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LETTER TO THE EDITOR

Scientific publications in andrology journals from Chinese authors in various parts of East Asia: a 10-year survey of the literature

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Asian Journal of Andrology (2014) 16, 934–936; doi: 10.4103/1008-682X.136448; published online: 15 August 2014

Dear Editor,

Diseases of the genitourinary system were the fifth most common disease of inpatients in Chinese city hospitals in 2011 (6.0%).¹ Andrology in China has grown rapidly within the last decade, however, little is known about the scientific publications by Chinese authors in andrology. We, therefore, sought to reveal the contributions of Chinese authors in three major regions of China—the Mainland (ML), Taiwan (TW), and Hong Kong (HK)—to the research in the fields of andrology.

We examined a total of eight journals related to andrology that were selected from Science Citation Index Expanded (SCIE) and other resources. Among the five journals from the “andrology systems” category of SCIE subjects by the Institute for Scientific Information (ISI), four containing “*Asian Journal of Andrology* (AJA), *Andrologia*, *Systems Biology in Reproductive Medicine*, and *Andrology*” were included while “*Revista Internacional de Andrología*” was excluded from this study because of its non-English language.² In that “*Archives of Andrology*” was renamed “*Systems Biology in Reproductive Medicine*” in 2008 and “*International Journal of Andrology*” was merged with “*Journal of Andrology*” to form “*Andrology*” in 2013,³ the three magazines were also included in our study. Besides, “*International Journal of Impotence Research*” was added for counting after manual searching and expert consultation. We conducted a literature search in the PubMed database on February 9, 2014 to seek articles published in the eight journals from ML, TW, and HK during January 2004 and December 2013.⁴ The International Standard Serial Number (print) of the journals and the first author’s affiliations containing TW (ad), HK (ad), and China (ad) NOT TW (ad) NOT HK (ad) were applied to perform this search. The number of reviews, basic research, observational studies, clinical trials, and case reports were compiled. Centers submitting articles were identified by using the first author’s institutional affiliations. The publication quality was compared by three methods. First, the accumulated and average impact factors (IFs) were generated using the Journal Citation Reports (JCR) by ISI.⁵ Second, the

citations status of these articles were reported. Third, articles published in the leading general medical journals (*The New England Journal of Medicine* [NEJM], *Journal of the American Medical Association* [JAMA], *The Lancet* and *British Medical Journal* [BMJ]) were identified. Articles related to andrology were first screened by two reviewers (WZ and TYW) independently and subsequently a consensus was reached by viewing the titles, abstracts, and full text if there was disagreement between the reviewers. Changes of article numbers from the three regions were determined using the rank correlation with Spearman test. And the Pearson’s chi-squared test and Kruskal–Wallis test were applied to detect a difference among the three regions.

In all, 5268 articles were published worldwide in the selected journals from 2004 to 2013, 725 (13.8%) of which came from ML (588/725, 81.1%), TW (114/725, 15.7%), and HK (23/725, 3.2%). The annual number of published articles in the fields of andrology from ML increased significantly from 2004 to 2013 while that from TW and HK did not show significant change but presented a downward tendency (ML: $r = 0.927$, $P < 0.001$; TW: $r = -0.460$, $P = 0.181$; HK: $r = -0.176$, $P = 0.627$) (Figure 1a). ML’s publications in 2004 were 35, accounting for a little more than 66.0% of the three regions. By 2013, the publications from ML rose to 100, increasing almost three-fold in 10 years and accounting for 90.9% of the three regions, indicating that the ML had strengthened its scientific capacity in andrology. Furthermore, we found that 56.8% (334/588) of articles from ML were contained in AJA, a journal founded and sponsored by Chinese institution, which was far more than TW (15/114, 13.2%) and HK (4/23, 17.4%). After the exclusion of articles published in AJA, the publications from ML increased in a much minor magnitude while those from TW and HK were not affected significantly (ML: $r = 0.896$, $P < 0.001$; TW: $r = -0.277$, $P = 0.439$; HK: $r = -0.251$, $P = 0.484$) (Figure 1b). A study from Yang *et al.*⁶ showed that 71.7% of contributors in AJA were from Asia and concluded that the regional distribution of authors in one journal varied with its sponsor and location. AJA has experienced strong and steady growth recently in its IF and received increasing recognition by the andrology community, which is a significant achievement of the journals managed by Chinese institutions. To some extent, it indicates the fact that andrology in ML has developed rapidly in the past decade.⁷

The distribution of article categories in the three regions had significant variation (Figure 1c). Researchers from ML published

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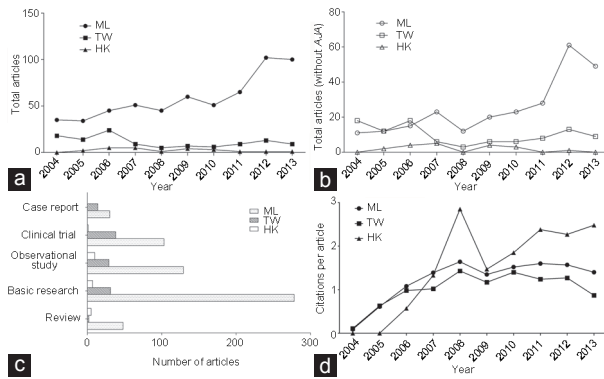


Figure 1: (a) Trends in the number of articles from Mainland (ML), Taiwan (TW) and Hong Kong (HK) between 2004 and 2013. The annual number of published articles from ML increased significantly while that from TW and HK did not show significant change but presented a downward tendency. (b) Trends in the number of all the articles excluding those in *Asian Journal of Andrology (AJA)* from ML, TW and HK between 2004 and 2013. The publications from ML increased in a much minor magnitude while those from TW and HK were not affected significantly after excluding articles in *AJA*. (c) The number of articles in each category from ML, TW and HK between 2004 and 2013. The distribution of article categories in the three regions had significant variation. (d) The number of citations per article from ML, TW and HK between 2004 and 2013. HK had the highest citation frequency, followed by ML and TW.

278 articles on basic research, which accounted for 47.3% of the total articles there. However, researchers from TW published more clinical trials than any other categories while the most common category in HK was an observational study. There were several reasons for this difference. First, high-quality clinical research requires long-term follow-up and large case numbers, but the immature standardized treatment and follow-up mechanism of patients in ML make it difficult to achieve. Second, many urologists and andrologists in ML are too busy to carry out clinical research and prepare English manuscripts. However, much laboratory research can be completed by graduate students who are free of clinical workload. Third, ML fails to forge strong links between research institutions funded by governments and private sectors, which are admittedly weak in most developing countries.⁸ This severely restricts the transformation of basic research to clinical application. The past decade has witnessed a dramatic growing capability of ML to conduct scientific research, especially basic research. The primary challenge facing the scientific community in ML is how to use original knowledge and apply innovative technology to improve public health, and promote translational medicine. Interestingly, the total number of published randomized controlled trials (RCTs) in three regions (ML: 12, TW: 2, HK: 1) were all very small, and there was no difference among the three regions ($P = 0.074$) in the proportion of all the article categories. RCTs represent the gold standard in evaluating the effectiveness of novel interventions, hence establishing such a program is welcomed.⁹ It's worth noting that recently RCTs have received more attention and proceeded at a rapid pace, especially in ML. Like many other developing countries, China has experienced dramatic demographic and epidemiological transitions. Hong *et al.*¹⁰ have observed that the prevalence of erectile dysfunction in China is as high as that in Western countries. And prostate cancer has become to be the top urological cancer in large cities.¹¹ Hence, more researchers should be encouraged to active participate in multicenter prospective studies and RCTs that focus on the prevention and treatment of these andrology diseases.

The articles included in this study were selected from high-quality medical journals by the computer-generated PubMed search system. We also analyzed data from the JCR, a comprehensive citation index database of scientific articles. Whether from ML, TW or HK, the great majority of articles were submitted by medical universities and their affiliated hospitals, which indicates that clinical and basic medical research can perfectly complement each other. A total of 136 centers in ML published their articles in the selected journals from 2004 to 2013. Except for West China Hospital, nine of the top ten centers were located in more developed regions in eastern China, reflecting the unbalanced regional development of medical research in ML. Among the 30 centers submitting articles in TW, the top three were all hospitals, and two of them were affiliated to Chang Gung University and Taipei Medical University which also ranked 8th and 5th, respectively. All the articles from HK were submitted by six centers, and the Chinese University of HK and the University of HK contributed the majority (**Table 1**). The average number of articles per center was 4.3, 3.8 and 3.8 from ML, TW and HK respectively ($P = 0.059$).

Although IFs are not an optimal measure of the quality of scientific articles, they are still widely applied as a tool for the comparative evaluation of publications.¹² ML's accumulated IF was much higher than TW and HK because of its significant larger number of articles. Nevertheless, articles from HK had the highest average IF (2.2), followed by those from TW (1.9) and ML (1.9, $P = 0.411$) (**Table 2**). Furthermore, a small percentage of articles in one journal accounts for a large percentage of what is cited. Therefore, besides IFs, we made a comparison of the citation status of these articles from the three regions for better comparison. Counting the average citation frequency per article (**Figure 1d**), we came to the result that HK had the highest citation frequency of 6.7 while ML and TW enjoyed 5.8 and 5.5 respectively ($P = 0.198$). In conclusion, articles from HK and TW shared better quality than those from ML, although these differences were not significant. A major reason for the disparity among regions is the contradiction between the limited medical resources and a large population in ML, leaving few resources available for scientific research and restricting its advancement.¹³ Another factor most likely leading to our results is the inappropriate attitudes and means of publishing articles listed in the SCIE in ML, which pursue quantity over quality.¹⁴

Only seven articles in the andrology field written by Chinese researchers (ML: 4, TW: 2, and HK: 1) were published in the four leading general medical journals: *NEJM*, *JAMA*, *The Lancet*, and *BMJ*. ML produced the most articles (one in *NEJM*, and three in *The Lancet*), followed by TW (one in *JAMA*, and one in *The Lancet*), whereas HK published only one article in *BMJ*. Most of the articles were case reports, and each region had one article focusing on AIDS published.

Our publication retrieval range and data analysis capability may address some inherent limitations of the results in the study. The journals in our study were mostly selected from the andrology category of the SCIE, but some relevant journals such as *The Journal of Urology*, *Fertility and Sterility*, *The Journal of Sexual Medicine* etc., just partly involve the content of andrology, while they were not included in this index. However, it is almost impossible to search all articles in andrology from every medical journal.

In conclusion, the number of articles published in the field of andrology by ML researchers increased significantly from 2004 to 2013 while that from TW and HK did not show significant change but presented a downward tendency. The quality gap of articles among ML, TW and HK exists, particularly when assessed by the citation report of these articles, although the gap appears to be minor. For the article category, more multicenter prospective studies and RCTs that

Table 1: Centres submitting articles from ML, TW and HK between 2004 and 2013

Rank	Centres (number of articles)		
	ML	TW	HK
1	Nanjing Medical University (29)	Tri-Service General Hospital (16)	The Chinese University of Hong Kong (10)
2	First Affiliated Hospital of Nanjing Medical University (24)	Chang Gung Memorial Hospital (14)	The University of Hong Kong (9)
3	Tongji Medical College (24)	Taiwan Adventist Hospital (13)	The Hong Kong Polytechnic University (1)
4	West China Hospital (23)	National Cheng Kung University (7)	The Family Planning Association of Hong Kong (1)
5	First Affiliated Hospital of Beijing University (20)	Taipei Medical University (6)	Kwong Wah Hospital (1)
6	Shanghai Renji Hospital (19)	National Taiwan University (6)	Prince of Wales Hospital (1)
7	Nanjing Jinling Hospital (19)	Shin Kong WHS Memorial Hospital (6)	
8	Shanghai Jiaotong University (16)	Chang Gung University (5)	
9	Shandong University (14)	National Yang-Ming University (5)	
10	First Affiliated Hospital of Sun Yat-sen University (13)	Kaohsiung Veterans General Hospital (4)	

ML: Mainland; TW: Taiwan; HK: Hong Kong

Table 2: Average IF of articles by researchers from ML, TW and HK between 2004 and 2013

Years	Average IF		
	ML	TW	HK
2004	1.2	1.3	0
2005	1.3	1.4	1.8
2006	1.6	1.6	2.2
2007	1.6	1.7	1.8
2008	2.2	2	2.1
2009	1.7	2.6	2.3
2010	2	3	3.2
2011	1.9	2.7	1.5
2012	2.2	2.6	1.8
2013	2.1	2.3	2.1
Total	1.9	1.9	2.2

ML: Mainland; TW: Taiwan; HK: Hong Kong; IF: impact factor

focus on the prevention and treatment of andrology diseases should be conducted in all the three regions of China.

AUTHOR CONTRIBUTIONS

WZ formed the initial idea of this study, carried out the search for articles and drafted the manuscript. TYW participated in the article screening, performed the statistical analysis and helped to draft the manuscript. CLX and CLJ conceived the study and participated in its design and coordination. YHS and TZ were responsible for the initial idea and design of this study together with WZ, and provided many proposals for the manuscript. All authors read and approved the final manuscript.

COMPETING INTERESTS

The authors declare that they have no competing interests.

ACKNOWLEDGMENTS

We thank Dr. Qi Chen (Department of Health Statistics, Faculty of Health Service, Second Military Medical University, Shanghai, China) for his assistance

with the statistical analysis of data. This work was funded by the 1255 Fund of Changhai Hospital, Second Military Medical University, Shanghai, China. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

REFERENCES

- 1 Ministry of Health of the People's Republic of China. Percentage of 10 Main Diseases of Inpatients in City Hospitals of Health Sector. China Health Statistics 2012 Yearbook. Available from: <http://www.nhfpc.gov.cn/htmlfiles/zwgkzt/ptjnj/year2012/index2012.html>. [Last cited on 2014 Feb 09].
- 2 The Thomson Corporation. Journal Search: Science Citation Index Expanded Subject Categories. Available from: <http://www.science.thomsonreuters.com/cgi-bin/jrnlst/jresults.cgi?PC=D and SC=AZ>. [Last cited on 2014 Feb 09].
- 3 Al Aboud A, Al Aboud K, Hakim M. Periodicals in andrology: an overview. *Asian J Androl* 2014; 16: 654-5.
- 4 PubMed. Available from: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=PubMed>. [Last cited on 2014 Feb 09].
- 5 Institute for Scientific Information. ISI Journal Citation Reports, 2004-2012. Available from: <http://www.isiknowledge.com/>. [Last cited on 2014 Feb 09].
- 6 Yang H, Pan BC, Chen J. Citation analysis of five journals in andrology. *Arch Androl* 2006; 52: 433-40.
- 7 Cooper TG. The *Asian Journal of Andrology*: view of an outsider coming in. *Asian J Androl* 2014; 16: 565-6.
- 8 Hassan MH. Building capacity in the life sciences in the developing world. *Cell* 2007; 131: 433-6.
- 9 Khajuria A, Agha RA. Surgical clinical trials – need for quantity and quality. *Lancet* 2013; 382: 1876.
- 10 Hong K, Xu QQ, Zhao YP, Gu YQ, Jiang H, et al. Andrology in China: current status and 10 years' progress. *Asian J Androl* 2011; 13: 512-8.
- 11 Baade PD, Youlden DR, Cramb SM, Dunn J, Gardiner RA. Epidemiology of prostate cancer in the Asia-Pacific region. *Prostate Int* 2013; 1: 47-58.
- 12 Oh HC, Lim JF. Is the journal impact factor a valid indicator of scientific value? *Singapore Med J* 2009; 50: 749-51.
- 13 Chen Z. Launch of the health-care reform plan in China. *Lancet* 2009; 373: 1322-4.
- 14 Wu L, Wang Y, Peng X, Song M, Guo X, et al. Development of a medical academic degree system in China. *Med Educ Online* 2014; 19: 23141.

How to cite this article: Zhang W, Wu TY, Xu CL, Jiang CL, Zhou T, Sun YH. Scientific publications in andrology journals from Chinese authors in various parts of East Asia: a 10-year survey of the literature. *Asian J Androl* 15 August 2014. doi: 10.4103/1008-682X.136448. [Epub ahead of print]

