ALZHEIMER'S DISEASE: A BIBLIOMETRIC STUDY

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ABSTRACT

The paper is bibliometric analysis of literature collected from Index Medicus to explore its distribution from different parameters like country, authorship, production and relate literature to classical laws.

KEYWORDS: Bibliometric analysis: Alzheimer's disease -Literature

INTRODUCTION

Information managers have adopted quantitative techniques in recent years to evaluate library resources and services more objectively. Bibliometrics, being one of such technique applied by library managers to measure the records of human communication to identify the pattern of publication and authorship, citations used for a subject etc over a period of

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time. It has gained significance in recent years for its practical application in various information operations, access and services.

Diverse interpretations of the term have been put forward by many experts over the years. Bibliometrics is defined by Broadus as: "the quantitative study of physical published units or of bibliographic units or of the surrogates for either" **(as cited in Rochester, 1995). Raising (1962)** states Bibliometrics as "the assembling and interpretation of statistics relating to books and periodicals. He further comments that it may be used in a variety of situations for an almost unlimited number of measurements." **Sengupta (1990)** comments on the term as "organization, classification and quantitative evaluation of publication patterns of all macro communication along with their authorship by mathematical and statistical Calculus." **British Standard Institute (BSI) (1976)** defines Bibliometrics as "the study of the use of documents and patterns of publication in which mathematical and statistical methods have been applied". **Pritchard (1969)** advocates it as "application of mathematical methods to books and other media of communication." **Fairthore (1969)** also agrees with Pritchard terming it "quantitative treatment of the properties of record discourse and behaviour pertaining to it". **Hawkins (1977)** views are similar to that of the others. He broadly agrees that the quantitative analysis of the bibliographic features of a body of literature as Bibliometrics. **Potter (1981)** comments on the term

terming it as "the study and measurement of publication pattern of all forms of written combination and their authorship".

As Bibliometrics has evolved, distributions are used to study a series of laws like Bradford, Lotka, Zipf and their derivative have evolved within an academic framework which help researchers to study general characteristics of literature.

ALZHEIMER

Alzheimer's disease is a brain disorder named for German physician Alois Alzheimer, who first described it in 1906. **(Alzheimer's Association, 2007).** This degenerative disease of brain attacks nerve cells in all parts of the cortex of brain along with surrounding structures, thereby impairing persons abilities to govern emotions, recognize errors and patterns, coordinate movement and remembrance.

OBJECTIVES

The present study aims to identify characteristics of the literature published on Alzheimer's disease over a period of two years from 2003 to 2004 with a view to identify different features of documents like their types (e articles, research reports, conference proceedings or bulletins; etc.), Country of publication, Language, Author ranking, Subject Content and author collaboration.

METHODOLOGY AND DATABASE

The two volumes of *Index Medicus* (2003-2004) were scanned as a source document for collection of data. The volumes containing 3498 references on the subject were recorded on 5x3" catalogue cards. Each card had information about author, title, and name of periodical, year, place of publication, language and form of document. All 3498 references (cards) were analysed to realize the parameters laid down in the objectives.

FINDINGS AND DISCUSSION:

RANKING OF JOURNALS

In all 3,498 papers were published in 835 periodicals during the period. The JOURNAL OF ALIZHEIMER'S DISEASE occupy the first rank which accounts for 9.03% of total references. The next four ranks are covered by journals 'NEUROLOGY' (3.94%), 'NEUROBIOLOGY OF AGING' (3.20%), 'NEUROMOLECULAR MEDICINE' (2.45%), 'JOURNAL OF NEUROPSYCHIATRY AND CLINICAL NEUROSCIENCE' (2.42%) respectively.

The number of journals having frequency of papers in the range of 42-316 are 10 and those in the range of 22-39 are 14, followed by 17 and 10 in the range of 16-21 and 12-15 respectively. However the number of items, covered under the range of 42-316 is more than the items covered in the range of 12-15. It is, therefore, obvious that most of the literature constituting 28.30% references appeared in 10 core journals. The number of periodicals are found increasing for less number of papers i.e. as many

as 27 periodical covered only 262 items (7.48%) while 21 periodicals covered 135 papers. This is in agreement with Bradford's law of Scattering. The ranking can be useful for the libraries in taking policy decisions regarding the subscription list of periodicals on the subject and related diseases in the age of knowledge explosion and escalating price of periodicals. It will be equally important for a documentation list in providing an exhaustive current awareness and alerting services.

GEOGRAPHIC DISTRIBUTION

The literature on the disease is spread over fifty countries. These are ranked on the basis of frequency of production of literature. It is observed that 38.05% of the total articles are published from USA followed by UK, Netherlands and Switzerland which produce 19.95%, 6.06% and 3.94% research papers respectively. The other countries rank very low. (Fig 1)

SUBJECT DISTRIBUTION

The study reveals that the papers relate to a panorama of subjects. The Subjects 'Medical Sciences-Psychiatry and Neurology' top the list (32.24%) followed by Gerontology and Geriatrics (27.90%); Medical Sciences (12.80%); Science Comprehensive Works (5.08%) and Biology-Biological Chemistry (4.31). Fig 2 outlines the subject contribution more visibly.

Fig 1. Geographic Distribution

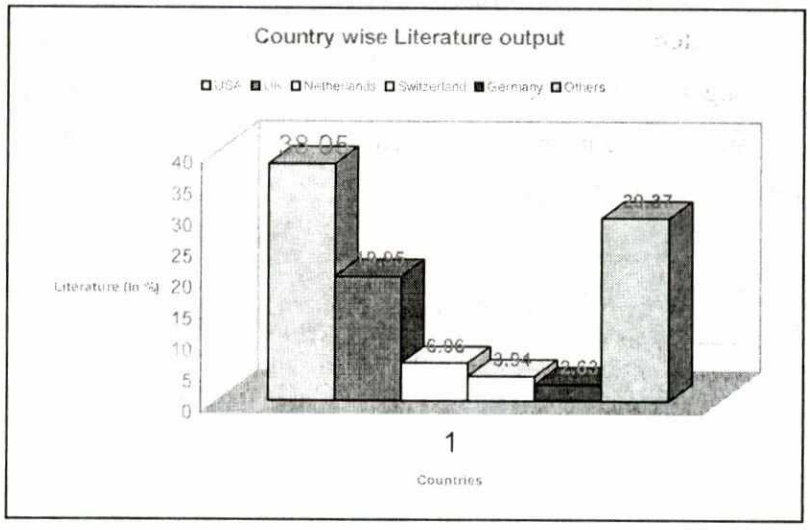
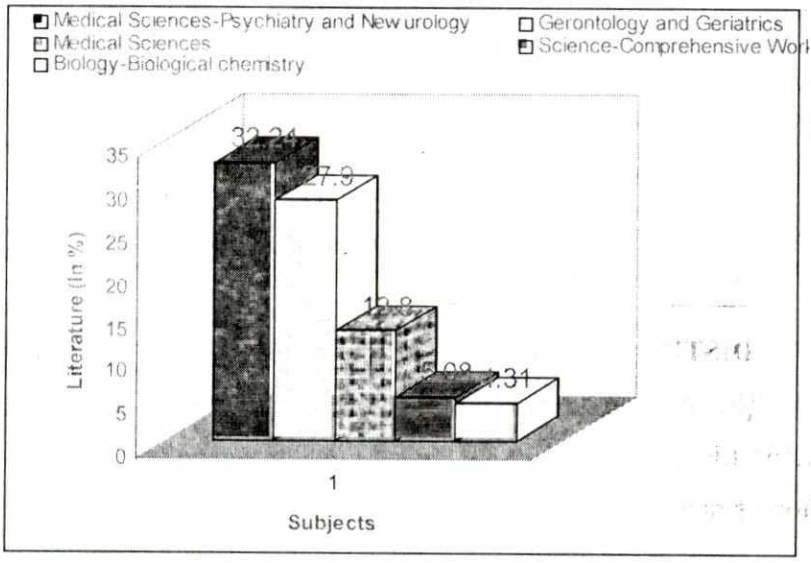


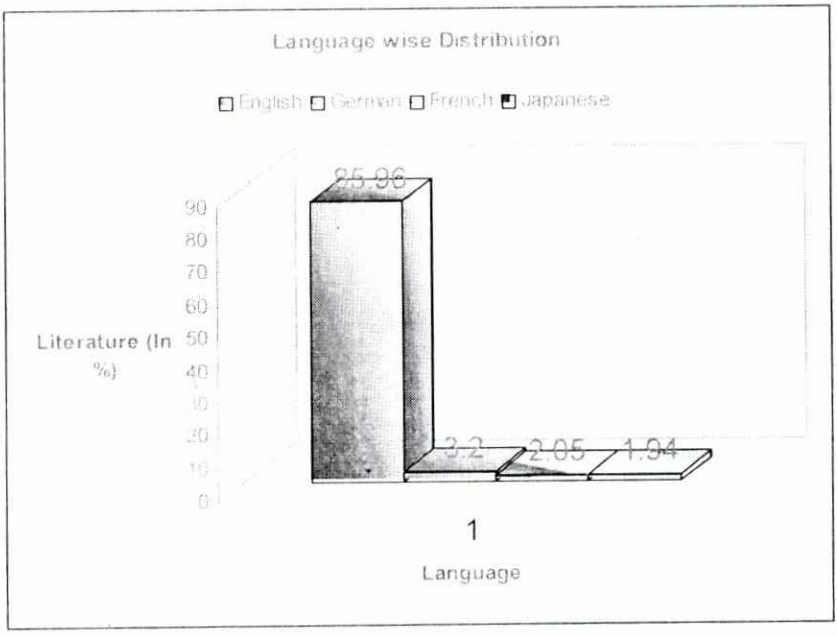
Fig 2. Subject Distribution



LANGUAGE DISTRIBUTION:

The literature published in sixteen languages clearly depicts that English language dominates the other languages (85.96%) while German, French and Japanese languages rank 2nd, 3rd, and 4th with 3.20%, 2.05% and 1.94% of published literature respectively. (Fig. 3).

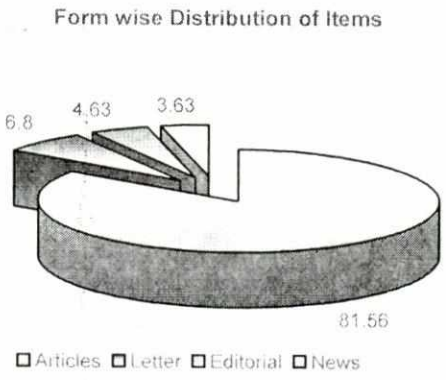
Fig 3: Language Distribution



FORM DISTRIBUTION

The majority of publications ranging from simple articles to Review Literature are covered under articles (81.56%). Letters and Editorials rank 2nd and 3rd with 6.80% and 4.63% respectively. (Fig 4)

Fig. 4 Form Distribution



RANKING OF AUTHORS

It is found that 742 (21.21%) papers are contributed by single author while 2756 (78.78%) articles are contributions of shared authors. This shows increased trend of research involving joint efforts to undertake a research work. However, details of authors are not given in Index Medicus. Although this study is not adequate to know the major contributors, yet the present ranking list is useful to know the significant authors of the subject for 2003-2004.

The two most productive authors revealed from the limited literature are:

(I) Jellinger, K.A. (15 papers)

(II) Selkoe, D.A. (12 papers)

SUMMARY

The findings of the study can be summed up as under:

a) 'Journal of Alzheimer's disease' (9.03%) is the most productive journal followed by 'Neurology' (3.94%) and 'Neurobiology of Aging' (3.20%). All the three journals are published from U.S.A.

b) The literature on the disease is mainly published from 50 countries. USA is the leading nation with (38.05%) followed by UK and Netherlands contributing 19.95% and 6.06% papers respectively.

c) Majority of papers belong to the subject 'Medical Sciences-Psychiatry and Neurology' (32.24%), while 'Gerontology and Geriatrics' and 'Medical Sciences' share (27.90%) and (12.80%) papers respectively.

d) English language is mainly used by the contributors for their contributions (85.96%) followed by German (3.20%) and French (2.50%).

e) Research papers for dissemination of their research are the most popular form of documents (81.56%) followed by letters (6.80%) and editorials (4.63%).

The highest contribution is by two eminent authors Jellinger and Selkoe. It is further established by searching authors in Google scholar and Pubmed. Both databases reveal that equally large number of publications by

esteemed authors, cited is highest number in the related literature. The bibliometric study on any area of recent interest has enough scope to investigate behaviour of literature, citation studies and use pattern. This preliminary study will pave a way for further insights in to scientiometric and webometric study of the disease especially in developing countries. The exponential growth on the subject make one to ponder to carry out further studies on webometric use of literature, nature of collaboration among different countries and impact factor of different journals in the subject.

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