



IJCRR

Section: Healthcare

Sci. Journal Impact

Factor: 6.1 (2018)

ICV: 90.90 (2018)



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# Awareness Among Dental Students on Reconstructive Surgery Following Resection During Oral Cancer Surgeries - A Questionnaire Survey

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## ABSTRACT

**Introduction:** Oral cancer represents some 2% of all new cases worldwide that may arise in a human body and it is considered a serious public health problem. The resection of malignant tumors can result in anatomical defects. Post-resection management of such defects can bring back the physical and anatomical form of the facial structure lost to a certain extent.

**Objective:** Aim of this study is to evaluate the awareness among dental students about reconstructive surgery.

**Methods:** In this study, we evaluate the awareness of reconstructive surgeries and the flaps available for those surgeries among a group of dental students. In this study, we found students about (65%) were aware of the term obturator and its use.

**Results:** In this study that the student understands reconstructive surgery is performed to restore the form and function of lost structures during cancer resection, students also responded yes (95) to the question about the term anastomosis. In overall association, we found there is less awareness about reconstructive surgery among undergraduate dental students.

**Conclusion:** This study concluded that only postgraduates show adequate knowledge about reconstructive surgery which implicates the need for including research and studies about oral cancer and its reconstruction to undergraduates which can change their view about oral cancer management.

**Key Words:** Flaps, Oral cancer, Pedicle flap, Reconstructive surgery, Resective surgery

## INTRODUCTION

The term “head and neck cancer” covers many neoplasms with diverse natural history arising in one anatomic region. Under the common term “head and neck cancer” are included; tumors of the mucosa of the upper aerodigestive tract including the oral cavity, pharynx, larynx, and sinuses. Also included are tumors of the salivary glands, thyroid, soft tissue and bone tumors, and skin cancers.<sup>1</sup> Oral cancer represents some 2 percent of all new cases worldwide that may arise in a human body.<sup>2</sup> Daily the oral cancer incident rate, as well as the mortality rate increases worldwide and it varies widely across the world.<sup>3</sup> The highest incident rates are generally registered in developing countries.<sup>4,5</sup> Oral cancer is

a seriously developing problem in many parts of the world. Oral and pharyngeal cancer, when clubbed together, is the sixth most common cancer in the world. Cancer Incidence is estimated to be around 2,70,000 for oral and 1,35,300 for pharyngeal cancers excluding nasopharyngeal cancers, two-thirds of these cases recorded in developing countries within a year time.<sup>2,6</sup> In countries such as Sri Lanka, India, Pakistan, and Bangladesh, which are known to be at high risk for oral cancer, it has the most common cancer in men and may contribute up to 25% of all new cases of cancer.<sup>7</sup> Oral squamous cell carcinoma (OSCC) is the most common cancer of the oral cavity and it accounts for 2 to 3 percent of all the malignancies.<sup>8,9</sup> A wide range of diseases may affect the oral cavity, either as a localized process or as an oral manifestation

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ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 12.09.2020

Revised: 14.10.2020

Accepted: 10.11.2020

Published: 26.12.2020

of systemic disease. Patients may be asymptomatic and have occult oral lesions that are detected with routine oral cavity examination.<sup>10</sup> However, symptomatic patients may present with nonspecific pain, loose teeth, bleeding, dysarthria (difficulty in speech articulation), dysphagia (difficulty swallowing), odynophagia (pain while swallowing), otalgia (ear pain), sensory and motor nerve compromise, mass lesions at the primary site, or cervical lymphadenopathy.<sup>11-14</sup>

The optimal width of the surgical margin while performing oral cancer resection is still a debatable topic.<sup>15</sup> The best management for oral cancer is surgical management by completely removing all the malignant cells.<sup>16</sup> A safe margin is the margin around the existing tumor; this is done to ensure tumor removal, this safe margin is about 1 to 2 cm around the existing malignant cells.<sup>17</sup> The defects formed by oral cancer resection are usually large. The extent of the defect depends upon the type of tumor.<sup>18</sup> This can impair individuals swallowing and breathing function and as well as cosmetic disorders this reduces patients' quality of life.<sup>19</sup> In patients treated for oral cancer, prime concerns relate to oral function, particularly mastication, deglutition, and speech.<sup>20</sup> The detrimental physical and psychological effects caused by oral cancer and its treatment can lead to social isolation and poor quality of life.<sup>21</sup> Hence oral rehabilitation is an essential aspect of the overall functional rehabilitation of patients that aims to restore oro-facial form and function and to address quality-of-life problems.<sup>22</sup> Post-resection management of the surgical defect can be either by primary surgical closure or by reconstruction using a flap. The decision in choosing among these two treatment modalities is multi-factorial and requires a team approach.<sup>23,24</sup> In the case of palatal defects, it can be reconstructed with an obturator.<sup>25</sup> Flaps used for the reconstruction of these defects are either pedicled or free flaps.<sup>26</sup> These surgeries need microsurgical expertise is a major disadvantage.<sup>27</sup> This article helps us to gain knowledge about awareness among dental students about reconstructive surgeries after resection during oral cancer surgery. The aim of this study is to evaluate the awareness among dental students about reconstructive surgery.

## MATERIALS AND METHOD

### Study Design

This is a questionnaire-based survey conducted among dental students studying in an institution using an online platform.

### Ethical Clearance

This study was approved by the research ethical committee of Saveetha Dental College. The ethical clearance number is SIHEC/2020/DIASDATA/0619-0320).

## Sample Size Estimation and Data Collection

An online survey questionnaire containing questions regarding cancer resection, reconstructive surgery was sent to 100 dental students using Google forms. Responses were received and tabulated accordingly. For calculating overall awareness we have given a score of 10 for a positive response, and 0 for the negative response. The sum of the responses for all the questions was statistically analyzed.

The criteria to attend that survey include:

- Undergraduate dental students.
- Post-graduates dental students

Exclusion criteria:

- Private practitioners.

## Statistical Analysis

All the statistics and analyses were done using SPSS software (version 2019). All the descriptive analyses such as mean, standard deviation, and percentages were used to present the number of male and female subjects, and demographic variables of the study participants. A Chi-square test was used to establish a correlation between categorical variables.  $P (<0.05)$  was set to be statistically significant.

## RESULTS AND DISCUSSION

Out of all the 100 students, interns ( $n=38$ ) were in higher numbers than students from other years of study. Post-graduates ( $n=21$ ), final-year ( $n=5$ ), third-year ( $n=11$ ), second-year ( $n=11$ ), and first-year ( $n=14$ ) (Figure 1). And the gender distribution was found to be male 38, female 62 (Figure 2). Knowledge about reconstruction: out of 100 students, "72" was well aware of reconstructive surgery (Figure 3). Association between awareness among dental students and year of their study: only post-graduate oral surgeons were aware of reconstructive surgery ( $p<0.05$ ). Among the undergraduates, interns showed a little higher knowledge and the rest of the year showed poor to moderate awareness (Figure 4).

A few changes in the anatomy of the face due to trauma or post-resection due to oral carcinoma can affect one's psychology profoundly and make it difficult to adapt to it<sup>28</sup>. In several literature, it has been suggested that the usage of pedicled flaps over the usage of the free flaps. Smaller defects can be usually reconstructed with a simple split-thickness flap but larger defects need to be managed in a proper way with extensive management modalities and with specialized clinicians. Resection of the small area of the upper gum and palatal region rarely needs major reconstructive management. Such defects are easily reconstructed by a maxillofacial prosthetic device called dental obturator<sup>29</sup>. In this study students about (65%) were well aware of the term obturator and its use. In this study, the student responded yes

(95) to the question about the term anastomosis. When asked about whether all oral cancer surgeries need reconstruction, about “51” students responded yes and “49” of them responded no, this shows students are not fully aware of the need for reconstructive surgery. In this study, we also found that about “49” students believed oral surgeons can perform reconstruction surgery, but “46” students responded that a specialized microvascular surgeon is required to perform reconstructive surgery. When asked about reconstruction after chemotherapy about 53 students responded that while performing reconstruction after chemotherapy special diagnostic methods are needed for a better outcome.

Dental students should receive continuous knowledge about oral cancer resection and reconstruction and studies show that the decision to either surgically or prosthetically rehabilitate a defect depends on the surgeon’s own preference<sup>30</sup>. In this study, students reported that the reconstruction should be performed by specialized doctors but previous studies showed that 65 percent of reconstruction was done by oral cancer surgeons<sup>30,31</sup>. Flap survival depends on the early recognition of flap compromise<sup>32</sup>. In this study, we also found students showed high knowledge about flaps available. And previous studies suggest patients treated with free flaps had better speech when compared with patients treated with pedicled flaps<sup>33</sup>. A small sample size, online questionnaire, and its unreliability were found to be the limitation of this survey. Further studies into knowledge about reconstructive surgery are suggested in the future.

## CONCLUSION

On the whole, this study concludes fair knowledge and awareness among undergraduate students about oral cancer management and reconstruction. Post-graduates show better knowledge about reconstructive surgery. This implicates a need for better knowledge about oral cancer surgeries among undergraduate students which can change their perspective on oral cancer management. Further studies and surveys with large sample sizes are required in the future.

## AUTHOR CONTRIBUTIONS

Santosh had contributed to the design of the study, data collection, analysis of data, results tabulation, and manuscript preparation.

Dinesh Prabhu M had contributed to the design of the study, analysis of data, results, and manuscript preparation.

Sankari had contributed to the design of the study, manuscript preparation, and proofreading of the manuscript.

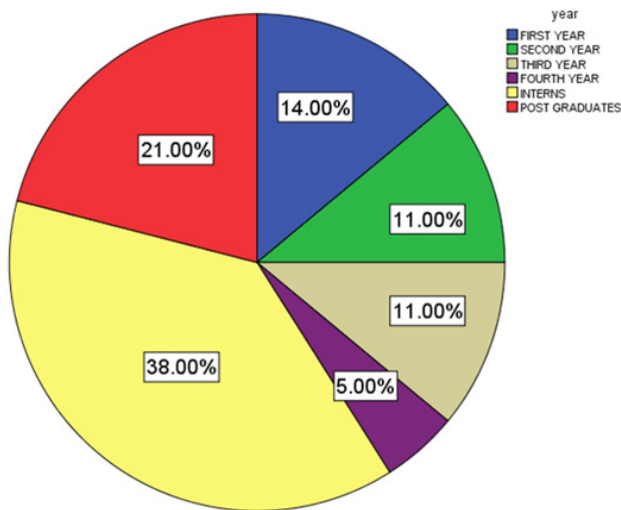
## Conflict of Interest

This research project is self-funded and is not sponsored or aided by any third party. There is no conflict of interest.

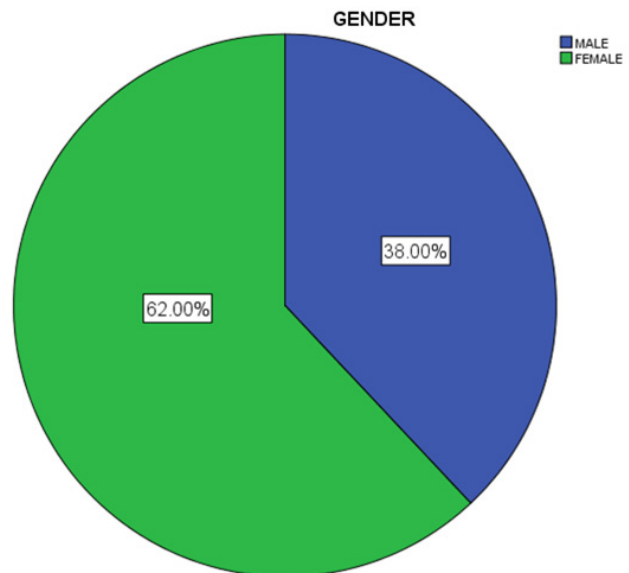
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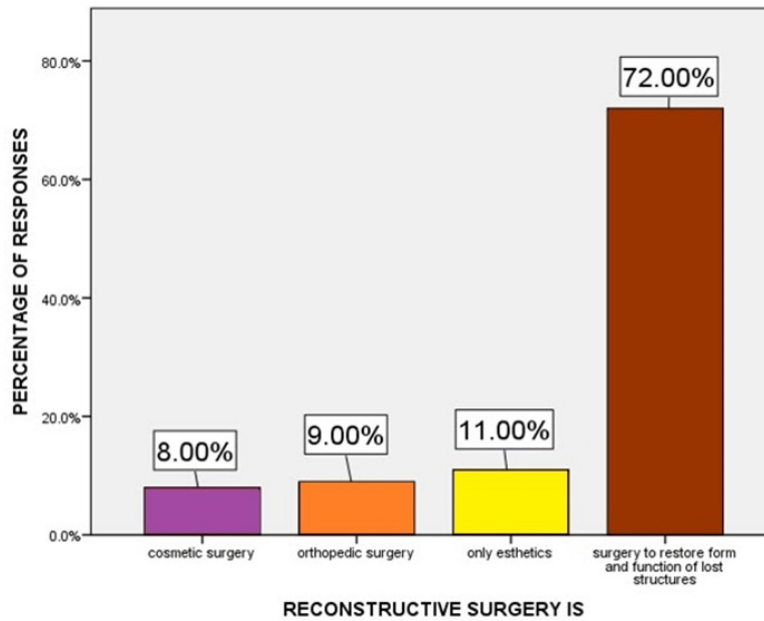
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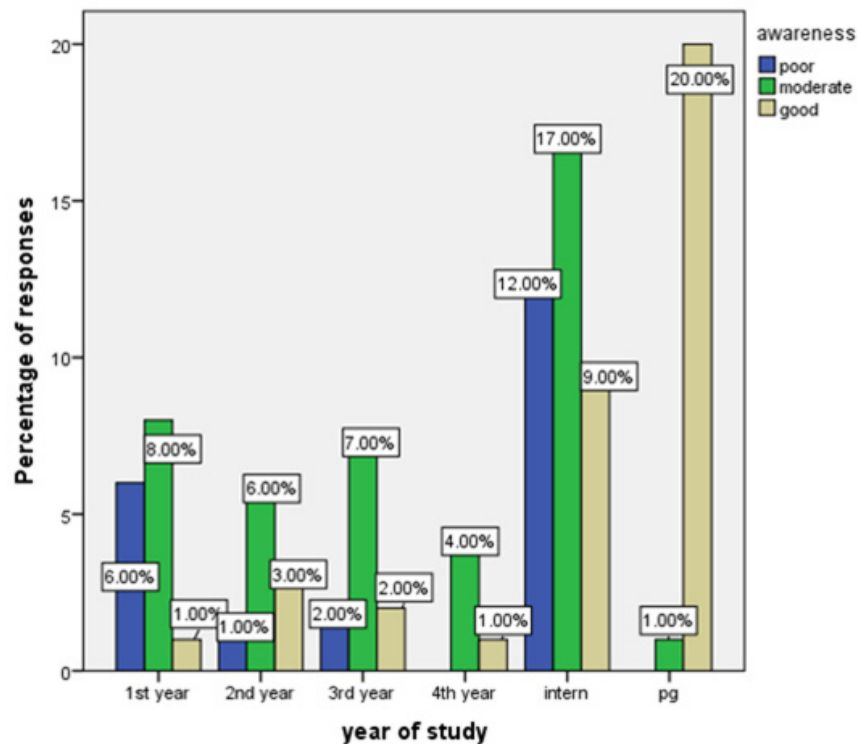
**Figure 1:** Pie chart shows the year of study of the students who attended the survey. It was inferred that interns attended the study in more numbers (38%, yellow color) when compared to other years, and the least was from the 4th year (5%, purple color) of study.



**Figure 2:** Pie chart shows gender distribution among students who attended the survey. (Blue represents the males (38%) and Green represents the females (62%). It was inferred that more numbers of females appeared in this study than males.



**Figure 3:** Bar chart shows the knowledge among students about reconstructive surgery (X-axis represents- responses of the students; Y-axis represents- Percentage of responses). It was inferred that most of the students (72%, brown color) were well aware of reconstructive surgery. Only 8% (purple color) responded as cosmetic surgery.



**Figure 4:** Bar chart shows the association between the year of study vs. awareness among all the students about reconstructive surgery (X-axis represents the year of study; Y-axis represents the percentage of responses). First-year showed poor (6%, blue color) to moderate (8%, green color) awareness. All the other years showed moderate awareness 2nd-year- (6%, green color), 3rd-year- 7%; 4th-year- 4%; interns- 17%; post-graduates showed good awareness with (20%, sandal color). This association was assessed by Chi-square test df-1;  $p < 0.003$  ( $p < 0.05$ ). Association was statistically significant.