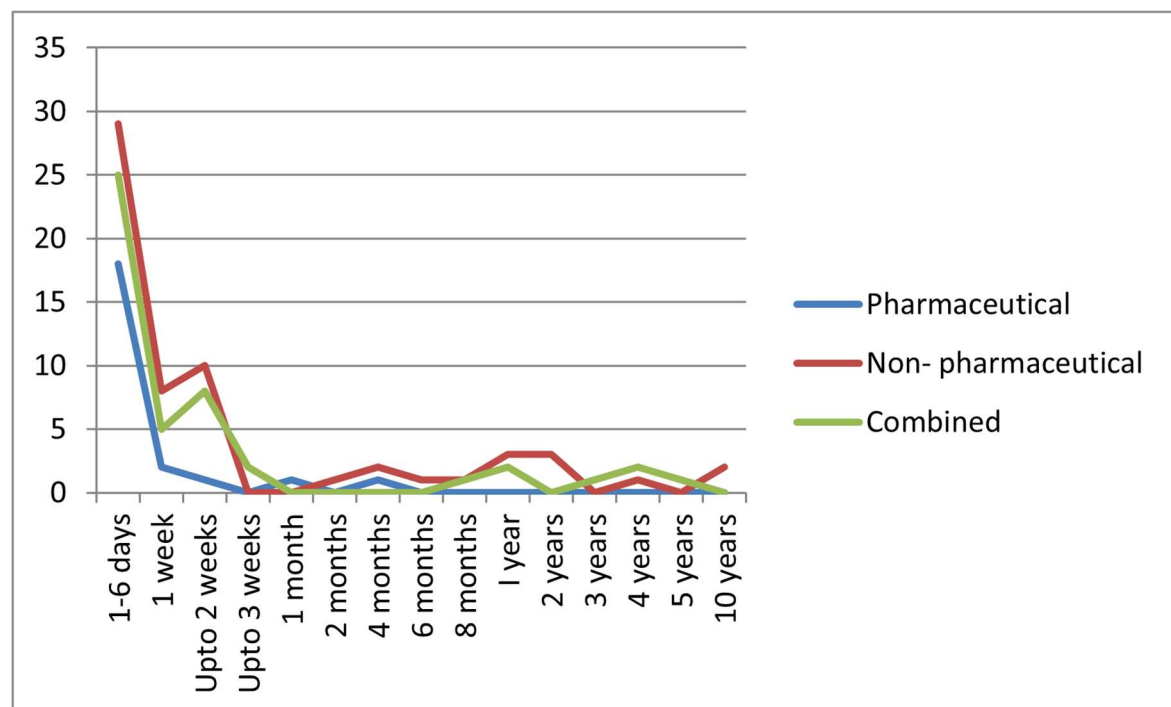


Figure 1: Duration of prehospital intervention

Table 2a: Form of pharmaceutical agents used and pattern of administration

Pharmaceutical agent	Pattern of administration
Tablet	Swallow & Topical
Capsules	Swallow
Syrup	Swallow
Injections	Intramuscular
Salt solution	Mouth rinse

Table 2b: Pharmaceutical agents

Agent	Number of patients	Percent
Antibiotics	26	19.8
WSMB	17	12.9
Tablets	2	1.5
Analgesics	31(-9 used topical)	23.7(-6.9)
	22	16.8
Steroids	4	3.1
Injection	2	1.5
Syrup	1	0.8
Medication	5	3.8
Drugs	6	4.6
Vitamins	5	3.8

Table 3a: Non-pharmaceutical intervention

Agent	Number of patients	Percent
Herbs	19	14.5
Incisions	2	1.5
MWC	46	35.1
Tobacco	2	1.5
Shea butter	27	20.6
Anointing oil	11	8.4
Balm	38	29.0
Alcohol	3	2.3
Removed worms	3	2.3
Fuel	5	3.8
Battery acid/spirit	5	3.8
Touch & Go	2	1.5
Alligator pepper	1	0.8
Potash/lime	2	1.5
Palm oil	1	0.8
Toothpowder	3	2.3

Table 3b: Utility of non-pharmaceutical agents

Routes of administration	Formulation					
Rinses	Herbal	Fuel	Alcohol	Touch& Go	Battery acid	lime
Toothpaste	Tooth powder	Life products®				
Massage	Balm	Shea butter	Anointing oil	Palm oil		
Chewed and spat out	Tobacco	Alligatorpepper				
Removed worms	Solution					
Incisions	Drainage of pus	Scarifications				
Thermotherapy	Hot water					

Table 4: Clinical observation

Change	Number
Extraoral swelling	39
Intraoral white lesion	12
Intraoral swelling	10
Extraoral ulcer	10



Figure 2a: Distended intra-oral mucosa



Figure 2b: Mucosal white lesion is indicated by arrow

DISCUSSION

Delay as a result of self-medication was majorly by patients in the 10 to 19 followed by the 20 to 29 years age group. Caries and its sequelae can account for this presentation; additionally, pericoronitis will play a role in facial swelling and pain in these age groups.^{18,6} As a testament to this observation, other studies,^{6,19} observed that regular clinic attendance was quite low in this age group. It has been suggested that the delay by this group of 10 to 19 years in age that also make up the majority in this study, could also be as a result of misinterpretation of complaints of dental problems in these children by their parents or care givers, and the added constraints of time to visit the clinic as well.^{18,6} Cost can also be another barrier,²⁰ as well as fear of dentists by this age group.²¹

A female preponderance was discovered in this study as have other studies.^{6,19,18} Simon et al.²² observed that male patients were less likely to take self-medication.

Majority of the orofacial swelling in this study was of odontogenic origin as observed by another study.⁷

The interval between prehospital self-treating and eventual dental consultation was less than one week in the majority of patients across categories that utilized different forms of therapy. This duration for intervention aligns with another study³ on self-treatment. Ten years was the longest interval

between pretreatment and hospital visitation observed in a minority of patients: this was for patients that utilized non-pharmaceutical therapy only. Dental attendance behavior has been observed to be influenced by attitude towards dental care; patients that self-medicate delay hospital consultation with a feeling that the ailment is minor; those symptoms will resolve on their own or a general lukewarm attitude towards the problem.¹¹ This was further buttressed by the evidence that between 5 to 10 years, patients used non-pharmaceutical therapy intermittently as needed rather than visiting the clinic.

Majority (47%) of patients used only non-pharmaceutical agents as therapy before hospital visit, in contrast to a study³ carried out in Cameroon where a majority of their patients utilized pharmaceutical measures. Pharmaceutical agents only were used by a minority (18%) of patients in contrast to the same study³ and another group of patients, combined pharmaceutical agents with non-pharmaceutical therapy. Antibiotics and analgesics were most prevalent of pharmaceutical agents utilized by majority of patients as with other studies^{8,3,13} on self-medication among dental patients.

A smaller majority of patients utilized warm salt water solution as pharmaceutical therapy,³ its usage was found to be low in another study.²³ Dentist

recommend it variously as therapy for the oral environment.¹⁶

Orofacial skin and mucosa massage with various agent such as cloth soaked in hot water, balm, shea butter, anointing oil and palm oil made up the non-pharmaceutical therapy utilized by a majority of patients singly or in combination. The ready availability of these agents may account for this self-treating method as these are household items.

Herbal mouth rinse was another form of therapy that was non-pharmaceutical. The percentage of patients (15%) that used herbs in this study was comparable to another study²³ carried out in western part of Nigeria. It has also been documented that Cameroonians use herbs for self-medication for oral health problems.²⁴ According to World Health Organization (WHO), over three quarters of the world population rely on plants and their extracts for healthcare needs.²⁵ Alcohol, tobacco, battery acid and spirit usage, and other substances such as petrol (fuel), tobacco, alum and "Touch and Go" used as pretreatment as in this study were similar to findings³ on self-treatment by patients in Cameroon.

"Touch and Go" was used by a minority of patients in this study, as documented by others.^{3,26} It is a medicinal toothache oral solution deployed for temporary relief of pain¹ and it is readily available. The draw-back, is that the phenol content is capable of causing irreversible damage to the pulp leading to pulp necrosis.²⁷

Of significance is the finding that a minority of patients about equal in proportion did not know the names of the agent utilized in both the pharmaceutical and non-pharmaceutical consumers. In total, this was 12 % that utilized pharmaceutical agents and described them either as tablets, drugs, medication, syrup or injection; likewise, 15%, that is the total number that used herbal rinse as non-pharmaceutical therapy did not know the name or constituents of what they were rinsing with.

Poor therapeutic outcomes, is one of the results of inappropriate use of medicines.²⁸

The effect topical use of intervention on the orofacial soft tissue varies with agent used and duration of application. Topical application of Anacin® an analgesic was observed to result in ulceration of the oral mucosa presenting as a whitish oral lesion (figure 2b), topically applied substances have resulted in oral chemical burns as documented.²⁹

Menthol which is a constituent of some of the balms used, has been applied as a topical pain reliever since ancient times;³⁰ and when applied to the skin, it has a

cooling effect.³¹ It is also a vasoactive agent that produces cutaneous vasodilation.³² The surface of the skin is extremely sensitive, and there is dense network of nerves embedded in the skin's dermal-epidermal junction. These nerves project fibrous strands through the epidermis very close to the skin surface; the nerve ending detect cutaneous stimulation, activate inflammatory responses, release vasoactive neuropeptides and send pain signals. Among the nerves are unmyelinated C-afferent fibres, which conduct slowly, and unmyelinated A-afferent (including A-δ) fibres, which have a variety of diameters and conduct more quickly. Most of the rapidly conducting A-afferent fibres have no myelin sheath at or near the skin's surface which makes it extremely sensitive to thermal, chemical and physical stimuli.^{33,34}

Thermotherapy is application of any substance to the body that increases tissue temperature. This results in improved blood flow, tissue metabolism and connective tissue extensibility;³⁵ an increase in temperature tends to reduce the stiffness in fascial tissue.³⁶ The application of towel or cloth soaked in hot water directly to the orofacial skin and mucosa was utilized by the majority of patients as non-pharmaceutical therapy before hospital visits. Prolonged use of these agents will likely result in exaggerated orofacial swelling due to extensibility of the tissues as exemplified by figure 2a; this connective tissue extensibility has been ascribed to the change in viscosity and density in response to heat.³⁵

Mucosal white lesion was also observed in patients that applied medicines such as analgesics (Anacin®) topically to the buccal mucosa (figure 2b).

Following these observations, it is recommended that a dental health policy is initiated on dental public health information whereby, oral health talks should be given in the general outpatient medical clinics where patients and accompanying persons are; to sensitize patients and accompanying persons on early dental consultation so as to prevent, or reduce incidents of unprescribed pharmaceutical and or non-pharmaceutical interventions.

CONCLUSION

Age was significantly associated with self-medication, peaking at the 10 to 19 years age group; as was the female gender. Non-pharmaceutical agents were utilized more and for much longer. The use of pharmaceutical agents although shorter-terminating at 4 months- was continuous while the

much longer utilization of the non-pharmaceutical agents lasting up to 10 years was intermittent. An almost equal proportion of patients that utilized both pharmaceutical and non-pharmaceutical therapy did not know the name of what they were consuming, although, they could describe the agent.

Overall, majority of patients rendered self-treatment for less than one week. Over-zealous use of interventions across all categories resulted in alteration of orofacial skin and mucosa in some patients.

Source of Support

Nil.

Conflict of Interest

None declared

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