

Advances in plastic and cosmetic surgery at home and abroad – A bibliometric analysis

S. XU, G. SHU, S. QIANG, C. LEI¹, Z. XIUMEI¹

Department of Plastic Surgery, the first Hospital of China Medical University, Shenyang, China

¹Department of Medical Informatics, China Medical University, Shenyang, China

Abstract. – BACKGROUND: Plastic and cosmetic surgery is a new branch deriving from plastic surgery. Although several studies concerning advances in plastic and cosmetic surgeries have been reported, most literatures focus on specific diagnosis and treatment technology, but not the overall progress.

AIM: We attempt to use bibliometric analysis to investigate main research hotspots at home and abroad, outstanding researchers and excellent institutions.

MATERIALS AND METHODS: We retrieved relevant literatures published between 2007 and 2011 in five foreign and four Chinese journals. gCLUTO was used to perform double clustering analysis. Price's Law was used to analyze authors with high yield. Literature profiling was performed to construct author-keyword and institution-keyword matrix to comprehend research feature of high yield authors and research institutions.

RESULTS: A total of 67 and 94 high-frequency words were obtained from English and Chinese journals. Clustering analysis indicated that research hotspots at home and abroad mainly included side-effects of augmentation mammoplasty and its therapy, eyelid plastic surgery, cartilage transplantation and/or cartilage suture in nose plastic surgery, plastic surgery in cheilopalatognathus and nasal deformity, construction of surgical flaps, and facial plastic cosmetology. In addition, several authors and institutions with high yield also had been identified and they might have different research features.

CONCLUSIONS: We investigate advances, hotspots, experts and their institutions in plastic and cosmetic surgery in recent five years at home and abroad, which would provide some research directions for professionals of plastic and cosmetic surgery.

Key Words:

Bibliometrics, Plastic and cosmetic surgery, Text mining, Literature profiling.

Introduction

Plastic and cosmetic surgery is a new branch deriving from plastic surgery. According to modern international academic category, plastic surgery includes reconstructive surgery and cosmetic surgery. The former is performed to correct and reconstruct functional impairments or defect in tissues or organs due to congenital or acquired factors, while the latter involves techniques intended for restoring or enhancing normal appearance according to anthropotomy¹. Plastic and cosmetic surgery is an interdisciplinary combining plastic surgery and cosmetic surgery and utilizing surgeries, agents, medical equipment and other medical technologies to maintain, restore, or enhance appearance and shape toward some aesthetic ideal, which includes plastic surgery in breasts, brows, zygomatic, nasal, jaw, lips, wrinkles, and others. However, it is not long that plastic and cosmetic surgery springs up and the technology needs continuous improvement, especially in China.

Plenty results concerning advances in plastic and cosmetic surgeries have been reported. Nevertheless, most literatures focus on specific diagnosis and treatment technology advances in plastic and cosmetic surgery. For example, Fan et al² review plastic surgery of eyelid; Dong et al³ summarize advances in materials and pharmaceuticals of augmentation mammoplasty; Markiewicz et al⁴ illustrate three-dimensional imaging in facial plastic surgery; and Gardiner et al⁵ review the application, limitation and legality of tele-medicine in plastic surgery. Few scholars attempt to investigate the overall progress in plastic and cosmetic surgery at home and abroad.

Bibliometric is usually defined as the application of mathematical and statistical methods to media of communication⁶ and has become a well-established part of information research to the quantitative description of documents in or-

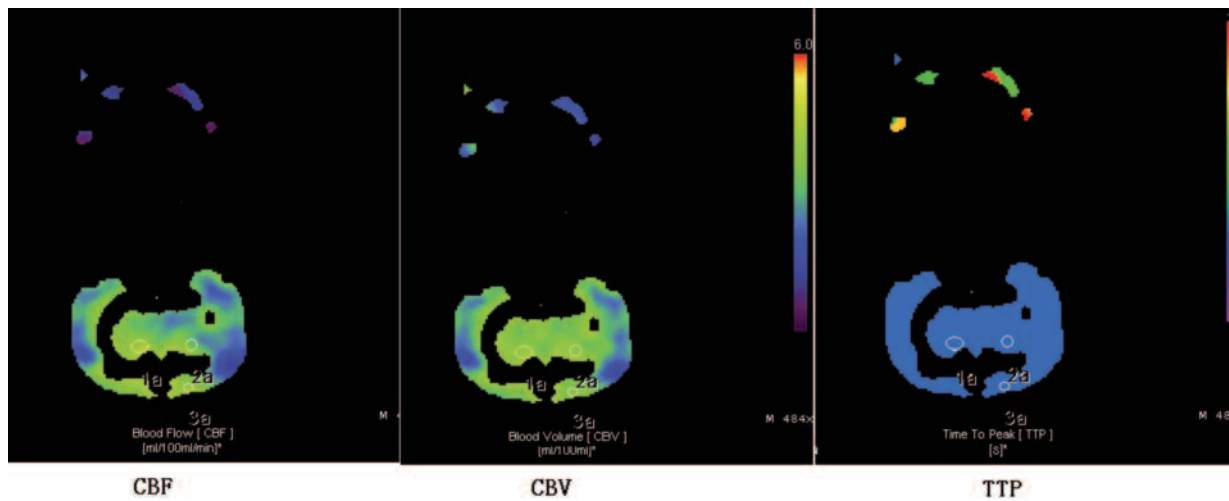


Figure 1. Flow chart of our research.

thopaedics⁶⁻⁸. However, there are few studies on the development of cosmetic surgery using bibliometric methodology⁹. Importantly, most of these studies emphasize the citation index and impact factor (IF) viewing from the angle of the journal, not combining with the background of plastic and cosmetic surgery¹⁰. Therefore, in this paper, we performed bibliometric analysis on research situations at home and abroad, outstanding researchers and excellent institutions, aiming at providing information to professionals of plastic and cosmetic surgery.

As main information source to obtain internal characteristics of papers, subject words play a key role in bibliometric analysis. Commonly used method is co-occur cluster analysis based on high frequency subject words, which is divided into different categories, in special fields or subjects, so as to objectively reflect their characteristics and acquire hotpots. Currently, softwares applied in co-occur cluster analysis include SPSS, gCLUTO, and others. gCLUTO is a friendly interactive software integrated with dou-

ble clustering analysis and visualization analysis, which offers repeat dichotomy, direct clustering method, condensed clustering method and graph clustering¹¹. Price's Law is commonly used to statistically analyze authors with high yield. Price suggests that the square root of the population of scientists in any given field produce half of the scientific discoveries¹². Gene literature profiling¹³ analyze abstracts or full texts about certain gene and count term frequency, followed by data integration, screening and matrix construction, with the purpose of acquiring special descriptors of some gene. In this paper, we modified gene literature profiling method, constructed author-keyword matrix and institution-keyword matrix in order to comprehend research feature of high yield authors and research institutions.

Materials and Methods

The flow chart of our research is shown in Figure 1.

Table 1. Five crucial journals published in English, concerning plastic and cosmetic surgery.

Journal	IF	Country of publication
Plastic and reconstructive surgery	2.635	USA
Journal of plastic, reconstructive & aesthetic surgery JPRAS	1.66	Netherlands
Annals of plastic surgery	1.274	USA
Aesthetic plastic surgery	1.252	USA
Clinics in plastic surgery	0.942	USA

Table II. Four crucial journals published in Chinese, concerning plastic and cosmetic surgery.

Journal	U-JIF	Comprehensive IF
Chinese journal of aesthetic and plastic surgery	0.698	0.583
Chinese Journal of Aesthetic Medicine	0.644	0.515
Chinese Journal of Plastic Surgery	0.600	0.473
Chinese Journal of Medical Aesthetics and Cosmetology	0.403	0.326

Literature Selection

We reviewed foreign journals with “plastic”, “comestic”, “aesthetic” in titles in PubMed and yielded 67 in total. Comparing their IF values using Journal Citation Reports (JCR), we selected 5 journals with high IF in plastic and cosmetic surgery field (Table I). By searching “plastic”, “cosmetology”, “aesthetics” and “repairation” in China National Knowledge Internet (CNKI), 13 Chinese journals were yielded and 4 with high comprehensive IF in plastic and cosmetic surgery field were selected (Table II).

Data Pool

We chose Pubmed and SCI as English literature sources. Pubmed is the most comprehensive medical literature database worldwide, and the results analysis function of SCI can assist us to obtain institution of important authors. We collected the relevant literatures published in the above five foreign journals between 2007 and 2011 from Pubmed. A total of 9738 records were obtained (2012-04-05). Each copy of XML and medline format was loaded down to establish English journal paper sets. Subsequently, each author’s literatures were extracted by using self-programmed software and high yield authors were defined by Price’s law. Top 44 high yield authors and their literatures were selected. XML and medline formats provided by pubmed and SCI were not suitable for self-programmed software to extract information of Authors’ institutions, so we utilized literature search followed by SCI analysis to obtain the institutions of foreign high yield authors and 9751 records were obtained.

CBM was used as Chinese literature sources. CBM is the most comprehensive Chinese database that meets our need on Chinese data source. Similarly, we collected the relevant literatures published in the above four Chinese journals between 2007 and 2011 from CBD. A total of 7069 records were obtained (2012-04-

06). The copy of TXT format was loaded down to establish Chinese journal paper sets. Subsequently, each author’s literatures were extracted and high yield authors were defined by Price’s law. Top 39 high yield authors and their literatures were selected. Authors’ institutions were extracted manually and statistically analyzed by hospital. Top 25 high yield institutions were retrospectively searched and the papers of high yield institutions were got.

Data Pre-Processing

Because the format of some Chinese databases lack standardization, we did pre-processing, including removing “translation” or “selective translation”, removing figures, “checking”, “review” in Author and institution and “*” in subject field.

Feature Extraction and Matrix Construction

Using self-programmed software BICOMB, we aimed to extract feature information in paper sets of five English and four Chinese journals, specific authors and institutions.

Feature extraction of English literatures and matrix construction were performed as following: 1) Extraction of “major subject heading + subheading”: 7689 words were extracted from English journal paper sets and sequenced by their frequency. Critical value of high- and low-frequency was the minimum word frequency that the same word frequency continuously appeared 1 (General more than three)¹⁴ and 46 high-frequency words (frequency ≥ 80) were extracted to construct matrix (Table III); 2) Extraction of “Author” and construction of “Author-keyword” matrix: 17009 authors were extracted from English journal paper sets and sequenced by their frequency. According to

Table III. Matrix of 46 high frequency English words.

	170 938 86	171 229 96	1712 6265	1712 6270	1712 6276	1718 0744	1719 7934	.....
Reconstructive Surgical Procedures/methods	0	0	0	0	0	0	0	.....
Surgical Flaps	0	0	0	0	0	0	0	.....
Surgical Flaps/blood supply	0	0	0	0	0	0	0	.....
Mammaplasty/methods	0	0	0	0	0	0	0	.....
Breast Neoplasms/surgery	0	0	0	0	0	0	0	.....
Skin Transplantation/methods	0	0	0	0	0	0	0	.....
Rhinoplasty/methods	0	0	0	0	0	1	0	.....
Adipose Tissue/transplantation	0	0	0	0	0	0	0	.....
Breast Implants	0	0	0	0	0	0	0	.....
Reconstructive Surgical Procedures	0	0	0	0	0	0	0	.....
Mammaplasty	0	0	0	0	0	0	0	.....
Abdominal Wall/surgery	0	0	0	0	0	0	0	.....
Skin Neoplasms/surgery	0	0	1	0	0	0	0	.....
Breast Implants/adverse effects	0	0	0	0	0	0	0	.....
Muscle, Skeletal/transplantation	0	0	0	0	0	0	0	.....
Mammaplasty/adverse effects	0	0	0	0	0	0	0	.....
Microsurgery/methods	0	0	0	0	0	0	0	.....
Surgery, Plastic	0	0	0	0	0	0	1	.....
Rhytidoplasty/methods	0	1	0	0	0	0	0	.....

Table IV. First matrix of “author-keyword” (English)

*	Surgical Flaps/ blood supply	Reconstructive Surgical Procedures/methods	Mammaplasty /methods	.....	Zygomatic Fractures/surgery
Rohrich RJ	0.03728	0.01974	0.01974	.....	0.00000
Chung KC	0.00678	0.02712	0.00339	.....	0.00000
Rozen WM	0.15358	0.02389	0.06143	.....	0.00000
Vogt PM	0.03309	0.03676	0.01471	.....	0.00000
Ogawa R	0.06393	0.06393	0.00913	.....	0.00000
Hyakusoku H	0.06897	0.06404	0.00985	.....	0.00000
Ashton MW	0.17195	0.01810	0.06335	.....	0.00000
Saint-Cyr M	0.15544	0.03109	0.08808	.....	0.00000
Whitaker IS	0.10983	0.01734	0.04624	.....	0.00000
.....					
Taylor GI	0.10853	0.02326	0.06202	.....	0.00000

Row: high yield author; Column: keyword.

Price’s law and the number of published articles, 130 authors were extracted and evaluated. The paper sets of the top 44 authors were extracted by “major subject heading + subheading”, and similar gene literature profiling were applied to analyze features of authors’ research as followed: data integrated by “percentage %” vs relevant words and authors, and each column numerical data were normalized to construct

2224×44 “keyword-author” matrix which was ranked by data value. In the matrix, the first column was serial number from 1 to 2224, based on which “relative frequency-word number” smooth curve was drawn. Suitable relative frequency threshold value was found at the point of word number ≤ 50 to meet the need of Excel and construct “keyword-author” matrix with the threshold value. Finally, keywords

Table V. Secondary matrix of “author-keyword” (English)

*	Adipose Tissue/transplantation	Microsurgery/ methods	Skin Transplantation/ methods	Muscle, Skeletal/ transplantation	.....
Rohrich RJ	0.00439	0.00219	0.00000	0.00658	.....
Chung KC	0.00000	0.00678	0.00000	0.00000	.....
Rozen WM	0.00000	0.00683	0.01024	0.00683	.....
Vogt PM	0.01471	0.00000	0.00735	0.00368	.....
Ogawa R	0.01826	0.00457	0.00913	0.00000	.....
Hyakusoku H	0.01478	0.00493	0.01970	0.00000	.....
Ashton MW	0.00000	0.00905	0.00452	0.00452	.....
Saint-Cyr M	0.00518	0.00000	0.01036	0.02591	.....
Whitaker IS	0.00000	0.00578	0.00578	0.00578	.....
.....					
Taylor GI	0.00000	0.00000	0.01550	0.00775	.....

Row: high yield author; Column: keyword.

with relative frequency threshold value 0.013 and total word frequency ≥ 3 were selected to construct 44×237 first “author-keyword” matrix (see Table IV). The commonness of high yield authors’ research was obtained by first clustering analysis, then common words and unrelated words were deleted to construct 44×229 secondary “author-keyword” matrix (see Table V).

Feature extraction of Chinese literatures and matrix construction were performed as following: 1) Extraction of “keyword”: 5163 words were extracted from Chinese journal archives and 52 (frequency ≥ 138) were classified as high-frequency subjects to construct word-article matrix with the same method using in English journal archives (Table VI); 2) Extraction of “author” and construction of “author-keyword” matrix: 11261 were extracted from Chinese journal archives and sequenced by their frequency. With

Table VI. Matrix of 46 high frequency English words.

*	1	2	3	4	.....
Post-operative period	0	1	0	0	.....
Surgical flaps	0	0	0	0	.....
Skin	0	0	0	0	.....
Face	0	1	0	0	.....
Surgery, plastic	1	0	1	0	.....
Oral cavity	0	0	0	0	.....
Scar	0	0	0	0	.....
Wound and injury	0	1	0	0	.....
Review	0	0	0	0	.....
.....					

the same method using in English journal archives, 108 authors were classified as high yield authors. We extracted “keyword” from archives of the top 39 authors and constructed

Table VII. First “author-keyword” matrix (Chinese).

*	Surgical flaps	Post-operative period	Skin	Surgery, plastic	.....
Shuzhong Guo	0.04426	0.01660	0.00830	0.01245	.....
Lai Gui	0.00828	0.03477	0.00662	0.01987	.....
Yi Liu	0.02500	0.02292	0.01458	0.01042	.....
Qin Li	0.01639	0.01639	0.03074	0.01434	.....
Dalie Liu	0.01050	0.03361	0.02731	0.02311	.....
Qun Qiao	0.05502	0.02392	0.01435	0.01675	.....
Jingheng Gao	0.00682	0.01136	0.01818	0.04545	.....
Hongxing Zhuang	0.03695	0.03448	0.02956	0.00739	.....
Biao Cheng	0.00950	0.01188	0.02613	0.01425	.....
.....					
Yong Tang	0.08295	0.02765	0.02304	0.00461	.....

Table VIII. Secondary “author-keyword” matrix (Chinese)

*	Scar	Wound and injury	Oral cavity	Eye	
Shuzhong Guo	0.01936	0.01936	0.00692	0.00277	.....
Lai Gui	0.00166	0.00166	0.00662	0.00662	.....
Yi Liu	0.00625	0.02292	0.00625	0.00417	.....
Qin Li	0.01844	0.00820	0.00820	0.01025	.....
Dalie Liu	0.01050	0.01050	0.02941	0.01891	.....
Qun Qiao	0.00478	0.01196	0.01914	0.00239	.....
Jingheng Gao	0.01136	0.00227	0.00909	0.00455	.....
Hongxing Zhuang	0.00985	0.00739	0.00985	0.00493	.....
Biao Cheng	0.01663	0.00950	0.00475	0.01425	.....
.....					
Yong Tang	0.01843	0.01382	0.00922	0.00922	.....

Table IX. First “institution-keyword” matrix (Chinese)

*	Post-operative period	Skin	Surgical flaps	Review	.....
Aesthetic Surgery Hospital of Chinese Academy of Medical Sciences	0.0297	0.0204	0.0261	0.0194	.....
Xijing Hospital, Fourth Military Medical University of Chinese PLA	0.0161	0.0244	0.0278	0.0117	.....
No. 9 People’s Hospital of Shanghai Jiaotong University	0.0205	0.0137	0.0193	0.0205	.....
Stomatological Hospital of Fourth Military Medical University of Chinese PLA	0.0069	0.0049	0.0035	0.0069	.....
Guangzhou Command Guangzhou General Hospital	0.0099	0.0286	0.0088	0.0187	.....
People’s Hospital of Liaoning	0.0232	0.0134	0.0147	0.0366	.....
General Hospital of PLA	0.0170	0.0157	0.0157	0.0144	.....
Xinan Hospital, Third Military Medical University of Chinese PLA	0.0205	0.0176	0.0073	0.0044	.....
.....					
Airforce General Hospital of PLA	0.0080	0.0345	0.0027	0.0159	.....

Table X. Secondary “institution-keyword” matrix (Chinese)

*	Oral cavity period	Scar	Wound and injury	Jaw	.....
Aesthetic Surgery Hospital of Chinese Academy of Medical Sciences	0.0116	0.0108	0.0085	0.0077	.....
Xijing Hospital, Fourth Military Medical University of Chinese PLA	0.0059	0.0151	0.0142	0.0015	.....
No. 9 People’s Hospital of Shanghai Jiaotong University	0.0100	0.0112	0.0068	0.0056	.....
Stomatological Hospital of Fourth Military Medical University of Chinese PLA	0.0160	0.0014	0.0035	0.0118	.....
Guangzhou Command Guangzhou General Hospital	0.0066	0.0121	0.0088	0.0044	.....
People’s Hospital of Liaoning	0.0171	0.0073	0.0037	0.0098	.....
General Hospital of PLA	0.0131	0.0183	0.0144	0.0104	.....
Xinan Hospital, Third Military Medical University of Chinese PLA	0.0059	0.0146	0.0117	0.0044	.....
.....					
Airforce General Hospital of PLA	0.0000	0.0053	0.0053	0.0027	.....

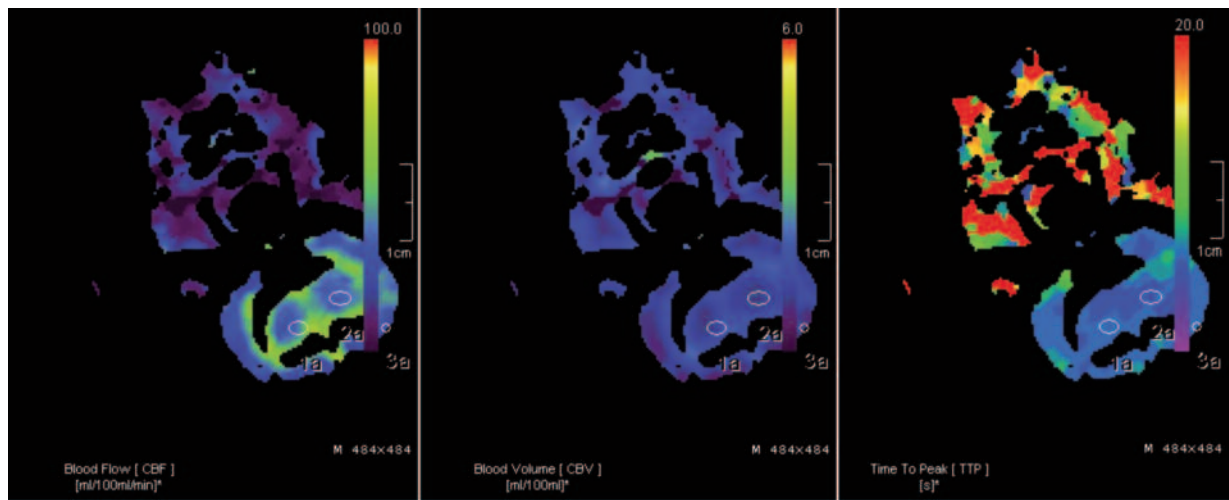


Figure 2. Co-occur clustering hill diagram of the top 46 high-frequency “major heading + subheading” (English).

1810×39 “keyword-author” matrix. Then keywords with relative frequency threshold value 0.009 and total word frequency ≥ 3 were selected to construct 39×239 first “author-keyword” matrix (see Table VII), and then 39×231 secondary “author-keyword” matrix (see Table VIII); 3) Extraction of “institution” and construction of “institution-keyword” matrix: Based on the journal archives, authors’ institutions were extracted and

statistically analyzed by hospital. A total of 2111 were got and the top 25 were applied to extract “keyword” and construct 3010×25 “keyword-institution” matrix. Then keywords with relative frequency threshold value 0.0065 and total word frequency ≥ 3 were selected to construct 25×202 first “institution-keyword” matrix (see Table IX), and then 25×194 secondary “institution-keyword” matrix (see Table X).

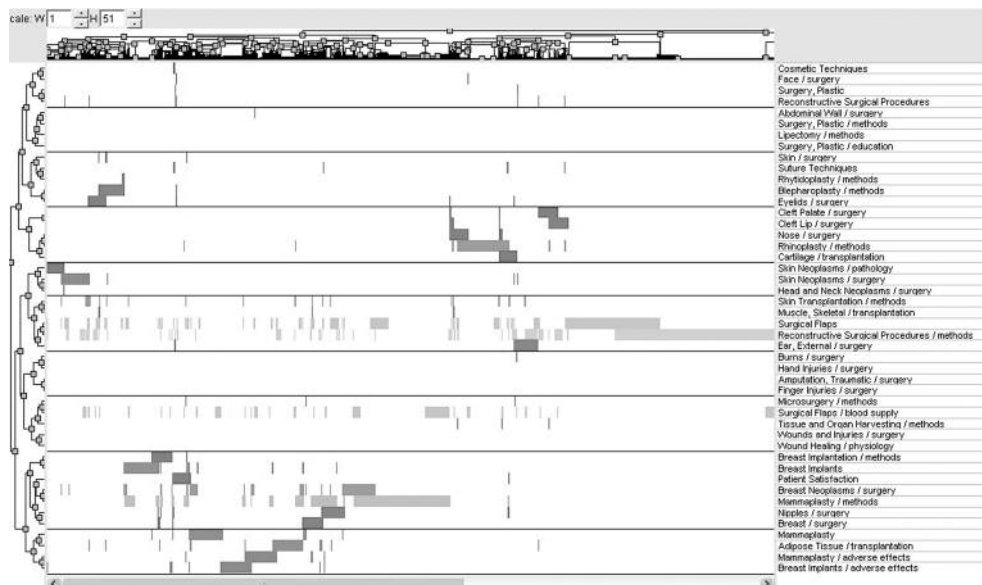


Figure 3. Co-occur clustering thermograph of the top 46 high-frequency “major heading + subheading” (English).

Clustering Analysis

Co-occur double clustering analysis was conducted with gCLUTO and repeat dichotomy, selecting cosine in similar function, I2 in criterion function and default in other options. Clustering results with highest average similarity in intra-class (Isim) and lowest average similarity in inter-class (Esim) was defined as optimal results, with which relevant double clustering thermograph and double clustering hill diagram were built.

Interpretation of Clustering Results

Keywords – Literatures Matrix Clustering

The clustering results were illustrated by the top 46 high-frequency word-article matrix clustering of English journal archives.

As shown in Figure 2, each hill represented one cluster and 46 words were divided into ten clusters. The height of the hill was proportional to the similarity in intra-class, and the volume was proportional to the amount in the cluster. There were 5 colors in hills, including red, yellow, green, light blue and dark blue. The color was proportional to standard deviation in intra-class. Red represented low standard deviation, while dark blue represented high standard deviation. Also only the color of the peak points was meaningful. Based on the double clustering hill diagram, we could roughly estimate the clustering effect.

As shown in Figure 3, in double clustering thermography, intra-class words were gathered and divided by black horizon. Color represented the value in primary data matrix; white represented zero, while red represented the bigger value. Label in the left represented word clustering. So in the figure, “Nose/ surgery” and “Rhinoplasty/methods” were first cultured to mean “methodology in nasal plastic surgery”. Then the two went up and gathered with “Cartilage/transplantation” to indicate “Nose plastic surgery with cartilage transplantation”. With the same method, clustering results were identified and got comprehensive research hot spots.

Figure 4 lists literatures with high descriptive and high discriminating in each cluster. Serial number of English literatures was ID in Pubmed. Retrospective search were conducted to review literatures above and then identify research focus.

Matrix Clustering of Author-Keyword and Institution-Keyword

The clustering results were illustrated by “author-keyword” matrix clustering of English journal archives.

gCLUTO double clustering analysis were also used. After the first “author-keyword” matrix clustering, the words used to describe and distinguish authors were similar, which were defined as hot spots interested by the 44 high yield authors. Moreover, after the secondary “author-keyword” matrix clustering, high descriptive and high discriminating words could be used to represent authors’ research characteristics.

Results

Situation Analysis of Main Researches at Home and Abroad

Analysis of High Frequency Subject

Critical value in “major heading + subheading” was 62 and 93 times, and 67 and 94 high-frequency words were got from literatures at home and abroad, respectively (Tables XI and XII).

Co-occur Cluster Analysis of High Frequency Subject

We did cluster analysis on the top 46 English high-frequency word-article matrix and the top 52 Chinese high-frequency word-article matrix (see Figures 2, 3, 5, 6). There were 10 clusters of English high frequency keywords and 8 clusters of Chinese. Based on these results and high descriptive and high discriminating literatures, similar clusters were merged.

As shown in Table XIII, there were similarities and differences in the research hotspot at home and abroad, which had a close relation with advances in plastic and cosmetic surgery at home and abroad, and content of academic journals in this paper. Foreign journals extracted in this paper included plastic and cosmetic surgery, while domestic ones mainly included cosmetic surgery.

High Yield Authors at Home and Abroad and Their Research Features

High yield authors

After statistical analysis, 130 foreign authors had published more than 19 papers (see table XIV), while 108 domestic authors had published more than 20 (see Table XV).

Descriptive & Discriminating Features									
Cluster 0	Size: 3	ISim: 0.411	ESim: 0.009						
Descriptive:		19158523	2.4%	19050527	2.4%	19914460	2.4%	18040184	2.4%
Discriminating:		19158523	1.3%	18040184	1.3%	19050527	1.3%	19914460	1.3%
Cluster 1	Size: 5	ISim: 0.340	ESim: 0.007						
Descriptive:		18827648	2.5%	20827762	2.5%	17898812	1.8%	18760059	1.0%
Discriminating:		20827762	1.3%	18827648	1.3%	17898812	0.8%	21460073	0.5%
Cluster 2	Size: 4	ISim: 0.339	ESim: 0.010						
Descriptive:		19272851	1.8%	18828341	1.8%	18453998	1.8%	18838322	1.7%
Discriminating:		18828341	1.0%	18838322	0.9%	18453998	0.9%	19272851	0.8%
Cluster 3	Size: 4	ISim: 0.296	ESim: 0.011						
Descriptive:		21359982	1.1%	20354698	0.5%	19730312	0.5%	21124187	0.5%
Discriminating:		21359982	0.8%	21701305	0.3%	21289545	0.3%	20354430	0.3%
Cluster 4	Size: 4	ISim: 0.291	ESim: 0.009						
Descriptive:		18040210	1.7%	21532434	0.9%	19387144	0.9%	21824536	0.9%
Discriminating:		18040210	0.9%	21824536	0.5%	18176258	0.5%	19303835	0.5%
Cluster 5	Size: 4	ISim: 0.280	ESim: 0.007						
Descriptive:		19730315	1.8%	19730314	1.8%	18338100	0.9%	19483560	0.9%
Discriminating:		19730315	0.9%	19730314	0.9%	18338100	0.5%	18850801	0.5%
Cluster 6	Size: 5	ISim: 0.301	ESim: 0.029						
Descriptive:		18520202	0.8%	20884307	0.5%	20827760	0.5%	21882428	0.5%
Discriminating:		17522499	0.4%	21882428	0.4%	20808582	0.4%	21788817	0.4%
Cluster 7	Size: 5	ISim: 0.260	ESim: 0.010						
Descriptive:		19521732	2.0%	17659409	1.3%	18812878	1.2%	20224325	1.2%
Discriminating:		19521732	1.1%	18812878	0.7%	20224325	0.7%	17659409	0.6%
Cluster 8	Size: 5	ISim: 0.253	ESim: 0.017						
Descriptive:		18828384	1.7%	18828349	1.5%	19461278	0.9%	22094755	0.7%
Discriminating:		18828384	1.0%	18828349	0.7%	19461278	0.5%	18453990	0.4%
Cluster 9	Size: 7	ISim: 0.231	ESim: 0.012						
Descriptive:		20495082	1.3%	19387167	0.9%	17804241	0.9%	17950185	0.8%
Discriminating:		20495082	0.7%	19387167	0.5%	17950185	0.5%	17804241	0.5%

Figure 4. Clustering literature information of the top 46 high-frequency “major heading + subheading”.

Table XI. High-frequency “major heading + subheading” (English)

No.	Major heading + subheading	Frequency	Percentage (%)	Cumulative percent (%)
1	Reconstructive Surgical Procedures/methods	1587	4.3791	4.3791
2	Surgical Flaps	1028	2.8366	7.2158
3	Surgical Flaps/blood supply	1024	2.8256	10.0414
4	Mammaplasty/methods	807	2.2268	12.2682
5	Breast Neoplasms/surgery	271	0.7478	13.016
6	Skin Transplantation/methods	267	0.7368	13.7528
7	Rhinoplasty/methods	263	0.7257	14.4785
8	Adipose Tissue/transplantation	195	0.5381	15.0166
9	Breast Implants	195	0.5381	15.5546
10	Reconstructive Surgical Procedures	192	0.5298	16.0844
11	Mammaplasty	179	0.4939	16.5784
12	Abdominal Wall/surgery	171	0.4719	17.0502
13	Skin Neoplasms/surgery	164	0.4525	17.5028
14	Breast Implants/adverse effects	157	0.4332	17.936
15	Muscle, Skeletal/transplantation	156	0.4305	18.3664
16	Mammaplasty/adverse effects	155	0.4277	18.7942
17	Microsurgery/methods	145	0.4001	19.1943
18	Surgery, Plastic	144	0.3974	19.5916
19	Rhytidoplasty/methods	140	0.3863	19.9779
20	Ear, External/surgery	135	0.3725	20.3504
21	Suture Techniques	129	0.356	20.7064
22	Blepharoplasty/methods	127	0.3504	21.0568
23	Nipples/surgery	124	0.3422	21.399
24	Breast/surgery	115	0.3173	21.7163
25	Wound Healing/physiology	114	0.3146	22.0309
26	Cleft Lip/surgery	113	0.3118	22.3427
27	Finger Injuries/surgery	113	0.3118	22.6545
28	Skin/surgery	111	0.3063	22.9608
29	Tissue and Organ Harvesting/methods	105	0.2897	23.2506
30	Nose/surgery	103	0.2842	23.5348
31	Lipectomy/methods	102	0.2815	23.8162
32	Breast Implantation/methods	102	0.2815	24.0977
33	Surgery, Plastic/education	101	0.2787	24.3764
34	Cleft Palate / surgery	99	0.2732	24.6496
35	Face / surgery	98	0.2704	24.92
36	Eyelids / surgery	96	0.2649	25.1849
37	Amputation, Traumatic / surgery	93	0.2566	25.4415
38	Cosmetic Techniques	89	0.2456	25.6871
39	Surgery, Plastic / methods	88	0.2428	25.9299
40	Burns / surgery	87	0.2401	26.17
41	Patient Satisfaction	85	0.2345	26.4045
42	Cartilage / transplantation	84	0.2318	26.6363
43	Head and Neck Neoplasms / surgery	83	0.229	26.8653
44	Wounds and Injuries / surgery	81	0.2235	27.0889
45	Hand Injuries / surgery	81	0.2235	27.3124
46	Skin Neoplasms / pathology	80	0.2208	27.5331
.....				
67	Leg Injuries / surgery	62	0.1711	31.5756

Table XII. High-frequency “subject” (Chinese)

No.	Heading	Frequency	Percentage (%)	Cumulative Percent (%)
1	Post-operative period	1057	2.1023	2.1023
2	Surgical flaps	972	1.9333	4.0356
3	Skin	931	1.8517	5.8873
4	Face	807	1.6051	7.4923
5	Surgery, plastic	635	1.263	8.7553
6	Oral cavity	582	1.1576	9.9129
7	Scar	578	1.1496	11.0625
8	Wound and injury	566	1.1257	12.1882
9	Review	564	1.1218	13.31
10	Follow-up study	562	1.1178	14.4278
11	Plastic surgery	372	0.7399	15.1677
12	Eye	368	0.7319	15.8996
13	Cosmetology	367	0.7299	16.6295
14	Wound healing	333	0.6623	17.2919
15	Statistics (subject)	329	0.6544	17.9462
16	Dermatology	310	0.6166	18.5628
17	Mammaplasty	303	0.6026	19.1654
18	Jaw	284	0.5649	19.7303
19	Suture techniques	281	0.5589	20.2892
20	Congenital malformation	279	0.5549	20.8441
21	Eyelid	277	0.5509	21.395
22	Tooth	273	0.543	21.938
23	Breast	241	0.4793	22.4174
24	Dermatoplasty	229	0.4555	22.8728
25	Beauty industry	225	0.4475	23.3203
26	Pre-operative nursing	216	0.4296	23.75
27	Prosthesis and Implants	215	0.4276	24.1776
28	Fats	213	0.4236	24.6012
29	Monitor, surgery	213	0.4236	25.0249
30	Vessel	212	0.4217	25.4465
31	Nasal/anatomy and histology	212	0.4217	25.8682
32	Laser	205	0.4077	26.2759
33	Aesthetics	204	0.4057	26.6817
34	Lip	196	0.3898	27.0715
35	Infection	182	0.362	27.4335
36	Age	179	0.356	27.7895
37	Physician	177	0.352	28.1415
38	Fibroblast	170	0.3381	28.4797
39	Laser therapy	169	0.3361	28.8158
40	Orbit	164	0.3262	29.142
41	Tumor	161	0.3202	29.4622
42	Eyelid/surgery	156	0.3103	29.7725
43	Ear	156	0.3103	30.0827
44	Case report	154	0.3063	30.389
45	Nipple	153	0.3043	30.6933
46	Retrospective study	151	0.3003	30.9937
47	Neck	151	0.3003	31.294
48	Dermis	145	0.2884	31.5824
49	Livability	144	0.2864	31.8688
50	Bicuspid	140	0.2785	32.1473
51	Anadesma	140	0.2785	32.4257
52	Randomized controlled trial	138	0.2745	32.7002
.....				
94	Eyebrow	93	0.185	42.2272

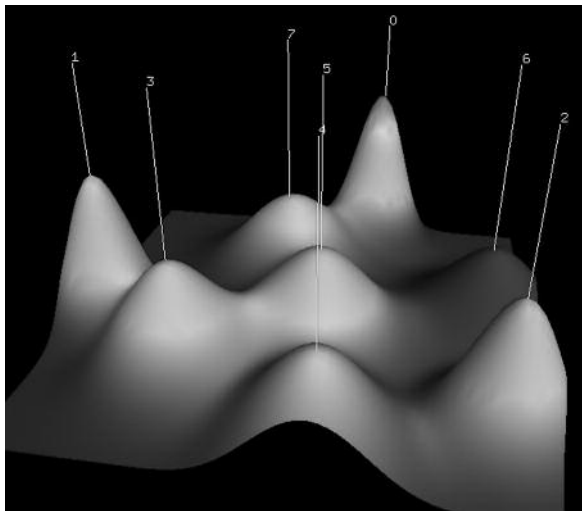


Figure 5. Co-occur clustering hill diagram of the top 52 high-frequency subjects (Chinese).

Features of High Yield Authors at Home and Abroad

The results of first “author - keywords” matrix double clustering analysis were shown in

Figure 7. There were six clusters. Subject words which described and discriminated authors were the same. We found “Reconstructive Surgical Procedures”, “Reconstructive Surgical Procedures/methods”, “Surgical Flaps”, “Surgical Flaps/blood supply”, “Mammoplasty”, “Mammoplasty/methods” and “surgery, plastic” were the topic experts concerned. The results of secondary “author - keywords” matrix clustering analysis were shown in Figure 8, and there were ten clusters. High descriptive and high discriminating subject words were chosen to represent the features of high yield authors (see Table XVI).

Results of first “author - keywords” matrix double clustering thermograph on domestic database were shown in Figure 9. There were 5 clusters and we found “post-operative period”, “face”, “Surgical skin flap”, “skin”, “tooth”, “jaw”, “Surgery, plastic” draw much attention of scholars. Results of secondary “author - keywords” matrix cluster analysis were shown in Figure 10. There were 6 clusters and we found features of the authors, see Table XVII.

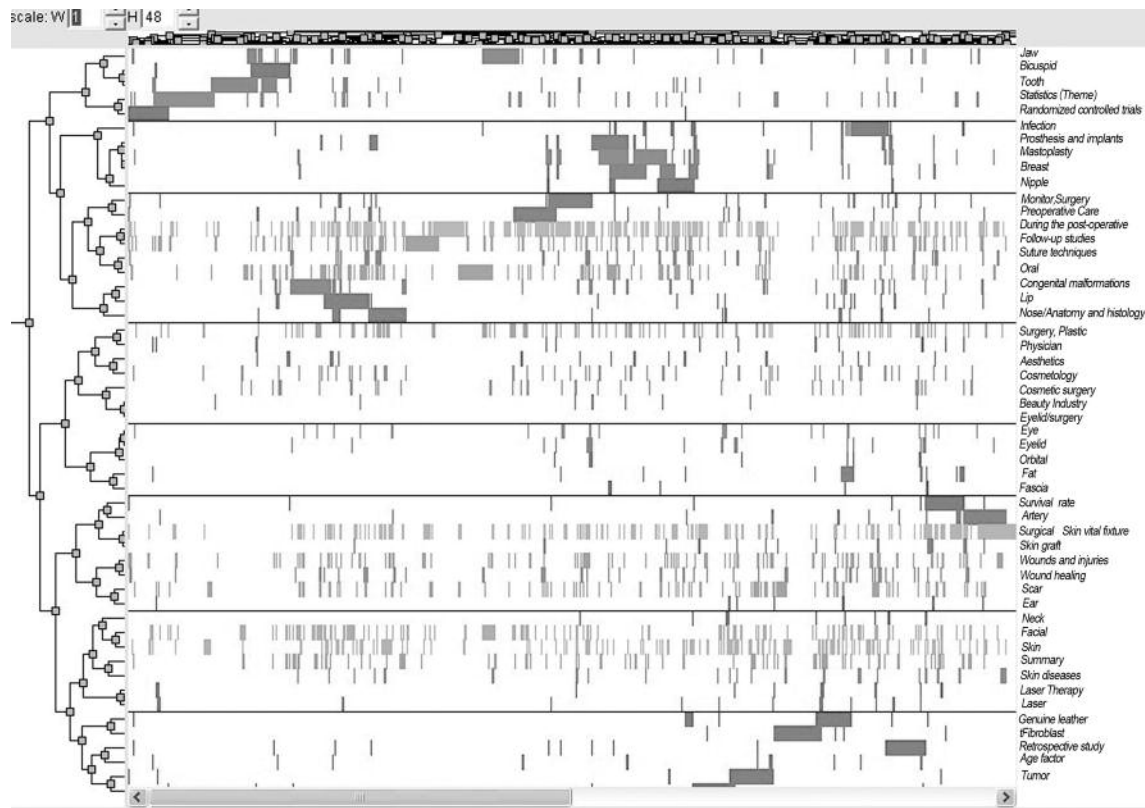


Figure 6. Co-occur clustering thermograph of the top 52 high-frequency subjects (Chinese).

Table XIII. Comparison of domestic and abroad research hot spots.

	Abroad	Domestic
Similarities	Side-effects of augmentation mammoplasty and its therapy	Side-effects of augmentation mammoplasty and first stage breast reconstruction
	Breast transplantation and reconstruction after adenomammectomy due to breast carcinoma	
	Methodology of blepharoplasty	Methodology of eyelid bag prosthesis, eyelid bag plasty and heavy eyelid plasty
	Application of cartilage transplantation and /or cartilage suture in nose plastic surgery, and plastic surgery in cheilopalatognathus and nasal deformity	Application of Cartilage transplantation and /or Cartilage suture in nose plastic surgery, and plastic surgery in cheilopalatognathus and nasal deformity
	Construction and acquisition of surgical flaps and its application in reconstruction	Construction, acquisition and application of surgical flaps and the application of dermis tissue engineering materials
	Facial plastic cosmetology	Laser therapy in skin pigment diseases
Differences	Surgery treatment on burns, hand trauma and surgical cut damage	Education on aesthetic medical
	Reparation and reconstruction after resection of head and neck neoplasm	Methodology of orthodontics in anteriorteeth-retraction
	Methodology of liposuction in belly wall	

High Yield Institutions at Home and Abroad and their Research Features

Analysis of High Yield Institutions

We retrieved data in SCI and 1450 institutions abroad were listed. Table XVIII shows institutions of high yield authors whose published papers were more than 80.

There were 2111 domestic “institutions” of high authors and Table XIX shows the top 25.

Feature Analysis of High Yield Domestic Institutions

Results of first “institution-keywords” matrix double clustering on domestic database were shown in Figure 11. There were 5 clusters and we found “post-operative period”, “tooth”, “face”, “Surgical skin flap”, “Surgery, plastic”, “skin” draw much attention. Results of secondary “institution-keywords” matrix cluster analysis were shown in Figure 12. There were 6 clusters and we found features of the institutions (see Table XX).

Discussion

By a bibliometric analysis, we investigated advances, hotspots, experts and their institutions in plastic and cosmetic surgery in recent five years at home and abroad in this paper, which would provide some research directions for professionals of plastic and cosmetic surgery.

Similar Research Hotspots in Home and Abroad

(1) Side-Effects of Augmentation Mammoplasty and its Therapy

In order to solve breast flat, sagging, atrophy, and missing, women are likely to choose plastic breast augmentation or natural breast enhancement, which become clinic research hotspots in plastic and cosmetic surgery. However, plenty of side-effects after augmentation mammoplasty appear and the incidence increase along with time, including local hematoma, infection, followed by handle change, asymmetric or shift of breast implants, even capsular contracture

Table XIV. High yield authors (abroad).

No.	Author	Published Papers	Percentage (%)	Cumulative Percentage (%)
1	Rohrich RJ	132	0.3594	0.3594
2	Chung KC	73	0.1988	0.5582
3	Rozen WM	70	0.1906	0.7488
4	Vogt PM	68	0.1852	0.934
5	Ogawa R	60	0.1634	1.0973
6	Hyakusoku H	58	0.1579	1.2553
7	Ashton MW	52	0.1416	1.3969
8	Saint-Cyr M	51	0.1389	1.5357
9	Whitaker IS	46	0.1253	1.661
10	Knobloch K	45	0.1225	1.7835
11	Terzis JK	45	0.1225	1.9061
12	Lin CH	44	0.1198	2.0259
13	Longaker MT	44	0.1198	2.1457
14	Freshwater MF	43	0.1171	2.2628
15	Koshima I	41	0.1116	2.3744
16	Ferreira LM	40	0.1089	2.4833
17	Lee BT	40	0.1089	2.5922
18	Wei FC	40	0.1089	2.7012
19	Scuderi N	39	0.1062	2.8074
20	Rubin JP	39	0.1062	2.9135
21	Cordeiro PG	38	0.1035	3.017
22	Pusic AL	37	0.1007	3.1178
23	Chen HC	36	0.098	3.2158
24	Bradley JP	35	0.0953	3.3111
25	Agostini T	34	0.0926	3.4037
26	Nahabedian MY	34	0.0926	3.4963
27	Sterodimas A	34	0.0926	3.5888
28	Evans GR	33	0.0899	3.6787
29	Mehrara BJ	33	0.0899	3.7686
30	Cervelli V	32	0.0871	3.8557
31	Hatef DA	32	0.0871	3.9428
32	Erdmann D	31	0.0844	4.0272
33	Disa JJ	31	0.0844	4.1116
34	Andrades P	31	0.0844	4.1961
35	Lineaweaver WC	31	0.0844	4.2805
36	Lazzeri D	31	0.0844	4.3649
37	Warren SM	31	0.0844	4.4493
38	Rodriguez ED	31	0.0844	4.5337
39	Gosain AK	30	0.0817	4.6154
40	Ferreira MC	30	0.0817	4.6971
41	Levin LS	30	0.0817	4.7788
42	Wong C	30	0.0817	4.8604
43	Siemionow M	30	0.0817	4.9421
44	Taylor GI	30	0.0817	5.0238
.....				
130	Zins JE	19	0.0517	10.4044

around the implants¹⁵. Moreover, surgical incision of augmentation mammoplasty in mammary areola or under breast probably affects breastfeeding. Study indicated that the success rate of breastfeeding in women received augmentation mammoplasty was lower than that in

the normal women¹⁶, and different measures should be taken according to different situations. Li et al¹⁷ injected polyacrylamide hydrophilic gel to manage complication after augmentation mammoplasty to study its practicability and therapeutic effect.

Table XV. High yield authors (domestic).

No.	Author	Published Papers	Percentage (%)	Cumulative Percentage (%)
1	Shuzhong Guo	98	0.1594	0.1594
2	Lai Gui	81	0.1388	0.3312
3	Yi Liu	65	0.1306	0.3588
4	Qin Li	64	0.1252	0.3934
5	Dalie Liu	62	0.1234	0.3973
6	Qun Qiao	60	0.1179	0.4553
7	Jingheng Gao	58	0.1116	0.4624
8	Hongxing Zhuang	58	0.1089	0.4753
9	Biao Cheng	55	0.1053	0.6661
10	Shirong Li	53	0.1025	0.7325
11	Xin Xing	53	0.1025	0.8054
12	Qiang Li	52	0.0998	1.0259
13	Yangqun Li	51	0.0998	1.1456
14	Zhijun Wang	48	0.0986	1.2234
15	Chen Zhang	47	0.0947	1.3324
16	Senkai Li	47	0.0912	1.4543
17	Hua Jiang	43	0.0889	1.5123
18	Hui Xia	43	0.0889	1.7012
19	Jiaqi Wang	43	0.0862	1.8234
20	Haiyue Jiang	42	0.0862	1.9976
21	Wenlin Yu	42	0.0835	2.0670
22	Kaihua Lu	41	0.0807	2.1134
23	Wei Liu	40	0.0807	2.2689
24	Hui Chen	40	0.0753	2.3735
25	Zhiyong Zhang	39	0.0726	2.4258
26	Yan Han	38	0.0726	2.4945
27	Zechun Huang	37	0.0726	2.5367
28	Jianhua Gao	36	0.0699	2.6637
29	Jiaming Sun	36	0.0699	2.7924
30	Jie Luan	36	0.0671	2.8691
31	Chunming Liu	35	0.0671	2.9134
32	Bo Pan	34	0.0644	3.0562
33	Yilin Cao	34	0.0644	3.1682
34	Li Teng	34	0.0644	3.1987
35	Lin Liu	33	0.0644	3.2567
36	Chuande Zhou	33	0.0644	3.3876
37	Jilong Yuan	32	0.0644	3.4234
38	Feng Niu	31	0.0644	3.5458
39	Yong Tang	31	0.0617	3.6987
.....	.....	.....	0.0617	3.7967

(2) Methodology of Eyelid Plastic Surgery

Eyelid plastic included forming and repairation eyelid bag and double-eyelid.

Problem in forming and repairation eyelid bag aroused wide concern included the path (conjunctiva, skin), the tool (cold steel, laser, and radio frequency) and position (under eyelids margin 0.5 mm/1~2 mm/2~3 mm/5~8 mm) of incision and postoperative complications (eyelid bag contraction, eyelid ectropion and sinking, pseudo outer canthus angle prolapsed)¹⁴⁻²¹.

Double-eyelid plasty contained incision method and buried suture method. The former is widely applied, but causes heavy wound, slow recovery and scarring; while the latter has the following superiorities: little trauma, simple operation, satisfactory recovery and no or mild scar, but limited range of application. Many specialists devote to improve and optimize double-eyelid plasty. For instance, Zhu¹⁸ applied optimized buried suture method to do double-eyelid plasty; Liu¹⁹ combined incision method and buried suture method.

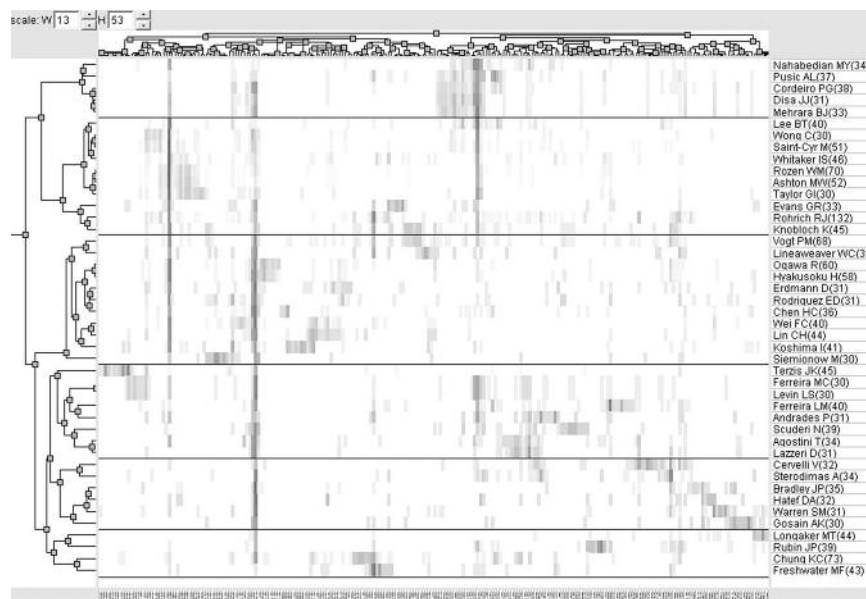


Figure 7. First “author-keywords” matrix clustering thermograph (English).

(3) Application of Cartilage Transplantation And/Or Cartilage Suture in Nose Plastic Surgery, and Plastic Surgery in Cheilopalatognathus and Nasal Deformity

Compared to high and straight nose, nasal hypertrophy is lack of aesthetics. In plastic and cosmetic surgery, researchers used cartilage

transplantation and/or cartilage suture in nose shaping. For instance, a new cartilage transplantation method called X transplantation was raised by Jung DH²⁰ used in rhinoplasty. Kim WS²¹ did premaxillary augmentation using autologous costal cartilage as an adjunct to rhinoplasty.

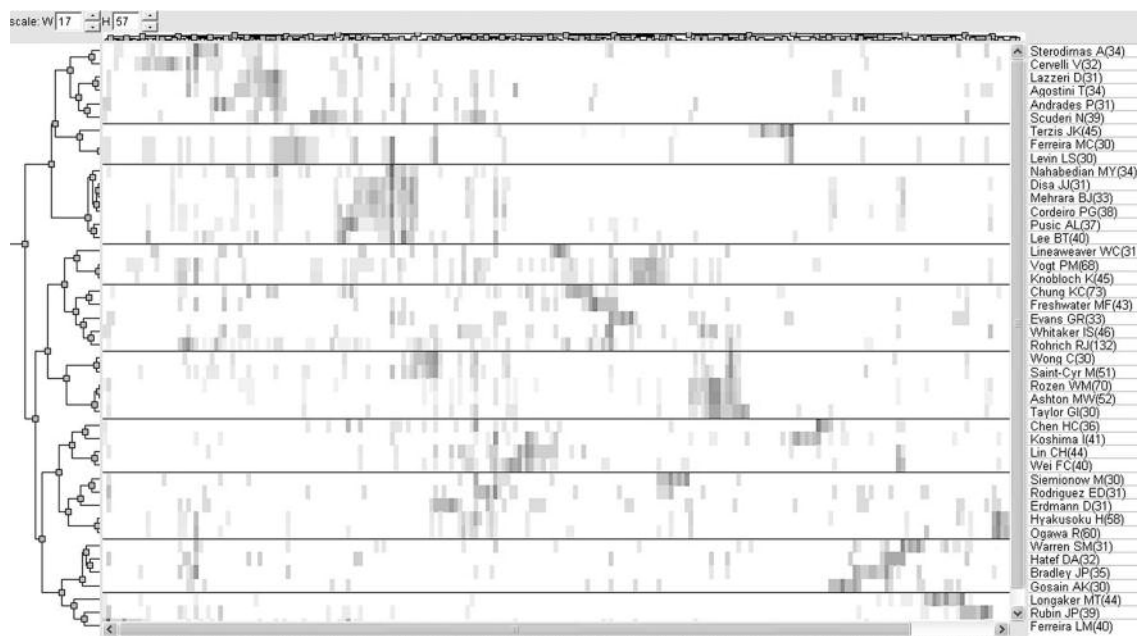


Figure 8. Secondary “author-keywords” matrix clustering thermograph (English).

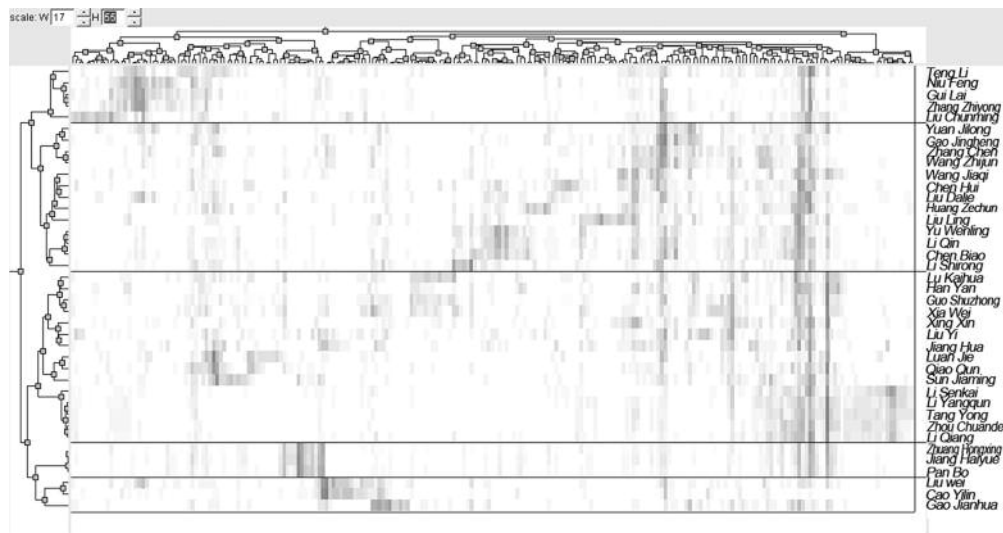


Figure 9. First “author-keyword” matrix clustering thermograph (Chinese).

Many scholars and experts have actively studied effective plastic surgery method to cure cheilopalatognathus and nasal deformity caused by congenital or acquired factors. For example, Cutting CB²² applied primary bilateral cleft nasal repair, in order to get better aesthetic effect. Lewis MB²³ corrected unilateral cleft lip nasal deformity with a composite cartilage-vestibular lining flap. Kawamoto HK²⁴ conducted diced cartilage grafts for correction of cleft nasal tip deformities.

(4) Construction, Acquisition and Application of Surgical Flaps

Surgical flaps played an important part in prosthesis on tissue, organ and skin defect caused by congenital or acquired factors. But the construction and acquisition of surgical flaps is always the research focus. Wang CH²⁵ reconstructed trochanteric pressure sores with pedicled anterolateral thigh myocutaneous flaps. Vyas RM²⁶ used bilobed gracilis myocutaneous flap in perineal and genital reconstruction.

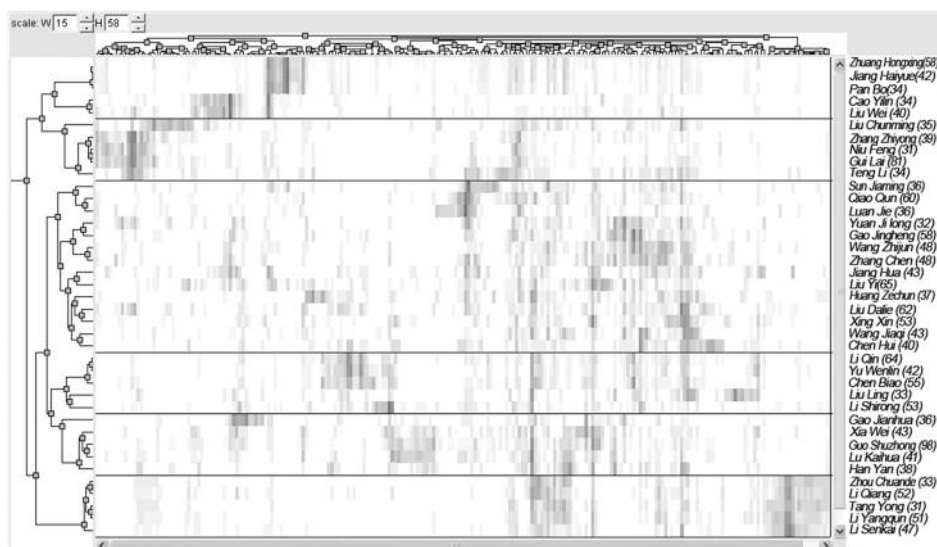


Figure 10. Secondary “author-keyword” matrix clustering thermograph (Chinese).

Table XVI. Research features of high yield authors abroad.

No.	Group of authors	Research features
0	Nahabedian MY, Disa JJ, Mehrara BJ, Cordeiro PG, Pusic AL, Lee BT	breast neoplasms/surgery Mammoplasty/adverse effects mastectomy Microsurgery/methods Adipose tissue/transplantation
1	Terzis JK, Ferreira MC, Levin LS	Facial paralysis/surgery breast neoplasms/surgery Muscle, skeletal/transplantation Facial paralysis/physiopathology Adipose tissue/transplantation Skin transplantation/methods
2	Wong C, Saint-Cyr M, Rozen WM, Ashton MW, Taylor GI	Angiography/methods Tomography, X-ray computed Abdominal wall/blood supply Epigastric arteries/radiography
3	Lineaweaver WC, Vogt PM, Knobloch K	Thrombocytopenia/chemically induced Heparin/adverse effects Adipose tissue/transplantation Magnetic resonance imaging Breast neoplasms/surgery Anticoagulants/adverse effects
4	Chen HC, Koshima I, Lin CH, Wei FC	Finger injuries/surgery Lymphedema/surgery Microsurgery/methods Amputation, traumatic/surgery Breast neoplasms/surgery
5	Warren SM, Hatef DA, Bradley JP, Gosain AK	Cleft lip/surgery Cleft palate/surgery Mandible/surgery Adipose tissue/transplantation Breast neoplasms/surgery
6	Longaker MT, Rubin JP, Ferreira LM	Abdominal wall/surgery Adipose tissue/cytology Weight loss Osteogenesis/physiology Breast neoplasms/surgery
7	Siemionow M, Rodriguez ED, Erdmann D, Hyakusoku H, Ogawa R	Contracture/surgery Skin transplantation/methods Cicatrix/surgery Microsurgery/methods Breast neoplasms/surgery Facial injuries/surgery
8	Sterodimas A, Cervelli V, Lazzeri D, Agostini T, Andrades P, Scuderi N	Breast implants/adverse effects Adipose tissue/transplantation Rhytidoplasty/methods Rhinoplasty/methods Microsurgery/methods Lipectomy/methods
9	Chung KC, Freshwater MF, Evans GR, Whitaker IS, Rohrich RJ	Surgery, plastic/education Surgery, plastic/standards Surgery, plastic/history Clinical competence

Table XVII. Research features of high yield domestic authors.

No.	Group of authors	Research features
0	Chuande Zhou, Qiang Li, Yong Tang, Yangqun Li, Senkai Li	Hypospadias Urethra Penis Scar Mammoplasty
1	Chunming Liu, Zhiyong Zhang, Feng Niu, Lai Gui, Li Teng	Amputation Mandible Osteotomy Mentum Scar
2	Hongxing Zhuang, Haiyue Jiang, Bo Pan, Yilin Cao, Wei Liu	Cartilage Ear/deformity External ear/surgery Tissue engineering Wound and injury
3	Qin Li, Wenlin Yu, Biao Cheng, Lin Liu, Shirong Li	Scar Laser Fibroblasts Laser therapy Pigment
4	Jianhua Gao, Wei Xia, Shuzhong Guo, Kaihua Lu, Yan Han	Scar Wound and injury Dyeing and mark Tissue expansion Mammoplasty
5	Jiaming Sun, Qun Qiao, Jie Luan, Jilong Yuan, Jingheng Gao, Zhijun Wang, Chen Zhang, Hua Jiang, Yi Liu, Zechun Huang, Dalie Liu, Xin Xing, Jiaqi Wang, Hui Chen	Mammoplasty Breast Wound and injury Scar Cosmetology

(5) Facial Plastic Cosmetology

Research key points on facial plastic cosmetology abroad are restoring youthful profile and facial coloboma. Yagi Y²⁷ used aquamid as a filler for facial rejuvenation in orientals. Gamboa GM²⁸ sutured suspension technique for midface and neck rejuvenation. Jones D²⁹ plumped face with soft tissue fillers.

In domestic, facial cosmetology paid close attention to laser therapy on skin pigment lesions, which including skin pigmentation and depigmentation. The former included endogenous (nevus of Ota, freckles, seborrheic keratosis, chloasma, and brown blue nevus) and exogenous (tattoo, eyebrow tattoo, and trauma). The latter included vitiligo and albino, etc. Laser have different wavelength and type, while Nd:YAG was the most to be concerned. Tan³⁰ treated skin scar in-

tegrating laser Nd:YAG and lattice CO₂ laser phase. Jin³¹ remedied facial corticosteroid-related dermatitis concomitant angioectasis with laser Nd:YAG at 1064 nm.

Differences in Research Hotspots Between Domestic and Abroad

In addition to the above focus, surgery treatment on burns, hand trauma and surgical cut damage and reparation and reconstruction after resection of head and neck neoplasm were also discussed in this paper.

(1) Surgery Treatment on Burns, Hand Trauma and Surgical Cut Damage

Cavadas PC reported a successful case that repeatedly replantation of a palm finger, which was successfully challenged by Chinese researchers

Table XVIII. Important research institutes specializing in plastic and cosmetics abroad.

No.	Institution	Published papers	Percentage (%)
1	Harvard University	231	2.332
2	Southwestern Medical Center of Texas University - Dallas center	211	2.13
3	University of California, Los Angeles	134	1.353
4	Stanford University	129	1.302
5	New York University	128	1.292
6	University of Pittsburgh	115	1.161
7	Chang-Gung University	114	1.151
8	Texas Anderson University Cancer Center, Texas University	108	1.09
9	Hospital of Georgetown University	104	1.05
10	Baylor College of Medicine	88	0.888
11	University of Melbourne	86	0.868
12	University of Michigan	86	0.868
13	Commemorative Cancer Center of Sloan - Caitlin	83	0.838
14	Health System of Michigan University	81	0.818
15	University of Pennsylvania	81	0.818

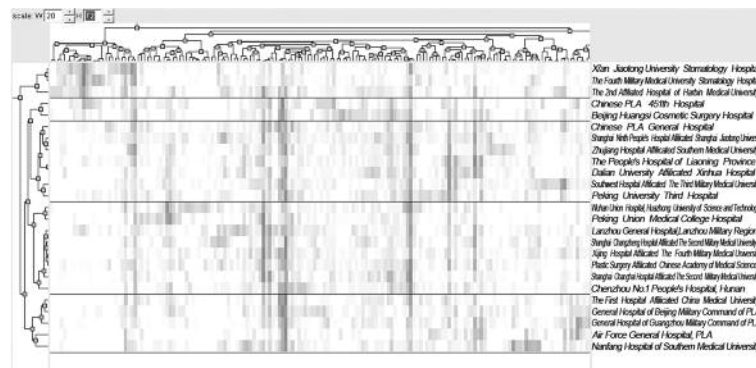


Figure 11. First “institution-keyword” matrix clustering thermograph (Chinese).

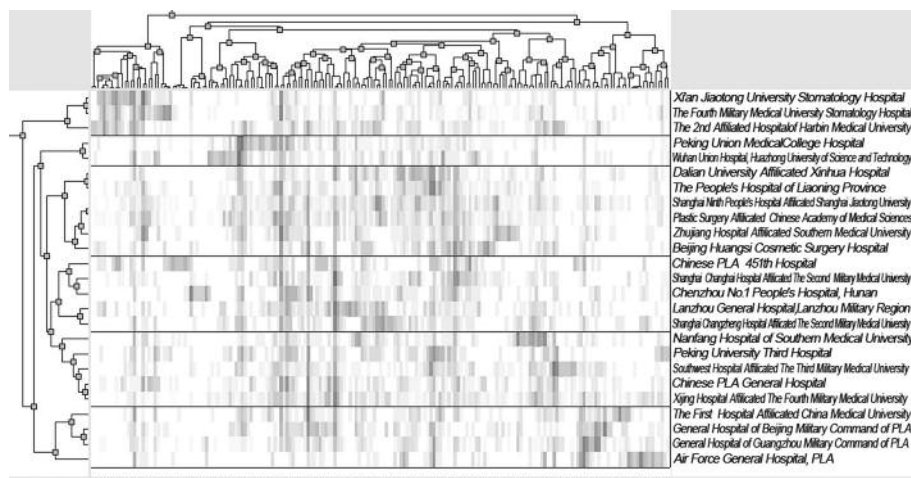


Figure 12. Secondary “institution-keyword” matrix clustering thermograph (Chinese).

Table XIX. Institutions of the top 25 high yield authors (Chinese).

No.	Institution	Published papers	Percentage (%)
1	Aesthetic Surgery Hospital of Chinese Academy of Medical Sciences	540	7.639
2	Xijing Hospital, Fourth military medical university of Chinese PLA	313	4.428
3	No.9 People'S Hospital of Shanghai Jiao Tong University	241	3.409
4	Stomatological Hospital of Fourth military medical university of Chinese PLA	209	2.957
5	Guangzhou Command Guangzhou General Hospital	133	1.881
6	People's Hospital of Liaoning	131	1.853
7	General Hospital of PLA	101	1.429
8	Xinan Hospital, Third military medical university of Chinese PLA	95	1.344
9	Lanzhou General Hospital Lanzhou Command	97	1.372
10	Stomatological Hospital of Xi'an Jiao Tong University	111	1.570
11	Changhai Hospital, Second military medical university of Chinese PLA	87	1.231
12	peking union medical college hospital	91	1.287
13	Second Hospital of Harbin Medical University	82	1.160
14	Zhujiang Hospital of Southern Medical University	70	0.990
15	Nanfang Hospital of Southern medical university	74	1.047
16	Xinhua hospital of Dalian University	97	1.372
17	First hospital of China Medical University	72	1.019
18	Beijin Huangsi Aesthetic Surgery Hospital	64	0.905
19	Changzheng Hospital, Second military medical university of Chinese PLA	66	0.934
20	Beijing Command General Hospital	62	0.877
21	Peking University Third Hospital	63	0.891
22	451th Hospital of the Chinese PLA	60	0.849
23	Union Hospital affiliated to Huazhong University of Science and Technology	57	0.806
24	Chenzhou No.1 People's Hospital	55	0.778
25	Airforce General Hospital of PLA (Beijing)	54	0.764

Note: Statistics quantity: quantity by manual standardization; Effective quantity: actually quantity after retrospective search.

first. Fumiaki S reported another case that more than one toe transplantation was successful applied in three adjacent fingers hurt by thermo-compression. Urushidate S modified belly wall to obtain gloves flaps in order to treat acute burn of figures and hands.

(2) Reparation and Reconstruction After Resection of Head and Neck Neoplasm

Head and neck neoplasm should be rooted out thoroughly, which would result in countenance damage in head and neck. Reparation and reconstruction after resection of head and neck neoplasm included primary and secondary suture, second-stage healing technique, skin transplantation, and locally, regionally or freely skin flap grafting³².

Domestic experts also pay high attention to education on aesthetic medical and methodology of orthodontics in anteriorteeth-retraction.

(1) Education on Aesthetic Medical

The hotspot in this field is the usage of textbook in aesthetic medical, the combination with other subjects and the cultivation of scientific literacy³⁷⁻³⁹.

(2) Methodology of Orthodontics in Anteriorteeth-Retraktion

Orthodontic deformity included maxillary protrusion, anterior crossbite, and others. Bai³³ discussed the difference on time and stability in the treatment of deciduous anterior crossbite. Zhang³⁴ studied root absorption on anterior crossbite orthodontics in teenagers and adults. And some other experts investigated the materials used in tooth-correction and their application^{35,36}.

However, there are still some limitations in this study. (1) Gene literature profiling we tried in this paper could reflect common characters and features in studies, but there were still disadvantages. For example, statistical analysis was done by hospital, and in comprehensive hospitals research direction is relatively wide, which generates direct adverse effects; and there was no reasonable standard threshold for screening word; (2) There was shortcoming on the subjects of selected periodicals. Plastic and cosmetic surgery is an interdisciplinary subject, and the five foreign periodicals and the four domestic periodicals we chose all included plastic surgery and aesthetic surgery, which

Table XX. Research features of the institutions of high yield domestic authors.

No.	Institutions	Feature
0	Peking Union Medical College Hospital Union Hospital affiliated to Huazhong University of Science and Technology	Mammoplasty Breast Oral cavity Prosthesis and implant Scar Cosmetology
1	Stomatological Hospital of Fourth Military Medical University of Chinese PLA Stomatological Hospital of Xi'an Jiao Tong University Second hospital of Harbin Medical University	Jaw Oral cavity Statistics (subject) Bicuspid Orthodontics Cosmetology Wound and injury Scar
2	First hospital of China Medical University Beijing Command General Hospital Guangzhou Command Guangzhou General Hospital Airforce General Hospital of PLA	Dermatologic diseases Cosmetology Skin/damage Dermatologic diseases Phototherapy Pigments Oral cavity Eye Scar Cosmetology Wound and injury Statistics (subject) Amputation Masseter Scar Wound and injury Fibroblast Wound healing Hypertrophic scar Oral cavity Gene Wound and injury Oral cavity Eye Scar Traumatism Fibroblast
3	Aesthetic Surgery Hospital of Chinese Academy of Medical Sciences No. 9 People's Hospital of Shanghai Jiao Tong University People's Hospital of Liaoning Zhujiang Hospital of Southern Medical University Xinhua Hospital of Dalian University Beijin Huangsi Aesthetic Surgery Hospital	
4	Xijing Hospital, Fourth Military Medical University of Chinese PLA General Hospital of PLA Xinan Hospital, Third Military Medical University of Chinese PLA Nanfang Hospital of Southern Medical University Peking University Third Hospital	
5	Lanzhou General Hospital Lanzhou Command Changhai Hospital, Second Military Medical University of Chinese PLA Changzheng Hospital, Second Military Medical University of Chinese PLA 451th Hospital of the Chinese PLA Chenzhou No.1 People's Hospital	

lower the specificity of this survey. In addition, all the papers published in other journals of Plastic Surgery, General Surgery, etc. using a database should be added; (2) To analyze authors' institutions and their features is greatly difficult. Firstly, it's hard to extract the institutions of foreign authors, and retrospective search could not be applied. Secondly, the name of authors' institutions was not consistent, which challenged statistics and retrospective search.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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