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Systematic Review

Knowledge, Attitude & Practice of Oral Cancer among Students Globally- A Systematic Review

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ABSTRACT:

Introduction-Oral cancer is the 11th most common malignancy in the world. More than 90-95% oral cancers are oral squamous cell carcinoma or its variants. Students are most vulnerable population as they involve into risky habits like smoking, alcohol, tobacco consumption which increases their risk factor. **Methods-** Literature search was conducted and studies from 2012 onwards with cross sectional design were included, using PubMed & Google scholar database. Total 1105 results obtained of which 15 studies met the inclusion criteria. Data collected from students globally were on knowledge of risk factors, signs & symptoms, most affected site, attitude towards early detection, practice of screening. **Results-** Total 15 studies met inclusion criteria, with sample size of 3719, aged between 15-28 years comprising of only student population. Knowledge of oral cancer among students was 38.25%, attitude towards early detection was 79.5% & practice towards screening was 46.02%. Most commonly reported risk factor was tobacco chewing (96.5%), smoking (92.72%), regarding signs & symptoms, 92% reported speckled lesions & 59.79% responded correctly to squamous cell carcinoma as the most common oral cancer. **Conclusion-** In this study less than half of population were aware of oral cancer and also had low percentage of practice of screening. Students being more susceptible, calls for more of awareness and educational programs to be designed and conducted in order to impart knowledge regarding oral cancer and to motivate them into getting timely oral cavity examination done from the specialists.

Key words: Oral cancer, Knowledge, Attitude, Practice, Screening.

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INTRODUCTION

Cancer is the second leading cause of death globally, and is responsible for an estimated 9.6 million deaths in 2018. Globally, about 1 in 6 deaths is due to cancer. Approximately 70% of deaths from cancer occur in low- and middle-income countries.[i] Cancer of the oral cavity (Oral cancer) is the 11th most common malignancy in the world. Despite the general global trend of a modest decrease in the incidence of oral cancer, tongue cancer incidence is increasing. The incidence and mortality caused by this tumour show discrepancy according to the geographic location in which it is diagnosed.[ii] Oral cancer is categorised into 2 groups i.e. one, those occurring in the oral cavity (your lips, the inside of your lips and cheeks, teeth, gums, the front two-thirds of your tongue and the floor and roof of your mouth) and second, those occurring in the oropharynx (middle region of the

throat, including the tonsils and base of the tongue).[iii] There are approximately 657,000 new cases of oral cancers and pharynx cancer each year, and 330,000 & more deaths.[iv] Most oral diseases and conditions share modifiable risk factors with the leading NCDs like, cardiovascular diseases, cancer, chronic respiratory diseases and diabetes. Risk factors include use of tobacco, alcohol consumption and unhealthy diets rich in free sugars, all of which are growing at the global level. The relationship between oral and general health is shown to be true.[v] All cancers (neoplastic transformations) occur from changes (mutations) in genes which controls cell behaviour. When a cell does become mutated to this point, it is capable of passing on the mutations to all of its progeny when it divides.[vi]

SCC or one of its variants constitute for more than 90-95% of oral cancers. It typically presents as a persistent mass, nodule, or indurate ulcer. The three most common sites of involvement are tongue, lip and floor of the mouth. They can develop from precancerous lesions, such as leucoplakia and erythroplakia, or apparently from normal epithelium.[vii] 86% of total 3 lakhs cases are reported annually, making oral cancer 3rd most common in India. Risk factors mainly are the tobacco and alcohol consumption. Early detection has led to significant decrease in mortality rates and sufferings. Oral cancer can be detected by symptoms like pain in throat, non-healing ulcers in the mouth, loosening of teeth, change in voice and dysphagia.[viii] A growing number of these cancers are associated with the sexually transmitted infection human papillomavirus (HPV).[ix]

The goal of oral cancer screening is to detect mouth cancer or precancerous lesions at an early stage that may lead to cancer in oral cavity - when cancer or lesions are easiest to remove and most likely to be cured. Students especially college goers are more prone to get involved into practices of tobacco consumption, smoking, alcohol drinking, thus are at high risk. When students enter the phase of high school, or college they experience a strong peer pressure from their group mates and try to imitate them. Also, to experience the air of independence, they end up involving in all these practices. When students see their peers using tobacco or smoking, they get highly influenced by their habits.[x] Based on evidence, social setting has been found to be an important driving factor in cigarette smoking in numerous pieces of research, which makes the tobacco manufacturers attract these types of environments.[xi] As per a study, social smoking has been a newly recognised phenomenon among young adults. The study results have shown that social environments are an important factor in cigarette smoking, in the initiation of smoking as well as for becoming an established smoker.[xii]

The key to survival is detection of disease in its early stages. Students could be educated to create an awareness in the society. It may be very helpful in prevention, control and early diagnosis of oral cancer.[xiii] An increase in the awareness about oral cancers and the detrimental effects of tobacco might help modify the lifestyles of students, affecting their decision to continue or to give up tobacco use.[xiv] Therefore, the present review was conducted to evaluate the knowledge, attitude & practise of oral cancer among students globally. The outcome of the review was to increase awareness & understanding of oral cancer, its risk factors and preventive measures so that accordingly cessation programs could be designed and modified for this group of population along with the effective use of social media platforms.

METHODOLOGY

Search Strategy- A comprehensive search of quantitative literature published from January 2012 onwards till January 2020 in the electronic databases PubMed and Google Scholar was conducted. We retrieved all English language, cross-sectional study designs that contained information on knowledge, awareness, attitude and practice on Oral Cancer and its screening in India & abroad. Combined terms were used for example (*'knowledge of oral cancer'*) AND *('attitude or awareness towards oral cancer'*) AND *('practice towards oral cancer' or 'oral cancer screening'*) AND (*'oral cancer among students'*) AND (*'global'*).

Study Selection- Only articles that had reported quantitative evidence data of knowledge, awareness, attitude and practice of oral cancer and its screening in India & other countries were included **(FIG.1)**. Initial database search retrieved 1105 results out of which 703 were excluded based on title. When searched with specific keywords 402 studies were retrieved (102 from PubMed and 300 from Google Scholar). 382 studies were excluded as they were either closed access articles or were review based. From the remaining 20 full text articles 15 studies that focused on KAP of oral cancer among students were finally chosen for systematic review, published from January 2012-January 2020.

PRISMA *(Preferred Reporting Items for the Systematic Review and Meta-analysis)* tool was used for the review process and results. All the articles were screened properly for any irrelevant study that did not meet with the inclusion criteria and duplicated articles were also removed. PRISMA flow diagram was used as a guidance tool for the review.

TABLE I. Characteristics of studies included in the review

AUTHOR	STUDY DESIGN	YEAR OF STUDY	SAMPLE SIZE	POPULATION CHARACTERISTICS	RESULT
Sami Abdo Radman Al Dubai et.al.[xv]	Cross sectional design	2012	200	**Medical and nursing college students** **Age=**18-27 years **Area-** Malaysia **Marital status-** Married-2.5% Single-97.7% **Household income (RM)** <2000= 30% 2000-3000= 36% >3000= 34% **Family history of oral cancer-6.5%** **Residence**: Urban-80%& Rural-20%	1) Knowledge of oral cancer-92% 2) Attitude towards early detection-38% (Agreed cancer could be cured if detected early)
Shailee Fotedar et.al.[xvi]	Cross sectional design	2015	107	**Dental college students** **Males-**21.5% **Females-** 78.5% **State-** Himachal Pradesh **Area-** Shimla	1) Knowledge of Most common oral cancer-98.3% 2) Knowledge of oral cancer-81.9% had excellent knowledge 3) Knowledge of preventive measures-7.5% adequate 4) Practise of examining oral mucosa-89.7% 5) Attitude towards early detection-97.2% (Strongly agree that improves 5-year survival rates)
Vikas Fotedar, Shailee Fotedar, Manish Gupta, Kavita Manchanda & Mukesh Sharma[xvii]	Cross sectional design	2015	186	**Undergraduate medical students** **Males-** 46.7% **Females-** 53.3% **State-** Himachal Pradesh **Area-** Shimla	1) Knowledge of most common oral cancer-75.2% 2) Knowledge of preventive measures-25.8% adequate 3) Practise of examining oral mucosa-51.1% 4) Attitude towards early detection-97.9% (SA improves 5 YR survival rates)
Samira Vasconcelos GOMESa et.al.[xviii]	Cross sectional design	2015	150	**Dental college students** **Males=** 40.35% **Females=**59.64% **Age-** 21.72 mean years **Students from 1st, 2nd, 5th, 6th, 9th & 10th semester.**	1) Knowledge of most common Oral cancer-38.25% 2) Knowledge of age for oral cancer- 52.34% said above 40 years.
Iara Fiorentin Comunell et.al.[xix]	Descriptive Cross sectional design	2015	1149	**School based survey** **Males=** 45.5% **Females=**54.5% **Age=** 15.5 mean years **State-** City of Itajai **Area-** Brasil	1) Knowledge of Oral cancer= 2.17% 2) Practise towards examining oral mucosa-17.4% performed oral examination. 3) Knowledge of age for oral cancer- 3.8%
Solmaz Pourzare Mehrbani, Tahmoores Kazem & Mina Kahyaie[xx]	Cross Sectional design	2016	87	**Postgraduate dental college students** **State-** Tabriz **Area-** Iran	1) Knowledge of Preventive measures- 76% said early detection 2) Practise of examining oral mucosa-82%
Sushil Ahir, Kapil	Descriptive	2016	400	**College students** **Medical & Non- medical**	1) Knowledge of Oral cancer-95.5%

Palekar & Rohan Suhas Bhambar[xxi]	cross sectional design			**students** **State-** Maharashtra **Area-** India	
Sadeq Ali Al-Mawer et.al.[xxii]	Cross sectional design	2016	163	**Dental college students** **4th & 5th year students** **Males-**25.2% **Females-** 74.8% **State-** Yemen	1) Knowledge of Most common oral cancer- 92.6% 2) Knowledge of preventive measures-27.6% have sufficient knowledge. 3) Practise of examining oral mucosa-76.1% 4) Practise of screening-75% screen high risk patients.
Mahmoud M. Bakr, Emma Skerman, Usman Khan & Roy George.[xxiii]		2016	250	**Dental college students**	1) Knowledge of preventive measures-38% (sufficient knowledge) 2) Practise towards examining oral mucosa-93% 3) Practise towards screening-70% screen high risk patients.
Samara Ribeiro da Silva, Yara Juliano, Neil Novo & Ilan Weinfeld.[xxiv]	Cross sectional design	2016	50	**Undergraduate dental students** **1st & 7th semester students** **State- Sao Paulo**	1) Knowledge of age for oral cancer-36% (20-40 years)
Pokharel M, Shrestha I, Dhakal A & Amatya RCM.[xxv]	Cross sectional design	2017	286	**Undergraduate medical college students** **Males-**54.9% **Females-**45.1% **State-** Kathmandu **Area-** Nepal **Family history of oral cancer-1%** % of population who are current smokers-3.5% & alcohol drinkes-11.2%	1) Knowledge of oral cancer-50% 2) Attitude towards oral examination- 47% (confident examining oral mucosa)
Maria Ramdan, Ana Glavina & Marina Mravak-Stipetic.[xxvi]	Cross sectional design	2018	83	**Dental medicine students** **4th & 5th year dental medicine students** **Age=** 21-28 years	1) Knowledge of most common oral cancer- 82.5% 2) Knowledge of oral cancer: ➢ Excellent= 2.41% ➢ Very good=15.66% ➢ Good= 55.42% ➢ Poor= 22.89% ➢ Very poor= 3.61%
Mohammad Talib, Pratibha Gupta & Pankaj Bhardwaj.[xxvii]	Cross sectional design	2018	180	**Secondary school students** **10th-12th students** **State-** Uttar Pradesh **Area-** Lucknow **% of Population consuming:** Gutka-30.8%, Cigarette/Bidi-42.3% & Other-26.9%	
Bashair Alsaud et.al.[xxviii]	Cross sectional design	2019	400	**Dental college students** **Age-** 26.65 mean years **State-** Jeddah **Area-** Saudi Arabia	1) Knowledge of preventive measures-56.75% (has up to date knowledge) 2) Practise of examining oral mucosa-94.4% 3) Practise towards screening-

					88% screen high risk patients.
Dr Vaibhav Rai, Dr Deepak Yadav, Dr Upasana Tyagi & Dr Shashank Tripathi.[xxix]	Cross sectional design	2020	28	**Final year dental students** **Males**- 25% **Females**- 75% **Area**- Nepal	1) Knowledge of age of oral cancer- 91% (increases with age) 2) Knowledge of oral cancer- 41% (confident about diagnosing)

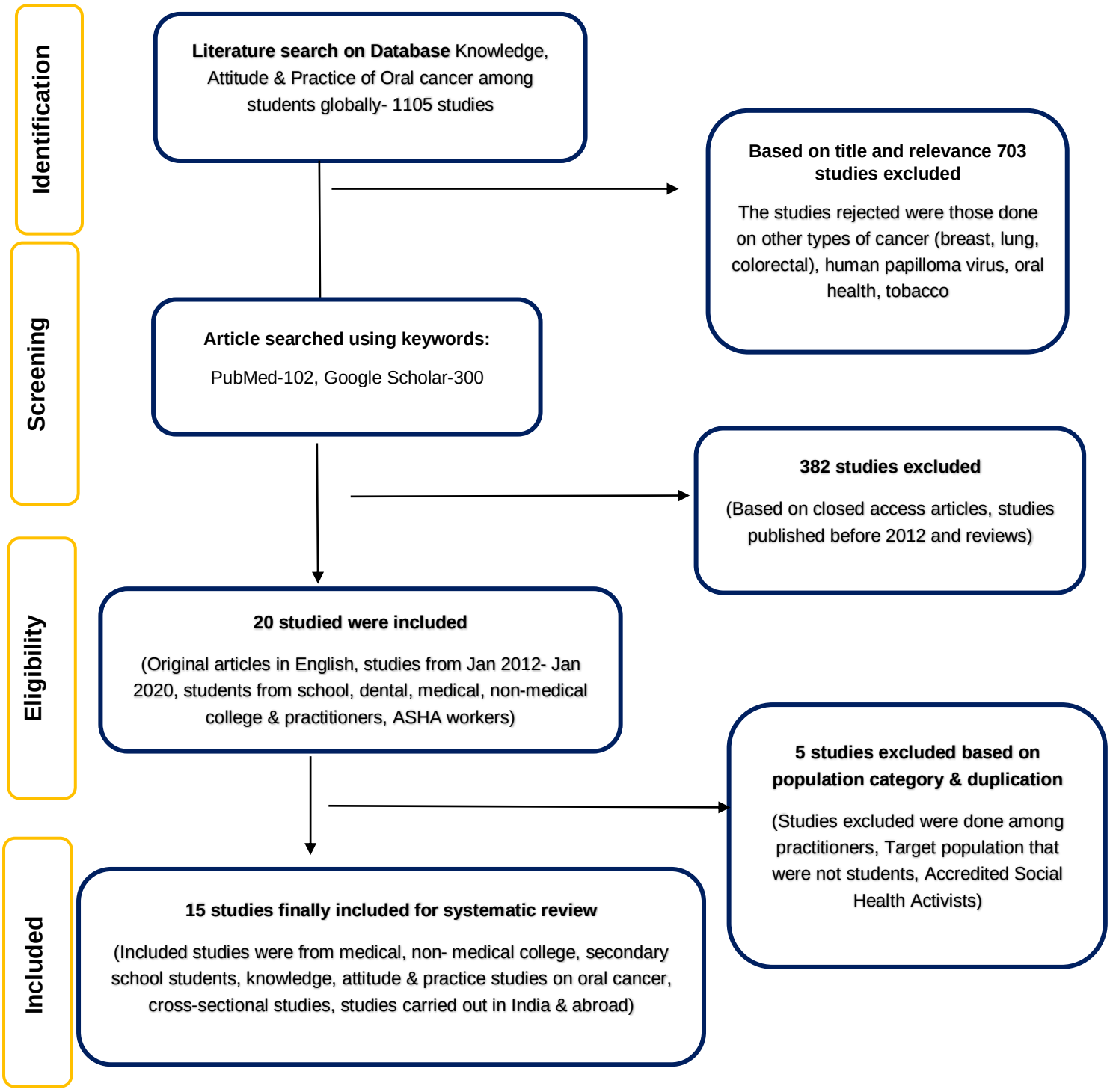

Figure no.1- Summary of Literature search and Selection Process

Eligibility Criteria-

INCLUSION CRITERIA: Information retrieved included studies on students from both school and college goers, both medical and non-medical courses. Studies on-

- ✓ On knowledge of oral cancer, of most common oral cancer, age for oral cancer, risk factors, signs & symptoms, preventive measures towards oral cancer, sources of information and on most affected site.
- ✓ Attitude towards early detection.
- ✓ Practice towards tobacco and alcohol use, oral examination & screening.
- ✓ Studies conducted among students and studies that were cross-sectionally designed.

EXCLUSION CRITERIA: The studies excluded were of those which were conducted on health care professionals, accredited social health activities and dental & medical practitioners. Also, studies that were conducted on various other cancers.

Data Extraction & Synthesis- We extracted the following key characteristics of the studies: lead author and country, year published, study design, sample size, age group and knowledge of oral cancer, oral cancer signs and symptoms and risk factors, most common oral cancer, most affected site, attitude towards early detection and practice towards screening. After the removal of duplicated studies, primary outcome data of all articles were indexed in Microsoft Excel. Later, interpretation of textual data was extracted to a Microsoft Word document. Two authors independently carried out the literature search and identified citations for KAP on oral cancer. Full-text articles were identified and assessed for eligibility after applying the inclusion and exclusion criteria. Critical appraisal of each study found eligible was done by both investigators. Agreement of the requisite contents of the articles related to quality assessment and data extraction was performed.

RESULTS

After conducting a thorough search from electronic database of PubMed and Google scholar the literature search yielded 402 studies, out of which 15 studies met the inclusion criteria. Cross-sectional studies with sample of 3719, aged between 15-28 years included. From the total population, 58.88% were medical students (2190) & 41.11% non-medical students (1529). Males comprise 41.64% (945 out of 2269) and females comprise 58.35% (1324 out of 2269). Out of 15, 4 studies were from India i.e. from Lucknow, Himachal Pradesh & Maharashtra[xvi,xvii,xxi,xxvii] rest 11 studies were from abroad i.e. from Brasil, Iran, Yemen, Nepal, Saudi Arabia, Sao Paulo & Malaysia.[xv,xix,xx,xxii,xxiv,xxv,xxviii,xxix] 3.5% reported being current smokers.[xxv] Family history of cancer reported by 1% & 6.5%.[xv,xxv] As per marital status[xxix] 97.7% were married and 2.5% were single. (***TABLE-I)***

From the result it was seen that knowledge of oral cancer among students was 38.25%. With regard to risk factors, tobacco chewing &smoking are most commonly reported and fisherman, sailor & farmer, pale skin less commonly reported.***(TABLE-II)***

TABLE II. – Knowledge of Oral cancer, Risk factors/Co-factors response of participated students

Serial No.	Variable	Total Sample Size	YES (n)	YES (%)
KNOWLEDGE OF ORAL CANCER				
1.	Aware	2308	883	38.25%
KNOWLEDGE OF RISK FACTORS				
1.	Previous cancer	563	474	**84.19%**
2.	Alcohol	3308	2019	61.03%
3.	Tobacco	2259	1628	72.06%
4.	Smoking	1127	1045	**92.72%**
5.	Smokeless tobacco	763	586	76.8%
6.	Sun exposure	1862	521	27.98%
7.	Dietary factor	486	374	76.95%
8.	Old age	763	350	45.78%
9.	Ill fitted denture	666	355	53.3%
10.	Viral factors	650	257	39.53%
11.	Poor oral hygiene	1826	1187	64.78%
12.	Chronic irritation	286	248	**86.7%**
13.	Human papilloma virus	449	334	74.38%
14.	Genetic factors	2599	1072	41.24%
15.	Irregularity in eating habit	180	41	22.8%
16.	Sharp teeth	180	44	24.4%
17.	Bacteria	87	3	4.4%
18.	Oral piercing	1149	485	42.2%
19.	Chewing tobacco	286	276	**96.5%**
20.	Spicy food	1815	413	22.75%
21.	Immunosuppression	849	519	61.13%

22.	Low consumption of fruits and vegetables	1312	192	14.63%
23.	Obesity	363	108	29.75%
24.	Non veg food	180	22	12.2%
25.	Fisherman, Sailor, Farmer	1149	30	**2.6%**
26.	Oral sex	150	82	54.67%
27.	Adapted prosthesis	1149	270	23.5%
28.	Pale skin	1149	35	**3%**
29.	Hot food	1815	454	25.01%
30.	Alcohol + Tobacco	400	286	71.5%

Most commonly reported signs & symptoms were Speckled lesions (92%) and Ulcerative lesions (82.4%) & less commonly reported, Metaplasia (24.32%) and Pain (33%). **(FIG.2)**

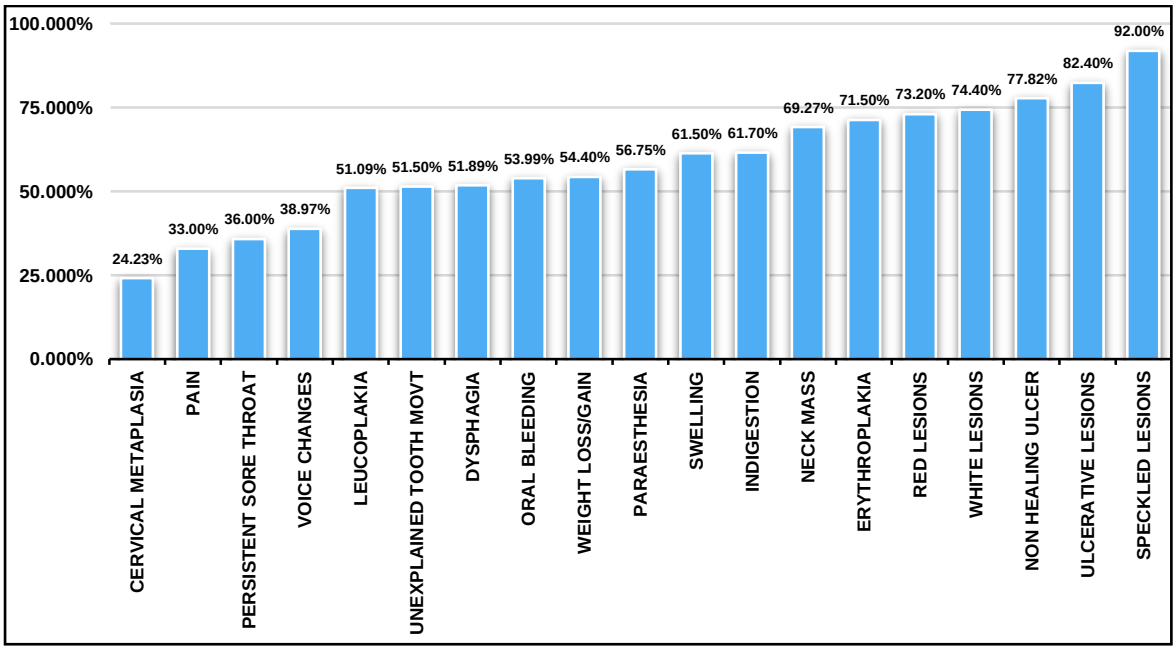

Figure no.2- Number of students having knowledge regarding signs & symptoms of oral cancer

Most commonly reported source of information was Cinema (92%) & less commonly reported was Friends (1.70%).

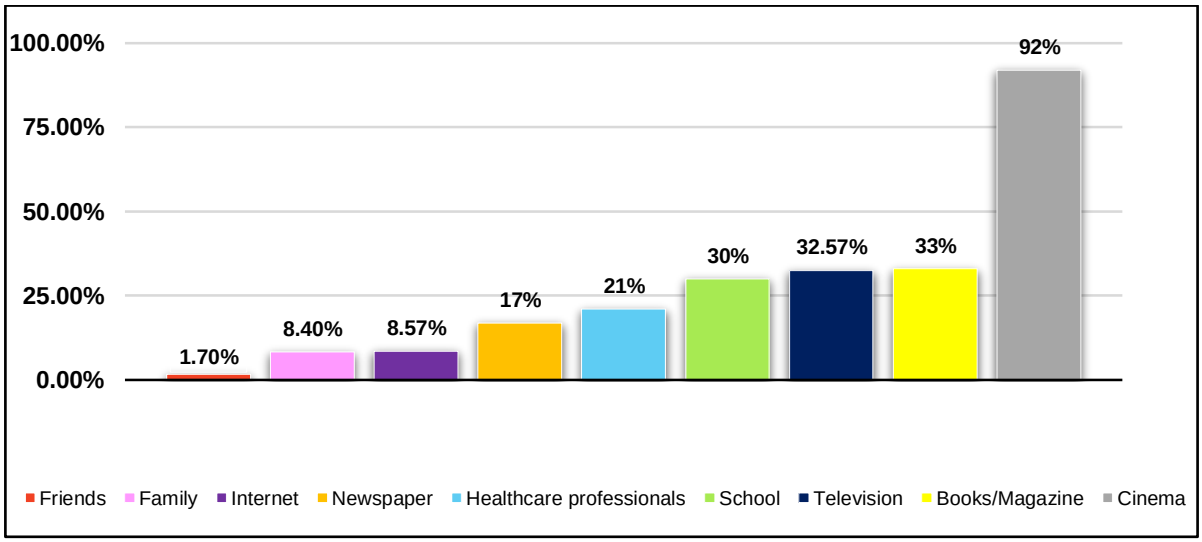

Figure no.3 – Number of students having knowledge through various source of information about oral cancer

59.79% responded correctly to oral squamous cell carcinoma, as most common oral cancer type, 79.5% had attitude that early detection can cure cancer & 46.02% practiced screening towards oral mucosa.

TABLE III. – Knowledge, Attitude & Practice responses of participated students

Serial No.	Variable	Total Population	YES (n)	YES (%)
1.	**KNOWLEDGE OF MOST COMMON ORAL CANCER (OSCC)**	689	412	59.79%
2.	**KNOWLEDGE OF MOST AFFECTED SITE *(Tongue)***	313	159	50.79%
3.	**KNOWLEDGE OF MOST AFFECTED SITE *(Floor of mouth)***	449	220	48.99%
4.	**KNOWLEDGE OF MOST AFFECTED SITE *(Gave correct answers)***	1149	149	13%
5.	**KNOWLEDGE FOR AGE OF ORAL CANCER *(Above 40 years or Increases with age)***	1510	241	15.96%
6.	**KNOWLEDGE FOR AGE OF ORAL CANCER *(20-40 years)***	50	18	36%
7.	**ATTITUDE TOWARDS EARLY DETECTION**	786	628	79.5%
8.	**PRACTICE TOWARDS SCREENING OF ORAL MUCOSA**	3155	1452	46.02%

The knowledge regarding oral cancer varies widely between Indian respondents and those from abroad. In India it's 92.7% which is greater than abroad score of 22.93%.

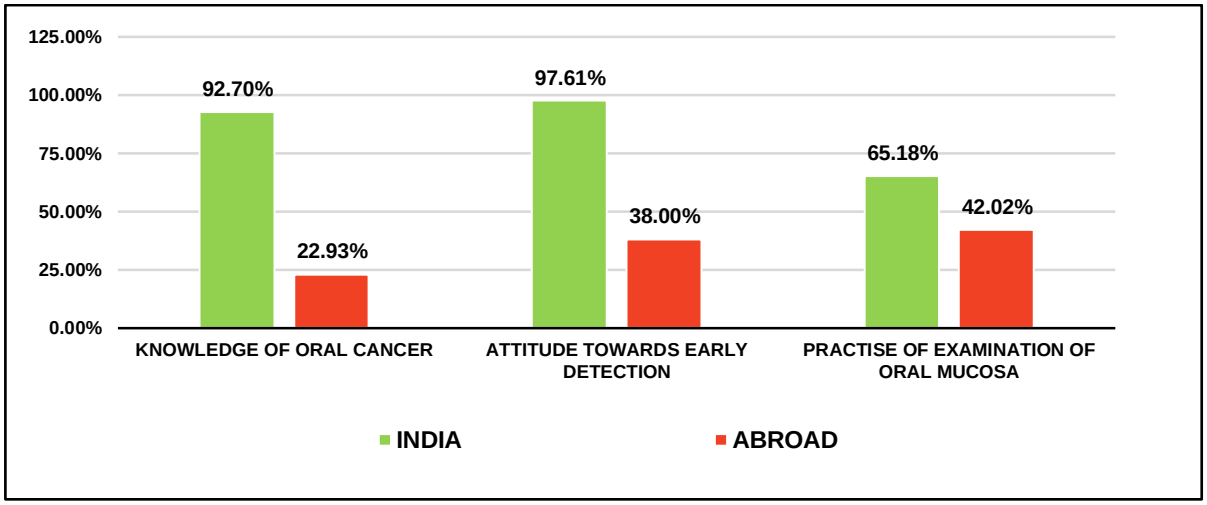

Figure no.4- Comparison between India & abroad related to knowledge, attitude & practice towards oral cancer among student populations.

As we can see from the graph, 38.25%, 79.50% & 46.20% responded correctly towards knowledge on oral cancer, attitude towards early detection and practice towards screening of oral mucosa respectively.

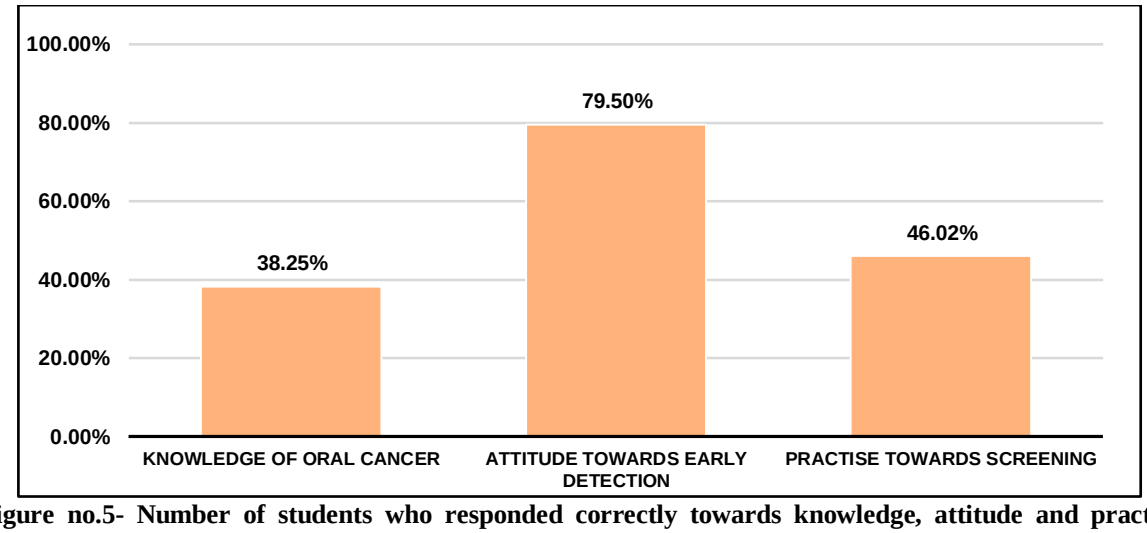

Figure no.5- Number of students who responded correctly towards knowledge, attitude and practice regarding oral cancer.

DISCUSSION

This systematic review examined the current literature on knowledge, attitude and practice of screening regarding oral cancer among students in India and other countries. We attempted to understand the health literacy regarding oral cancer as it is known to be a strong predictor towards health of an individual, health behaviour & outcomes. Lower health literacy leads to poor use of preventive services, adherence to instructions given by medical professionals, and poor self-management skills which directly leads to more expenditure on health care, increased mortality and poor health outcomes.[xxx] Overall, KAP score was, 38.25%, 79.50% & 46.02% respectively. A study done in South-East of Iran,[xxxi] had a knowledge score of 58.8% which is inconsistent with our score.

The review highlighted that tobacco chewing, smoking, previous cancer was reported as major risk factors among, 96.5%, 92.72% and 84.19% among students respectively. As per studies done in Maryland, [xxxii] tobacco chewing (99.8%), previous cancer (96.9%), from Omdurban, [xxxiii] smoking (89.2%) and from Queensland, Australia, [xxxiv] smoking (92%) and chewing tobacco (84%) were reported as major risk factors, making it consistent with our result. The reason being, cigarettes, cigars, and pipe tobacco are made from dried tobacco leaves, and ingredients are added for flavour and to make smoking more pleasant. The smoke from these products form a complex mixture of chemicals caused by the burning of tobacco and its additives. Smoke from tobacco is made up of more than 7,000 chemicals, including over 70 which are carcinogens. Smoking causes cancer and then blocks the body from fighting it in two ways- first, poisons in cigarette smoke can weaken the body's immune system, making it harder to kill cancer cells. When this happens, cancer cells keep growing without being stopped and second, poisons in tobacco smoke can damage or change DNA of cell. DNA plays the role of controlling cell's normal growth and function. When DNA gets damaged, cells grow out of control and cause cancer tumour.[xxxv]

Our review showed speckled lesions (92%) and ulcerative lesions (82.4%) to be commonly reported whereas pain (33%) and cervical metaplasia (24.32%) less commonly reported signs & symptoms. In Guntur, India[xxxvi] 52% identified non-healing ulcer as sign & symptom, which is inconsistent with our score of 77.82%. Reason for pain being reported less is that, oral cancer is typically painless, mostly in the early stages, although occasionally it may bleed, causing concern for patients. Unlike recurrent ulceration (such as aphthae), a malignant ulcer does not heal, progressively enlarges and is firm on palpation.[xxxvii] A considerable portion from this sample of students received their knowledge via mass media i.e. Cinema (92%) and least used source was Friends (1.7%). This result is inconsistent with the study done in Omdurban,[xxxiii] wherein TV and Internet were the main sources of information i.e. 69.8% for those who were above 40 years & 69.4% for those with higher education. 69.4% from study done in Bangalore,[xxxviii] received information through healthcare professionals, which is inconsistent with our score of 21%. From study done in Karimnagar district of Telangana,[xxxix] 33.33% & 6.67% reported Television and Internet respectively, which is consistent with our score of 32.57% & 8.57%.

Regarding most common oral cancer i.e. oral squamous cell carcinoma (OSCC), 59.79% responded correctly. A study done in State of Qatar,[xl] reported 84.2% identifying oscc, which is inconsistent with our result. In US, each year, 34,000 people are affected by OSCC. 3% cancer in men & 2% in women are oscc, mainly occurring after 50 years of age. As with most sites of head & neck, it is the commonly occurring cancer.[xli] In Lagos, Nigeria, [xlii] 81.1% participants identified tongue and floor of mouth as the most affected sites for oral cancer, when compared with our study this score is again inconsistent, as per our study only 50.79% said tongue and 48.99% said floor of mouth. Oral cancer doesn't make itself known until later in its growth, also because the early symptoms are dormant, most squamous cell cancers of the base of the tongue are further advanced by the time a patient sees a physician, for this reason the squamous cell carcinoma in base of tongue remains asymptomatic, during its earliest developmental period. Other contributory factors for tongue cancer are irritation by jagged teeth, projecting fillings and ill-fitting dentures.[xliii] In relation to age for oral cancer, study done in Mandya, Karnataka,[xliv] reported that, 35.1% were of the opinion that the risk of oral cancer increases with age, which is inconsistent with our score of 15.67%.

As per our study 79.5% respondents had attitude that early detection can cure cancer, which is inconsistent with 68.8% from a study in Iran,[xlv] but is consistent with study done in Bangalore, India[xxxviii] wherein 77.20% had attitude that early detection will lead to better outcome. It is acknowledged that early detection of oral cancer leads to less-aggressive treatment which in turn improves the quality of life as well as overall 5-year survival rates.[xlvi] 46.20% reported practice towards screening of oral mucosa, which is consistent with score of 52.3% reporting systematic oral cancer screening from studies done in Italy,[xlvii] & 51.3% from Australia.[xlviii] *T*he importance of screening, is recognised by the fact that although many oral cancers arise anew, some oral mucosal diseases predispose to oral cancer. The detection and diagnosis of such potentially malignant disorders (PMD) provides a scope for patients to be referred for advice regarding lifestyle modifications, and necessary treatment. It is essential to record the outcome of oral screenings, even if the findings are negative. A note on differential diagnosis must be provided if a lesion is present. Appropriate treatment should be instigated and it is essential to examine

patients regularly and thoroughly. There must be a note of adverse findings on the records and patient must be advised about it.[xlix] The graph which shows comparison of KAP scores, we observed that India scores more in terms of knowledge, i.e. 92.7% reported having awareness regarding oral cancer. Logic behind this could be that, India scores high in prevalence of oral cancer in the world, and is the most common cancer among males. After cervical and breast, oral cancer is the 3rd most common cancer in India. Factors like high-exposure to sunlight, due to farming, habits of smoking or alcohol, consumption of smokeless tobacco, spicy food & overall neglect towards oral health could be the main reason.[l]

CONCLUSION

Based on above review, the KAP score were 38.25%, 79.5% & 46.02% respectively. This shows that students are a vulnerable group of population, so there is a need for more educational courses regarding identifying risk factors, detection & prevention.[li] Despite the fact of oral cancer being a preventable & treatable disease, there exists a remarkable gap in knowledge, attitude & behaviour.[lii] There is a need for robust programs towards awareness in public health, tobacco cessation clinics, screening of oral cancer, availability of affordable & accessible cancer care networks to be initiated.[liii] We therefore, assert that educational programs must focus on screening of risk factors, behaviour modification counselling, physical examination of oral cavity and a review of the criteria for referral to a specialist for a biopsy, definitive diagnosis and treatment.[liv]

LIMITATIONS

Limitations to be taken into consideration are that the study though collected data from various other studies conducted globally, still has limited number of population and results cannot be generalised for all regions and for other groups of people. Also, the data provided here were secondary so some respondents may have provided extreme responses than others, due to their own knowledge and awareness. However, we believe that students were honest to provide appropriate responses.

RECOMMENDATIONS

We recommend dental camps should be conducted to spread more awareness regarding oral cancer. Further training and educational activities shall enable increased levels of knowledge among students to prevent oral cancer and help them in identifying the risk factors and the early signs so that they seek appropriate help from the specialist.

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