

# **Incidence of Non Habit Associated Oral Squamous Cell Carcinoma among Patients in a Private College Hospital - A Retrospective Study**

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## **Abstract**

Oral squamous cell carcinoma is considered as one of the major prevalent oral cancers in the world. The major risk factors considered are tobacco and alcohol. However, in the present there is an increased incidence of non habit associated squamous cell carcinoma. This study aims to evaluate the incidence of non habit associated squamous cell carcinoma visiting our college hospital. A total of 50(n=50) patients with squamous cell carcinoma visited Saveetha Dental College were included in this study. Datas were collected by reviewing the patients records and analysed the data of 86000 patients visited between June 2019 and March 2020. All the datas were recorded and analysed statistically using SPSS software. From the analysis through SPSS, it was found that the overall incidence of non habit associated squamous cell carcinoma was 56% with male predilection and it was found to be statistically significant(p<0.05). The results of our study shows that there is a significant number of patients without habits presented with oral squamous cell carcinoma with a cause unknown in our hospital.

**Key words:** *Oral squamous cell carcinoma, non habits, systemic disease, smoking, alcohol, hereditary.*

## **Introduction**

Oral squamous cell carcinoma (OSCC) is the most common form of oral cancer and the sixth common malignancy in the world <sup>1,2</sup>. India is considered a high risk region for oral cancer due to increased prevalence of smoking, alcohol drinking and tobacco use <sup>3-5</sup>. However, a recent trend in India shows that there is an exaggerated incidence of oral squamous cell carcinoma

in females without habit history <sup>6</sup>. The most common site affected is the buccal mucosa <sup>7</sup>. The factors influencing the oral squamous cell carcinoma are smoking, alcohol, diet and nutrition, virus, radiation, facial and genetic predisposition, oral thrush, immunosuppression, use of mouthwash, syphilis, dental factors and occupational risks <sup>8-10</sup>. The other factors which play a major role in oral squamous cell carcinoma are impaired ability to repair DNA damaged by mutagens, an impaired ability to metabolize carcinogens, deficiencies of vitamin A, E, C or trace elements and immune defects. The premalignant disorders that can progress to oral squamous cell carcinoma are erythroplakia, leukoplakias, actinic cheilitis, lichen planus, sideropenic dysphagia, submucous fibrosis, dyskeratosis congenita and discoid lupus erythematosus <sup>11</sup>.

The most common age group of patients who were prevalent to oral squamous cell carcinoma are over 50 years of age <sup>12</sup>. However, in the last few years there

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has been an increased prevalence of squamous cell carcinoma in patients who are younger than 45<sup>13</sup>. It is known that the major risk factors associated with oral squamous cell carcinoma are smoking and alcohol<sup>14</sup>. The combination of smoking and alcohol seems to increase the carcinogenic effect<sup>15</sup>.

The etiological factors associated with non habit associated squamous cell carcinoma are viral infections like HPV, EBV, immunosuppression, familial factors, genetic predisposition, chronic mechanical irritation, dietary factors and hormonal factors<sup>16-18</sup>. Although, The mechanism of how it causes squamous cell carcinoma is not clear. It has been suggested that non smoking individuals have a greater probability of developing tumors related to HPV than individuals who smoke<sup>14</sup>. This study aims to evaluate the incidence of patients with non habit associated squamous cell carcinoma visited Saveetha Dental college.

## Materials and Methods

In the present retrospective study, a total of 50 patients(n=50) visited Saveetha Dental College were included. Data were collected by reviewing records of 86000 patients. Sample collected was from June 2019 to March 2020. All the case sheets included in this study were approved and reviewed. Also, cross verification of data was done by photographs.

Parameters such as age, gender, presence or absence of habits like smoking, pan chewing and presence or absence of any systemic illness were collected. Approval from the ethical committee was taken before the start of the study. All these dates were entered in Microsoft excel sheet and imported to SPSS by IBM and the statistical analysis was done by Chi Square test. The results were interrupted in graphs.

## Results and Discussion

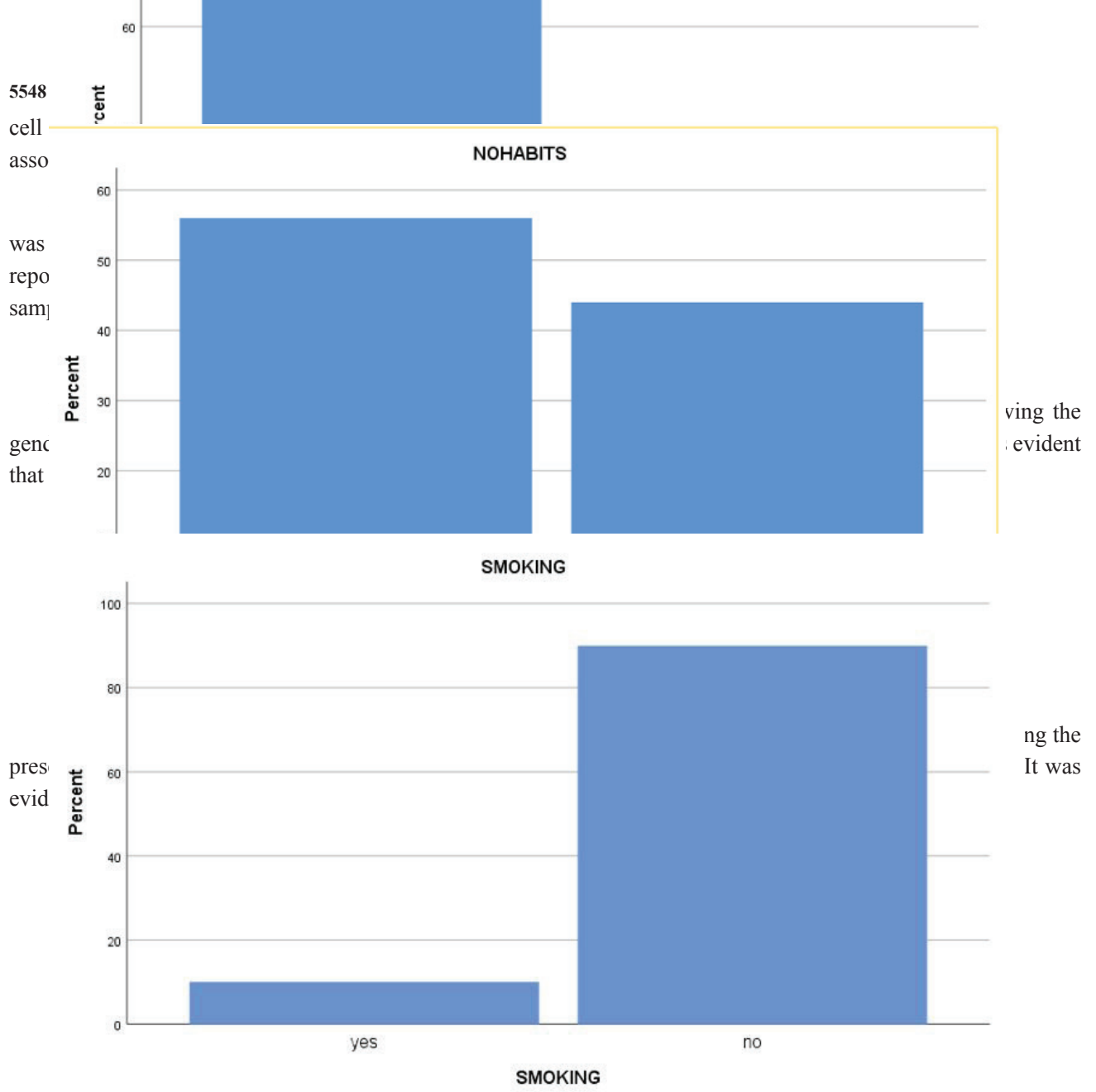
Out of these 50(n=50) patients, 76% were male and 24% were female(Figure 1). From the analysis, 56% of patients with oral squamous cell carcinoma were associated with no habits and 44% of patients with squamous cell carcinoma presented with habits(Figure 2). 9% of patients had a history of smoking and 91% were found to be non smokers(Figure 3). 38% were associated with paan chewing habit(Figure 4). 57% were presented with no systemic illness and 43% presented

with systemic diseases like diabetes, hypertension and cardiovascular disorders(Figure 5).

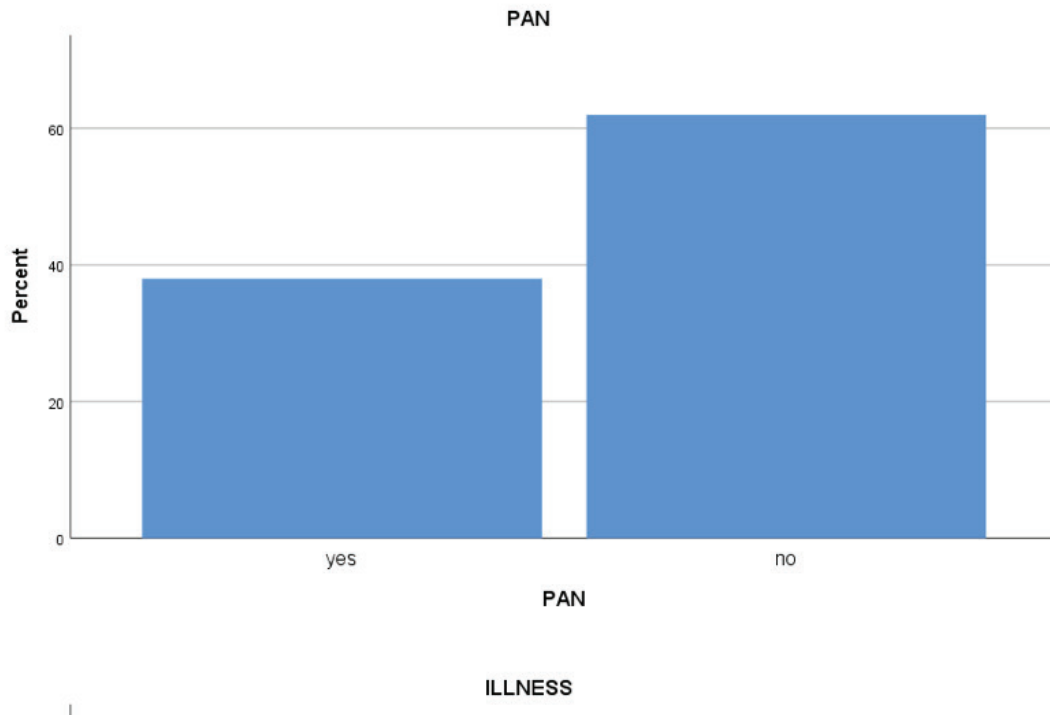
Oral squamous cell carcinoma is the most prevalent cancer in the world<sup>19-24</sup>. The most common etiologies are smoking and tobacco. Tobacco constitutes about 50 substances with carcinogenic potential like nitrosamines and aromatic hydrocarbons. These metabolises covalently bonds with DNA of keratinocytes stem cells forming DNA adducts. These are responsible for critical mutations involved in DNA replication. The metabolism of these carcinogens involves oxygenation in cytochrome by p450 enzyme and conjunction by glutathione- S- transferase<sup>25-28</sup>. Apart from tobacco and alcohol, there are various factors that influence the cause of oral squamous cell carcinoma.

Girod et al. 2009<sup>29</sup> stated that squamous cell carcinoma was more favorable in male population. Our study findings stated that there was an increased number of Male patients with squamous cell carcinoma. Saxena et al. 2019<sup>17</sup> stated that oral squamous cell carcinoma was more prevalent in patients without exposure to potentially harmful irritants. They also suggested that human papillomavirus, genetic counselling, hormonal and dietary factors are to be considered to correlate the cause and effect of non habit associated oral squamous cell carcinoma. Our study findings stated that squamous cell carcinoma was more prevalent in patients who are not exposed to any habits. Our study finding was in concordance with the literature. Few studies<sup>30,31</sup> stated that there was a relative increase in patients without habits associated with oral cell carcinoma and it was more prevalent in females. Our study findings( increased prevalence of non habit associated squamous cell carcinoma) was similar with the results of the literature.

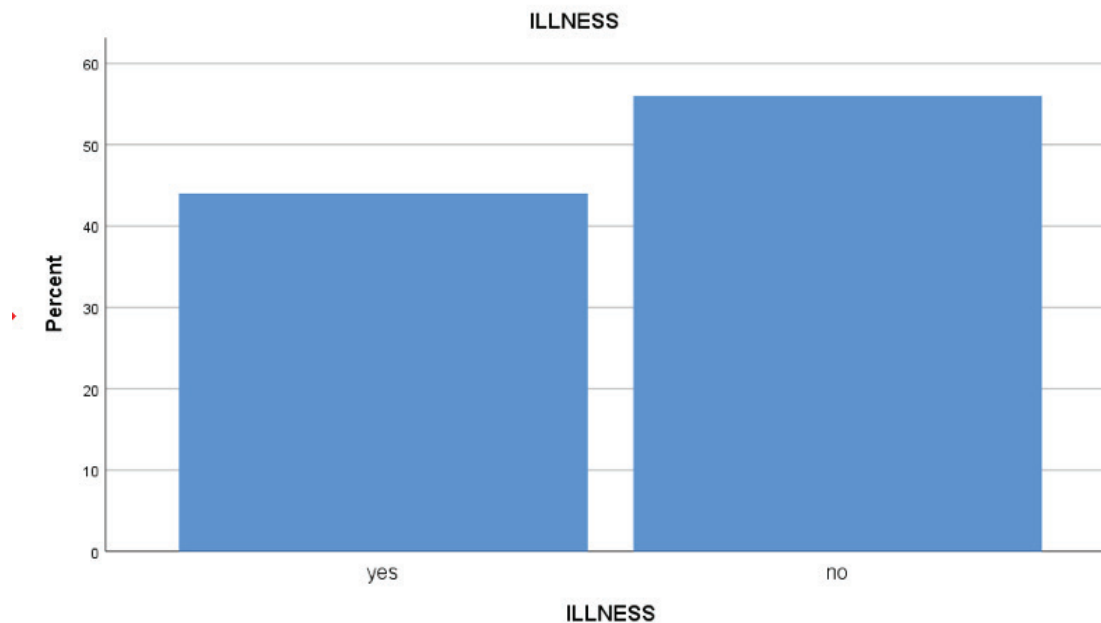
Vargas-Ferreira et al. 2012<sup>14</sup> stated that about 80% of patients with smoking habits reported with squamous cell carcinoma. Our study findings was that only 9% of patients with squamous cell carcinoma reported smoking habits. Our study findings are not in concordance with the literature. The reasons that affect our study results are patient declaration, raising trends and in our study we analysed the existing data. Wu et al. 2010<sup>32</sup> reported that the diabetes mellitus could be related to oral squamous cell carcinoma. Our study reported only 43% of patients with systemic illness were associated with squamous



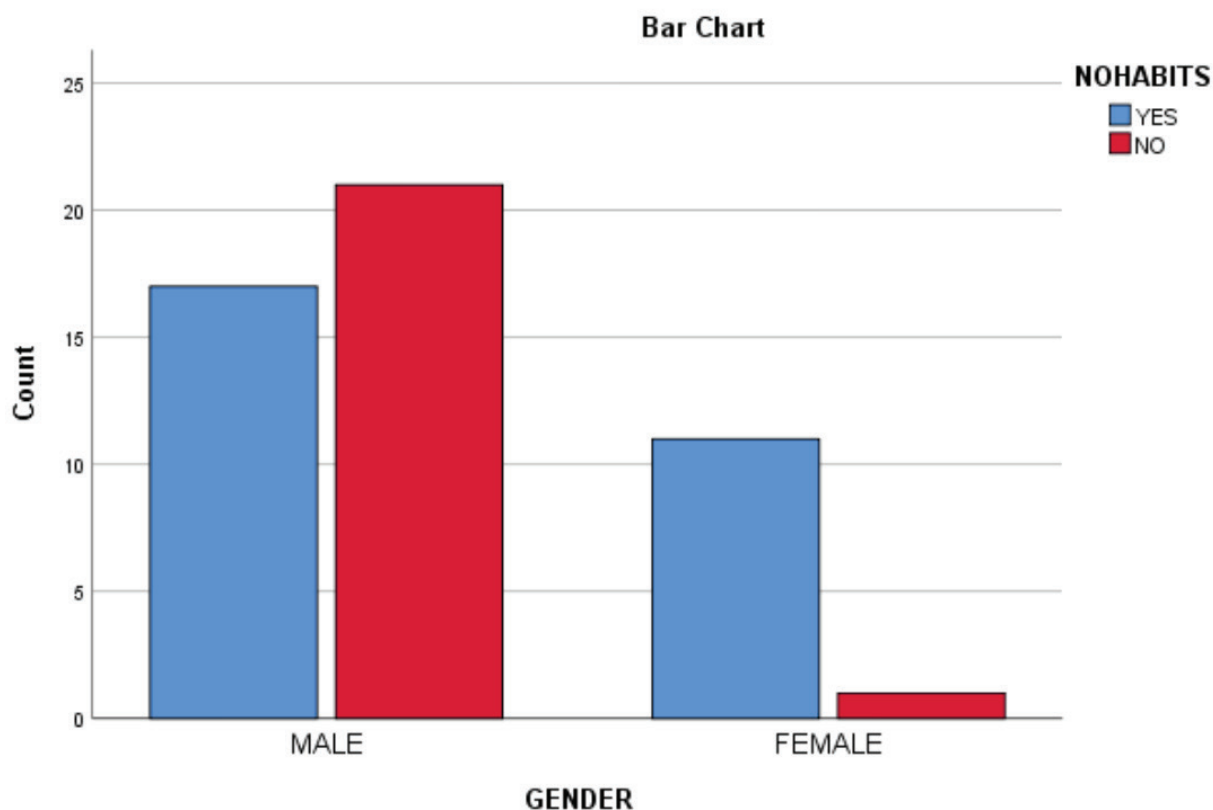
**Figure 3:** Bar graph showing the association of smoking and oral squamous cell carcinoma. X axis showing the presence or absence of smoking habit and Y axis showing the percentage. From the graph, it was found that most of the patients presented with squamous cell carcinoma were non smokers.



**Figure 4:** Bar graph showing the association of paan chewing and oral squamous cell carcinoma. X axis showing the presence or absence of paan chewing habit and Y axis showing the percentage. From the graph, it was found that most of the patients presented with squamous cell carcinoma were non paan chewers.



**Figure 5:** Bar graph showing the association of systemic disease and oral squamous cell carcinoma. X axis showing the presence or absence of systemic diseases and Y axis showing the percentage. From the graph, it was found that highest number of patients presented with squamous cell carcinoma were associated with no systemic disease.



**Figure 6: Bar graph showing the association of squamous cell carcinoma and gender. X axis represents the gender and Y axis represents the number of patients with squamous cell carcinoma. Here, blue colour denotes the presence of squamous cell carcinoma associated with no habits and red colour denotes the squamous cell carcinoma associated with habits. There is a significant increase in the male patients with non habit associated squamous cell carcinoma (Chi Square test; p value 0.004- statistically significant).**

### Conclusion

The result of this study shows that there is a significant number of patients without habits like smoking, pan chewing presented with oral squamous cell carcinoma with the cause unknown in our hospital. So, it is important to investigate possible factors associated with the occurrence of oral squamous cell carcinoma. A detailed investigation should be done for a better prognosis.

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**Ethical Clearance:** It is taken from “Saveetha Institute Human Ethical Committee” (Ethical Approval Number- SDC/SIHEC/2020/DIASDATA/0619-0320)

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