

ABSTRACT NO:18
RESEARCH ARTICLE**Trends in Mortality Due to Brain and Other Central Nervous System Cancers in Pakistan, 1980–2021: A Global Burden of Disease Analysis**Muhammad Sohaib Khan ¹, Wania Moeen ², Muhammad Jansher ³, Wajeeh Ahmed Khan ⁴, Hafsa Rais ⁵**Abstract**

Objective: Brain and Central Nervous System (CNS) cancers are rare but highly lethal malignancies associated with substantial neurological morbidity and mortality. In 2019, approximately 246,000 deaths were attributed to these tumours globally. Our study aims to assess Brain and CNS cancer mortality trends in Pakistan from 1980 to 2021.

Methods: We utilized mortality data from the Global Burden of Disease (Institute for Health Metrics and Evaluation; <https://vizhub.healthdata.org/gbd-results/>) to examine mortality trends of brain and other CNS cancers in Pakistan from 1980 to 2021. Age-standardized mortality rates (ASMRs) per 100,000 population were extracted for the overall population and by sex. Temporal trends were analyzed using Joinpoint Regression software, and annual percentage changes (APCs) or average annual percentage changes (AAPC) with 95% confidence intervals were calculated.

Results: Between 1980 and 2021, an estimated 74,235 deaths due to brain and other CNS cancers occurred in Pakistan. Overall, the ASMR increased from 1.16 in 1980 to 1.67 in 2021 (AAPC: 0.98; 95% CI: 0.91 to 1.04). From 1980 to 1994, the ASMR increased greatly from 1.16 to 1.42 (APC: 1.63; 95% CI: 1.47 to 1.81). However, from 1994 to 2018, ASMR growth slowed down and ASMR reached 1.57 from 1.42 (APC: 0.42; 95% CI: 0.31 to 0.49). From 2018 onwards, there was a dramatic increase in ASMR from 1.57 to 1.67 (APC: 2.47; 95% CI: 1.1 to 4.28). Gender stratification showed that male mortality rates were higher than female rates until 2014, after which females showed slightly higher ASMRs. Both sexes demonstrated an upward trend over the study period.

Conclusion: Mortality due to brain and other CNS cancers in Pakistan increased significantly between 1980 and 2021, with a slowing of the upward trend after the mid-1990s followed by renewed acceleration after 2018. These findings underscore the need for improved surveillance, earlier diagnosis, and strengthened neuro-oncology services to reduce the burden of disease.

Keywords: Mortality, Pakistan, Brain Cancer

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