A Comparative Study of Five Largest Economic Nations in the World and Its Scientific Impact on Oral Cancer Research

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Abstract

Background: Leading economic countries unswervingly illustrates the individual economic status of its population and hence the insinuation of such economic status on oral cancer research of such countries would arrange for the various stratagems instigated by these coutries to confront the most hampered oral disease of the world.

Aim: To evaluate the highest Scimago Ranking journals among the top five economic countries around the world and its scientific impact on oral cancer research.

Materials And Method: In this study, the top five economically developing countries such as USA, China, Japan, Germany, and India were selected based on their GDP(Gross Domestic Product) and their scientific journals related to oral cancer articles were retrieved from the electronic databases using the keywords(gross domestic product, scimago ranking, oral cancer). Then the parameters which include the highest scimago ranking index, number of citations and cited documents were collected and analyzed.

Results: The mean per capita gross domestic product for the United States of America is $64,864.62 and overall scientific oral cancer, research output was ranked first in the scimago ranking journals (Q). Other countries had a Variation in gross domestic product rate and ranking of oral cancer research.

Conclusion: This study concluded that the United States of America ranks first in the gross domestic rate and scientific oral cancer research output. The evaluation of scientific oral cancer research enables a country to define its position and in order to improve the funding resources of the research field.

Keywords: *Gross domestic product, scimago ranking, citation, oral cancer*

Introduction

Oral cancer is one of the most common cancer in the world. Oral malignant growth is an uncommonly pertinent issue of general health, particularly for dental specialists.[1] The comparison of national wealth is commonly made on the understructure of gross domestic product which does not reflect differences in the cost of living in the top five countries. The main etiological factors for oral cancer are the consumption of tobacco and alcohol. In summing up with other causes are poor oral hygiene, viral infection, occupational exposure, malnutrition, as well as low intake of fruits, vegetables, and hereditary factors[2].

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Incidence And Mortality

Oral cancer is one of the major causes of mortality and morbidity rate. It is evaluated around 43% of cancer is due to consumption of tobacco and alcohol, undesirable diets, idle lifestyles and infection. Oral

cancer may be a worldwide burden of disease.

An estimated 53000 adults in the United States of America will be diagnosed with oral cancer. Death rates of oral cancer are 2.06% is more than twice as high in men as in women. In Japan, deaths from oral cancer account for only 1% to 2% of all cancer deaths and the mortality rate due to oral cancer have increased in recent years. Overall the death rate of oral cancer in China is 2.29%.In Germany, death from oral cancer accounts for 3.91%.[3]

Of all the influential factors on oral cancer journals and economic factors especially the economic development, have played an important role. One of the most widely used measures for comparing economic development is gross domestic product per capita.

The income per capita is one of the most generally utilized financial indicators of health, and the connection among individual income has been examined widely. Further monetary and oral cancer research has been outlined the profundity of this relationship[4]. GDP per capita is the most generally utilized pointer for nation-level salary and has been utilized in displaying health results, mortality patterns, cause-explicit mortality estimation, the system of health framework execution, and funds[5].

The incorporation of citation analysis and quality of citations in the evaluation of scientific journals. Newly introduced the Scimago journal rank (Q) indicator with the journal impact factor .The Scimago journal ranking indicator attributes different weight to citations depending on the citing journal without the influence of journal self-citations[6]. The scimago Journal Rank indicator excludes self-citations and considers the quality, rather than absolute numbers of citations of a journal.

The major area of concern needs to take scientific oral cancer research and gross domestic product rate among the five countries. We need to concentrate more on oral cancer research so that the startle characteristics within the oral cancer incidence cases beneath control to a maintainable level[7]. The main characteristics to select the scimago journal rank due to the exclusion of self-citation and oral cancer is one of the major cause of disability and death among all the countries[8].

The aim of the study is to assess and compare the scientific journals related to oral cancer based on scimago ranking among top five economically developing countries

Methodology

A comparative study of the five largest economic countries which includes the United States of America, Japan, China, Germany, and India was selected based on Gross domestic product. Oral cancer-related journals which include parameters highest scimago ranking, total citation, cited documents were obtained from the google scholar electronic database.

Inclusion Criteria

Journals in the English language were included

Oral cancer articles were included

Exclusion Criteria

Journals in native language other than English were excluded

Analysis of the gross domestic product growth rate and will be calculate the average distribution of all scimago (Q factor) journals according to the rank. Finally, we calculated the scimago journal ranking based on first, second, third and fourth quartile values. Based on the overall calculation, there is an absolute change in ranking order of the journals

Results

Tabulation was described about the economics range and scientific journals in the top five countries (USA, CHINA, JAPAN, GERMANY, INDIA). Overall oral cancer research journal which is related to scimago ranking. Total research was distributed in the field of oral cancer in five countries during the time of study with the most cited documents.

TABLE-1 : Based on Performance of High GDP (Gross Domestic Product) in Five Countries

Countries	GDP (IMF) International Monetary Fund	GDP(UN) United Nations	GDP Per capita	GDP Growth Rate
United States	$21.44 trillion	$18.62 trillion	$64,864.62	2.18%
China	$14.14 trillion	$11.22 trillion	$9,915.37	6.5%
Japan	$5.15 trillion	$4.94 trillion	$40,802.44	1.9%
Germany	$3.86 trillion	$3.48 trillion	$47,461.93	0.6%
India	$2.94 trillion	$2.26 trillion	$2,175.03	4.5%

United States emerged the highest rank in gross domestic product(GDP) ($21.34 trillion IMF) ($18.62 trillion UN) GDP per capita ($64,864.62) and GDP growth rate is 2.18%, followed by china second-largest rank in gross domestic product ($14.22 trillion IMF) ($11.22 trillion UN) GDP per capita ($11.22 trillion) and growth rate is 6.5%,Japan was the third place in the gross domestic product ($5.18 trillion)($4.94 trillion) GDP per capita($40,802.44) and its growth rate 1.9%,Germany was the fourth place in the gross domestic product($3.96 trillionIMF)($3.48 trillion) GDP per capita($47,461.93) and growth rate is 0.6% ,India placed the fifth position in gross domestic product($2.97 trillionIMF)($2.26 trillion UN) GDP per capita ($2,175.03) and GDP growth rate is 4.5%

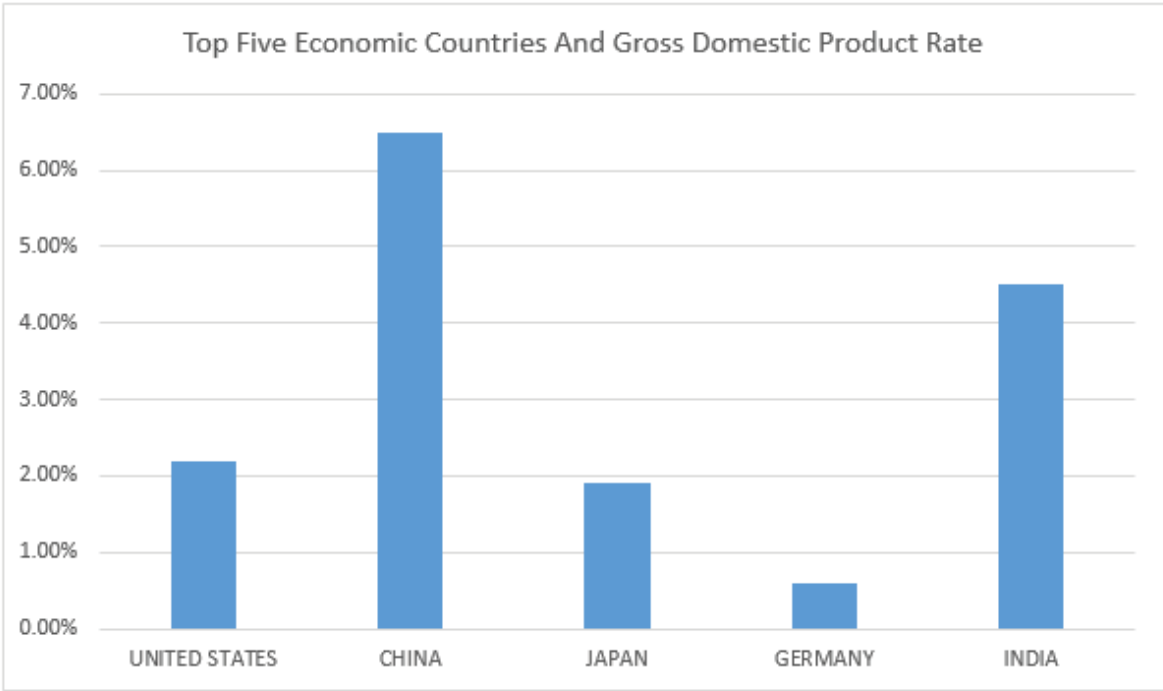

Fig 1-Represents the GDP growth rate

TABLE-2

Country	Overall Scimago ranking			
	Q1	Q2	Q3	Q4
USA	13	10	9	2
CHINA	2	0	2	4
JAPAN	0	1	2	4
GERMANY	3	6	2	0
INDIA	1	1	9	5

Based on Performance of overall scimago journal ranking in oral cancer research among five countries

Based on scimago journal ranking Q1 are the highest impact factor journals in the top five countries. The United States of America ranked first in the scimago journal ranking (Q)scientific impact factor. Germany ranked second in the scientific oral cancer research impact factor. China ranked third in research and India ranked fourth, and Japan ranked fifth in oral cancer research.

TABLE-3: Comparison between Economic Ranking and Scimago Journal Ranking among the Top Five Countries based on Gross Domestic Product

COUNTRY	ECONOMIC RANKING	SCIMAGO JOURNAL RANKING
USA	1	1
GERMANY	4	2
CHINA	2	3
INDIA	5	4
JAPAN	3	5

Comparison between the economic and scientific journals in the top five countries in the world. The United States of America ranked first in both economic and scientific research factors. Germany ranked second in scientific and fourth place in economic rate. China ranked third in scientific factor and second in economic rate. India ranked fourth in scientific research and fifth in economic rate. Japan ranked fifth in scientific research and third in economic rate.

Discussion

This study was assessed the economic gross domestic product rate and drifts in the oral cancer research field. It is notable that both scimago ranking and citation ranking of an article are the significant determinants for assessing the impact of an article.

Economic factors were evaluated based on gross domestic product per capita and it always played an important role in the research field. Many journals denoted the variation of the incidence and mortality of oral cancer in all the countries with different economic developments when it comes to all cancer types, nevertheless, the articles are not as many[8-9].

The per-capita GDP of India using the Procurement Rule Uniformity figures of the World Bank . If the cost of gaining one quality-adjusted life year with a treatment is up to Rs. 1,50,000 it would be considered as very cost-effective, if it is between Rs. 1,50,000 and Rs. 4,50,000 it would still be considered as cost-effective, but if it is over Rs. 4,50,000 the intervention would be considered as cost-ineffective. In India, the Working Group on Drugs and Pharmaceuticals for the five-year plan in its report to the Planning Commission has highlighted the need for 'Provision for Price and availability of Oral Cancer medicines Fund' as one of the seven important measures for the welfare of the common man[12].

The World Health Organization (WHO) has suggested that the per-capita Gross Domestic Product, adjusted for the procurement power similarity of the country can be used for setting edges for cost-effectiveness in altered countries. Thus, interventions for which the additional cost incurred to gain one quality-adjusted life year is less than the country's per-capita GDP are deliberated as very cost-effective, those between 1 and 3 times the per-capita GDP as cost-effective and those with an supplementary budget of over three times per-capita GDP as cost-ineffective[13].

The introduction of organized oral cancer research should be intiated more in each countries and oral cancer articles should be undertaken,based on early clinical symptoms, oral cancer prevention program ,and in a phased manner,when the organization,resource and infrastructure with in the public health infrastructure is adequate to support the demands for screening test,prevention program,oral cancer drugs and oral cancer funds.

The United States has the highest economic loss from oral cancer and it leads to a great impact on oral cancer research and this can be motivated to bring about better oral cancer research and a higher level of great American scientists. United States, China, Japan, Germany, and India are the top five gross domestic product rates throughout the world. In terms of purchasing, power parity and trends in scientific oral cancer research output analysis produce more variations than India. In the economic rate and oral cancer research output between the United States and China, the United States was exceeded more than China.

In Germany,central and regional government spends 24.8 billion euros on research and development. The high level of interest in research findings can be seen in the wide diversity of scientific feautures in print media and on the internet.Moreover it was connected between research,innovation and economic growth that was presented.So Germany placed fourth in economic ranking and second in oral cancer research. The proportion of basic oral cancer scientific research expenses given by government was lower in Japan than in United states of America,Germany.

Followed by China and Japan, in research output Japan surpasses China on many dimensions key to growth. The growth in scientific research output analysis will be increasing the number of citations, scimago rankings (Q) of a journal. Germany was projected to result in a scientific research journal higher than China but Germany was less in economic rate.

To overcome the oral cancer burden, scientific research endeavors being made around in the search for new treatments and preventive approaches are various considerable resources, both human and economic values.

Limitations

This present study has few limitations to be considered. In this study, more than 15 search terms were used to identify the possible articles on oral cancer wherein search engines other than google scholar comprised of paid journals which proved highly exorbant in retrival. Though this study is a pioneering work of its own kind, further elaborate work in the same scope of research is required.

Conclusion

The United States had strong impacts on scientific output in health sciences which can be credited to the significant level of strength and volumes of research in that country. In summary, predominant articles on oral cancer were published in English that originated from the United States. Further the gross domestic product rate of the country was also significantly high. Consecutively the articles in the field of oral cancer research were published in high scimago ranking journals. The evaluation of scientific oral cancer research enables a

country to define its position and also provide a scope of improvement in the funding resources of research field.

Ethical Clearance: Department of Public Health Dentistry,SRM Dental college and Hospital.

Source Of Funding: Self

Conflicts Of Interest:nil

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