

Head and neck cancer awareness exploratory survey in undergraduate students

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Abstract

Head and neck cancer (HNC) was among the seven cancers which contributed to half of the global burden on mortality and incidence according to GLOBOCAN 2018. Tobacco, consumption of alcohol, and HPV infection are among the risk factors related to HNC. This study aimed to explore the knowledge of HNC among university students in Universitas Indonesia.

Online questionnaire adapted and translated into Indonesian language was delivered to undergraduate students aged 18-24 years old in Universitas Indonesia. Students from Health Sciences Cluster, Science and Technology Cluster, and Social Sciences and Humanities Cluster were invited to participate in the study.

There were 1090 respondents included in the study. Respondents were largely female (n = 807, 74%), nonsmoking (n=1075, 91.8%), and more than half were enrolled as students in the faculties of non-Health Sciences Cluster (n = 567, 52%). Two-thirds of respondents had heard about HNC and internet was mentioned as the main source of HNC information. Alcohol and tobacco smoking were recognized as risk factors of HNC while neck tumor was thought as the early symptoms of HNC by most respondents.

This study found that although most respondents already knew about HNC and recognized smoking as a risk factor, there was a lack of knowledge regarding the early symptoms of HNC.

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Introduction

Head and neck cancer (HNC) is an umbrella term for all cancers that develop between the thoracic inlet and the base of the skull.¹ This includes malignancies arising in the mucosal lining of oral cavity, pharynx, larynx, and paranasal sinus, as well as salivary gland cancers.²

Most HNC cancers are diagnosed at advanced stages thus involving more complications and being associated with poor survival rate.³ Tobacco in all forms has been shown to strongly linked with the incidence of

HNC. Other established risk factors include heavy alcohol use, human papilloma virus (HPV) infection, betel leaf and areca nut chewing habit, and poor oral hygiene.^{1,4,5}

On average, HNC cancers are diagnosed between 40-50 years old.⁴ However, a recent study in Bandung, Indonesia reported that most HNC patients were diagnosed under 30 years.⁶ Moreover, HPV-related HNC is generally reported in younger and healthier individuals, without or minimal exposure to smoking.² Risky health behavior related to HNC may start during young age due to peer pressure or as a coping mechanism against new challenges and environments.^{7,8}

Several studies regarding HNC knowledge have been reported before. In a public survey of adults in the United States, 66% reported having poor knowledge of HNC.⁹ A study among international adolescents and young adults reported that 51% had not

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previously heard of HNC before.¹⁰ A study in Poland also reported that HNC awareness and knowledge among young people were low.¹¹ Awareness of HNC in Indonesia is unknown. This study aimed to explore the knowledge of HNC among university students in Universitas Indonesia (UI).

Materials and methods

This was a descriptive study conducted from November to December 2020 among undergraduate students of UI using an online application (Google Forms). The faculties in UI can be divided into three major clusters; Health Sciences Cluster (Faculty of Medicine, Faculty of Dentistry, Faculty of Nursing, Faculty of Public Health, and Faculty of Pharmacy), Science and Technology Cluster (Faculty of Mathematics and Natural Science, Faculty of Engineering, and Faculty of Computer Science), and Social Sciences and Humanities Cluster (Faculty of Law, Faculty of Economics and Business, Faculty of Humanities, Faculty of Psychology, Faculty of Administrative Science, and Faculty of Social Science and Politics). This study was reviewed and approved by the Ethical Committee Faculty of Dentistry Universitas Indonesia (No. 45/Ethical Approval/FKGUI/IX/2020 and No. 51/Ethical Approval/FKGUI/IX/2020).

The research team distributed the online survey link to university students of different clusters through personal communication and subsequently the survey was forwarded to student chat groups. Participation in this survey was voluntary. The online survey form collected student ID number to screen for multiple respond which subsequently deidentified by research team during analysis thus the survey remained anonymous. The online survey included participation consent page. Students not between 18-24 years old and inactive academic status during the study period were excluded from the study.

The instrument used in this study was adapted from the English questionnaire used by Krentowska et al. in their study in Poland.¹¹ The questionnaire consisted of respondent's profile and HNC knowledge sections. In the HNC knowledge sections, respondents could choose multiple answer for several questions such as question on source of HNC information, knowledge on tobacco-induced cancer, HNC risk

factors, symptoms, and consultation.

A cross-adaptation procedure began with approval from the original creator and involved two translators and backtranslators with medical and nonmedical background. An expert panel composed of academicians and researchers in oral medicine reviewed the final translated questionnaire in Indonesian language and made several modifications related to the items to better suit the context of this study. Validity study was performed on 40 UI students and found no significant problem regarding the survey items. The software SPSS 25 (IBM Corp, Armonk, New York, USA) was used to analyze the data statistically for frequency distribution and Chi-square tests.

Results

The questionnaire was completed by 1090 respondents. Respondents had a mean age of 20.08 ± 1.2 years old, and were mainly female ($n = 807, 74\%$), enrolled as students in the faculties of non-Health Sciences Cluster ($n = 567, 52\%$), and nonsmokers ($n=1075, 91.8\%$) (Table 1).

Characteristics	Number of respondents	%
Sex		
Female	807	74
Male	283	26
Age (Mean \pm SD)		
	20.1 \pm 1.2	
18	78	7.2
19	305	28
20	300	27.5
21	302	27.7
22	70	6.4
23	29	2.7
24	6	0.6
University cluster		
Health Sciences	523	48
Science and Technology	158	14.5
Social Science and Humanity	409	37.5
Smoking habit		
Yes	65	6
No	1075	91.8
Ex-smoker	24	2.2

Table 1. Characteristics of university student respondents.

Table 2 shows the description of questions related to HNC knowledge among respondents. Around three-quarters (75.8%) of all survey respondents had heard about HNC.

The most commonly reported sources of information about HNC included internet (79.2%), social media (50.6%), and the university (56.3%). Among respondents, 15 (1.4%) answered that they did not know the types of cancer caused by smoking. Most respondents identified lung cancer (90.1%), oral cancer (84.3%), laryngeal cancer (62.4%), and pharyngeal cancer (57.9%) as the cancers associated with tobacco smoking. More than three-quarters (78.1%) of respondents thought that cancer will develop in 40-60% of smokers.

Tobacco smoking (96.8%) and alcohol (78.9%) were identified by most respondents as the risk factor of HNC. Other factors like stress (54.1%) and infection with HPV virus (51.1%) were also identified as HNC risk factors. Less than one-fifth (19.2%) of respondents answered that they did not know HNC risk factors.

The first symptoms of HNC were reported to be tumor in the neck (73.8%), chronic sore throat (48.7%), chronic hoarseness (41.4%), and pain or trouble swallowing (45.9%); 27.1% did not know.

When asked about seeking medical advice when they suspected of having HNC themselves, 56% answered that they will seek medical advice immediately, whereas 15.6% answered that they will seek medical advice only when being prevented from functioning normally.

Respondents showed their preference for consultation if they suspect that they have HNC. An ear-nose-throat (ENT) specialist was chosen by over half of the respondents (52.8%), followed by an oncologist (40.7%), a general practitioner (27.8%). Dentist was chosen by 10.6% respondents.

On the question of HNC prognosis knowledge, most respondents (42.4%) did not know the chance of cure in HNC. Around one-third of the respondents (30.6%) thought that HNC has approximately 50% chance of cure if the cancer was diagnosed early.

Discussion

Most respondents in this study said that they were aware of HNC. The internet, university, and social medias were identified as the most frequent sources for information on HNC. This finding is not surprising considering almost half of the respondents were from health sciences cluster and that Indonesians between the age of

17 to 25 years old were the largest age group of internet users in 2019.¹² Related to information of cancer, users of social media mostly concerned about the treatment but for cervical cancer in particular, preventions issue were more emphasized.¹³ The demand for health related information online is growing thus efforts to ensure the quality of the information should be made.^{14,15}

A study among high school students showed that presenting oral cancer information through audiovisual media significantly increased their knowledge.¹⁶ Social media is a suitable platform for displaying audiovisual media. In a scoping review by Plackett, et al.¹⁷, they found that social media utilization may improve cancer screening and early cancer diagnosis, although evaluating the engagement is challenging since most social media intervention is not designed for evaluation due to the time constraint. They also showed that each social media platform reaches different audience such as YouTube is more effective on males and Facebook reached more females and older-adults.¹⁷ Further study which explores specific queries regarding HNC could help health information providers as well as public health campaign to determine which topics are best presented on the various social media platforms.

In a study of adolescents between 14-19 years old in Depok, Indonesia, 17% of the respondents were smokers.¹⁸ The WHO has reported that the prevalence of smoking among Indonesian adolescents between 10-19 years old has increased to 9.1% in 2018.¹⁹ In this study, only a small portion (8.2%) of university student reported ever smoking which is similar to the national data. Smoking habit can be influenced by multiple factors such as socioeconomic level, education, smoking habit in the family and family dysfunction, religion, and peer influence.²⁰ In general, this study showed that the respondents have been aware of the relationship between tobacco and cancers. Specifically, most respondents also knew that tobacco smoking and alcohol are the main risk factors of HNC.

It has been shown that delay in diagnosis of HNC is contributing to more complex overall treatment which can cause lowered patient's survival and significant socioeconomic burden to the patients and their families.^{21,3} Similar to the findings in the oral cancer awareness study in Jakarta²² and HNC awareness study in US

adults⁹, the respondents in this study demonstrated poor knowledge of HNC early symptoms shown by answering that tumor on the neck as the early symptom of HNC while it actually represented cancer metastasis to the cervical lymph nodes, signifying the late stage of the disease.

This study has several limitations. First, the survey was performed in one university student population thus the result cannot be generalized to other young Indonesian population. Second, this was a voluntary survey so there was a high probability that only respondents with interest to HNC and some level of awareness participated in this study which can cause biased response. However, 1090 students of both health sciences and nonhealth sciences clusters were present in this study in similar ratio and the responses were confirmed to be unique. Another limitation was that this study did not include question regarding other risk factors of HNC such as EBV infection and the exposure to chemical carcinogen included in diet which has been reported to be associated with nasopharyngeal carcinoma in Indonesian population.²¹

Conclusions

This study was an explorative study aimed to describe the knowledge of HNC among university students by voluntary online survey. The final number of respondents in this study was 1090 from health sciences and non-health science clusters. This study found that although most respondents have heard of HNC and the

risk of cancer by smoking, they did not know about the early symptoms of HNC. This result could be an important consideration in designing education material of HNC awareness campaign among young people. Since this segment of the population utilizes the internet and social media the most, these outlets can be a suitable platform to raise awareness of HNC by professional health institution to deliver reliable information to wide audience.

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Authorship

MM conceptualized and supervised research, procured research funding, analyzed and visualized data, wrote and reviewed manuscript; AKA and RKI supervised research, wrote and reviewed manuscript; NST wrote and reviewed manuscript; JK and SAS collected and analyzed data.

Declaration of Interest

The authors report no conflict of interest.

Question	Frequency	%
Have you ever heard of head and neck cancers?		
Yes	826	75.8
No	264	24.2
If yes, where have you heard about head and neck cancers?		
Television	320	38.7
The Internet	654	79.2
Social media	418	50.6
Newspapers	225	27.2
Radio	77	9.3
School	296	35.8
University	465	56.3
Magazines	87	10.5

Books	352	42.6
My colleagues	184	22.3
My parents	229	27.7
My doctor	201	24.3
Awareness campaigns	66	8
Someone in my family has suffered from head and neck cancer	15	1.8

Which cancers may be caused by tobacco smoking?

I do not know	15	1.4
Lung cancer	978	90.1
Laryngeal cancer	621	62.4
Gastric cancer	258	24
Urinary bladder cancer	288	26.8
Finger cancer	85	8
Pharyngeal cancer	622	57.9
Cancer of the oral cavity	906	84.3

In your opinion, how strong is the influence of smoking on cancer development?

I do not know	67	6.1
There is no influence at all	3	0.3
There is a certain influence, but most smokers do not fall ill	124	11.4
Cancer develops in 40-60% of smokers	851	78.1
Every smoker will eventually fall ill	45	4.1

What are the risk factors of head and neck cancer?

I do not know	209	19.2
Alcohol	695	78.9
Grilled meat	223	25.3
Tobacco smoking	853	96.8
Stress	477	54.1
Infection with HPV virus	450	51.1
Tooth extraction	121	13.7
Marijuana use	169	19.2
Excessive sunbathing	46	5.2

What are the first symptoms of head and neck cancer?

I do not know	295	27.1
Fever	173	21.8
Chronic sore throat	387	48.7
Chronic hoarseness	329	41.4
Fatigue	165	20.8
Red plaques in the oral cavity	208	26.2

Pain or trouble swallowing	365	45.9
Tumor in the neck	587	73.8
White plaques in the oral cavity	175	22
Nosebleed	103	13
Blocked nose on one side	94	11.8
Persistent stinging of the tongue	109	13.7
Increased tongue rigidity	143	18
Tumor in the cheek	155	19.5
Non-healing ulcers	177	22.3
Tumor in the tongue	108	13.6
Imagine that you noticed symptoms that might suggest head and neck cancer in yourself. When would you seek medical advice?		
I do not know	44	4
Immediately	610	56
After a week	179	16.4
After three weeks	69	6.3
After two months	6	0.6
After six months	11	1
After a year	1	0.1
Only when it prevented me from functioning normally	170	15.6
Who should you consult if you suspected head and neck cancer in yourself?		
I do not know	72	6.6
A general practitioner	283	27.8
A dentist	115	11.3
An oncologist	414	40.7
An ENT specialist	537	52.8
All of the above	220	21.6
What is the chance of cure in head and neck cancer?		
I do not know	462	42.4
There is no chance. This is a fatal disease	8	0.7
About 10%	20	1.8
20-30%	27	2.5
If cancer is diagnosed early – even 50%. The later it is, the smaller the chances of being cured are	334	30.6
If cancer is diagnosed early – even 90%. The later it is, the smaller the chances of being cured are	239	21.9

Table 2. Head and neck cancer knowledge survey.

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