



# Worldwide Incidence and Mortality of Brain Cancer and Human Development Index (HDI): An Ecological Study in 2018

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Article Info	ABSTRACT
<b>Article type:</b> Original article	<b>Background and Aim:</b> Brain cancer is one of the rare and deadly malignancies with a low survival rate. The aim of the present study was to evaluate the epidemiology of brain cancer and its relation to the human development index (HDI) worldwide.
<b>Article History:</b> Received: 20 January 2020 Revised: 04 March 2020 Accepted: 14 May 2020	<b>Materials and Methods:</b> The present study is a descriptive-analytical study that extracts data on cancer incidence and cancer mortality from the World Bank for Cancer in 2018. The incidence, mortality rates, and brain cancer distribution maps were drawn for different countries. We used correlation and regression tests to examine the association between the incidence and mortality with HDI. The statistical analysis was carried out by Stata-14 and the significance level was estimated at the level of 0.05.
<b>Keywords:</b> Brain cancer Human development index Incidence Mortality World	<b>Results:</b> According to the results of the 2018 Global Cancer Registry, 18078957 cases of both sexes were registered, of which 29681 were brain cancers. The highest incidence (102260 cases, 34.4%) and mortality (77815 cases, 32.3%) were related to very high HDI regions. Results showed a significant positive correlation between incidence ( $R = 0.690$ , $P < 0.0001$ ) and mortality ( $R = 0.629$ , $P < 0.001$ ) for brain cancer with HDI. We also observed a positive correlation between brain cancer incidence and gross national income (GNI) ( $r = 0.346$ , $P < 0.001$ ), MYS ( $r = 0.64$ , $P < 0.001$ ), life expectancy at birth (LEB) ( $r = 0.66$ , $P < 0.001$ ) and EYS ( $r = 0.667$ , $P < 0.001$ ). Results also showed a significant positive correlation between mortality rate with GNI ( $r = 0.28$ , $P < 0.01$ ), MYS ( $r = 0.591$ , $P < 0.01$ ), LEB ( $r = 0.624$ , $P < 0.01$ ), and EYS ( $r = 0.605$ , $P < 0.01$ ). <b>Conclusion:</b> Given that there is a positive association between the incidence and mortality of brain cancer and HDI, identifying risk factors and applying preventive strategies in countries with higher HDI levels can be effective in reducing the incidence and mortality rates.