

## **GENDER WISE PREVALENCE OF BENIGN AND MALIGNANT CANCERS OF HEAD REGION**

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**ABSTRACT:** The purpose of the study was to explore the gender wise prevalence of benign and malignant cancers of head region in Punjab, Pakistan. Data was taken from the OPD record of cancer hospital in Punjab. Significant difference was found among both genders in terms of occurrence of benign ( $X^2=31.327$ ,  $P= .037$ ) as well as malignant cancers of head region ( $X^2= 42.910$ ,  $P<.001$ ). Among both genders, nasal polyp as benign cancer was found highly prevalent. However, Squamous Cell Carcinoma of tongue was found highest (52.6%) among males whereas squamous cell carcinoma of soft palate was found highest (39.3%) among males as malignant cancers of head region. In conclusion, prevalence of benign as well as malignant cancer of head region varies gender wise in Pakistani population.

**Keywords:** Head region cancers, Malignant cancer, Benign cancer, Nasal Polyp.

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### **INTRODUCTION**

Occurrence of malignant Cancers of head and neck region comes at sixth level around the globe and almost 500000 patients are detected every year worldwide (Jemal *et al.*, 2011). A study explored that in Iranian population, the most commonly occurring cancer is Laryngeal cancer (Mafi, Kadivar, Hosseini, Ahmadi and Zare-Mirzaie, 2012). The prevalence of Head and Neck Cancers varies by type of cancer, gender and country (Subhashraj, Orafi, Nair, El-Gehani and Elarbi, 2009; Hwang, Hsiao, Tsai and Chang, 2014; Otoh, Johnson, Olasoji, Danfillo and Adeleke, 2005; Francis, 2018; Simard, Torre and Jemal, 2014; Chaturvedi *et al.*, 2013). In different countries, difference prevalence rate has been reported ranges from 5% to 50% (Adesina, Soyele, Oyetola and Fatusi, 2018). This difference at global level could be a cause of different social as well as cultural aspects along with the variations in risk factors and data collection procedures (Hwang, Hsiao, Tsai and Chang, 2014; Otoh, Johnson, Olasoji, Danfillo and Adeleke, 2005; Francis, 2018). But in South Europe and South Asia, the prevalence of Head and Neck Cancer is highest. One of the major causes of Head and Neck Cancers is the usage of tobacco and alcohol (Jemal *et al.*, 2011). Various other risk factors linked with oropharyngeal cancer are deprived oral hygiene as well as the Human Papilloma Virus (Tadbi, Mehrabani and Heydari, 2009; Jemal *et al.*, 2011). In South Asian countries, mastication of tobacco, areca-nut and betel quid intensifies the risk of specific associated regions of

the head and neck (Anwer *et al.*, 2018; Jemal *et al.*, 2011; de Melo Alvarenga *et al.*, 2008).

The prevalence rates of cancer of oral cavity have amplified in numerous countries due to the increased usage of tobacco that are presently reaching the peak and dropped in regions where tobacco usage was at peak earlier. On the other hand, oropharyngeal cancer's prevalence has been amplified in many countries however the usage of tobacco has dropped; maybe because of the evolving significance of infection caused by human papilloma virus (Anwer *et al.*, 2018; Jemal *et al.*, 2011).

Constant tracking of tendencies in prevalence rate is obligatory to support cancer control strategies world widely. Very limited evidence was cited with regard to the head region cancer in Pakistan. So, there was a dire need felt to explore the gender wise prevalence of benign and malignant cancers of head region, Punjab, Pakistan.

### **METHODOLOGY**

**Research design:** This quantitative study was analytical in nature.

**Sampling technique:** Data was collected using convenient sampling as data was secondary in nature and taken from one hospital only.

**Sample size:** Total sample was comprised of 524 patients with cancer of head region. From all the cases reported in the hospital, only those who were having any type of cancer of head region were taken as the sample for this

study. From these 524 patients, 448 patients were having benign cancer whereas 66 patients were suffering from malignant cancer of head region.

**Procedure:** After the permission taken from the hospital's medical superintendent, the data of patients coming in OPD was taken regarding the type of cancer, region of cancer and gender of the patients from the record of last 3 years 2017 to 2019. Data was recorded on a sheet and then entered in the software for analysis. Gender as well as the presence of cancer along with its type was taken from the data record.

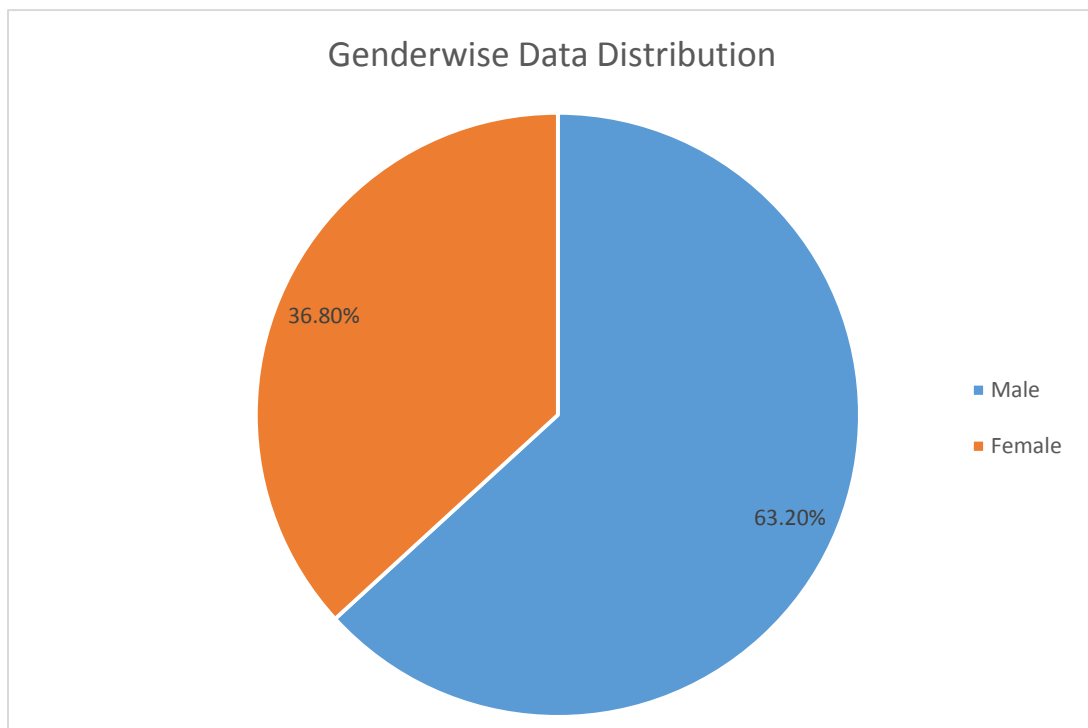
**Data analysis:** Data was analyzed using SPSS version 25. Frequencies and Percentages were calculated for demographic variable which was gender as descriptive statistics whereas Chi-Square test was used to analyze data in percentages to assess the gender wise prevalence of benign and malignant cancer of head region among general population.

## RESULTS

In the current study, gender was taken as demographic variable. Males were 331(63.2%) and females were 193(36.8%) of the entire sample.

Gender wise prevalence of benign cancers of head region was explored using Chi-square test. Prevalence difference of benign cancers of head region among both genders was found to be statistically

significant ( $X^2=31.327$ ,  $P= .037$ ). Pleomorphic adenoma was found among 4.6% males whereas 3.0% females affected by this type of cancer. Nasal Polyp was found in 33.5% males whereas among females, the percentage of nasal polyp was 26.1%. 10.6% males whereas 12.1% females were diagnosed with fibroepithelial polyp. 3.9% males and 4.8% females were diagnosed with Cholesteotoma. 1.1% males whereas 0.6% females were found to have lymphadenitis. 3.5% males whereas 6.1% females were having papilloma, and 5.3% males whereas 6.7% females were suffering from granuloma. Schwannoma and glioma was found higher in males (8.5%) as compared to females (1.2%). Sialolith was diagnosed in 2.5% males and 2.4% females. Sebaceous cysts were found 10.2% in males whereas these cysts were found higher among females (15.2%). Osteoma was only found in males (0.4%). Abscess are more prevalent among males (6.7%) as compared to females (4.2%). Seborrheic keratosis is more prevalent among females (3.6%) as compared to males (1.4%). Reactive hyperplasia was found more in females (3.0%) as compare to males (1.8%). Lipoma was found only among males (0.4%). Osteosclerosis was found only among females (0.6%). Spindle Cell Lesions were only found among females (0.7%). Vascular lesions were found more among females (4.2%) as compared to males (3.2%). Mucosal cysts were higher among females which was 4.2% as compared to males (2.1%).



**Figure 1: Distribution of data among both genders**

**Table 1: Gender wise prevalence of benign cancers of head region.**

	Gender		Total	
	Male	Female		
<b>Benign Cancers of Head Region</b>	Pleomorphic adenoma	4.60%	3.00%	4.00%
	Nasal polyp	33.60%	26.10%	30.80%
	Fibroepithelial polyp	10.60%	12.10%	11.20%
	Cholesteotoma	3.90%	4.80%	4.20%
	Lymphadenitis	1.10%	0.60%	0.90%
	Papilloma	3.50%	6.10%	4.50%
	Granuloma	5.30%	6.70%	5.80%
	Schwannoma and Glioma	8.50%	1.20%	5.80%
	Sialolith	2.50%	2.40%	2.50%
	Sebaceous cyst	10.20%	15.20%	12.10%
	Osteoma	0.40%	0.00%	0.20%
	Abscess	6.70%	4.20%	5.80%
	Seborrheic keratosis	1.40%	3.60%	2.20%
	Reactive hyperplasia	1.80%	3.00%	2.20%
	Lipoma	0.40%	0.00%	0.20%
	Osteosclerosis	0.00%	0.60%	0.20%
	Spindle Cell Lesion	0.00%	1.80%	0.70%
	Vascular lesion	3.20%	4.20%	3.60%
Mucosal cyst	2.10%	4.20%	2.90%	

**X<sup>2</sup>=31.327, P= .037**

The results of Chi-Square test revealed significant differences related to the gender wise prevalence of malignant cancers of head region (X<sup>2</sup>= 42.910, P<.001). Glioblastoma multiforme was only found among females (14.3%). Adenocarcinoma was found in 7.9% males and 3.6% females. Squamous Cell Carcinoma of tongue was found highly prevalent among males (52.6%) as compared to females (3.6%). Squamous

Cell Carcinoma of nose was only found among males (7.9%). Squamous Cell Carcinoma of soft palate, and ear was found only among females, i-e., 39.3% and 7.1%. Squamous Cell Carcinoma of lip was found among males (7.9%). Nasopharyngeal carcinoma was found among males (2.6%). Melanoma was found in males (2.6%). Basal Cell Carcinoma was found higher among females (32.1%) as compared to males (18.4%)

**Table 2: Gender wise Prevalence of Malignant Cancers of Head Region.**

	Gender		Total	
	Male	Female		
<b>Malignant Cancers of Head Region</b>	Glioblastoma multiforme	0.0%	14.3%	6.1%
	Adenocarcinoma	7.9%	3.6%	6.1%
	Squamous Cell Carcinoma of tongue	52.6%	3.6%	31.8%
	Squamous Cell Carcinoma of Nose	7.9%	0.0%	4.5%
	Squamous Cell Carcinoma of soft palate	0.0%	39.3%	16.7%
	Squamous Cell Carcinoma of ear	0.0%	7.1%	3.0%
	Squamous Cell Carcinoma of lip	7.9%	0.0%	4.5%
	Nasopharyngeal carcinoma	2.6%	0.0%	1.5%
	Melanoma	2.6%	0.0%	1.5%
	Basal Cell Carcinoma	18.4%	32.1%	24.2%

**X<sup>2</sup>= 42.910, P<.001**

## DISCUSSION

In the present study, Males were 63.2% and females were 36.8% of the entire sample which was Similar to the previously reported results (Arotiba, Ladeinde, Oyenehin, Nwawolo and Banjo, 2006; Khawal

and Wajid, 2019). It appears that greater frequency of smoking among males is not the only clarification for this conclusion.

The results of present study explored that the highly prevalent benign cancers of head regions are nasal polyps among males (33.5%) and females (26.1%)

followed by occurrence of fibroepithelial polyps which was found higher among females (12.1%) as compared to males. The results of the study also explored that least occurring benign cancer of head region was Meningitis which was found only in 0.4% males.

The present study explored that Squamous Cell Carcinoma of tongue was found highly prevalent among males (52.6%) as compared to females (3.6%) which was 31.8% of the total sample which was different from the findings of the study conducted by Anwer *et al.*, (2018) who reported 16.6% prevalence of Squamous Cell Carcinoma of tongue. The results of present study also slightly differs from the study conducted in Iran which concluded 35% prevalence of squamous cell carcinoma of tongue reported by (Larizadeh, Damghani, and Shabani, 2014). Among females, Squamous Cell Carcinoma of soft palate was found highest (39.3%) as compared to males. In conclusion, prevalence of benign as well as malignant cancer of head region varies gender wise in Pakistani population.

**Limitation of the study:** Sample was collected from one hospital is a limitation of this study. More sample can provide more clear prevalence conditions.

**Research implication:** Genetic reasoning of most prevalent cancers of head region should be explored as mentioned in the study conducted by Garg, Chandra, Raj, Fareed and Zafar (2015). This will helpful in understanding the genetic mechanisms as well as the variations in genetic mechanisms which influence cancer development.

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