## **ORIGINAL ARTICLE**

# Survey and Five Years Study to Identify the Occurrence and Medical Outline of Numerous Stages of Cancers in Lahore

ASMA MEHFOOZ<sup>1</sup>, AHMAD JAVED<sup>2</sup>, GUL KHAN<sup>3</sup>, NAZIA SHUAIB<sup>4</sup>, SHUMAN ROY<sup>5</sup>, MUHAMMAD KHALIL<sup>6</sup>

<sup>1</sup>House Officer, Medical Department, Rawalpindi Medical University, drasma78611@gmail.com

<sup>3</sup>Post Graduate Resident, FCPS, Paediatric Department, Gulab Devi Hospital Lahore, Email: gkhan9035@gmail.com

<sup>4</sup>Associate Professor Rawal college of Nursing & PhD Research Scholar Zhengzhou University Henan China, nazeeaa78611@gmail.com

<sup>5</sup>Senior Registrar ENT, Akhtar Saeed Trust Hospital EME Society, Lahore, drroyent@gmail.com

<sup>6</sup>Dental Surgeon, Hafeez Dental Clinic, Okara, muhammadkhalil1320@gmail.com

Corresponding author: Dr Asma Mehfooz, Email: drasma78611@gmail.com

## ABSTRACT

Tumor occurrence information collected for various organs were processed through clean up, mixing, conversion, diminution and removal for final illustration. Risk of tumor perceived to be ceaselessly increasing among each males and females. Overall, lymphomas and carcinoma are the foremost common tumor in males and females, severally, in Lahore with virtually the very best rates within the Asian Pacific region. The occurrence of head and neck, brain, and respiratory organ Tumor, in addition as tumor has chop-chop hyperbolic among males, whereas, ovarian, cervix, head and neck and lymphomas became additional common among females. the current Transmission ought to be useful for sufficient planned designing, classification of risk factors and taking acceptable hindrance and management measures at the national level. This analysis was conducted to come up with trends and patterns of commonest male and feminine Tumor from 2012-2017 for the town population of Lahore Pakistan.

Keywords: Anemiam, Survey, Five Years, Identify, Occurrence, Medical Outline, Numerous Cancers, Decade of Stage.

## INTRODUCTION

According to International Agency for analysis on Tumor (IARC) there have been 15,100,000 new occurrence cases in 2017 within the world and there have been 9,000, 000 new occurrence cases within the less developing regions2. In Asian pacific region, low tumor survival rates continue to be prevailing because of lack of consciousness concerning tumor, poor health services and socioeconomic3. Tumor risk is increasing in developing countries of South Asia, as well as Asian nation and to blame for concerning 35% of all deaths. In Pakistan, nearly 85% tumor load is shared below the auspices of the Pakistan nuclear energy Commission Tumor written record (PAECCR) and unendingly utilizing the information for making tumor management and bar ways. in line with current population statistics, total population of Pakistan and geographic region capital city Lahore is 300,190,000 and 30,138,000 severally. Approximately 420,000 new cases are diagnosed once a year out of that nearly 356,000 patients are treated at (PAEC) institutes. Current communication aims to broadcast ten years occurrence knowledge and also the given common occurrence trends are useful in understanding the challenges to be addressed4. Tumor registration provides info concerning tumor occurrence and survival. The population primarily based registration helps corroboration of effective show, and involvement for tumor management, tumor registries at hospitals and even pathology levels may also create helpful involvement at national level. Globocan provides major resources for tumor occurrence and expressive medicine of tumor. Annual tumor registration basis analysis updates facilitate for targeted efforts for fashioning tumor management ways for future designing. World wise offered national tumor registries offer sturdy input data concerning the tumor occurrence and humanity. In developing countries, it's been ascertained that varied difficulties cause issues for correct higher cognitive process e.g., absence of death rate knowledge and wrong estimates5. Indirect methodology victimization recent knowledge may be additional productive and prospective strategy is more possible to realize best results and improve tumor registries data6. The true tumor registration knowledge illustration may be achieved through national management system. IARC have established the foundations associated with standardization, comparison and knowledge completion and counseled these rules for facilitation and contrast of written record data with international data by satisfying some comparability criterion and internal control.

In order to successfully apply the tumor hindrance and management strategy in Pakistan, National Tumor Management

Program (NCCP) has been designed that is in implementation section. Basic tumor management efforts are stressed through tumor prevalence knowledge, risk factors data, key causes of Tumor and measures needed to avoid tumor risk offer sterling foundation for illness management and bases for tumor management methods. In Pakistan, earlier and current efforts relating to hindrance and tumor management is targeted on registration and tumor registries created. Different tumor candidacy societies like pink ribbon and different links are concerned in sharing of the data material. National knowledge illustration from Pakistan in (IARC) is lacking and occurrence data from major cities of Pakistan i.e., Lahore, Karachi, Quetta and Peshawar tumor registries indicate that tumor is on the increase.

According to United Nations agency, tumor burden is dramatically growing in developing and underdeveloped countries particularly in our region. Hospitals and their well-trained physicians, oncologists, medical physicists and well-set facilities play a key role in treating such patients. The tumor patient faces burden in deteriorating health, quality of life and working7. per current federal bureau of statistics and population census of Pakistan in 2017, the calculable population of capital city of Lahore is a lot of than20 million. In Pakistan, 85% malignancies (with urban rural variation) nosology and medicine facilities are provided by PAEC treatment centers. Punjab Cancer register (PCR) operating is ongoing on assortment of tumor data point relations within the Punjab province of Pakistan. In PCR registries at Lahore, fifteen centers are collaborating within the district that is managed by 10 member governing council and 49 professionals members are serving for the register together with each government and personal sector.PCR register is grouping tumor data treatedin Lahore chapter of the register, that is currently increasing its work and role for assortment of occurrence information for the diagnosed tumor cases among residents of near areas neighboring to provincial capital Lahore, which include Gujranwala, Sheikhupura, Kasur, NankanaSahb, Hafizabad, and Faisalabad. The tumor registries are terribly actively being managed and maintained publically and personal sector in Punjab province. INMOL metropolis tumor register is functioning underneath the auspices of (PAEC), one in every of the state-ofthe-art organization among its eighteen nuclear medical centers in Islamic Republic of Pakistan that has been stated center of excellence in south east Asian Region by International Atomic Agency (IAEA). It is ceaselessly engaged for providing splendid diagnostic and therapeutic services to all or any tumor patients. The institute primarily based tumor written account has been

<sup>&</sup>lt;sup>2</sup>House Officer, Medical Department, Sheikh Zayed Hospital Lahore, drahmedjav876@gmail.com

operating since its institution in 2012, that is being handled by its unit referred to as tumor written account for clinical knowledge assortment and management. The tumor patients are at first triaged as per institute's policy and accepted for treatment when registration8. Patient's unwellness connected info is abstracted from patient's records. The diseases and connected treatment knowledge info is out there at completely different places and its results are collated to get summaries of cases on yearly basis. INMOL has become a number one referral and state of the art tumor care center for unwellness management in Pakistan. INMOL is a very important Tumor written account of (PAECCR) wherever the tumor registration and clinical data management employees ensures correctness associated with entry of knowledge and current results are illustrated through annual registration data sheets that function correct registry record and is offered for medical specialty professionals. Tumor could be a major reason behind inspiring world death tolls and experiencing incessantly growing tumor occurrence trends even in rising world Tumor written account play a crucial role in providing elementary info relating to tumor trends and causes1. Attempts are created to lessen the chance of tumor sickness within the Asian pacific.

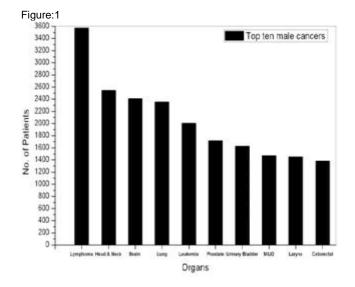
#### METHODOLOGY

Tumor patient's registration and tumor occurrence information of the institute was ab initio offered in yearly based mostly soft data sheets. The tumor occurrence information of last ten years was processed through the appliance of process technique for generation of trends and patterns to perform data analysis for illustration of key tumor occurrence options. It absolutely was troublesome to perform data processing, information analysis and its measurement in scientific manner through initial yearly data sheets. The aforementioned information was therefore compiled and conformed within the manner that it served as input for data processing. The process technique that features information improvement, information mixing, information transformation, information reduction, data processing, its analysis and information presentation was applied so as to remodel the conformed information in interchangeable and harmonic means for information utilization, information analysis and measurement regarding occurrence for manifestation of tumor occurrence results. Finally, the trends and pattern generation of INMOL's commonest Tumor from 2008-2017 has been conferred, that greatly helped in consolidating and mining Brobdingnagian quantity of last ten years information. These resultant patterns are pronto accessible for information analysis and illustration of needed trends simply among seconds. Currently, registration is being performed through Pakistan Atomic energy Commission (PAECCR) national institutional written record software system that has been coupled with all tumor institutional registries. The correct registration info on tumor occurrence is currently accessible for utilization of accurate information as input for trends and patterns generation for all major cities of Pakistan. In the Oncology department of Sir Ganga Ram Hospital Lahore for 5-year duration from December 2014 to November 2019.

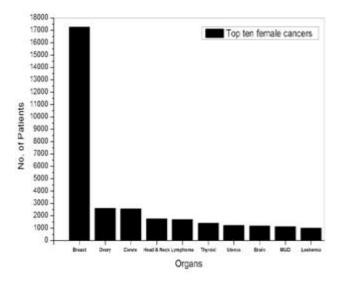
#### RESULT

Tumor risk is endlessly increasing in South Asian region and demands for effective management strategy. many sorts of Tumor are recognized at the start either through showing or by their symptoms. likelihood of death that is because of the sort of tumor is reduced by acting individual patients' observance, discovery and treatment of early un-wellness within the section of their initial development and thru disease management in accordance with the most effective accessible diagnostic evidences. the foremost common 10 diseases among males from town population of Lahore is shown in Figure 1. The trends for male patients delineate for the ten years tumor occurrence illustrates gradual decrease within the kind of Tumor and when lymphomas, head & neck, brain, lungs and leucaemia Tumor are second, 3rd, fourth

associate degreed fifth commonest tumor occurrence among males having an elevated trend.



The 10 commonest diseases among females are illustrated in Figure 2. Carcinoma is that the high most tumor malady among feminines as compared to the opposite female Tumor. it's evident from Figure 2, that the trends and patterns given for gonad, cervix, Head and Neck and tumor tumor occurrence among females are ordinal, 3rd, fourth and fifth high proportion Tumor among the population of Lahore, Pakistan.



Further share analysis of knowledge noninheritable for feminine Tumor from last ten years has been illustrated in Figure four, wherever major highlighted malady share is carcinoma i.e. 55%. it's pertinent to notice that the proportion distribution for numerous feminine Tumor shows that carcinoma among girls of 31–40 cohort is rising chop-chop [9]. According to (PAECCR) statistics, carcinoma is overall prime ranking and regularly increasing malady within the town population of Lahore Pakistan. carcinoma occurrence in different countries conjointly shows parallel patterns and steadiness with South East Asian region trends [10]. Other most typical tumor percentages embody, 9% for Ovary and Cervix tumor, 6% for Head & Neck and Lymphoma and 4% for Thyroid, Uterus, Brain and MUO.

Table 1 Organ Wise Tumor Occurrence Data among Males in Lahore Pakistan from (2008-2017)

Organ Name	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Urinary Bladder	76	56	62	54	65	87	89	67	87	189	832
Testis	9	8	18	23	17	18	35	44	54	32	258
Misc	71	45	43	87	45	56	87	178	276	456	1344
Head & neck	77	56	80	76	86	89	87	78	90	98	817
Thyroid	10	12	67	34	22	34	65	56	76	80	456
Breast	16	32	34	23	23	18	34	13	47	12	252
Brain	24	15	39	46	78	58	57	96	124	225	762
Colorectal	26	34	45	56	27	56	78	67	67	80	413
Gall bladder	0	4	1	14	32	9	9	3	7	1	80
Bone Sarcomas	35	56	88	22	35	45	34	68	34	78	495
Skin	18	25	36	47	28	35	23	45	54	67	378
Lung	39	35	43	43	56	87	68	56	98	127	652
Pharynx	20	23	56	19	34	19	44	30	43	56	344
Kidney	23	34	17	15	19	18	14	15	24	34	213
Liver	17	16	23	19	16	10	18	23	24	34	200
Stomach	23	8	6	4	9	19	15	10	9	34	137
Penis	1	0	2	3	0	0	1	2	2	3	14
Blood	1	1	5	6	1	1	2	5	4	23	49
Anal canal	4	7	5	3	4	7	6	22	24	16	98
Prostate	15	18	19	23	46	57	65	98	123	165	672

Table 2 Organ Wise Tumor Occurrence Data among Females in Lahore Pakistan from (2008-2017)

Organ	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Chest	567	675	245	89	1004	1002	234	267	1107	1409	6599
Ovary	78	98	78	145	97	89	56	145	165	178	1129
Misc	71	45	43	87	45	56	24	78	66	376	891
Head & neck	56	34	56	76	86	45	87	67	90	98	695
Thyroid	10	16	67	34	32	43	67	84	85	97	535
Uterus	34	56	78	96	78	88	56	123	47	127	783
Brain	23	14	35	46	78	55	46	86	56	87	526
Colorectal	34	25	45	37	27	45	56	57	57	60	443
Gall bladder	0	4	23	34	56	9	9	3	8	1	147
Bone Sarcomas	34	56	88	12	35	26	18	68	12	24	373
Skin	12	25	36	47	18	25	23	33	46	50	315
Lung	14	35	35	17	21	35	56	28	34	25	300
Pharynx	20	14	56	17	34	19	34	20	31	22	267
Kidney	10	12	17	15	9	18	14	5	8	19	127
Liver	17	10	18	11	8	9	8	14	13	17	125
Stomach	10	8	6	4	8	7	5	8	7	10	74
Vagina	6	3	2	3	8	9	10	5	4	3	53
Blood	1	1	1	1	1	1	1	1	1	10	19
Anal canal	2	3	5	3	2	1	1	3	5	6	32
Vulva	3	2	1	5	6	7	5	9	1	6	43

### DISCUSSION

The general occurrence trends are per South East Asian region patterns9.It has currently been established that tumor is caused by wide selection of accumulative effects of multiple risk elements and there's lack of consciousness among most of the urban and rural male and feminine population in developing regions that is per knowledge from different a part of the10. The tumor occurrence remains the best in South East Asian region that is associate degree accumulative impact of various influencing. Recent tumor occurrence knowledge from city Lahore Pakistan describes that the tumor in young male and feminine at the people 41-50 is apace rising and carcinoma has been seen in females at age group 41-60. For safety purpose, all females over forty years mature, diagnostic procedure should be performed when once a year. the typical age for principally male diagnosed cases is from 41-65 years, whereas, it's 42-60 years for females. the info is beneficial for interpretation of various styles of tumors for tumor hindrance and fashioning its management methods. Similar results of the tumor occurrence are noted and rumored by different researchers. Throughout 2016, recently designed code has been introduced to provide info regarding age-specific occurrence which can facilitate to depict these trends additional accurately for occurrence of Tumor in specific age teams. (PAECCR) has addressed the matter at national level and developed necessary needed infrastructure which offer effective and valuable setup for assessing early screening wants in conjunction with adequate designing and evaluating screening services for management of tumor in Pakistan. For instance, it's become known that the occurrence of acute and leucaemia is reported in patients United Nations agency are exposed to any reasonably emission, benzene, pesticides and herbicides. The assessment and study of the Brobdingnagian knowledge may be used for recognition of the adequate quantity of resources annually needed to confirm a lot of intervention measures for hindrance of tumor and management that can't be overestimated.

The illness identification, its progression and news is tough as heap of reasons are contained in illness violence and saying nature of complexness that demands for systematic thinking and approach to spot key indicators inferred from the information. the standard results of tumor occurrence mirror the varied aspects that have its own multiplication with many alternative factors to compose enough result for developing Tumor as represented elsewhere. The chances of obtaining Tumor are comparatively lower in younger people of population and expression of developing tumor has bigger risk with growing age. The tumor occurrence among all teams may be explained through risk behaviors (e.g., alcohol consumption, smoking, unhealthy life vogue, excessive sun exposure, unhealthy diet, and prolongation infectious unwellnesss) additionally to exposure from of environmental carcinogenesis risk factors and lack of information concerning disease and offered tumor designation, showing and treatment services.Tumor occurrence could also be attributed by variety of reasons because of gender variations, unhealthy routine family and social life-style, exposure of males and females because of totally different environmental risk factors has their own

significance for its genesis and prognosis with variable status for developing varied styles of Tumor related to their gender connected discrepancies in biology and physiology11. The population of urban and rural living areas responds in an exceedingly totally different manner to the tumor connected symptoms, treatment services and bar and resulting in uneven distribution of occurrence cases registration. Most of the tumor diagnosing and treatment facilities in Pakistan are solely out there in massive hospitals and rural population in distant places are typically outside the native tumor written account jurisdiction that poses accessibility barriers for rural population, to urge services particularly for aged ones. Another drawback is to get complete relevant tumor history record from needed knowledge for checking just in case of native rural tumor registries. it's conjointly been discovered that a proper residence for substantial a part of rural population isn't registered and most of the agricultural college age population particularly kids don't seem to be properly diagnosed and that they die because of tumor not having any record. Occurrence of respiratory organ malady in females and Thyroid tumor in males aren't enclosed 10 most typical diseases of male severally. additionally, Thyroid is sixth common malady among females in Lahore tumor register. Among males, bone & soft tissue sarcomas, skin, pharynx, gorge and liver aren't enclosed in high 10 Tumor12. At identical time, gall bladder, bone sarcomas, skin, leukaemia, tubular cavity and vesica aren't among high 10 feminine diseases. Table 1--2, illustrates organ wise ten-year tumor occurrence information among males and females within the population of capital city Lahore Pakistan.

It is obvious from INMOL knowledge that the obvious options imply got to strengthen tumor interference and management mechanism for early screening program. The full basic clinical analysis can more facilitate in inquiry of root cause analysis for recognition of the geographical distribution of risk factors. Raising tumor awareness campaign throughout the country is incredibly necessary and valuable tumor interference and management tool for effective handling of sickness. Assessment of want for early screening and analysis of screening services for many common feminine and male Tumor is of utmost importance13.Tumor management activities additionally embody primarily education for making awareness, model community program to extend awareness and potential for achievement additionally rely upon resource allocation, socioeconomic cultural similarities for patients that are rumored in advanced stages. Public health care education is extraordinarily helpful for varsity kids in enjoying necessary role for primary interference in use of tobacco and alcohol which will have dramatic effects on minimizing tumor trends and measures taken for prevention of tumor risk with diet management (e.g., breast, colon, stomachal Tumor), turning away of preservatives, processed foods, dyes, pesticides, activity hazards protection to manage, quality and healthy life vogue will facilitate to manage up to 60% of the malignancies. in line with WHO, West Pakistan falls in less resource countries and also the risk having tumor may be 40% reduced through easy measures by no smoking, no alcohol consumption, avoiding excessive sun exposure, timely treatment of infectious diseases, courteous diet and healthy life vogue14. The detection of sickness by full assessment of risk, applicable biomarkers and skillful well trained professionals might encourage be terribly price effective. The interpretation and utilization of trends and pattern generated through (PAECCR) tumor written account information can pave the means for taking under consideration all the factors that are associated with genesis, prognosis and expression of the sickness and is pertinently vital to try to made substantial progress. Another vital facet that has to be stressed is ethnic, social, economic and geographic parameters for proper prediction of trends over time to see needs for designing15.

### CONCLUSION

Resultant information analysis has been given within the kind trends that is of serious importance for international scientific community and also the patterns of various malady organs has been expressed to portrait clear image of tumor occurrence in Lahore Pakistan. These results demonstrate the apace increasing male and feminine tumor diseases and depict new challenges which require to be tackled on pressing basis in Pakistan. The analysis work compiled valuable data and mentioned methodology to handle common risk factors. the longer-term projection of commonest current Tumor also can be illustrated through generated patterns and trends. The results emphasize the necessity for initiation of immediate tumor screening at early stages. These results conjointly highlight the importance of launching an organized public awareness campaign for tumor alleviation at national level. Such results are useful for recognition of adequate resources needed for diagnostic and therapeutic facilities and in terms of well-trained oncologists, physicists, medical and surgical employees. These four-dimensional outcome aspects of this analysis work provide it a significance nature and conjointly pave the approach for various art movement studies for tumor bar and management. In conclusions, (PAECCR) city written account data comprising ten years of tumor occurrence from (2008-2017) has been with success processed by machine technique for analysis of helpful patterns and valuable presentation of data.

#### REFERENCES

- Fitzmaurice, Christina, Tomi F. Akinyemiju, Faris Hasan Al Lami, Tahiya Alam, Reza Alizadeh-Navaei, Christine Allen, Ubai Alsharif et al. "Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 29 cancer groups, 1990 to 2016: a systematic analysis for the global burden of disease study." JAMA oncology 4, no. 11 (2018): 1553-1568.
- Adeel, Mohammad, and Moghira Iqbal Siddiqi. "Metachronous second primary malignancy in head and neck cancer patients: is five years of follow-up sufficient?." Journal of the Korean Association of Oral and Maxillofacial Surgeons 44, no. 5 (2018): 220-224.
- Bilal Mahmood, Abu Bakar Pasha, Nasir Farooq Butt, Sarah Shoaib Qureshi, and Fawad Ahmad Randhawa. "Prostate Cancer Awareness And Knowledge; A Study Of Adult Men In Lahore, Pakistan." Pakistan Journal of Public Health 8, no. 3 (2018): 128-132.
- Faisal, Muhammad, Taskheer Abbas, Mohammad Adeel, Usman Khaleeq, Abdul Wahid Anwer, Kashif Malik, Raza Hussain, and Arif Jamshed.
  "Clinicopathological Behavior and Oncological Outcomes of Malignant Parotid Tumors in a Pakistani Population." Cureus 10, no. 2 (2018).
  Zia, S., Z. Rahman, S. Baig, and M. A. Saleem. "Flash from the Back; Molecular Levier of Derote Connect Conne
- Zia, S., Z. Rahman, S. Baig, and M. A. Saleem. "Flash from the Back; Molecular and Epidemiological aspects of Breast Cancer in Last 15 Years." Madridge J Cancer Stud Res 2, no. 1 (2018): 47-54.
- Riaz, Amna, Khurshid Khan, Bahjat Afreen, and Ijaz Kazmi. "Bladder cancer in patients with type 2 diabetes treated with pioglitazone, a comparative study." Journal of Ayub Medical College Abbottabad 30, no. 3 (2018): 356-359.
- Anjum, Wajiha, Rab Nawaz Maken, Hasan Nisar, Ismat Fatima, Misbah Masood, and Abu Baker Shahid. "Epidemiology and Treatment Outcomes of Sinonasal Tumors: A Single Institute's Experience in Pakistan." Journal of the College of Physicians and Surgeons Pakistan 29, no. 4 (2019): 356-360.
- Medina-Rico, Mauricio, Hugo López Ramos, Manuel Lobo, Jorge Romo, and Juan Guillermo Prada. "Epidemiology of renal cancer in developing countries: Review of the literature." Canadian Urological Association Journal 12, no. 3 (2018): E154.
- Idrees, Romana, Saira Fatima, Jamshid Abdul-Ghafar, Ahmad Raheem, and Zubair Ahmad. "Cancer prevalence in Pakistan: meta-analysis of various published studies to determine variation in cancer figures resulting from marked population heterogeneity in different parts of the country." World journal of surgical oncology 16, no. 1 (2018): 129.
- Anwer, Abdul Waheed, Muhammad Faisal, Awais Amjad Malik, Arif Jamshed, Raza Hussain, and Muhammad Taqi Pirzada. "HEAD AND NECK CANCER IN A DEVELOPING COUNTRY-A HOSPITAL BASED RETROSPECTIVE STUDY ACROSS 10 YEARS FROM PAKISTAN." Journal of cancer & allied specialties 3, no. 4.
- Ahmad, Alia, Mohammad Saleem, and Fauzia Shafi Khan. "Treatment outcome of prepubertal gonadal tumors." Journal of Fatima Jinnah Medical University 13, no. 1 (2019): 07-11.
- Khan, Shah Zeb, and Ismat Fatima. "Tumour sidedness and clinicopathological features of resected colon cancer in rural population of Northern Pakistan: single institutional analysis." Journal of Coloproctology (Rio de Janeiro) 39, no. 3 (2019): 231-236.
- Sadia, Haleema, Asma Irshad, Sana Ashiq, Rais Ahmed, Kanwal Ashiq, Tariq Nadeem, Ali Akbar, Shazia Shams, and Sadia Roshan. "PREVALENCE OF LIFESTYLE AND DEMOGRAPHICS RELATED RISK ATTRIBUTES AMONG BREAST CANCER PATIENTS IN PAKISTAN."
- Andleeb Masood, Khalid Masood, Mazhar Hussain, Waqar Ali, Masooma Riaz, Munir Ahmad Zafar Alauddin, Misbah Masood, and Abubaker Shahid. "Thirty years cancer incidence data for Lahore, Pakistan: trends and patterns 1984-2014." Asian Pacific journal of cancer prevention: APJCP 19, no. 3 (2018): 709.
- Arshad, Shumaila, Masood ur Rehman, Farah Abid, Saleha Yasir, Mehwish Qayyum, Kanwal Ashiq, Samreen Tanveer, Mayyda Bajwa, and Sana Ashiq. "Current situation of breast cancer in Pakistan with the available interventions." Int J Biosci 11, no. 6 (2019): 232-240.