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Awareness Of Sweet Syndrome Among Dental Students

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Abstract

Introduction
Sweet syndrome is a very rare inflammatory skin condition characterised by a sudden onset of fever and painful rash on arms, legs, trunk, face or neck. Sweet syndrome exhibits in three clinical forms: classical, malignancy associated and drug induced. The exact cause of Sweet syndrome is not fully understood. Most likely, the disorder results from multiple, complex factors including immunological, and environmental factors. treatment with low doses of corticosteroids such as methylprednisolone or prednisone has proven effective in eliminating symptoms.

Aim
Aim of the study is to create awareness about sweet syndrome among dental students.

Materials and methods
An online survey was conducted among 100 students based on the awareness and knowledge on Sweet Syndrome. The study was conducted from January to march, 2021. A questionnaire was prepared with 15 questions on causes, symptoms, diagnosis, treatment of Sweet Syndrome . Later, the questionnaire was uploaded in the Google forms.The results were statistically analysed using the latest software version SPSS.

Results
A total of 100 respondents attended this survey. It shows that 57.84% males attended this survey more than the females of 42.16%.. Sweet syndrome is a rare and progressive disease in which 87.88% respondents were aware of balo's disease , whereas only 12.12% respondents didn't know about Sweet syndrome.

Conclusion
Within the limits of study, it was observed that the majority of the dental students are aware of Sweet syndrome. The association between gender and number of responses shows that males are more aware than females.

Keywords: Awareness,dental,students,sweet synd

Introduction

Sweet syndrome is a very rare inflammatory skin condition characterised by a sudden onset of fever and painful rash on arms, legs, trunk, face or neck. Sweet syndrome exhibits in three clinical forms: classical, malignancy associated and drug induced.(1) Classical sweet syndrome is known as acute febrile neutrophilic dermatosis, characterised by fever, neutrophilia, erythematous and tender skin lesions which shows upper dermal infiltrate of mature neutrophils which shows improvement after the initiation of treatment.(2) It is associated with upper respiratory tract and gastrointestinal tract, inflammatory bowel. The lesion is a vesicle-like appearance associated with Oedema in the upper region of dermis. They are commonly presented as paraneoplastic syndrome which is related to acute myelogenous leukaemia which is likely to get affected after treatment with granulocyte colony stimulating factor therapy.(3) The specific cells in the immune system such as cytokines have a direct or indirect etiological role in the development of dermatitis.(4) About one third of the patients with classical sweet syndrome have high chances for the recurrence of dermatosis. The dermatosis leads up to or appears concurrent with the diagnosis of patients cancer.(5) The patients with the idiopathic form of the disease and malignancy are characterised by severe cutaneous lesions, cytopenia and the immature cells in the peripheral blood.(6) In some cases, classic Sweet syndrome may also be associated with autoimmune and inflammatory disorders such as inflammatory bowel disease: ulcerative colitis or Crohn's disease.(7) The extra cutaneous sites of involvement of eyes, muscles, lungs, liver and joints. The manifestations of sweet syndrome enhance with corticosteroids therapy and are associated neoplasm to Tumor directed therapy.(8–16) Sweet syndrome associated with malignancy, they are more likely to be associated with cytopenia and onset at an older age.(8–16) Pathological findings seen in malignancy associated with sweet syndrome is histiocytoid especially in myelodysplastic syndrome. (17)

Drug induced sweet syndrome is known as Drug-induced Sweet syndrome has been a well-known entity, with several drugs reported to cause Sweet syndrome. G-CSF is the most common drug, while several others, including antibiotics (minocycline, nitrofurantoin, trimethoprim-sulfamethoxazole, norfloxacin, ofloxacin), antihypertensives (hydralazine, furosemide), NSAIDs (diclofenac, celecoxib), immunosuppressives (azathioprine), antiepileptics (carbamazepine, diazepam), anti-cancer (bortezomib, imatinib mesylate, ipilimumab, lenalidomide, topotecan, vemurafenib), antipsychotics (clozapine), antithyroid (propylthiouracil), etc. (18)

Classical Sweet syndrome in adults affects women more often than men by as much as 15:1 by some estimates.(8–16) This female preponderance has not been seen in malignancy-associated or drug-induced Sweet syndrome.(8–16),(19–26) Classical Sweet syndrome usually affects women between the ages of 30-50, but can be seen in individuals of any age including children. There is no gender predominance seen in children. (27)

The exact cause of Sweet syndrome is not fully understood. Most likely, the disorder results from multiple, complex factors including immunological, and environmental factors. A diagnosis of Sweet syndrome is made based upon a thorough clinical evaluation, a detailed patient history, identification of classic symptoms, and a variety of specialized tests.(19–24), The treatment of Sweet syndrome is directed toward the specific symptoms that are apparent in each individual. In some cases, Sweet syndrome may resolve itself with no treatment, although this can take weeks to months. The mainstay of treatment is with systemic corticosteroids.(28–32) In most cases, treatment with low doses of corticosteroids such as methylprednisolone or prednisone has proven effective in eliminating symptoms, sometimes rapidly resolving symptoms. (28–32) The aim of the study is to create awareness about sweet syndrome among dental students.

Materials and methods

An online survey was conducted among 100 students based on the awareness and knowledge on Sweet Syndrome. The study was conducted from January to march, 2021. A questionnaire was prepared with 15 questions on causes, symptoms, diagnosis, treatment of Sweet Syndrome . Later, the questionnaire was uploaded in the Google forms which is an online

survey application that can facilitate the distribution of questionnaires via email; smartphones by using applications, such as WhatsApp; and social media platforms, such as Instagram. This survey application allows participants to access the questionnaire easily, and it analyses and exports results after responses have been collected. The results were statistically analysed using the latest software version SPSS. Chi square test and Pearson correlation analysis were used, with p values less than 0.05 to be statistically significant.

Results

A total of 100 respondents have attended this survey.

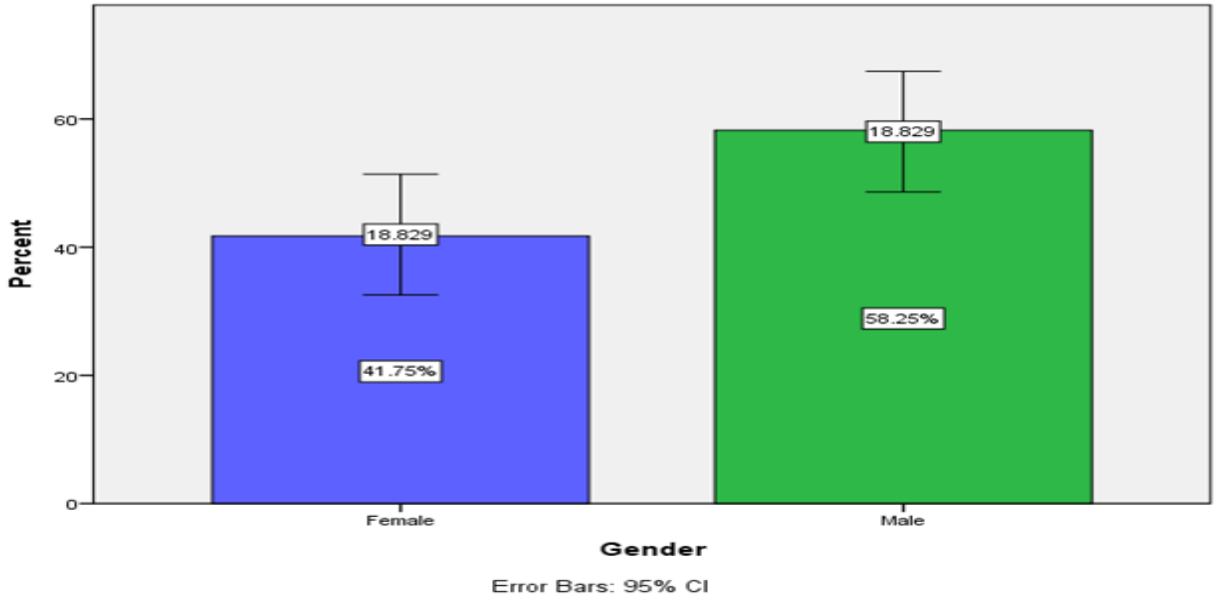

Figure 1 represents the pie chart of the participants who are involved in this study. Green colour denotes males and Blue colour denotes females. 57.8% were males and 42.1% were females.

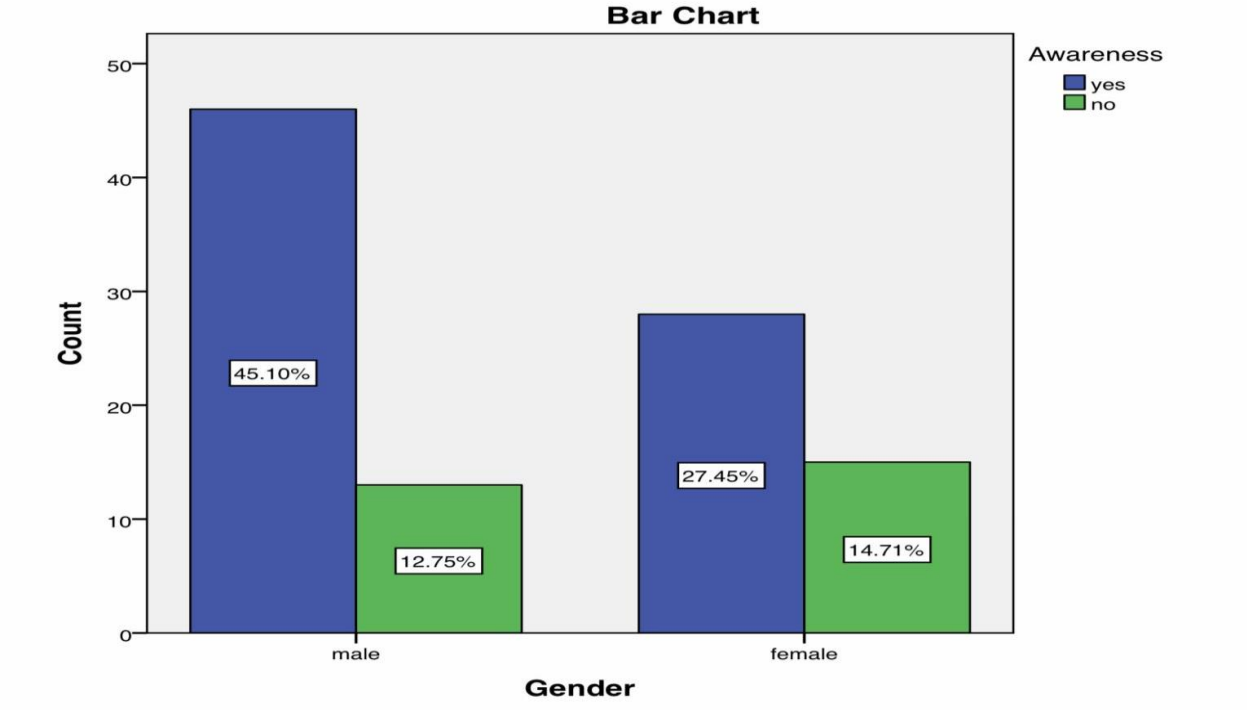

Figure 2 depicts the correlation graph between gender of the participants and awareness of sweet syndrome. Blue colour denotes Yes, green colour denotes No. Among Males, 45.10% answered yes, 12.75% answered as No, Whereas among females, 27.45% responded as yes, 14.71% responded as no. Chi square test was evaluated for this graph with a p value of p=0.248 (p>0.05). Hence the value is statistically insignificant.

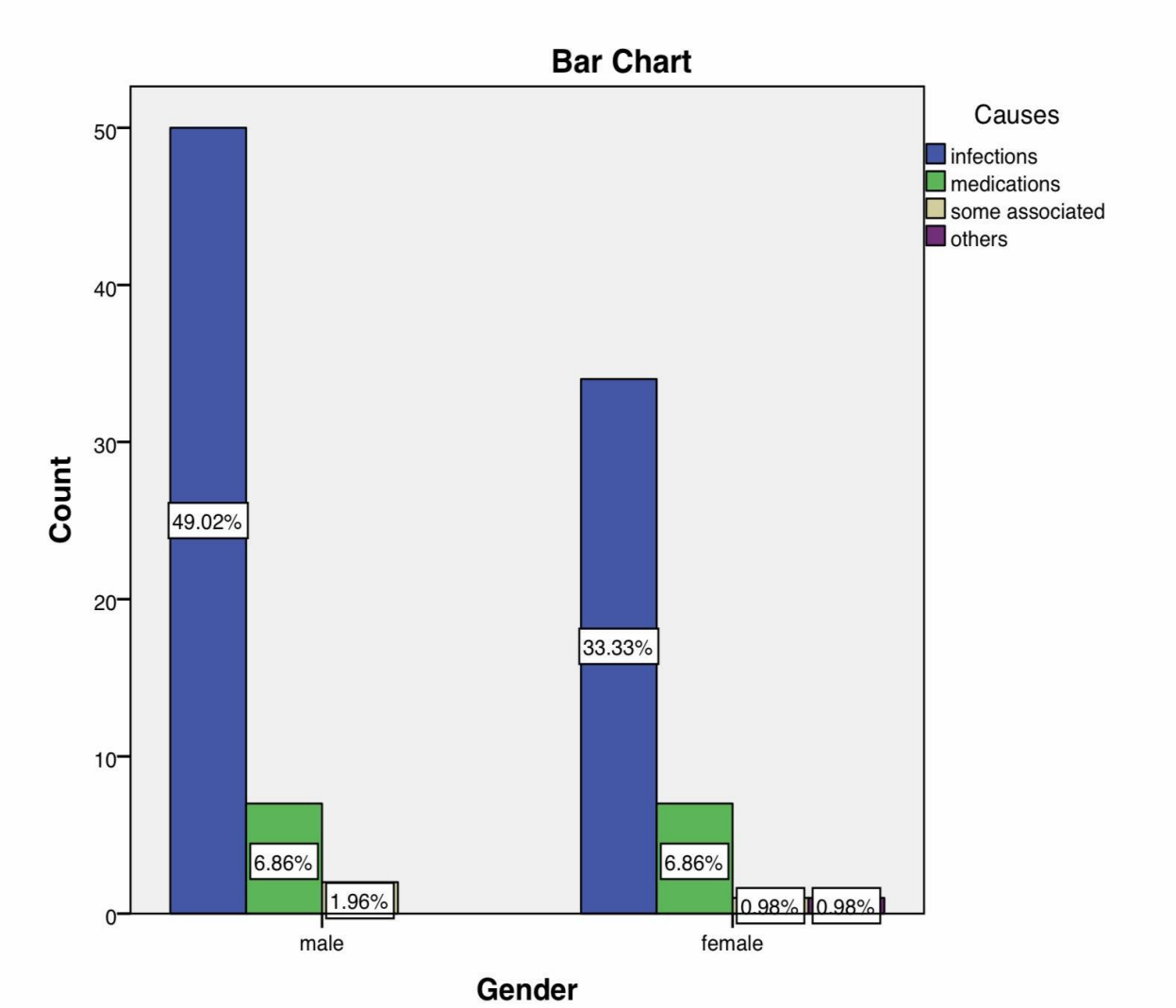

Figure 3 depicts the correlation graph between gender of the participants and causes of sweet syndrome. Blue colour denotes infections, green colour denotes medications, yellow colour denotes some associated disease, pink colour denotes others. Among females, 33.33% answered as infections, 6.86% answered as medications and 0.98% of females responded as some associated disease, Whereas among males, 49.02% responded as infections, 6.86% of males answered medications and 1.96% answered as some associated disease. Chi square test was evaluated for this graph with a p value of p=0.243 (p>0.05). Hence the value is statistically insignificant.

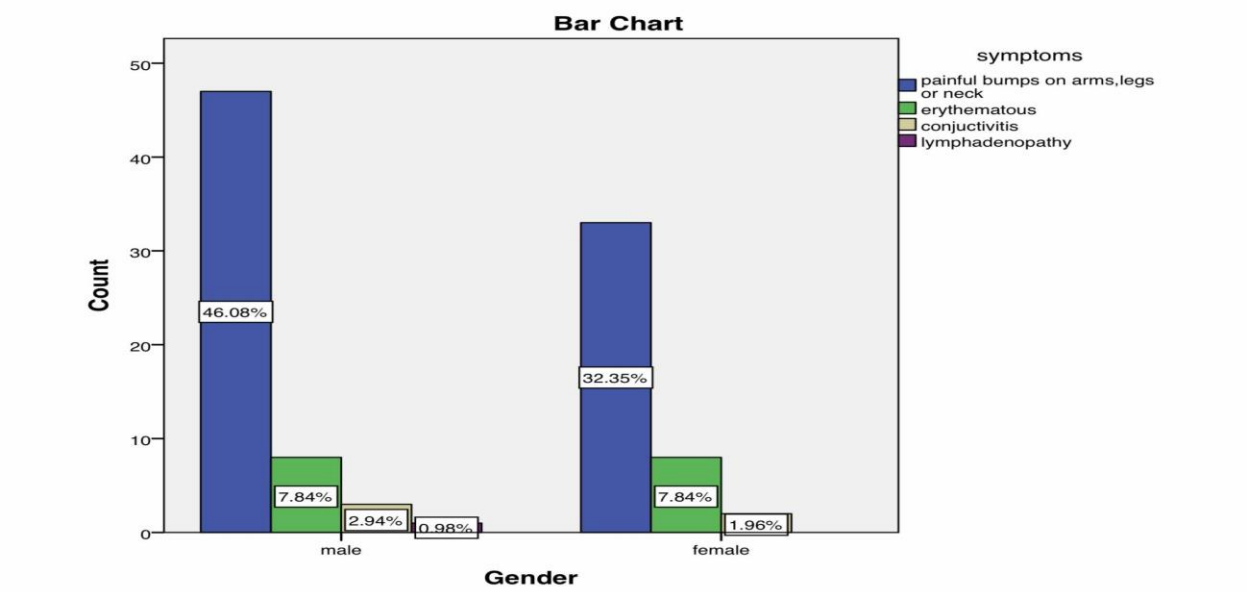

Figure 4 depicts the correlation graph between gender of the participants and symptoms of sweet syndrome. Blue colour denotes painful bumps on arms,legs or neck, green colour denotes erythematous, yellow colour denotes conjunctivitis , pink colour denotes lymphadenopathy. Among females, 32.35% answered as painful bumps on arms,legs or neck, 7.84% answered as erythematous and 1.96% of females responded as conjunctivitis, Whereas among males, 46.08% responded as painful bumps on arms,legs or neck, 7.84% of males answered erythematous and 2.94% answered as conjunctivitis. Chi square test was evaluated for this graph with a p value of p=0.243 (p>0.05). Hence the value is statistically insignificant.

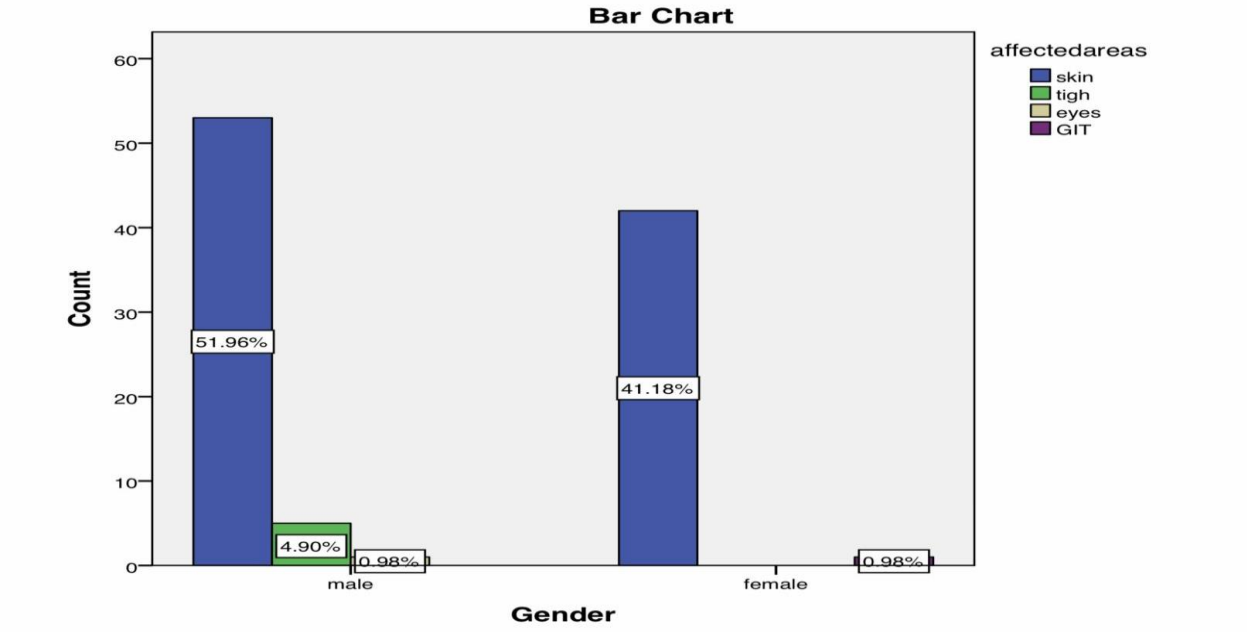

Figure 5 depicts the correlation graph between gender of the participants and areas affected in sweet syndrome. Blue colour denotes skin, green colour denotes thigh , yellow colour denotes eyes, pink colour denotes GIT. Among females, 41.18% answered as skin, 0.98% answered as GIT, Whereas among males, 51.96% responded as skin, 4.9% of males answered tigh and 0.98%

answered as eyes. Chi square test was evaluated for this graph with a p value of p=0.34 (p>0.05). Hence the value is statistically insignificant.

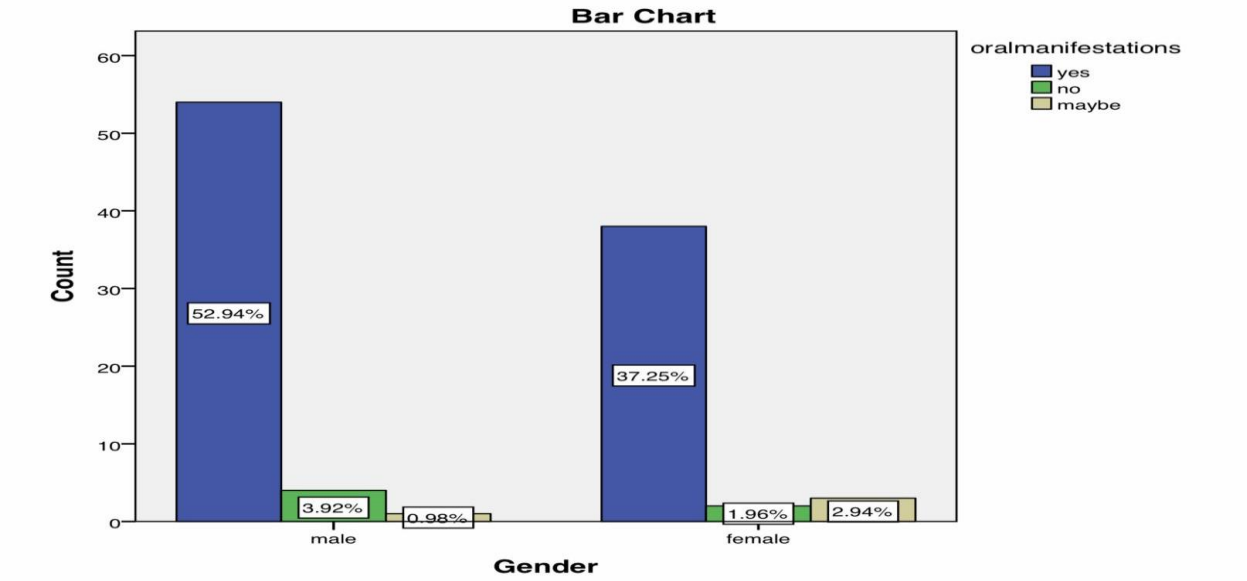

Figure 6 depicts the correlation graph between gender of the participants and oral manifestations of sweet syndrome. Blue colour denotes painful bumps on arms,legs or neck, green colour denotes erythematous, yellow colour denotes conjunctivitis , pink colour denotes lymphadenopathy. Among females, 32.35% answered as painful bumps on arms,legs or neck, 7.84% answered as erythematous and 1.96% of females responded as conjunctivitis, Whereas among males, 46.08% responded as painful bumps on arms,legs or neck, 7.84% of males answered erythematous and 2.94% answered as conjunctivitis. Chi square test was evaluated for this graph with a p value of p=0.134 (p>0.05). Hence the value is statistically insignificant.

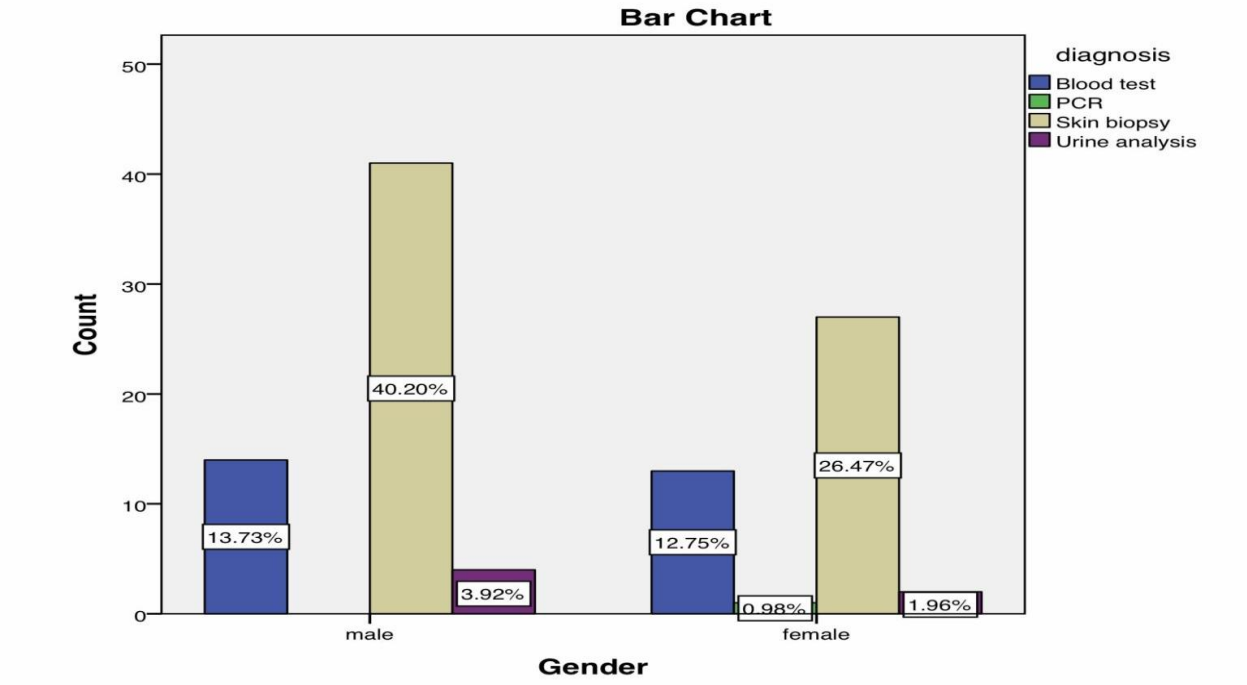

Figure 7 depicts the correlation graph between gender of the participants and diagnosis of sweet syndrome. Blue colour denotes blood test, green colour denotes PCR, yellow colour denotes Skin biopsy, pink colour denotes urine analysis. Among females, 12.75% answered as Blood test, 0.98% answered as PCR, 26.47% of females responded as skin biopsy, 1.96% responded as urine analysis, Whereas among males, 13.73% responded as blood test, 40.2% of males answered skin biopsy and 3.92% answered as urine analysis. Chi square test was evaluated for this graph with a p value of lp=0.365 (p>0.05). Hence the value is statistically insignificant.

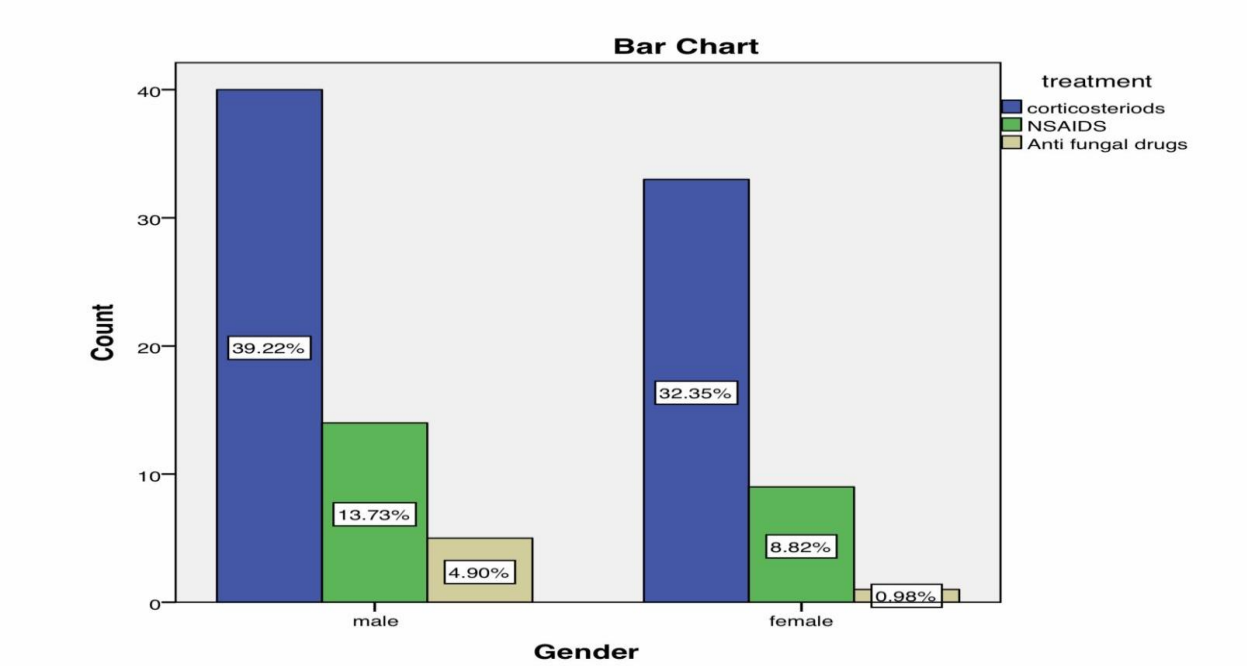

Figure 8 depicts the correlation graph between gender of the participants and treatment of sweet syndrome. Blue colour denotes corticosteroids, green colour denotes NSAIDS , yellow colour denotes Antifungal drugs. Among females, 32.35% answered as Corticosteroids, 8.82% answered as NSAIDS, 0.98% of females responded as Antifungal drugs, Whereas among males, 39.22% responded as corticosteroids, 13.73% of males answered NSAIDS and 4.90% answered as Antifungal drugs Chi square test was evaluated for this graph with a p value of p=0.365 (p>0.05). Hence the value is statistically insignificant.

Discussion

Sweet syndrome is a rare inflammatory disease , it is observed that out of 100 respondents, 91.2% respondents were aware of sweet syndrome, whereas only 8.8% respondents didn't know about Sweet syndrome. A recent study done by et al showed that the majority of students are least aware about the sweet syndrome.

The main cause of sweet syndrome is due to infections.The study done by et al says that sweet syndrome is linked to infections which are associated with symptoms such as fever, skin rashes, conjunctivitis. In this study, it showed that 82.4% of respondents reported Infections cause sweet syndrome, 13.7% reported that sweet syndrome is caused by medications and 3.9% respondents said that some are associated with cancers.the study done by etal says that the exact cause of sweet syndrome is not yet known, most likely it's a disorder that results from multiple factors such as environmental and immunological factors. The recent study shows that sweet syndrome is associated with malignancy which leads to cancer. The symptoms associated with sweet syndrome are Painful bumps on arms, legs or neck (78.4%), Erythematous (15.7%) and conjunctivitis (3.5%). Study done by showed that

sweet syndrome is the sudden onset of tender, painful bumps ie. nodules or papules which are more likely to affect arms, legs, face and neck region. They also occur in the thighs and trunk. The appearance of papules are solid, raised lesions, whereas the nodules are slightly larger that extend deeper into the skin.The initial stage of lesions are millimeter in size which later on extend into centimeters, which are flat, elevated, irregular shaped and inflamed. Sweet syndrome may also be related to autoimmune and inflammatory disorders such as crohn's disease, ulcerative colitis and a wide variety of drugs are associated with sweet syndrome, these drugs stimulate the production of neutrophils. The research states that cytokines dysregulation plays a role in the regulation of this disorder, they are specialized proteins which are secreted from immune system cells which either stimulate or inhibit the function of the immune system. The study done et al showed that sweet syndrome affects women between the ages of 30-50, whereas there is no gender predominance in children. In this study, the age group affected is 30-50 years of 64.7%, a percentage of 29.4% is seen in above 50 years respectively, whereas disease is mostly seen in 79.4% of women and 13.7% of men. The study done by says that autoimmune factors may play a role in the development of sweet syndrome. Autoimmune disorders are caused when the body's natural defenses against foreign or invading organisms begin to attack healthy tissue for unknown reasons. Sweet syndrome is associated with malignancy that is corroborated with leukopenia, anemia and thrombocytopenia. The study done by et al showed that malignancy associated with sweet syndrome is most commonly associated with blood cancer such as leukemia and lymphoma and solid tumors including blood cancer. In this study it shows that Blood(67.6%),Skin(30.4%) and breast(1.9%). Classical sweet syndrome in adults affects women more often than men by about 15:1 by some estimates. Some researchers state that there is no gender predominance seen, it is likely to affect both males and females equally. The treatment of sweet syndrome is not yet known as seen in the study done by etal. The study done by says that sweet syndrome may resolve itself with no treatment, although that takes months or years to cure. The study was contraindicated by etal says that most cases of sweet syndrome are cured with low dosage of corticosteroids such as methylprednisolone and has been proven that it is effective in eliminating symptoms but it resolves slowly. In this study, the majority of respondents are aware that corticosteroids(71.6%) is the medication, whereas only 22.5% say NSAIDs are used. There is no standardized protocol for affected individuals, since it's a rare disease, no treatment trials have been tested on a large group of patients.More research is necessary to determine the exact mechanism and ultimate cause of the development of sweet syndrome and the treatment trails should be done for the effective medications and treatment for the individuals affected with sweet syndrome.

Limitations

Reduced sample size and many of the responders might have an unwillingness to respond and generate false responses that might influence the study.

Future Scope

The scope of the study is that it can be used to create knowledge about disease among adults.

Conclusions

Within the limits of study, it was observed that the majority of the dental students are aware of Sweet syndrome. The association between gender and number of responses shows that males are more aware than females.

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Conflict of interest : Nil

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