

## SHORT ARTICLE

# Biomedical Research Productivity in Dentistry and Oral Medicine from Libya: A Bibliometric Analysis

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## Abstract

Biomedical research productivity from under developed regions and low income countries are generally low. This has been attributed to multiple reasons even in those relatively rich countries such as Libya. The volume and trends of biomedical publication productivity in the oral medicine and dentistry from Libya was investigated using “PubMed” database with a focus contributions from on Libyan academic institutions. A low quantity and quality of dental and oral research productivity was detected in Libya not matching the wealth of this small nation. Poor distribution of this productivity throughout the geographical landscape of Libya was also evident. Libyan biomedical research infrastructure requires reforms and funding.

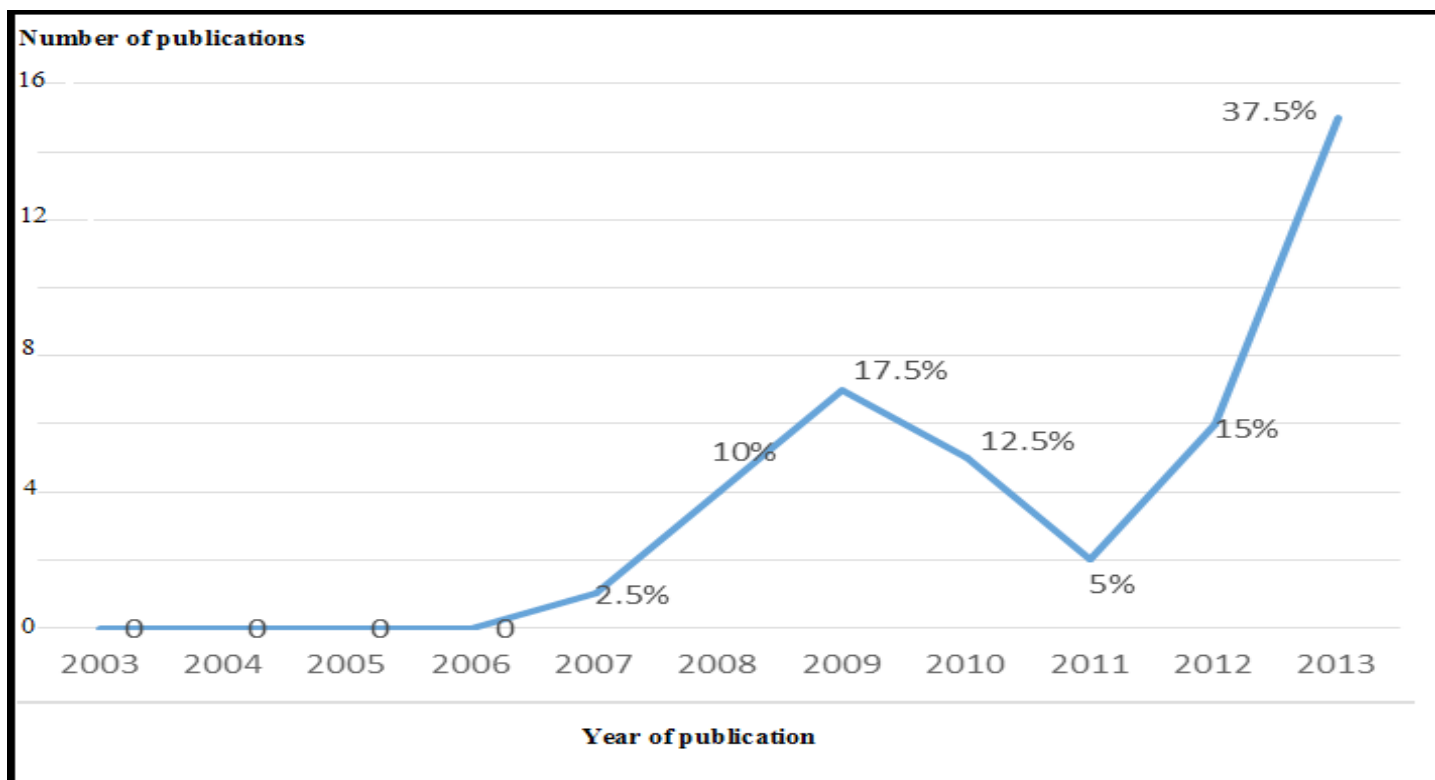
**Key words:** Research Productivity, Dentistry, Oral Medicine, Libya, Bibliometric Analysis

## Introduction

Biomedical research productivity from under developed regions and low income countries are generally low and their global contribution is limited (1,2). This is largely attributed to various financial and socio- economic factors, regional instabilities, as well as undeveloped infrastructures (3). Libya is a rich Arab and North African country with relatively high national income mainly due to its oil production coupled with a small population. Unfortunately, very low biomedical research productivity has been previously observed in this wealthy nation (4-7). Limited information is available on the Libyan biomedical research productivity specifically for the oral and dentistry field or other professional medical disciplines (8).

## Materials and Methods

The objective of the study was to investigate the volume and trend of biomedical publication productivity pertaining to the fields of oral medicine and dentistry from Libya. The



**Figure 1.** The number of dental and oral medicine publications by year of publication. The percentages shown are out of the total numbers. Note the sharp dip in 2011 due to political events.

most popular biomedical search engine “PubMed” with a focus on Libyan academic institutions. PubMed was searched for articles related to dentistry and oral medicine publications that originated from Libya over eleven-year period (from January, 2003 to December 2013). Search words using the name of Libya and/or the various Libyan medical institutions were used. Articles were categorized and analyzed according to following article metrics publication year, affiliated Libyan cities, type of article, corresponding Libyan institution, and open access option of both article and the publishing journal.

## Results

Out of 358 PubMed published biomedical articles retrieved; 40 were related to oral medicine and dentistry. These 40 articles spanned the following years of publication: 2007 (n=1; 2.5%), 2008 (n=4; 10%), 2009 (n=7; 17.5%), 2010 (n=5; 12.5%), 2011 (n=2; 5%), 2012 (n=6; 15%) and 2013 (n=15; 37.5%) (Figure 1). Eight Libyan medical institutions in 5 Libyan cities produced these publications. Among these institutions, Al-Arab Medical University (Benghazi) ranked first with regard to the number of publications

(n=17; 42.5%). The number of publications originated from the different institutions are shown in Table 1.

Further analysis revealed that 25/40 articles (62.5%) were original research articles and 9/40 (22.5%) were case reports. Other types of articles such as review articles, journal and short articles accounted for 7.5% (one article each). Thirty articles (75%) originated from Libyan academic and health care institutions, 5 articles (12.5%) were published in open access journals and 18 articles (45%) were open access articles.

## Discussion

This short descriptive analysis revealed that Libyan biomedical publications related to oral and dentistry science is very scarce. This is a surprising finding in a country with the first biomedical publication dated back to 1952 and probably preceded many other Arab and African countries. (5-7). It is noteworthy that Libya over the past 4 decades witnessed a relentless deterioration in its health care and higher education sectors that has negatively affected biomedical research development in this wealthy

**Table 1.** The numbers of published articles in dentistry and oral medicine by institution and city.

University	City	Number (%)
Al-Arab Medical Sciences University	Benghazi	17; 42.5%
University of Tripoli (formerly Alfateh university)	Tripoli	6; 15%
University of Benghazi	Benghazi	6; 15%
University of Garyounis	Benghazi	5; 12.5%
Al Jabal Al Gharbi University	Al-Zawiya	3; 7.5%
Univerity of Sabha	Sabha	3; 7.5%
Libyan International Medical University	Benghazi	1; 2.5%
University of Al-Marghib	Al-Khoms	1; 2.5%

nation. Further deterioration in dental and oral biomedical research productivity observed in the year 2011 that could be explained by the important political incident happened during that year (the revolution).

Benghazi universities were responsible for 72.5% of the total dental and oral research productivity in Libya during the study period perhaps due to the fact that Benghazi is the seat of the first Faculty of Dentistry in the country. This is very interesting keeping in mind the marginalization of this city during the past 5 decades. It should be noted also that a prior study by Peeran, et al (8) that investigated the status of oral health care as well as the research productivity in Libya documented similar observation.

Most of the publications related to dental and oral medicine in Libya are either original researches or case reports. Conducting all types of research is undoubtedly valuable. Original research, observational studies and case reports will all help define peculiarities of diseases processes in a given area and provide opportunities to learn and practice research methods under local circumstances.

Besides focusing only on researches indexed in PubMed, important limitations of this report also include the lack of consideration of other factors such as citation index,

conference presentations and grants. In addition, no comparisons were made with other neighbouring countries due to the heterogeneity of population density, historical backgrounds of academic institution and access to locally based PubMed indexed journals.

In conclusion, this paper revealed an alarmingly low quantity and quality of dental and oral research productivity in Libya despite being a wealthy nation. Poor distribution of research productivity throughout the geopgraphical landscape of Libya was obvious (9). Libyan biomedical research infrastructure requires major reforms with adequate funding and being given a higher profile.

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