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Oral Squamous Cell Carcinoma Cancer: A Real Global Indicators

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Abstract: Background: Oral squamous cell carcinoma cancer is a type of cancer called head and neck cancer, and it can be in any part of the mouth, and when not treated early, it moves to other parts of the body. This paper seeks to find indicators and comparisons of the number of injuries and deaths by regions of the world. Material & Methods: The data of this disease for the year 2022 was used from the National Agency for Research on Cancers / Global Cancer Observatory, giving an accurate analysis of incidence, mortality, and prevalence. Survival rate and comparisons by regions and countries for both sexes have been done. Reference was also made to the indicators of the disease in Iraq and the analysis of their data. Finding: The results of the analysis showed that the male cancer rates were much higher than the female rates; Asian countries have the highest numbers and survival rates; the best survival rates were in Africa and Oceania; and the survival rates were higher in developed countries and the lowest in developing countries. Conclusion: By analyzing the data, it was found that the cases in males are higher than in females, and the survival rates in developed countries were much higher than in developing countries. India, China, and the United States of America occupied the first places in injuries and deaths; the least was in Indonesia. The survival rate of women was higher than men, and the best was the United States of America, while the rest of the countries had very similar percentages.

Keywords: Global Indicators, Global regions, Oral Squamous Cell Carcinoma

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1. Introduction

Oral squamous cell carcinoma begins through the mouth in the form of the growth of cells located below the tongue and at the thin, flat cells lining the inside of the mouth, and the appearance of ulcers is difficult to heal (1). This type of cancer is formed in any part of the oral cavity, namely the lips, gums, tongue, inner lining of the cheeks, roof, and bottom of the mouth. One of the main causes of this type of cancer is tobacco use in various forms and types and excessive consumption of alcoholic beverages, with a weakness in the immune system of the affected person (2, 3).

The appearance of pain in the mouth and sores with difficulty moving the tongue, and accompanying pain when swallowing, pain in the ear, loose teeth, swollen neck, and white spots in the mouth—these cases occur when changes occur in the DNA of cells located under the tongue (4). Cancer cells can lead to lumps that invade and

destroy healthy body tissues and can spread to other parts of the body (5, 6). Staying away from alcoholic beverages and smoking with the necessary medical tests, especially regular dental tests, is one of the main types of prevention of the disease (7,8). A biopsy of any abnormal tissue is taken to make sure that the suspicious area is cancerous or not, and when the case occurs, a CT scan or magnetic resonance imaging is taken, and these tests help the attending physician to determine the size and location of the cancer and the extent of its spread, especially to the lymph nodes. The cure rate is high when the entire cancer is removed, as well as the surrounding healthy tissue, before it reaches the lymph nodes (9-11).

This paper seeks to give indicators of prevalence, injuries, and deaths as well as survival rates globally by regions and continents and make comparisons for OSCC.

The continent of Asia ranked first in the number of incidences, prevalence, and mortality, followed by Europe, North America, Latin America and the Caribbean, Africa, and least of all, Oceania. The survival rate was highest in North America (84%), followed by Oceania (78%), Europe (61%), Asia (54%), and the lowest in Africa (42%). Globally the survival rate was almost half (52%), Table (1), Figure (1).

3. Methodology

The data obtained from the International Agency for Research on Cancer will be analyzed to measure indicators of incidence, prevalence, mortality, survival rate, age-standardized rate (per 10000), cavity crude rate (per 100000) incidence, and estimated cumulative risk (0 – 74) (12-21).

Table (1): Absolute numbers, incidence, mortality & prevalence both sexes, 2022

	Incidence	*Mortality*	*Prevalence*	*Survival Rate*
Asia	**258440**	**141465**	**168479**	**0.45**
Europe	**62073**	**24253**	**51714**	**0.61**
North America	**30992**	**4896**	**27084**	**0.84**
Latin America & the Caribbean	**19301**	**8343**	**14048**	**0.57**
Africa	**14702**	**8542**	**8292**	**0.42**
Oceania	**4338**	**939**	**3381**	**0.78**
Total	**389846**	**188438**	**272998**	**0.52**

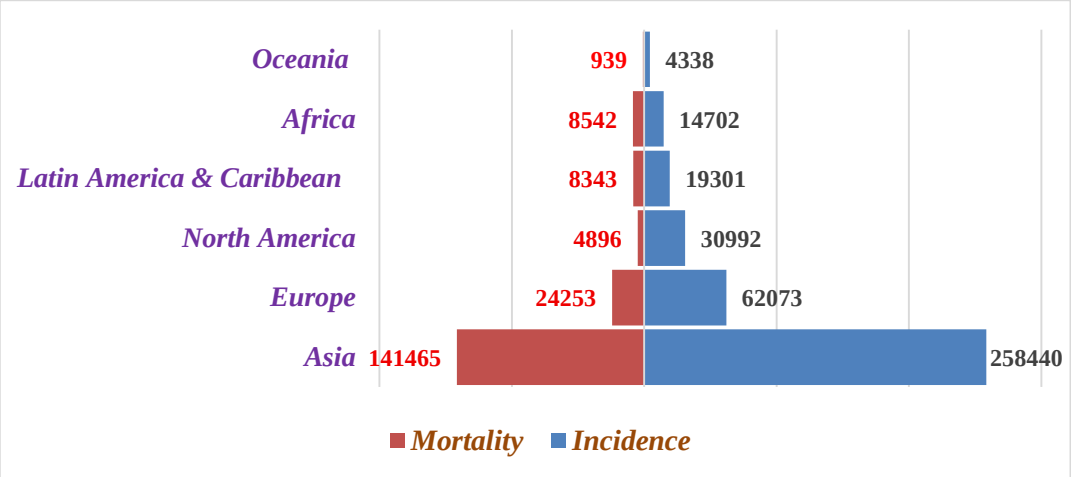

Figure (1): incidence, mortality & prevalence both sexes, 2022

The top ten countries in incidence and mortality were male, higher than female; India took the first place, followed by China, the USA, and the least, Indonesia. The survival rate was the highest in the USA (83%), Brazil (58%), Japan (57%), and the lowest in Pakistan (35%), Table (2), Figure (2).

Table (2): Top ten countries incidence male & female mouth and oral cancer, 2022

Country	*Incidence*		*Mortality*		*Survival Rate*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
India	107812	35947	59656	20323	0.45	0.44
China	24169	13039	14044	6787	0.42	0.48
USA	18201	8669	2650	1505	0.43	0.83
Bangladesh	10785	5298	6329	3118	0.41	0.41
Pakistan	10745	5170	6816	3365	0.37	0.35
Japan	6545	4549	1888	1958	0.71	0.57
Brazil	8269	2760	3531	1169	0.58	0.58
Russia	6596	3133	3971	1427	0.40	0.55
France	4737	2458	-	-		
Indonesia	4010	2458	2315	1231	0.42	0.50

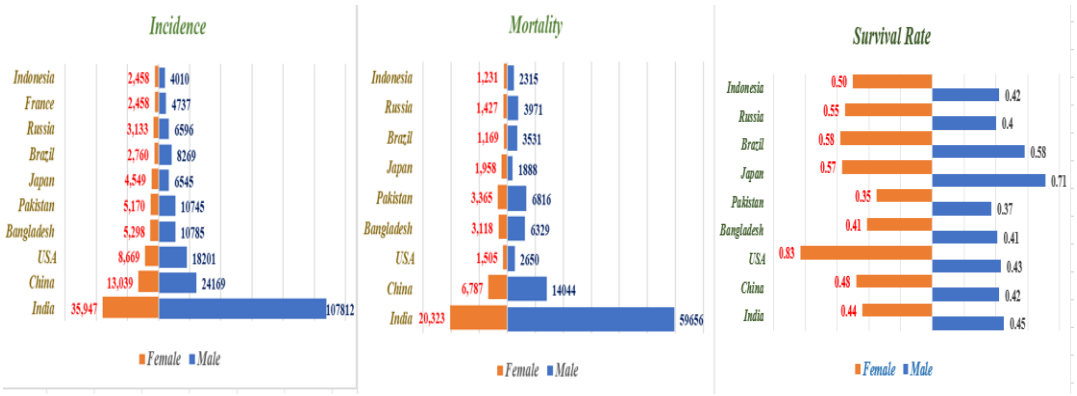

Figure (3): Top ten countries incidence male & female mouth and oral cancer, 2022

For global lip and oral cavity age-standardized rates (per 10000) incidence and mortality, male and female, the highest regions were Melanesia, followed by South-Central Asia with the highest mortality, Australia, and New Zealand. The least was in Central Africa. This situation applies to both male and female, as the rate of male is higher than female. Table (3), Figure (3).

Table (3): Global Lip and Oral Cavity Age-Standardized Rate (per 10000) incidence and mortality, male and female, 2022

Region	*Incidence*	*Mortality*	*Male*	*Female*
Melanesia	14.1	4.8	18.1	10.4
South Central Asia	9.1	5.1	13.2	4.9
Australia & New Zealand	5.7	0.82	8	3.5
Northern Europe	4.6	1.1	7.8	2
Northern America	4.6	0.62	6.6	2.7
Eastern Europe	4.5	2.3	6.2	3
Western Europe	4	1.1	5.7	2.4

Southern Europe	3.5	1.1	5.1	1.9
Southern Africa	3.2	1.4	4.7	2
Caribbean	2.9	1.1	4.6	1.4
South America	2.7	1.2	4.2	1.4
Polynesia	2.6	1.3	4.2	0.99
Southeast Asia	2.6	1.4	3.6	0.9
Micronesia	2.1	0.2	3.4	1.8
Eastern Africa	1.8	1.3	2.4	1.4
Western Asia	1.8	0.67	2.3	1.1
Eastern Asia	1.7	0.76	2.2	1.3
Middle Africa	1.6	0.71	1.7	1.4
Northern Africa	1.4	0.98	1.6	1.2
Western Africa	1	0.44	1.2	0.9
Central America	1	0.36	1.1	0.8

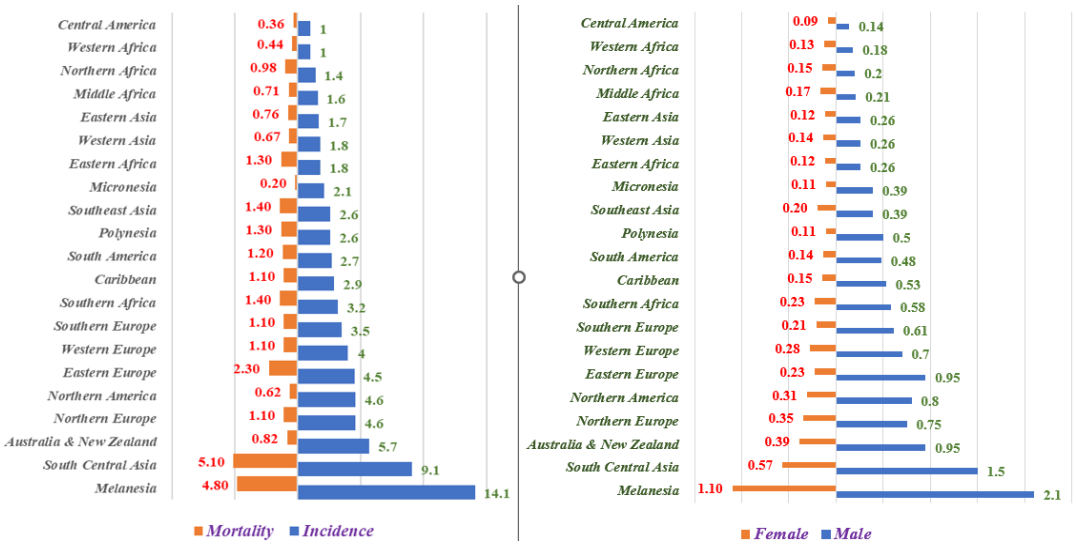

Figure (4): Global Lip and Oral Cavity Age-Standardized Rate (per 10000) incidence and mortality, male and female, 2022

For global lip and oral cavity crude rate (per 100000) incidence and estimated cumulative risk (0 – 74), the highest is Melanesia, followed by South-Central Asia, Australia and New Zealand, and Northern Europe, as well as the rate of females being lower than males, and the lowest is Central America, Table (4), Figure (4).

Table (4): Global Lip, oral cavity crude rate (per 100000) incidence, and estimated cumulative risk (0 – 74), 2022

Region	*Crude Rate*		*Cumulative Risk*	
	Male	*Female*	*Male*	*Female*
Melanesia	12.7	8.3	2.1	1.1
South Central Asia	12.7	8.7	1.5	0.57
Australia & New Zealand	13.3	6.8	0.95	0.39
Northern Europe	10.6	5.8	0.75	0.35
Northern America	11.4	5.2	0.8	0.31
Eastern Europe	12.4	4.2	0.95	0.23
Western Europe	11.1	6.1	0.7	0.28
Southern Europe	11.3	6.4	0.61	0.21

Southern Africa	10.6	5.8	0.58	0.23
Caribbean	5.8	2.1	0.53	0.15
South America	5	2.1	0.48	0.14
Polynesia	4.6	1.2	0.5	0.11
Southeast Asia	3.5	2.2	0.39	0.2
Micronesia	3.5	1.1	0.39	0.11
Eastern Africa	1.2	0.82	0.26	0.12
Western Asia	2	1.3	0.26	0.14
Eastern Asia	3.9	2.3	0.26	0.12
Middle Africa	0.9	0.8	0.21	0.17
Northern Africa	1.5	1.3	0.2	0.15
Western Africa	0.78	0.65	0.18	0.13
Central America	1.2	1.1	0.14	0.09

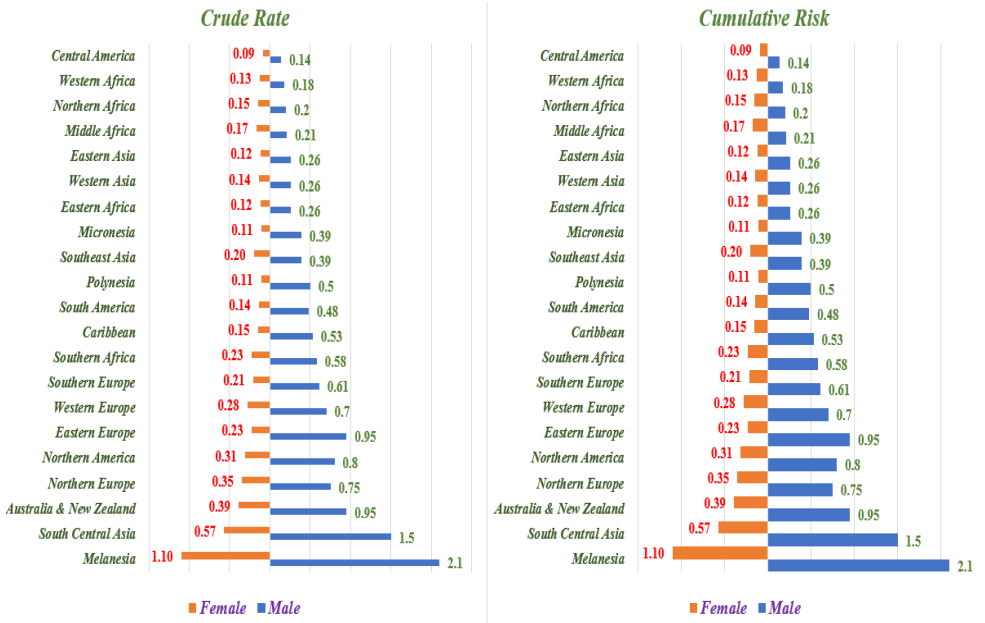

Figure (5): Global Lip, oral cavity crude rate (per 100000) incidence, and estimated cumulative risk (0 – 74), 2022

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4. Iraqi oral squamous cell carcinoma

Table (5) shows the cases of incidence and mortality in Iraq. The incidence and mortality of females were higher than males, and this was reflected in the survival rate, as females (0.4) had a lower rate than males (0.52), The other measures shown in the table were almost equally likely.

Table (5): Oral cavity cancer incidence & mortality in Iraq, 2020

	Incidence		***Mortality***		***Survival Rate***	
	Male	***Female***	***Male***	***Female***	***Male***	***Female***
Annual number of new cancer cases	126	136	61	81	0.52	0.40
Crude Rate	0.62	0.69	0.31	0.42		
Age-standardized Rate	1.22	1.06	0.63	0.66		
Cumulative Risk (%) at 75 years old	0.15	0.13	0.08	0.08		

Incidence and mortality by age groups were also the highest for females; the age group (45 – 60) was the highest for incidence, and (60 -75) was the highest for mortality. Table (7).

Table (6): Oral cavity cancer incidence & mortality in Iraq by age group, 2020

Age Group	*Incidence*		*Mortality*	
	Male	*Female*	*Male*	*Female*
15 -	**3**	**5**	**0**	**3**
30 -	**6**	**20**	**4**	**12**
45 –	**41**	**41**	**19**	**23**
60 -	**51**	**32**	**28**	**31**
75^{+}	**21**	**33**	**10**	**12**

Conclusion

This paper is looking for an analysis of one of the types of cancer, which is oral squamous cell carcinoma, and found that the number of infections, spread, and deaths were almost limited, but it remains an existing threat affecting human health, so it requires early detection, initial prevention, and modification of education about the disease, which are essential in reducing the spread of this disease, especially since the International Agency for Research on Cancer provides the latest research in this regard. Incidence, mortality, and other indicators were very limited, noting that all indicators of males were lower than females, which is the opposite of other regions of the world.

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