

KNOWLEDGE, ATTITUDE, PRACTICAL APPROACH OF DENTIST TOWARDS TREATING ORAL SUBMUCOUS FIBROSIS PATIENTS ATTENDING PRIVATE DENTAL HOSPITAL - A SURVEY BASED STUDY.

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ABSTRACT :

Oral submucous fibrosis(OSMF) is a potentially malignant disorder of oral mucosa affecting mainly the population in south and southeast Asia. OSMF is precancerous condition caused by areca nut chewing characterised by restricted mouth opening, burning sensation and stiffness and blanching of oral mucosa. Complete regression of the condition had not been achieved in all cases with any of the present treatment regimen. The aim of the study was to assess the knowledge among dental students about the significance of Oral Submucous Fibrosis and its management. The questionnaire based study was conducted among 100 participants. A self administered questionnaire was used. The questionnaire based study was conducted through an online forum , google form software. The questions were formed to observe knowledge, attitude, and practical approach of dental students towards treating OSMF patients attending private dental hospitals .The data collected were stored and results were analysed by SPSS software. Out of 100 participants, 55% participants reported that females have an increased prevalence of OSMF compared to male. Majority of participants were aware that betel quid were the most common habits and blanching mucosa were the common features associated with OSMF. 60 % of participants were aware that stopping gutka / pan chewing habits alone will not resolve the problem in patients having trismus. Within the limits of the present study, students showed good knowledge on the various clinical and diagnosis aspects of Oral submucous fibrosis, however the knowledge on the management aspect of oral submucous fibrosis was moderate. A better knowledge of OSMF will endure safer health care services for the population.

Keywords : Betel quid , blanching mucosa, malignancy, oral submucous fibrosis,

INTRODUCTION:

Pindborg has defined oral submucous fibrosis (OSMF) as an insidious chronic disease affecting any part of oral cavity and occasionally extending to the pharynx , esophagus although occasionally preceded by and / or associated with Vesicle formation . (Pindborg and Sirsat, 1966) OSMF is a potentially malignant condition

of the oral cavity which is always associated with juxta-epithelial inflammatory reaction followed by fibroelastic changes in the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa causing trismus and difficulty in eating. (Yadav *et al.*, 2014).The prevalence in India had increased in recent years to 6.42% with a higher predominance in the southern parts of the subcontinent. OSMF is seen commonly in males between 20 and 40 years of age. The common sites involved are buccal mucosa, labial mucosa, retromolar pads, soft palate and floor of the mouth.(Hazarey *et al.*, 2006)

Early features of OSMF include burning sensation, hypersalivation or xerostomia and blanching mucosa with marble-like appearance. Later mucosa becomes leathery and inelastic with palpable fibrous bands resulting in restricted mouth opening. Eventually, it leads to restriction of tongue movements, difficulty in swallowing, speech. (Rajendran and Sukumaran, 2013) Oral potentially malignant disorders (OPMDs) are considered as the early tissue changes that happen due to various habits such as smoking tobacco, chewing tobacco or stress. (Venugopal and Maheswari, 2016)(Maheswari *et al.*, 2018)

The etiopathogenesis of OSMF is complex and it is a potentially malignant disorder attributed to areca nut (betel nut) chewing. The etiological factors include excessive chilli consumption, vitamins , iron deficiency, autoimmunity, genetic and environmental factors.(Nigam *et al.*, 2014) Areca nut consists of alkaloids like arecoline, arecaidine, guvacine and guvacoline apart from flavonoids, tannins, catechin and copper. The alkaloids stimulate the fibroblasts to produce more collagen, while its structure is stabilized by catechin and tannins.(Trivedy *et al.*, 1997)

Apart from areca nuts, commercial products like gutkha, mawa and pan masala have been shown to cause Oral submucous fibrosis rapidly due to larger amounts of areca nut in these processed products and/or the synergistic action of nicotine over arecoline.(Karemore and Karemore, 2011) Gutka products contain both SLT and areca nuts.(Warnakulasuriya and Muthukrishnan, 2018)

The ideal goals of therapy of this potentially malignant disorder such as OSMF, include not only amelioration of the symptoms (burning sensation, restriction of mouth opening), but also stop further disease progression and malignant transformation. Complete regression of this oral mucosal condition had not been achieved in any of the case studies reported till date hence an attempt at finding a permanent cure is still going on . (Tilakaratne *et al.*, 2006)Potentially malignant disorders (PMD) have a high risk of malignant transformation.(Misra *et al.*, 2015) Malignancy is characterized by anaplasia, invasiveness, and metastasis.(Subha and Arvind, 2019)

Various treatment modalities including drug ,surgical therapy and physiotherapy have been proposed till date for the management of OSMF. Various drugs with antifibrotic, anti-inflammatory, and antioxidant activity (Chaitanya *et al.*, 2018) have been used in the management of OSMF but with unpredictable results and incomplete remission. Not even a single drug has been reported to be effective in treatment of OSMF. Hence, a combination of drugs has been used in the treatment of OSMF. (Daga *et al.*, 2017)

The aim of the study was to assess the knowledge among dental students about the significance of Oral Submucous Fibrosis and it's management.

MATERIALS AND METHODS:

The questionnaire based study was conducted among 100 participants via simple random sampling . A self administered question was used. This study is a survey based study conducted through an online forum,

google form software .The questions were formed to observe the knowledge,attitude, practical approach of dentists towards treating OSMF patients attending private dental hospitals .The questionnaire consisted of 13 questions.

The study protocol was approved by the Institutional Scientific Review board and ethical approval was obtained. Collected data was recorded in the Microsoft Excel 2016 and later exported to the Statistical package of Social Science for Windows (Version 20.0, SPSS Inc., Chicago, Illinois, USA). The results were analysed and the responses were tabulated in the form of a bar chart. Descriptive statistics for frequency and Chi square test was used to determine the correlation between the variables where P value < 0.05 is considered statistically significant.

RESULTS AND DISCUSSION:

From the results we observed that 55% of participants were aware that females had increased prevalence of OSMF compared to male(Figure 1). Majority of the participants responded that betel quid (47%) was the most common type of habit associated with OSMF.(Figure 2) 61% of participants responded that blanching mucosa was the commonest feature associated with OSMF.(Figure 3) 68% of participants were aware that OSMF had increased malignant potential and 32 % of participants are unaware of it.(Figure 4) 60% of participants were aware that stopping of gutka/ pan chewing habits alone will not resolve the problem in patients having trismus.(Figure 5) 86% of participants were aware that treatment regimen / modalities vary with various stages of OSMF. (Figure 6) 63% of participants were aware that they will treat OSMF by corticosteroids, lycopene, pentoxifylline.(Figure 7) Majority of participants responded that antifibrinolytic activity will be the action of hyaluronidase in OSMF.(Figure 8) 60% of participants were aware that drug lycopene was prescribed for OSMF as antioxidants. (Figure 9) 53% of participants were aware that intralesional injections can be started from stage 3 of OSMF.(Figure 10) 58% of participants were aware that corticosteroids + hyaluronidase / placental extracts will be the drugs/ drug given as intralesional injections in OSMF. (Figure 11) 51% of participants were aware that oral physiotherapy alone will not help in treating OSMF.(Figure 12) Majority of participants responded that oral mucositis will be the postoperative complication with surgical treatment of OSMF.(Figure 13) Majority of respondents reported that OSMF has increased malignant potential (Pearson chi square test; p - value = 0.491 > 0.05 which was statistically not significant).(Figure 14). Majority of respondents reported that OSMF treated corticosteroids, lycopene, pentoxifylline.(Pearson chi square test; p - value = 0.136 > 0.05, which was statistically not significant)(Figure 15). Majority of respondents reported that treatment regimen / modalities vary with various stages of OSMF. (Pearson chi square test; p value = 0.451 > 0.05, which was statistically not significant)(Figure 16). Majority of respondents reported that oral physiotherapy exercise alone cannot be helpful in treating OSMF (Pearson chi square test; p - value=0.984 > 0.05, which is statistically not significant)(Figure 17) .Majority of respondents reported drug lycopene prescribed for OSMF is antioxidants. (Pearson chi square ; p -value = 0.041 > 0.05 which is statistically not significant) (Figure 18).

Previously our team had conducted numerous clinical trials (Dharman and Muthukrishnan, 2016)(Patil *et al.*, 2018)lab animal studies (Chaitanya *et al.*, 2017) (Muthukrishnan, Kumar and Ramalingam, 2016)(Steele *et al.*, 2015)and in vitro studies (Muthukrishnan and Kumar, 2017; Rohini and Jayanth Kumar, 2017)(Choudhury, 2015) over the past five years . Now we were focusing on epidemiological surveys on potentially malignant disorders . The idea for this survey stemmed from the current interest in our community.

OSMF is an insidious, chronic disease with multifactorial etiology. Various treatment modalities had been proposed for OSMF but with unpredictable results. General dental practitioners have a basic knowledge about oral submucous fibrosis as they come across oral problems associated with OSMF in their practice. Generally

patients visit a dental clinic with a chief complaint associated with teeth pain or bleeding gums. Most of the time, practitioners give importance to the area of complaint and tend to miss out the asymptomatic mucosal lesions . If left unchecked , it can affect the quality of life and actually shorten life expectancy. This means that practitioners must play a more active role in educating their patients about the role Oral submucous fibrosis and its malignant transformation and their overall health. An important component of health and overall quality of life is oral health. It can have an impact on overall quality of life and dental disease are increasing more and more in the world.(Subashri and Uma Maheshwari, 2016)

In this study 55% of participants reported that females had an increased prevalence of OSMF compared to male . Anuj et al., reported the similar evidence that females were more predominant compared to male. (Jain and Taneja, 2019) Patel et al., reported the different evidence that Male were more predominantly affected (Patel *et al.*, 2015) 47 % of participants were aware that betel quid were the most common habits associated with OSMF. Sujatha et al ., reported similar evidence that betel nut chewing was the habit associated with OSMF. Arecanut (Gutkha) was a significant etiological factor as compared to other etiological factors reported by Rahul Srivastava. (Srivastava *et al.*, 2019)

From the results of this study ,68% of participants were aware that OSMF had increased malignant potential . Murray C.J et al ., reported similar evidence that OSMF had one of the higher rates of malignant potential among potentially malignant oral lesions. In patients with oral submucous fibrosis, the oral epithelium becomes atrophic and thereby becomes more vulnerable to carcinogens. (Pundir, Saxena and Aggrawal, 2010)

60 % of participants were aware that stopping gutka / pan chewing habits alone will not resolve the problem in patients having trismus . Murthi PR , Gupta et al ., reported similar evidence that stopping the habits alone will not resolve the problem. OSMF does not regress spontaneously or on cessation of areca nut chewing. Once the disease is present, it either persists or becomes more severe with involvement of additional areas of oral mucosa.(Nair, 2004)

In this study we observed that the majority of the participants responded that the action of hyaluronidase in OSMF will be antifibrinolytic activity . 86% of participants were aware that drug /drugs given for intralesional injection in OSMF were corticosteroids + hyaluronidase / placental extracts. Yadhav et al., reported the similar evidence that corticosteroids and hyaluronidase were the combination of drugs used in intralesional injections . Leena et al reported that the medical treatments were not completely systematized, optimal doses of its treatment with intralesional injection of corticosteroids with hyaluronidase or placental extract is effective to some extent. (Pindborg, Mehta and Daftary, 1970) Borle and Borle postulated that treatment following intralesional injections of various drugs leads to aggravated fibrosis and pronounced trismus.

The resultant worsening of this condition with oral submucosal injections were attributable to repeated needle stick injury to the soft tissues at multiple sites, clinical irritation from drugs being injected, and to the progressive nature of the disease. The same outcome had been observed with some surgical methods employed to treat OSMF. Conservative lines of treatment like topical steroids, vitamins supplements , antioxidants, physiotherapy would give expected symptomatic relief of pain and burning sensation.(Lai *et al.*, 1995).

LIMITATION:

The limitation of the study includes limited sample size , single centred study and does not represent ethnic groups or population.

FUTURE SCOPE:

The study could be done in a larger population. Continuing dental education programs and hands on education among dentists should be essential .

CONCLUSION:

Within the limits of the present study, students showed good knowledge on the various clinical and diagnosis aspects of Oral submucous fibrosis, however the knowledge on the management aspect of oral submucous fibrosis was moderate. A better knowledge of OSMF will endure safer health care services for the population. Training and skill improvement through various dental education programs on OSMF will improve the quality of dental practice and will be beneficial to the patients.

AUTHOR CONTRIBUTIONS:

All authors have equally contributed to the research.

CONFLICT OF INTEREST:

Nil

REFERENCE :

- [1] Chaitanya, N. C. *et al.* (2017) 'Role of Vitamin E and Vitamin A in Oral Mucositis Induced by Cancer Chemo/Radiotherapy- A Meta-analysis', *Journal of clinical and diagnostic research: JCDR*, 11(5), pp. ZE06–ZE09.
- [2] Chaitanya, N. C. *et al.* (2018) 'An Insight and Update on the Analgesic Properties of Vitamin C', *Journal of pharmacy & bioallied sciences*, 10(3), pp. 119–125.
- [3] Choudhury, P. (2015) 'Vanishing Roots: First Case Report of Idiopathic Multiple Cervico–Apical External Root Resorption', *JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH*. doi: 10.7860/jcdr/2015/11698.5668.
- [4] Daga, D. *et al.* (2017) 'Efficacy of oral colchicine with intralesional hyaluronidase or triamcinolone acetone in the Grade II oral submucous fibrosis', *National journal of maxillofacial surgery*, 8(1), pp. 50–54.
- [5] Dharman, S. and Muthukrishnan, A. (2016) 'Oral mucous membrane pemphigoid - Two case reports with varied clinical presentation', *Journal of Indian Society of Periodontology*, 20(6), pp. 630–634.
- [6] Hazarey, V. K. *et al.* (2006) 'Oral submucous fibrosis: study of 1000 cases from central India', *Journal of Oral Pathology & Medicine*, pp. 12–17. doi: 10.1111/j.1600-0714.2006.00485.x.
- [7] Jain, A. and Taneja, S. (2019) 'Oral Submucous Fibrosis in Pediatric Patients: A Systematic Review and Protocol for Management', *International journal of surgical oncology*, 2019, p. 3497136.
- [8] Karemore, T. V. and Karemore, V. A. (2011) 'Etiopathogenesis and Treatment Strategies of Oral Submucous Fibrosis', *Journal of Indian Academy of Oral Medicine and Radiology*, pp. 598–602. doi: 10.5005/jp-journals-10011-1230.
- [9] Lai, D. R. *et al.* (1995) 'Clinical evaluation of different treatment methods for oral submucous fibrosis. A 10-year experience with 150 cases', *Journal of oral pathology & medicine: official publication of*

the International Association of Oral Pathologists and the American Academy of Oral Pathology, 24(9), pp. 402–406.

- [10] Maheswari, T. N. U. *et al.* (2018) ‘Salivary micro RNA as a potential biomarker in oral potentially malignant disorders: A systematic review’, *Tzu Chi Medical Journal*, p. 55. doi: 10.4103/tcmj.tcmj_114_17.
- [11] Misra, S. R. *et al.* (2015) ‘Metastatic hepatocellular carcinoma in the maxilla and mandible, an extremely rare presentation’, *Contemporary clinical dentistry*, 6(Suppl 1), pp. S117–21.
- [12] Muthukrishnan, A. and Kumar, L. B. (2017) ‘Actinic cheilosis: early intervention prevents malignant transformation’, *BMJ Case Reports*, p. bcr2016218654. doi: 10.1136/bcr-2016-218654.
- [13] Muthukrishnan, A., Kumar, L. B. and Ramalingam, G. (2016) ‘Medication-related osteonecrosis of the jaw: a dentist’s nightmare’, *BMJ Case Reports*, p. bcr2016214626. doi: 10.1136/bcr-2016-214626.
- [14] Nair, U. (2004) ‘Alert for an epidemic of oral cancer due to use of the betel quid substitutes gutkha and pan masala: a review of agents and causative mechanisms’, *Mutagenesis*, pp. 251–262. doi: 10.1093/mutage/geh036.
- [15] Nigam, N. K. *et al.* (2014) ‘Prevalence of oral submucous fibrosis among habitual gutkha and areca nut chewers in Moradabad district’, *Journal of oral biology and craniofacial research*, 4(1), pp. 8–13.
- [16] Patel, T. L. *et al.* (2015) ‘Comparative Evaluation of Treatment of Oral Submucous Fibrosis with Intralesional Injections of Dexamethasone and Hyaluronidase with Triamcinolone Acetonide and Hyaluronidase’, *Journal of Contemporary Medicine and Dentistry*, pp. 32–34. doi: 10.18049/jcmad/337.
- [17] Patil, S. R. *et al.* (2018) ‘Three-Rooted Mandibular First Molars in a Saudi Arabian Population: A CBCT Study’, *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*, p. e4133. doi: 10.4034/pboci.2018.181.87.
- [18] Pindborg, J. J., Mehta, F. S. and Daftary, D. K. (1970) ‘Occurrence of epithelial atypia in 51 Indian villagers with oral submucous fibrosis’, *British journal of cancer*, 24(2), pp. 253–257.
- [19] Pindborg, J. J. and Sirsat, S. M. (1966) ‘Oral submucous fibrosis’, *Oral surgery, oral medicine, and oral pathology*, 22(6), pp. 764–779.
- [20] Pundir, S., Saxena, S. and Aggrawal, P. (2010) ‘Oral submucous fibrosis a disease with malignant potential - Report of two Cases’, *Journal of Clinical and Experimental Dentistry*, pp. e215–e218. doi: 10.4317/jced.2.e215.
- [21] Rajendran, R. and Sukumaran, A. (2013) ‘Editorial. Oral submucous fibrosis: revised hypotheses as to its cause’, *The journal of contemporary dental practice*, 14(5), pp. i–iii.
- [22] Rohini, S. and Jayanth Kumar, V. (2017) ‘Incidence of dental caries and pericoronitis associated with impacted mandibular third molar-A radiographic study’, *Research Journal of Pharmacy and Technology*, p. 1081. doi: 10.5958/0974-360x.2017.00196.2.
- [23] Srivastava, R. *et al.* (2019) ‘Prevalence of oral submucous fibrosis in patients visiting dental OPD of a dental college in Kanpur: A demographic study’, *Journal of family medicine and primary care*, 8(8), pp. 2612–2617.
- [24] Steele, J. C. *et al.* (2015) ‘World Workshop on Oral Medicine VI: an international validation study of clinical competencies for advanced training in oral medicine’, *Oral surgery, oral medicine, oral pathology and oral radiology*, 120(2), pp. 143–51.e7.

- [25] Subashri, A. and Uma Maheshwari, T. N. (2016) ‘Knowledge and attitude of oral hygiene practice among dental students’, *Research Journal of Pharmacy and Technology*, p. 1840. doi: 10.5958/0974-360x.2016.00375.9.
- [26] Subha, M. and Arvind, M. (2019) ‘Role of Magnetic Resonance Imaging in Evaluation of Trigeminal Neuralgia with its Anatomical Correlation’, *Biomedical and Pharmacology Journal*, pp. 289–296. doi: 10.13005/bpj/1640.
- [27] Tilakaratne, W. M. *et al.* (2006) ‘Oral submucous fibrosis: review on aetiology and pathogenesis’, *Oral oncology*, 42(6), pp. 561–568.
- [28] Trivedy, C. *et al.* (1997) ‘Copper content in Areca catechu (betel nut) products and oral submucous fibrosis’, *The Lancet*, p. 1447. doi: 10.1016/s0140-6736(97)24020-1.
- [29] Venugopal, A. and Maheswari, T. N. U. (2016) ‘Expression of matrix metalloproteinase-9 in oral potentially malignant disorders: A systematic review’, *Journal of Oral and Maxillofacial Pathology*, p. 474. doi: 10.4103/0973-029x.190951.
- [30] Warnakulasuriya, S. and Muthukrishnan, A. (2018) ‘Oral health consequences of smokeless tobacco use’, *Indian Journal of Medical Research*, p. 35. doi: 10.4103/ijmr.ijmr_1793_17.
- [31] Yadav, M. *et al.* (2014) ‘Comparison of curcumin with intralesional steroid injections in Oral Submucous Fibrosis – A randomized, open-label interventional study’, *Journal of Oral Biology and Craniofacial Research*, pp. 169–173. doi: 10.1016/j.jobcr.2014.11.003.

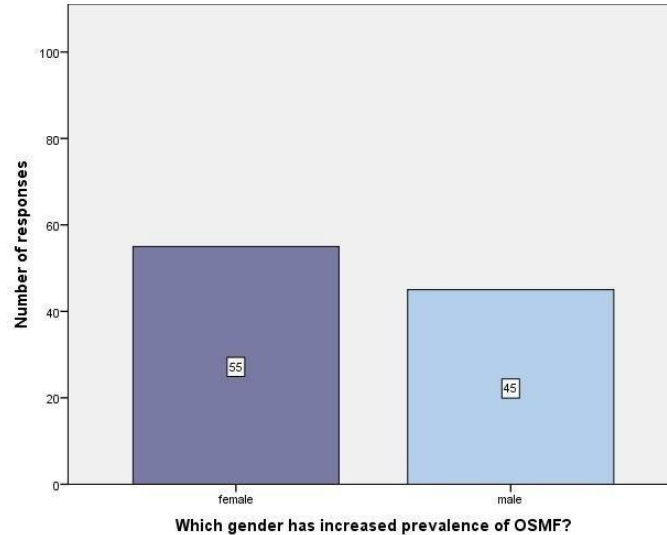


FIGURE 1: Bar chart showing the responses to the question: “Which gender has increased prevalence of OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding which gender has increased prevalence of OSMF and Y axis represents percentage of participants. Majority of the respondents reported that female (55%) has increased prevalence of OSMF .Only 45% of the participants reported Male has increased prevalence of OSMF

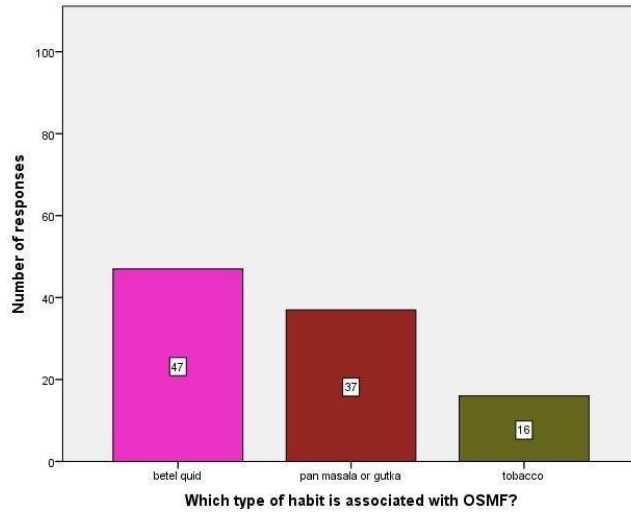


FIGURE 2: Bar chart showing the responses to the question: “Which type of habit is associated with OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding type of habit is associated with OSMF and Y axis represents percentage of participants. Majority of the respondents reported that betel quid (47%) type of habit is associated with OSMF . 37% of participants reported pan masala or gutka and 16% reported tobacco type of habit is associated with OSMF.

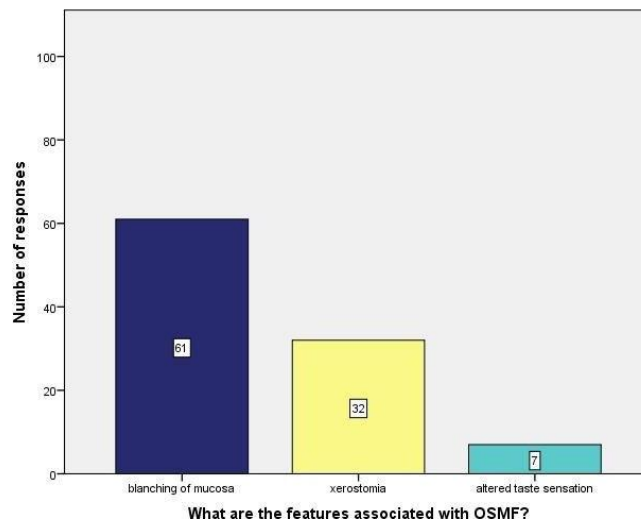


FIGURE 3 : Bar chart showing the responses to the question: “What are the features associated with OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding the features associated with OSMF and Y axis represents percentage of participants. Majority of the respondents reported that blanching mucosa 61% are the features associated with OSMF .Only 32% reported xerostomia and 7% reported altered taste sensation are the features associated with OSMF.

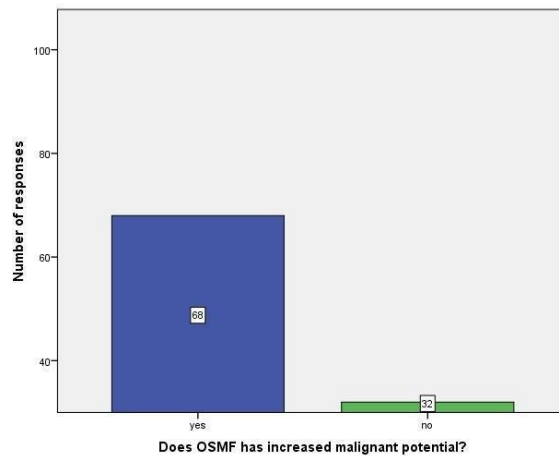


FIGURE 4: Bar chart showing the responses to the question: “Does OSMF have increased malignant potential ?” X axis represents the distribution of knowing the student’s knowledge regarding does OSMF have increased malignant potential and Y axis represents percentage of participants. Majority of the respondents reported that 68% aware that OSMF has increased malignant potential .Only 32% reported they were not aware that OSMF has increased malignant potential

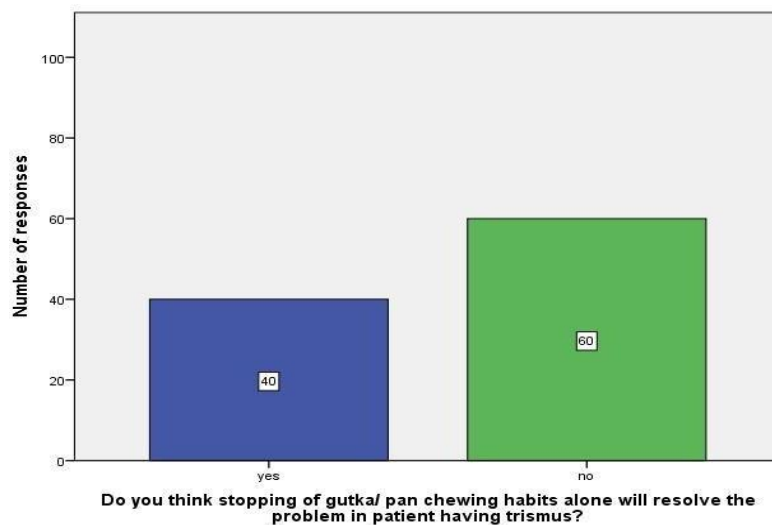


FIGURE 5: Bar chart showing the responses to the question: “Do you think Stopping of gutka / pan chewing habits alone will resolve the problem in patients having trismus ?” X axis represents the distribution of knowing the student’s knowledge regarding Stopping of gutka / pan chewing habits alone will resolve the problem in patients having trismus and Y axis represents the percentage of participants. Majority of the respondents reported that 60% aware that stopping of gutka / pan chewing habits alone will not resolve the problem in patients having trismus .Only 40% reported they were not aware that stopping of gutka / pan chewing habits alone will resolve the problem in patients having trismus .

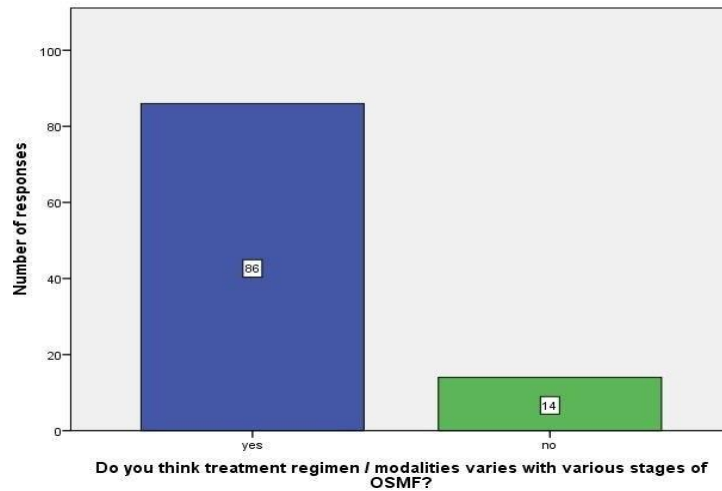


FIGURE 6: Bar chart showing the responses to the questions: “Do you think treatment regimen / modalities varies with various stages of OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding treatment regimen / modalities varies with various stages of OSMF and Y axis represents the percentage of participants. Majority of the respondents reported that 86% were aware that treatment regimen / modalities varied with various stages of OSMF. Only 14% reported they were not aware that treatment regimen / modalities varied with various stages of OSMF.

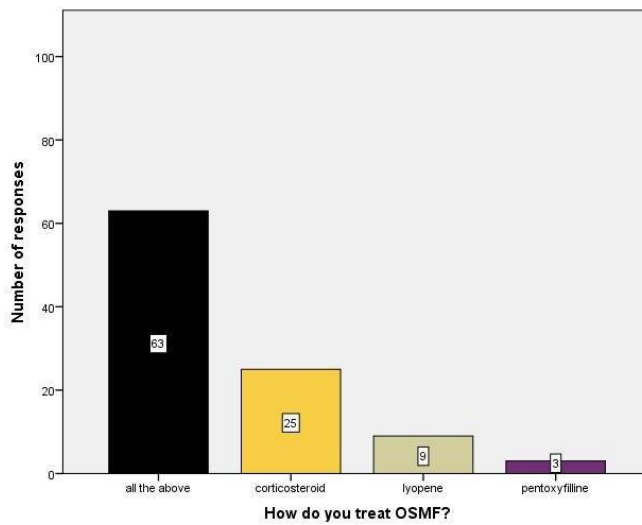


FIGURE 7 : Bar chart showing the responses to the question: “How do you treat OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding treatment of OSMF and Y axis represents the percentage of participants. Majority of the respondents reported that 63% were aware that they will treat OSMF by corticosteroids, lycopene, pentoxifylline .Only 25% reported corticosteroids, 9% lycopene and 3% pentoxifylline.

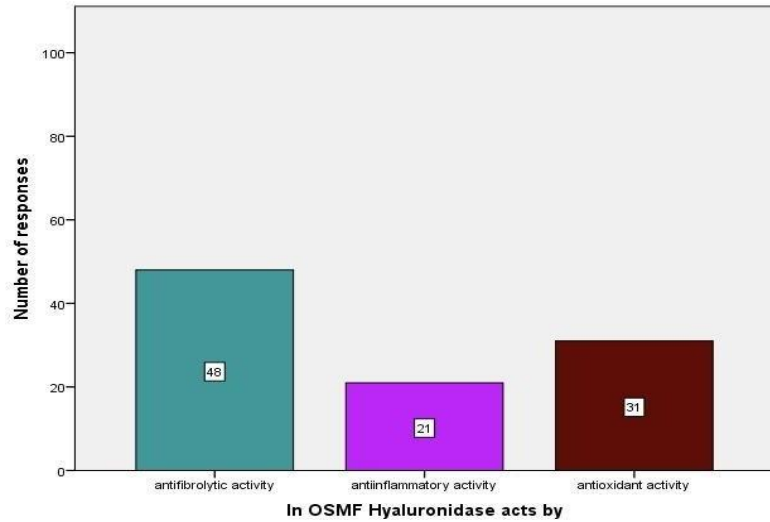


FIGURE 8: Bar chart showing the responses to the question: “The action of hyaluronidase in OSMF.” X axis represents the distribution of knowing the student’s knowledge regarding the action of hyaluronidase in OSMF and Y axis represents the percentage of participants. Majority of respondents reported that 48% that antifibrinolytic activity will be the action of hyaluronidase in OSMF. Only 31% reported antioxidant activity and 21% reported anti inflammatory activity will be the action of hyaluronidase in OSMF.

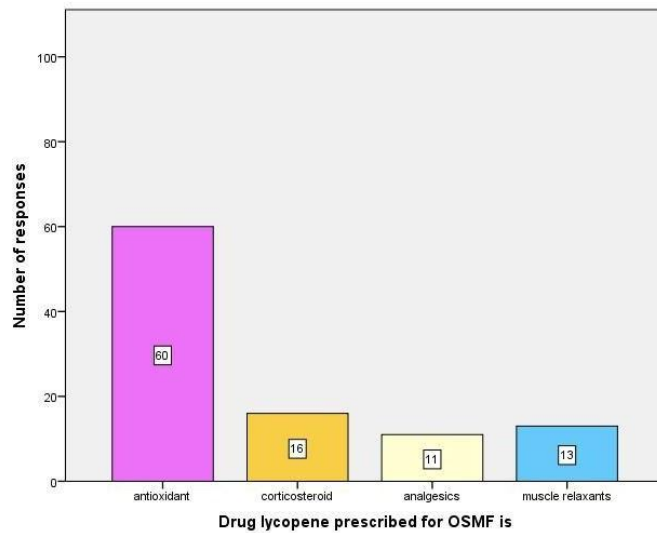


FIGURE 9: Bar graph showing the responses to the question: “Lycopene drugs prescribed for OSMF.” X axis represents the distribution of knowing the student’s knowledge regarding lycopene drugs prescribed for OSMF and Y axis represents the percentage of participants. Majority of respondents reported that 60% were aware that drug lycopene was prescribed for OSMF as antioxidants. Only 16% reported corticosteroids, 11% reported analgesics, 13% reported muscle relaxants .

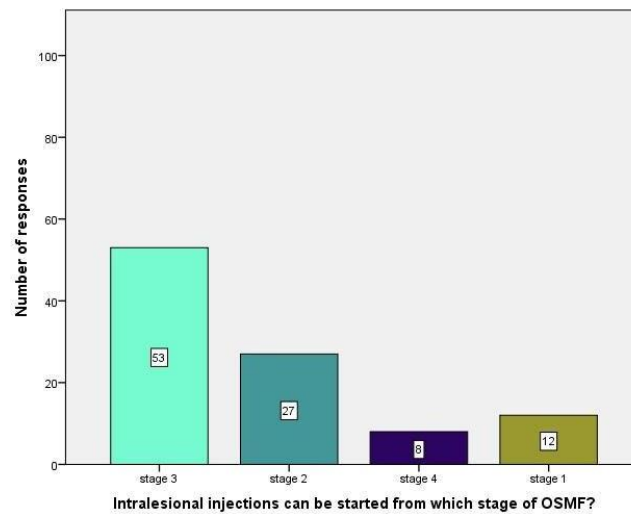


FIGURE 10 : Bar chart showing the responses to the question: “Intralesional injection can be started from which stage of OSMF ?” X axis represents the distribution of knowing the student’s knowledge regarding Intralesional injection can be started from which stage of OSMF and Y axis represents the percentage of participants. Majority of respondents reported that 53% were aware that intralesional injections can be started from stage 3 of OSMF. Only 27% reported stage 2, 12% reported stage 1 and 8% reported stage 4.

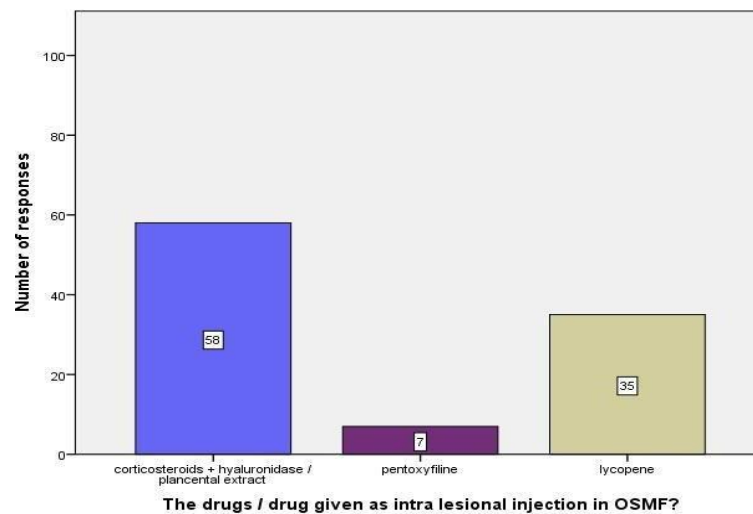


FIGURE 11: Bar chart showing the responses to the question: “The drugs / drug given as intralesional injections in OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding the drugs / drug given as intralesional injections in OSMF and Y axis represents the percentage of participants. Majority of respondents reported that 58% were aware that corticosteroids + hyaluronidase / placental extracts would be the drugs / drug given as intralesional injections in OSMF. Only 35% reported lycopene and 7% reported pentoxifylline would be the drugs / drug given as intralesional injections in OSMF.

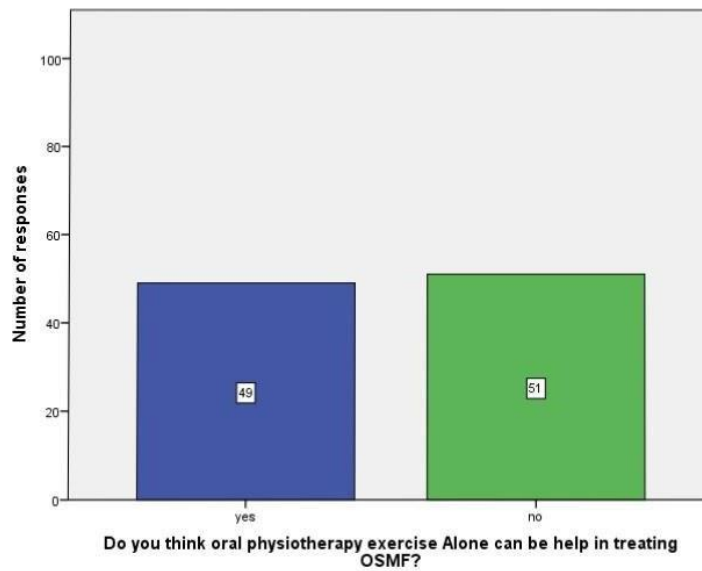


FIGURE 12: Bar chart showing the responses to the question: “Do you think oral physiotherapy exercise alone can be helped in treating OSMF ?” X axis represents the distribution of knowing the student’s knowledge regarding oral physiotherapy exercise alone can be helped in treating OSMF and Y axis represents the percentage of participants. Majority of respondents reported that 51% were aware that oral physiotherapy alone will not help in treating OSMF. Only 49% were not aware that oral physiotherapy alone will not help in treating OSMF.

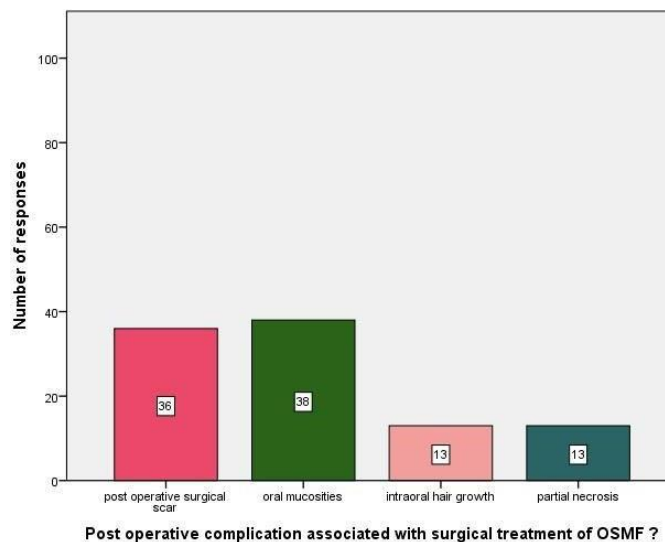


FIGURE 13: Bar chart showing the responses to the question: “Post operative complication associated with surgical treatment of OSMF?” X axis represents the distribution of knowing the student’s knowledge regarding Post operative complication associated with surgical treatment of OSMF and Y axis represents the percentage of participants. Majority of respondents responded that 38% oral mucositis will be the postoperative complication with surgical treatment of OSMF. Only 36% reported postoperative surgical scar , 13% reported intraoral hair growth and partial necrosis will be the postoperative complication with surgical treatment of OSMF.

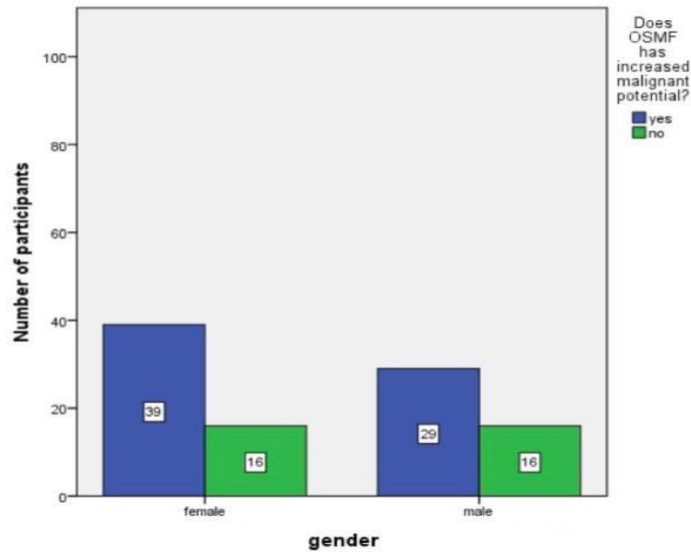


FIGURE 14: Bar graph showing comparison of responses based on gender in the study to the question, “Does OSMF have increased malignant potential of OSMF”. X axis represents gender and Y axis represents the number of responses, where blue colour denotes “yes” and green colour denotes “no”. Higher number of females (39%) reported that OSMF has increased malignant potential. There is no significant difference in responses between males and females. (Pearson chi square test; p - value = 0.491 > 0.05 which is statistically not significant).

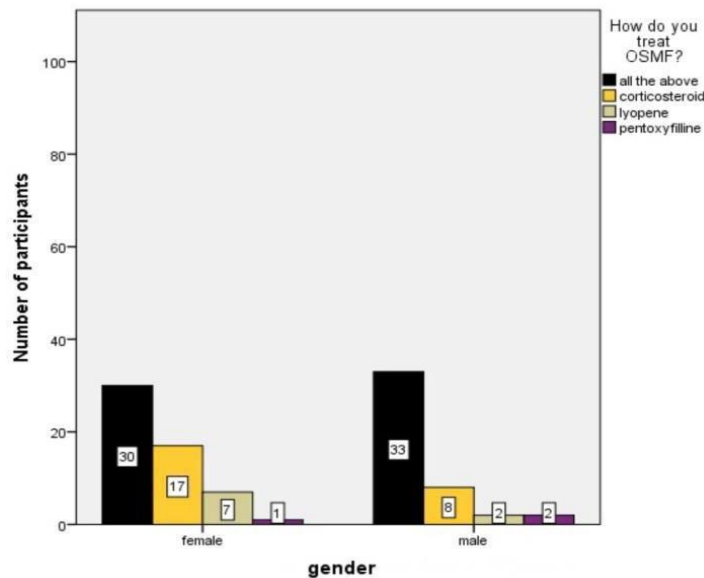


FIGURE 15: Bar graph showing comparison of responses based on gender of participants to the question, “How do you treat OSMF ?” X axis represents gender and Y axis represents the number of responses where black colour denotes all the above, sandal colour denotes corticosteroids , beige denotes lycopene and purple denotes pentoxifylline. Higher number of males (33%) responded that OSMF is treated by a combination of the corticosteroids, lycopene, pentoxifylline (all of the above). There is no significant difference in responses between males and females. (Pearson chi square test; p - value = 0.136 > 0.05 which is statistically not significant).

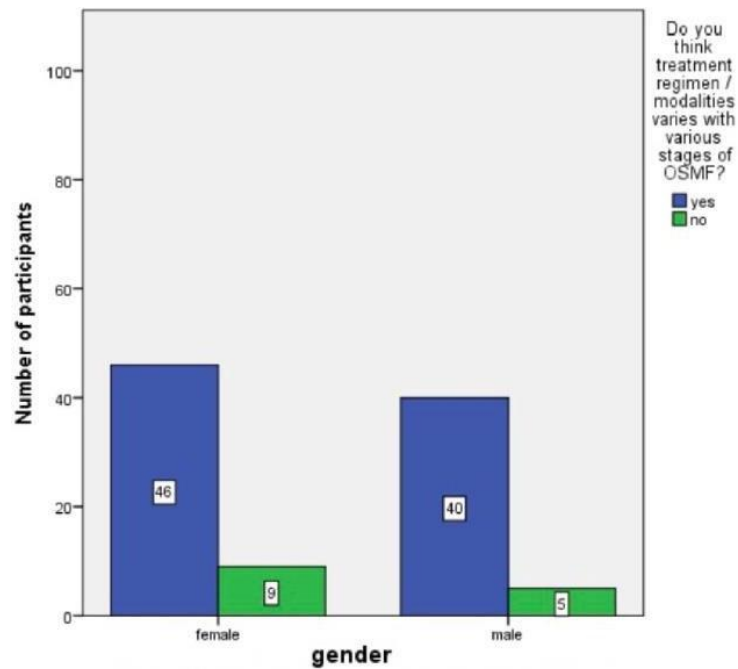


FIGURE 16: Bar graph showing comparison of responses based on gender to the question, “ Do you think treatment regimen / modalities varies with various stages of OSMF?” X axis represents gender and Y axis represents the number of responses where blue colour denotes “yes” and green colour denotes “No”. Higher number of females (46%) reported treatment regimen / modalities varies with various stages of OSMF. There is no significant difference in responses between males and females. (Pearson chi square test; p value = 0.451 > 0.05, which is statistically not significant).

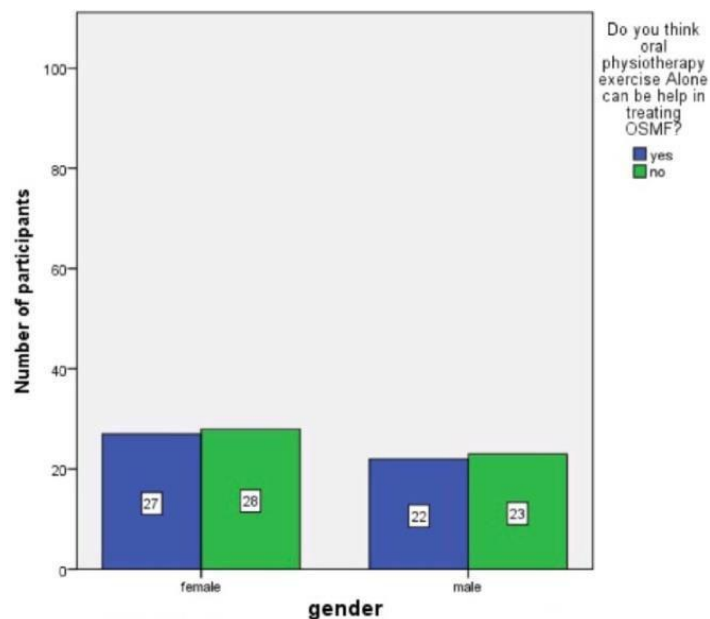


FIGURE 17: Bar graph showing comparison of responses based on gender to the question, “ Do you think oral physiotherapy exercise alone can be helpful in treating OSMF?” X axis represents gender and Y axis

represents the number of responses where blue colour denotes “Yes” and green colour denotes “No”. Higher number of females (28%) reported oral physiotherapy exercise alone cannot be helpful in treating OSMF. There is no significant difference in responses between males and females.(Pearson chi square test; p value=0.984 > 0.05, which is statistically not significant).

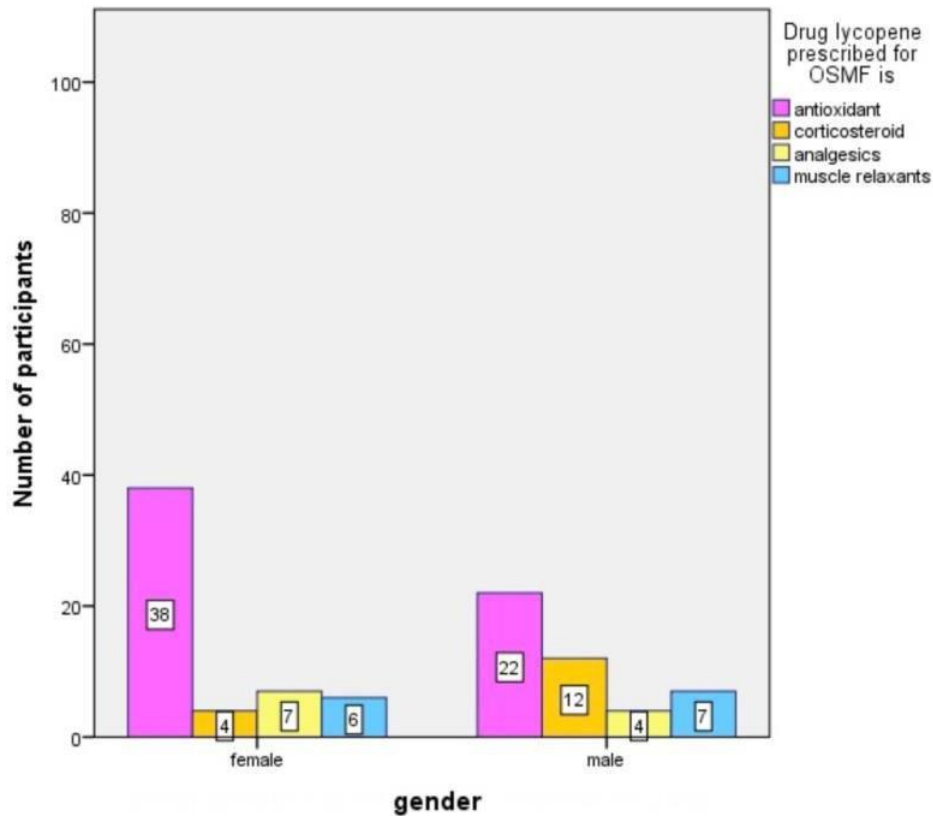


FIGURE 18: Bar graph showing comparison of responses based on gender to the question, “ Drug lycopene prescribed for OSMF?” X axis represents gender and Y axis represents the number of responses where pink colour denotes antioxidant , sandal colour corticosteroids , yellow colour denotes analgesics and sky blue colour denotes muscle relaxants. Higher number of females (38%) reported drug lycopene prescribed for OSMF is antioxidants. There is no significant difference in responses between males and females.(Pearson chi square ; p -value = 0.041 > 0.05 which is statistically not significant).