

AWARENESS ABOUT THE ORAL CANCER AMONG UNDERGRADUATE STUDENTS OF ALLIED HEALTH SCIENCES IN PESHAWAR

UROOJ A¹, UZMA¹, SAFDAR A¹, FAISAL^{*2}, NUMAN M³

¹NCS University System Peshawar, Pakistan

²IPMS-Khyber Medical University, Peshawar, Pakistan

³Rehman Medical Institute (RMI), Peshawar, Pakistan

*Corresponding author email address: faisal.ipms@kmu.edu.pk

(Received, 20th December 2023, Revised 18th February 2024, Published 27th April 2024)

Abstract: Oral cancer is a malignancy that affects the lips or oral cavity. Oral cancer causes about 20000 deaths worldwide. In Pakistan, it is the second most prevalent kind of cancer. The main obstacle to early diagnosis of oral cancer is the lack of information about oral cancer. Therefore, raising awareness among students is necessary and very helpful in controlling, early identification and prevention of oral cancer. **Objective:** To assess the level of awareness regarding oral cancer among undergraduate students. **Methods.** A descriptive cross-sectional study was carried out among undergraduate students of Allied Health Sciences Institutes in Peshawar. Data were collected from 312 undergraduate students through questionnaires. A convenient sampling technique was used for participant selection. Written informed consent was taken from all participants. **Results:** Out of 312 participants there were 124(39.7%) females and 188(60.3%) were males. About 65.7% were aware of oral cancer, and 71.2% were aware that oral cancer is due to alcohol drinking habits. 79.2% were aware that consumption of paan masala or guthka may cause oral cancer. 70.8% were aware that oral cancer is an infectious disease. Most of the students had poor knowledge regarding oral cancer as a disease of old age. Only 58.9% had information concerning the prevention of oral cancer. The majority of students were unaware of the treatment cost of oral cancer. More than half of the students (78.5%) were interested in information and education regarding oral cancer. **Conclusion:** The study concluded that students are decent or moderately aware. However, many lack basic knowledge regarding the initial signs and symptoms of oral cancer and its subsequent causes and effects, which could minimize the approach to overcoming the said problem.

Keywords: Oral Cancer, Guthka Chewing, Undergraduate Students, Awareness

Introduction

Oral cancer is a malignancy that affects the lips or oral cavity (1). An oral cancer is a malignant tumour that originates in the lips or mouth (2). Oral cancer is typically classified as squamous cell carcinoma because the majority of oral cancers originate from squamous cells in the dental area (1). The most common sites affected by oral cancer include the mouth, tongue, lips, floor of the mouth, soft palate, tonsils, salivary glands, and oropharynx (4). The use of alcohol, smokeless tobacco, smoking, and human papillomavirus (HPV) infection are risk factors for oral cancer (5). Pain is the primary symptom of oral cancer, which causes severe impairments in speech, swallowing, and chewing functions (1). According to the American Dental Association, one of the most successful methods for reducing cancer incidence and mortality is to identify the red and white spots that represent dysplasia and remove them before they develop into cancer (4). The easy and affordable "oral self-examination" technique makes it feasible to identify these cancers in their early stages (6). The main obstacle to early diagnosis of oral cancer is the lack of information about oral cancer (7). The majority of oral cancers—about 90%—are squamous cell carcinomas (8) (9). Oral cancer, with its highly unpredictable morbidity rate, is one of the most common malignancies affecting the general population of Pakistan

today (10). In most ethnic groups, men are two to three times more likely than women to get oral cancer (1). In developing countries, morbidity and mortality rates from oral cancer are higher than in developed countries (5). It is the eighth most common type of cancer worldwide; in Pakistan, it ranks as the second most prevalent form of cancer, according to the well-established cancer registry of Shaukat Khanam Memorial Hospital (9). Survival rates decline usually with the advancement of the stage of the disease, in which TNM stages 1 and 2 comparatively have higher survival rates than stages 3 and 4 (11). About 200,000 deaths occur due to oral cancer annually worldwide (12). Oral and lip cancer accounts for 8.6 per cent of all new cancer cases in Pakistan and is responsible for 7.2 per cent of all cancer deaths in Pakistan (10). The results, released by Shaukat Khanam Cancer Hospital in Lahore, showed that oral cancer is the third most common cancer in Pakistani women after breast and ovarian cancer. In addition, oral cancer is the third most common type of cancer in men after prostate cancer (10). A study conducted in California showed a strong link between exposure to ultraviolet radiation and oral cancer in women. 81.2 per cent and 61.2 per cent of participants agreed that tobacco and alcohol are the leading causes of oral cancer.

Prevention is better than cure. If we avoid the known etiological factors associated with oral cancer, we can

[Citation: Urooj, A., Uzma., Safdar, A., Faisal., Numan, M. (2024). Awareness about the oral cancer among undergraduate students of allied health sciences in Peshawar. *Biol. Clin. Sci. Res. J.*, 2024: 799. doi: <https://doi.org/10.54112/bcsrj.v2024i1.799>]

reduce the burden on the general population. A large population, particularly those of low socioeconomic status, needs to be educated about the aetiology and prevention of oral cancer (7).

Oral cancer poses a significant public health challenge globally, with its prevalence on the rise in many parts of the world. Given the increasing incidence of oral cancer, there is a critical need to raise awareness about the risk factors, preventive measures, and early detection methods among the general population, including undergraduate students. Also, despite the importance of oral cancer awareness, there is a lack of research specifically focusing on the knowledge and awareness levels of undergraduate students in Peshawar. Due to limited studies, this highlights the importance of conducting more research in this area to fill the gaps in knowledge and better understand the level of awareness among students. Thus, this study aimed to assess the level of awareness regarding oral cancer among undergraduate students.

Methodology

A descriptive cross-sectional questionnaire-based study was conducted among 312 undergraduate students of Allied Health Sciences Institutes in Peshawar (NCS University System Peshawar, School of Health Sciences Peshawar, Asian Institute of Medical Sciences, Peshawar) from August to September 2023. Ethical clearance was obtained from the institutional research committee. All male and female volunteer students willing to participate were included in our study. The exclusion criteria were those students who were severely ill and not in a physical or mental condition when filling out the questionnaire form and were excluded from our study. Informed consent was obtained from the students before the start of the study. Students were provided with pre-validated and pre-structured questions. The questionnaire consisted of 14 structured questions related to signs and symptoms, treatment, cost of oral cancer, etc. The study used convenient non-probability sampling techniques. The data were analysed using the descriptive statistical method. IBM SPSS version 25.0 was used for the analysis of the data. All the descriptive data were presented in the form of tables and pi-charts.

Results

The male-to-female ratio was 60.3% to 30.9% (Figure 1). Almost all students were between 20 and 30 years old. 10.3% of students were smoking. 0.3% of students had the habit of drinking alcohol drinking.5.1% of students were habitual smokers and alcohol drinkers. 1.96% were addicted to using paan, guthka, and paan masala. 82.1% of students did not have any habits (table 1). Out of 312 students, 65.7% were aware of oral cancer, 22.4% had no idea about oral

cancer, and only 11.9% didn't know about oral cancer (Table 1, Figure 2). 71.2% of students in our study know that drinking alcohol may also cause oral cancer (Table 1). Out of 312 students, 79.2% were aware that oral cancer also causes paan, guthka, or paan masala (Table 1). Only 17% of students knew oral cancer was not infectious (Table 1). Most students, about 56.7%, were aware that oral cancer is not a disease of old age (Table 1). Regarding the initial signs and symptoms of oral cancer, 52.9% were aware that red or white patches are the initial signs and symptoms of oral cancer (Table 1). 68.9% of students considered oral cancer treatable in its early stages (Table 1). Among 312 students, 58.9% had information regarding preventing oral cancer (Table 1). Only 25.3% had information on preventing oral cancer (Table 1). 41.1% of students were not exactly aware of the treatment cost of oral cancer (Table 1). The majority of students (75.6%) believed that if oral cancer is not treated on time, it may lead to death. 78.5% of students showed interest and wanted more education and information regarding oral cancer (Table 1).

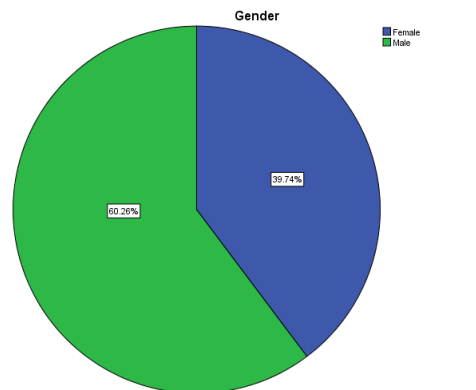


FIGURE 1: GENDER OF PARTICIPANTS

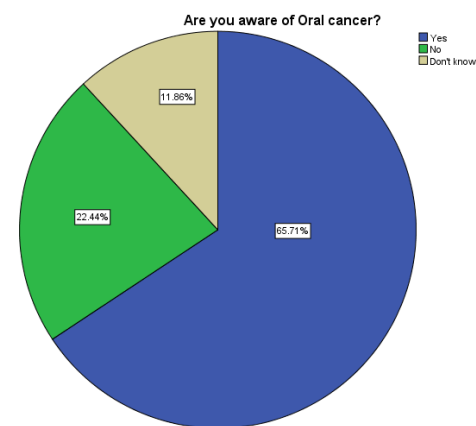


FIGURE 2: AWARENESS OF ORAL CANCER

TABLE 1: QUESTIONS WITH ANSWERS IN PERCENTAGE

Questions	Answers in Percentage				
Habit	Bidi smoking (10.6%=33)	Alcohol (0.3%=1)	Smoking and alcohol (5.1%=16)	Paan, Gutka, Paan Masala (1.9%=6)	No habit (82.1%=256)
Aware of Oral Cancer	Yes		No	Do not Know	

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	(65.7%=205)	(22.4%=70)	(11.9%=37)
Alcohol drinking causes oral cancer	Yes (71.2%=222)	No (11.2%=35)	Do not Know (17.6%=55)
Oral cancer occurs due to paan, gutka or paan masala chewing habit	Yes (79.2%=247)	No (10.3%=32)	Do not Know (10.6%=33)
Oral cancer is an infectious disease.	Yes (70.8%=221)	No (17.0%=53)	Do not Know (12.2%=38)
Oral cancer is a disease of old age	Yes (25.3%=79)	No (56.7%=177)	Do not Know (17.9%=56)
Do you think white patches in the oral cavity are the initial signs of oral cancer?	Yes (52.9%=165)	No (16.3%=51)	Do not Know (30.8%=96)
Oral cancer is terrible.	Yes (68.9%=215)	No (13.1%=41)	Do not Know (17.9%=56)
Do you have adequate information regarding the prevention of oral cancer?	Yes (54.8%=171)	No (25.3%=79)	Do not Know (19.9%=62)
Do you know the treatment cost of oral cancer?	Yes (31.1%=97)	No (41.3%=129)	Do not Know (27.6%=86)
Do you know if not treated on time, oral cancer may lead to death?	Yes (75.6%=236)	No (9.3%=29)	Do not Know (15.1%=47)
Do you want information and Education regarding oral cancer	Yes (78.5%=245)	No (11.9%=37)	Do not Know (9.3%=29)

Discussion

Oral cancer has become a worldwide health problem with increasing incidence and mortality rates (13). Oral cancer is considered one of the widely prevalent cancer types and is the sixth most common cancer worldwide (4). Our study aims to assess the level of awareness and knowledge among undergraduate students of the Allied Health Sciences Institute in Peshawar. Although survival rates of oral cancer are only 50% if it is diagnosed at an early stage, the survival rate increases by 80% (4). Given the increasing incidence of oral cancer, there is a critical need to raise awareness about risk factors, preventive measures and early detection methods among the general population, including undergraduate students.

A total of 312 students were involved in our study. The mean age of the respondents was 20–30 years. The majority of participants were males. The results of our current study show that more than half (65.7%) of participants were aware of oral cancer. A similar study was conducted by Pujan Rai et al. in Singapore in March 2020 among undergraduate students at the National University of Singapore. The majority of participants were aware of oral cancer, about 66%, which strongly supports our result (14).

Another similar study was conducted by P. Varela-Centelles et al. in August 2017; about 72% of participants were aware of oral cancer (15). This study also supports our result. Another study was conducted by Yuniardini S. Wimardhani et al. among adults in Jakarta, Indonesia, in 2018; about 53.2% were aware of oral cancer, which also supports our current result (16).

In a study by Sadeq Ali Al-Maweri et al., which is about 62.4% (66), and in a study conducted by Salman Amin et al. in March 2021 in Lahore, Pakistan, which is about 68.9% ey heard about oral cancer in Lahore (4). This finding from the studies strongly supports our current result. Another study by PB Anirudh et al. in 2022 reported that 67.1% of participants were aware of oral cancer, while a study by Poonam Rai et al. reported that 59.4% of participants were aware of oral cancer (5). The above results also support our current study.

In our study, when asked, “Is oral cancer due to an alcohol-drinking habit? 71.2% of participants said yes, drinking alcohol can cause oral cancer. Another study conducted by Anshul Aggarwal et al. reported that 68% of participants said that oral cancer is due to an alcohol-drinking habit. This finding also supports our current result (7). In a study by Rajesh Kumar Konduru et al., about 76.1% said that oral cancer is due to alcohol consumption (17). In a study by Poonam Rai et al., about 57.8% of participants said that excessive consumption of alcohol is a causative agent for oral cancer, which is in contrast to our current study (5). However, in a study by Salman Amin et al. conducted in Lahore, Pakistan, out of 385 participants, 62.2% said that alcohol is a risk factor for oral cancer, which, to some extent, also supports our current result (4). Another study was conducted by Merve Sari DDS et al. in 2020 among Turkish dental students, and 78.38% reported that alcohol use was considered a risk factor for oral cancer, which is also supported by our current result (13).

In our study, when asked if “oral cancer occurs due to Smoking, Paan, gutka or paan masala chewing habits

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majority of participants 79.2% said yes, and about 10.3% said that these habits are not responsible for oral cancer. A similar study was also conducted by Anshul Aggarwal et al. in 2018, reported that 84% said yes while 14% said “no. The findings of the study strongly support our current study result (7). A study by Vikas Kumar et al. reported that chewing tobacco 77.7% considered a risk factor for oral cancer, which is supported by our current result. Still, in his study, 91.4% consider smoking a significant risk factor for oral cancer, which is in contrast to our study (18).

In our study, when asked, “Is oral cancer an infectious disease?” Most participants, 70.8%, responded that it is an infectious disease, while only a few participants, 17.0%, said it is not. A similar study was conducted by Anshul Aggarwal et al., with a few participants, 12%, said yes, but the majority of participants, 84%, said NO, which is a total contrast from our study (7). In another study conducted by Dnyanesh Limaye et al. in May 2018, among university students from Karachi, Pakistan, participants showed satisfactory knowledge, as 74% said “no” to the fact that oral cancer is not infectious (9). This finding of study is also in contrast to our current study. This may be a misconception of students that oral cancer is an infectious disease.

In our study, we were asked, “Is oral cancer a disease of old age?” Only 56.7% of participants knew that it was not a disease of old age, while 25.3% were less aware of it. A similar study was conducted by Anshu Aggarwal et al. in 2018, and the rate of awareness regarding oral cancer was greater. About 77% of respondents were aware that it is not a disease of old age, while only 15% said that oral cancer is a disease of old age. These findings are in contrast to our findings (7).

Awareness regarding initial signs of oral cancer was present in 52.9% of the study sample. These findings are supported by a study conducted by Poonam Rai et al., in which 48% said the presence of red or white patches was an initial sign of oral cancer (5). A similar study was also conducted by Pokharel K. Premit et al. in 2018 among undergraduate dental students in Nepal. 63.8% of students responded that red and white lesions were initial signs of oral cancer, which, to some extent, also supports our result (19). In a study by Anshu Aggarwal et al., 79% of participants said that red or white lesions were initial signs of oral cancer, in contrast to ours (7). In our study, we were asked, “Is oral cancer treatable?” 68.9% said that oral cancer can be treated in its early stages. This finding of the study was supported by the study done by Anshu Aggarwal et al., where 75% of participants said yes, oral cancer is treatable (7). A similar study was also conducted by Dnyanesh Limaye et al. in 2017 among students from Mumbai University. 72% of students said that oral cancer is curable. This study also supports our current study result (20).

In our study, we were asked, “Do you have adequate information regarding preventing oral cancer?” 54.8% were aware of this. This finding is supported by the study done by Salman Amin et al. in March 2021 in Lahore, Pakistan. 58% think that oral cancer is preventable (4).

In contrast with the study conducted by Pokharel K. Premit et al., which found that 30.7% of respondents had sufficient knowledge about preventing oral cancer (19).

Awareness regarding the treatment cost of oral cancer: less than half of the participants, or about 31.1%, knew the

treatment cost. Most study participants did not know about the treatment cost of oral cancer. This study's finding disagrees with the study conducted by Anshu Aggarwal et al., in which only 15% of participants were aware of the treatment cost of oral cancer (7). This might be because the study was done on a local population, which differs from our study environment.

In our study, when asked about “if oral cancer is not treated on time, it may lead to death,” the majority of students, 75.6%, were aware that it could cause death. This finding is strongly supported by the study done by Anshu Aggarwal et al., in which 81% were aware that oral cancer causes death if not treated on time (7).

In our study, when asked, “Do you want information and education regarding oral cancer?” More than half of the participants (78.5%) said yes, they want to get more information regarding oral cancer because they do not have much information or education. In an Anshu Aggarwal et al. study, 88% of participants wanted information regarding oral cancer (7). Our current study results support this finding of the study. Another study was conducted by Zayed Ali Assiri et al. in 2019 in Saudi Arabia, and 90.5% of respondents wanted more information regarding oral cancer (21). According to a study conducted by Pokharel K. Premit et al. (2018) among undergraduate students in Nepal, almost 99% of students want more information on oral cancer (19).

Conclusion

The study concluded that students are aware of the problem in a decent or moderate way. However, many lack basic knowledge regarding oral Cancer signs and symptoms and their subsequent causes and effects, which could minimize the approach to overcoming the said problem.

Recommendation

In light of the study carried out among undergraduate students, it is recommended that a campaign at school and university levels be implemented to bring awareness among the said population as it can be the ideal age to guide them about oral cancer. The government should incorporate such social awareness activities at the university level to boost the youngsters' knowledge. Furthermore, a campaign at the community level can also be made targeting the significant issues and outcomes of oral cancer as it can be proved to be very expensive to treat oral cancer later on, which could minimise the burden of cancer units in government hospitals.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned.

Consent for publication

Approved

Funding

Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution**ATEEQA UROOJ (Lecturer Dental Technology)**

Manuscript revisions, critical input.

Coordination of collaborative efforts.

UZMA (Primary Author, Lecturer)

Data acquisition, analysis.

Manuscript drafting.

ATEEQA SAFDAR (Clinical Technologist)

Data entry and Data analysis, drafting article.

Data acquisition, analysis.

FAISAL (Coordinator Dental Technology)

Study Design, Review of Literature.

Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript.

MUHAMMAD NUMAN (Lecturer)

Coordination of collaborative efforts.

Conception of Study, Final approval of manuscript.

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