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Mapping of Publications Productivity on British Journal of Cancer during 2005-2015: A Study Based on Web of Science Database

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Abstract **- The present study examined scientific publication research productivity in British journal of cancer for a period of selected 11 years between 2005 and 2015. Source and citation data have been downloaded from the Web of Science (WoS) database of Thomson–Reuters. Histcite software is used to analysis the dataset, the analysis covers parameters like most productive authors, word frequency, document type, ranking of institution and countries. Additionally the citespace software is utilized to analysis the article for knowledge mapping.**
Keywords: **Citation, Citespace, Content analysis, Histcite, Most Productive Author, Oncology, Scientometric analysis**

I. INTRODUCTION

In this present study examined the scientometric analysis of research papers published in the British Journal of Cancer (BJC), which has been recognized as one of the important journals in the field of oncology. As talked in the scope of BJC exists to serve the necessities of this different group, giving a discussion to provoke correspondence of unique and imaginative research findings that have significance to understanding the etiology of cancer and to improving the treatment and survival of patients. BJC as a quarterly journal in 1947 to 1998, its prevalence has prompted a multiplying in size and a move to fortnightly production, the primary issue of volume 1 and number 1 were distributed in March 1947 on behalf of Cancer Research UK by Nature Publishing Group, a division of Macmillan Publishers Ltd.

In this research the scientometrics mapping and representation procedure were connected to all articles distributed in the BJC in the period 2005-2015.

II. OBJECTIVES

The main objective of the study is to consider on mapping and imagining of 6818 articles published in British journal of cancer during the period of 2005 - 2015. The primary objectives of the mapping and imagining study are to identify and carry out the following factors.

1. Visualization of authors, countries, institutions and Keywords
2. Analyses the most productive country and institutions.

III. ANALYSIS

A research carried out on the Thomson Reuters web of science for the British journal of cancer limited to 2005–2015 resulted in 6818 items covering all types of records published by BJC.

In this study, we analyze and mapping the BJC research articles mainly by the mapping tools of Citespace. We focused on analysis some primary parameter settings like time slicing, link strength between nodes and clusters and centrality as well as frequency.

Mapping and Publication Output Of Top 20 Countries

Citespace: Parameter settings: Time span: 2005-2015 (Slice length =2), Node type: country (Top 50 per slice)

In all, 92 countries participated in research during 2005 to 2015, of which contributions of top 20 countries are listed in Table 1. The major contribution to research comes from UK 2146 (31.5%) with a global citation score (GCS) of 54323 (31.7%) followed by USA 1529 (22.4%) with GCS of 41880 (24.4%), Japan 631 (9.3%) with GCS of 19386 (11.3%), Germany 588 (8.6%) with GCS of 15952 (9.3%) France 540 (7.9%) with GCS of 12818 (7.5%) Italy 512 (7.5%) with GCS of 11760 (6.9%) and the rest below 500.

Figure 1, our analysis an extensive variety of sizes of circle nodes, which explain to various volumes of documents published by all countries. We are mapping and visualized the countries networks, we can easily find out many nodes with clarity of connection between each node, meaning large quantity of countries linked to related countries.

India is in 27th position among the top most productive countries with its global citation score of 634 (0.4%) during 2005 to 2015.

TABLE 1 PUBLICATION OUTPUT OF TOP 20 COUNTRIES

S. No	Country	Recs	Centrality	Percent	TLCS	TGCS
1	UK (England)	2146	0.03	31.5	2201	54323
2	USA	1529	0.02	22.4	805	41880
3	Japan	631	0.00	9.3	462	19386
4	Germany	588	0.04	8.6	435	15952
5	France	540	0.04	7.9	315	12818
6	Italy	512	0.02	7.5	310	11760
7	Netherlands	470	0.10	6.9	282	11422
8	Australia	356	0.06	5.2	273	8550
9	Canada	338	0.07	5	203	8513
10	Peoples R China	328	0.00	4.8	119	6903
11	Sweden	321	0.04	4.7	199	7517
12	Spain	229	0.10	3.4	79	5319
13	Denmark	205	0.01	3	196	5146
14	Switzerland	175	0.03	2.6	112	5111
15	Belgium	160	0.02	2.3	82	4793
16	Norway	143	0.06	2.1	95	3555
17	Austria	136	0.04	2	121	3254
18	Finland	136	0.02	2	91	3702
19	South Korea	131	0.02	1.9	63	2643
20	Greece	109	0.02	1.6	64	2756

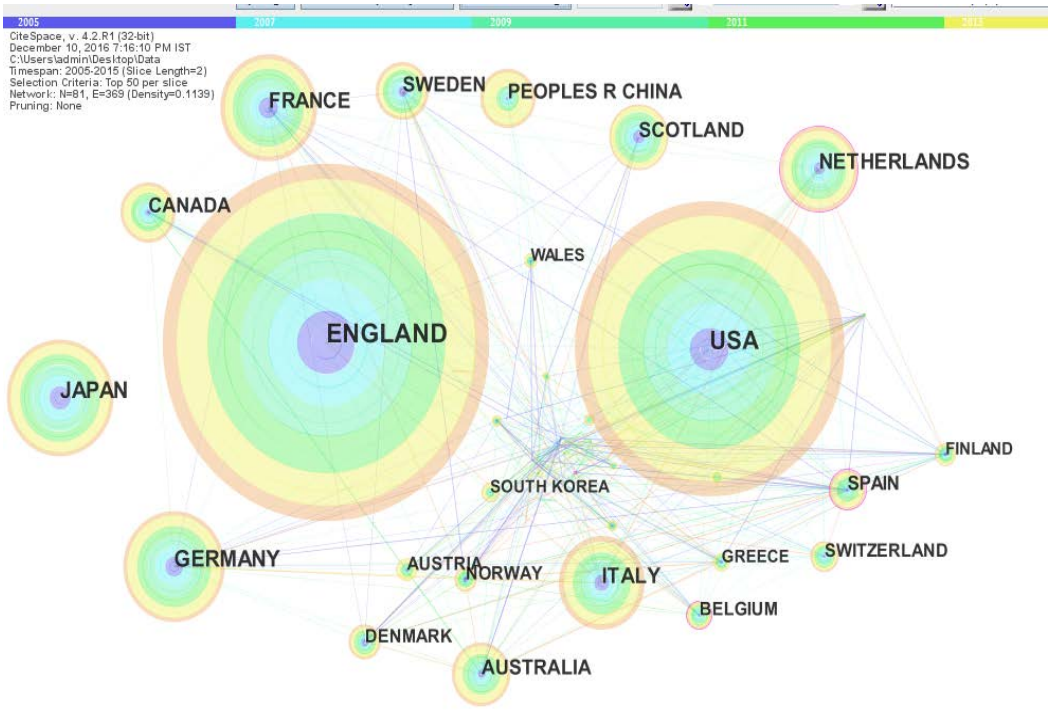

Fig.1 Mapping and cluster on publication output of top 20 countries

Mapping and Citation Effect of Top Twenty Institutions

TABLE 2 RESEARCH OUTPUT AND CITATION RESULT OF TOP TWENTY INSTITUTIONS

S No.	Institution	TP	%	TLCS	TGCS	ACPP
1	Institute of Cancer Research	208	3.1	248	6908	33.21
2	University Oxford	200	2.9	263	5972	29.86
3	NCI	185	2.7	88	3977	21.50
4	Karolinska Institutet	178	2.6	121	3488	19.60
5	University Cambridge	153	2.2	129	3634	23.75
6	Harvard University	152	2.2	61	3569	23.48
7	UCL	144	2.1	232	3854	26.76
8	Univ London Imperial Coll Sci Tech & Med	130	1.9	145	2903	22.33
9	University Manchester	121	1.8	162	3599	29.74
10	Royal Marsden Hospital	117	1.7	117	4665	39.87
11	National Cancer Center	111	1.6	76	3526	31.77
12	University Toronto	101	1.5	61	2548	25.23
13	King's College London	99	1.5	232	2587	26.13
14	University Glasgow	99	1.5	212	3375	34.09
15	University Birmingham	98	1.4	70	2251	22.97
16	Univ Texas MD Anderson Cancer Centre	95	1.4	31	1842	19.39
17	German Cancer Res Centre	93	1.4	61	2156	23.18
18	IARC	91	1.3	89	2738	30.09
19	University Leeds	88	1.3	117	1896	21.55
20	Queen Mary University London	80	1.2	53	1316	16.45
		2653	38.9	2581	66912	521.93

TP =Total Papers, TGCS = Total Global Citation Score, ACPP = Average Citations per Paper

The top twenty productive institutions involved in cancer research have published 80 and more articles each during 2005 – 2015. The publications outline of these twenty institutions with their research articles, Local Citation Score, Global Citation Score and Average Citations per Paper are presented in Table 2 and figure 1.

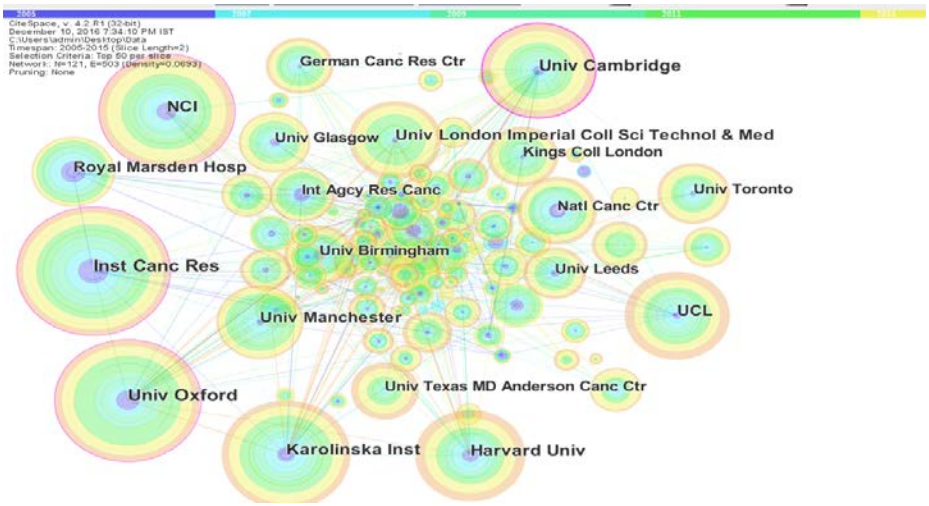

Fig.2 Mapping and Cluster on Publication Output of Top 20 Institutions

These twenty research institutions involved in cancer research together have contributed 2653 (38.9%) articles, with an average of 133 articles per institution. Only seven research institutions have shown higher publications (more than 133) share than the total average.

The average citation per paper recorded by the total research articles of these twenty institutions is 26 during the selected eleven years between 2005 and 2015 and only nine institutions have enrolled higher effect than the above average.

Amongst these nine research institutions, the highest impact of 39.87 citations per paper was scored by the Royal Marsden Hospital followed by University Glasgow, (34.09 citations per article), Institute of Cancer Research (33.21 citations per article), National Cancer Center (31.77 citations per article), IARC - International Agency for Research on Cancer (30.09 citations per article), University Oxford (29.86 citations per article), University Manchester (29.74 citations per article), UCL (26.76 citations per article) and King's College London (26.13 76 citations per article).

Mapping of Cooccurring Keywords

Citespace: Parameter settings: Time span: 2005-2015 (Slice length =2), Node type: Keyword: Selection criteria (c, cc, ccv):3, 3, 20.

Table 3 had clearly showed the highly cited keyword. We have selected only top twenty keywords for analysis. The result that the most productive key word cancer has been used in 3801 (55.70%) records by the researchers with a global citation score of 99211 and local citation score of 2936, followed by the word patients in 1162 (17.00%) records with a global citation score of 30705 and local citation score of 906, the word cell in 916 (13.40%) records with a global citation score of 23531 and local citation score of 505.

TABLE 3 THE STATISTICS OF TOP TWENTY KEYWORDS

S NO.	WORD	RECS	PERCENT	TLCS	TGCS
1	Cancer	3801	55.70	2936	99211
2	Patients	1162	17.00	906	30705
3	Cell	916	13.40	505	23531
4	Risk	670	9.80	402	13503
5	Carcinoma	638	9.40	427	15294
6	Colorectal	624	9.20	575	17048
7	Expression	600	8.80	370	16841
8	Tumour	580	8.50	407	15944
9	Cells	548	8.00	271	13657
10	Phase	481	7.10	282	14029
11	Survival	470	6.90	495	11314
12	Human	396	5.80	231	11157
13	Advanced	385	5.60	250	10729
14	Prognostic	379	5.60	333	10229
15	Associated	362	5.30	255	9738
16	Metastatic	362	5.30	283	9752
17	Prostate	357	5.20	254	9262
18	Lung	355	5.20	197	9404
19	Analysis	345	5.10	297	10673
20	Treatment	338	5.00	277	8573

The top twenty keywords citation had been marked in visualization map as shown in Figure 3. In view of keyword detection results, some cluster places have been well-adjusted slightly to avoid covering names for next clusters.

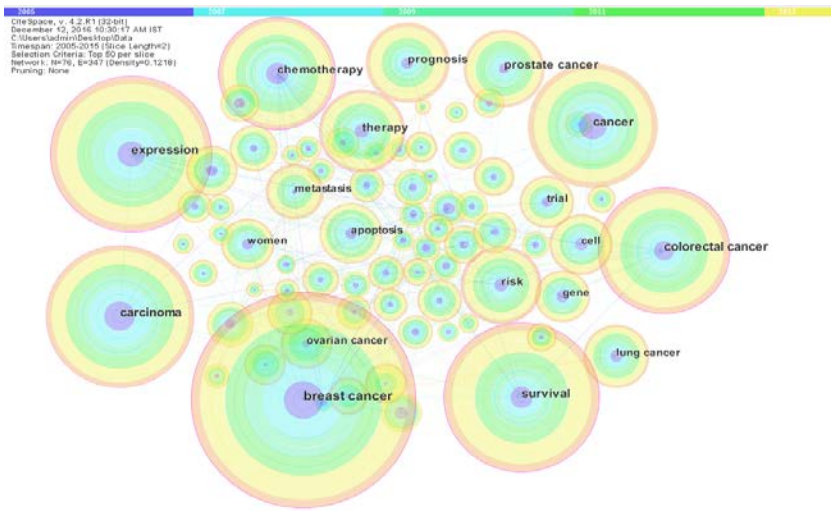

Fig.3 Mapping and Cluster on Co-Occurring Keywords

IV. CONCLUSION

The present study represents the scientometric mapping analysis of British journal of cancer (BJC) during the period of 2005 - 2015. The findings of the study are summarized as follows

1. The major contribution to research comes from UK 2146 (31.5%) with a global citation score (GCS) of 54323 (31.7%).
2. The leading twenty productive institutions involved in cancer research have published 80 and above research articles each during 2005 – 2015.
3. These twenty research institutions involved in cancer research together have contributed 2653 (38.9%) articles, with an average of 133 articles per institution.
4. The most productive key word cancer has been used in 3801 (55.70%) records by the researchers with a global citation score of 99211 and local citation score of 2936.
5. Based on this study, it can be concluded that, the highest impact of 39.87 citations per paper was scored by the Royal Marsden Hospital.

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