



Research on the Relationship between the Influence of Academic Journals and the Influence of Wechat Official Accounts from the Perspective of Communication Studies

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Abstract. [Purposes] Investigate and research the social media operation of core medical journals in colleges and universities, and their correlation with academic evaluation indicators. Explore how to improve the operational ability of social media in core medical journals to improve their academic communication. And find out the specific ways to promote the improvement of academic evaluation indicators. **[Methods]** Based on the content access and data collection and calculation of social media of core medical journals in colleges and universities, carried out the correlation theory test with the evaluation index data of the corresponding core journals and applied the communication theory to analyze the "micro-publishing", "micro-column", "micro-comment" and "micro-reading" of social media, we finally have researched the theoretical relationship between the academic communication ability of social media and the variables of academic evaluation indicators of core journals in colleges and universities. **[Findings]** The influence index of core medical journals in colleges and universities has the strongest correlation with the WeChat communication index. The correlation between the total citation frequency of journal compound and the total reading number is the strongest. The compound impact factor of the journal is related to the WeChat communication index, the total number of articles reads and the total number of views. The total number of downloads of journals is related to the total number of readings. There is no significant correlation between the average number of views and the journal evaluation index. Social media communication indicators have no significant impact on the journal compound annual indicators. **[Conclusions]** By obtaining feedback information from readers and authors from social media, the journal can adjust topic selection information in a timely manner, and can interact with authors and readers, so as to strengthen the multimedia linkage, expand the high-quality resources, and form the ability to improve the relationship between academic journals and readers, which is not only conducive to the improvement of the brand communication influence, but also adds new growth points to the evaluation indicators of the academic journal.

Keywords: Technical periodicals; Social media; Academic evaluation indicator; WeChat official account; Communication theory.

1 Introduction

With the advent of the era of Intelligent Media 3.0, social media is playing an increasingly important role in the public life, and the communication modes of immediacy, on-site experience, and selectivity are favored by readers. There have been many studies on the WeChat official accounts of medical academic journals. For example, Liang Mingxiu et al.^[1] conducted a study on the operation of the WeChat official accounts of Chinese Medical Association serial journals and found that the total number of tweets, total number of reads, total number of pushes, average number of reads per article, total number of "likes" in the article, and total number of comments of each medical journal's official account showed an increasing trend year by year. Liu Yang et al.^[2] took "Journal of Peking Union Medical College Hospital" as an example, based on the investigation of the users and their behaviors of the WeChat official account, improved the user portrait, and conducted research on improving the operation quality of the platform and facilitating the content dissemination of medical journals. Zhou Huaqing et al.^[3] studied the operation mode of academic short-video of international top scientific and technological journals, which provided a reference for the operation of WeChat official accounts of scientific and technological journals. In summary, most of the related topics published are research on the operation strategies of the official accounts of scientific and technological journals, and there is no specific research on the correlation between the WeChat official accounts of scientific and technological journals and academic evaluation indicators from an empirical and quantitative perspective. According to the viewpoints of the primacy effect, recency effect, and halo effect in communication studies, the WeChat official accounts of scientific and technological journals have more obvious advantages over online academic journals in terms of the transmission speed, freshness, and celebrity halo effect of academic information. Obviously, with the popularization and gradual maturity of the WeChat official accounts of scientific and technological journals, the academic influence of scientific and technological journals is continuously improving. Most of the previous studies were theoretical explanations at the subjective level of researchers, while this paper attempts for the first time to conduct a correlation study on the evaluation indicators within a cycle between the communication indicators of the WeChat official accounts of core medical journals in colleges and universities and the corresponding database journal evaluation indicators using empirical quantitative research methods. In order to improve the social media operation ability of scientific and technological journals, especially those in colleges and universities, improve their academic communication level, explore how to better promote the path of improving academic evaluation indicators, and provide a new growth point for the evaluation indicators of scientific and technological journals, it can not only enrich the operation strategies of social media of scientific and technological journals, but also has a very important reference significance for the social media communication of scientific and technological journals in China.

2 Statistical Sources and Research Methods

2.1 Selection of Research Samples

The top 10 medical core journals of Chinese colleges and universities with high WeChat official account activity from 2018 to 2020 and their corresponding evaluation indicators in the "Annual Report of Chinese Academic Journal Impact Factors (2018—2020)" were selected. The influence index CI value was used as the measure of the academic influence of the journals, and the changes in the total citation frequency, impact factor, immediate index, total download volume, and Web immediate download rate of each journal during the three years were counted. The SPSS 19.0 statistical software was used to conduct Spearman correlation analysis on the social media communication indicators and academic evaluation indicators of medical journals separately to find out the correlation and correlation strength of each indicator.

There are 21 core medical journals of colleges and universities included in the Chinese Core Journal Catalogue (2020 Edition), and 18 of them have opened WeChat official accounts. After excluding 8 accounts with low activity, finally 10 official accounts, such as "Journal of Southern Medical University" and "Fudan University Journal of Medical Sciences", were included in the scope of this study, and their account information was obtained through the journal's official website and the official accounts were followed. The selection criteria for the samples of WeChat official accounts refer to the WeChat Communication Index (WCI) in the Qingbo Big Data platform. The WCI value is a data obtained by comprehensively considering multi-dimensional indexes and scientifically allocating weights, which can be used to evaluate the communication effect of WeChat official accounts. The higher the WCI value, the stronger the communication influence of the official account^[4]. According to the ranking of the communication index WCI value, the changes in the number of tweets, total number of article reads, average number of reads, and total number of "likes" of each journal's official account from 2018 to 2020 were counted.

2.2 Research Content and Data Analysis

The panel data of the academic evaluation of core medical journals of colleges and universities in the "Statistical Analysis Database of Scientific and Technological Journals" of China National Knowledge Infrastructure from 2018 to 2020 were investigated, including the cumulative influence index CI value, cumulative composite total citation frequency, cumulative composite impact factor, cumulative composite immediate index, cumulative total download volume, cumulative Web immediate download rate, etc., and the three-year cumulative evaluation indicators were compared. See Table 1.

The official accounts of core medical journals of colleges and universities in the WeChat official account list of the Qingbo Big Data platform from 2018 to 2020 were investigated, and the quantitative indicators such as the three-year cumulative WeChat Communication Index WCI, number of tweets, total number of article reads, average

number of reads, and total number of "likes" were counted. The results are shown in Table 2.

Table 1. Cumulative Evaluation Indicators of Core Medical Journals of Colleges and Universities in the "Statistical Analysis Database of Scientific and Technological Journals" of China National Knowledge Infrastructure from 2018 to 2020

Journal Name	Cumulative Influence Index CI Value	Cumulative Composite Total Citation Frequency	Cumulative Composite Impact Factor	Cumulative Composite Immediate Index	Cumulative Total Download Volume (ten thousand times)	Cumulative Web Immediate Download Rate
Journal of Southern Medical University	2209.707	12147	4.425	1.104	51.95	442
Journal of Xi'an Jiaotong University (Medical Sciences)	1552.673	5721	3.685	1.642	36.14	563
Journal of China Medical University	1498.583	5833	3.462	0.561	29.41	255
Journal of Shandong University (Medical Edition)	1435.857	5761	3.299	0.945	43.63	657
Journal of Zhengzhou University (Medical Edition)	1406.275	5329	3.341	0.82	59.08	292
Journal of Jilin University (Medical Edition)	1305.825	4971	3.03	0.621	28.31	232
Fudan University Journal of Medical Sciences	1249.136	4718	3.076	1.071	28.52	380
Journal of Sun Yat-sen University (Medical Sciences)	1206.816	4013	2.996	0.475	20.33	168
Journal of Zhejiang University (Medical Edition)	1098.932	5080	2.462	2.284	35.3	353
Journal of Chongqing Medical University	921.899	3537	2.044	0.179	25.87	230

Table 2. Operation Status of the Cumulative WeChat Official Accounts of Core Medical Journals of Colleges and Universities from 2018 to 2020

Journal Name	WCI Index	Number of Tweets/Article	Total Number of Article Reads/Time	Average Number of Reads/Time	Total Number of "Likes"/Piece
Journal of Zhengzhou University (Medical Edition)	870.07	72	97562	3869.3	648
Fudan University Journal of Medical Sciences	645.28	287	58580	1395.9	566
Journal of Sun Yat-sen University (Medical Sciences)	546.77	252	43551	740	453
Journal of Southern Medical University	465.83	613	47042	219.2	146
Journal of Shandong University (Medical Edition)	423.57	68	20820	1124.4	68
Journal of Chongqing Medical University	353.21	63	15013	755.9	36
Journal of Zhejiang University (Medical Edition)	302.36	56	11658	601.9	35
Journal of Xi'an Jiaotong University (Medical Edition)	270.55	30	8108	788.8	37
Journal of Jilin University (Medical Edition)	227.72	21	5039	780.6	54
Journal of China Medical University	173.58	22	3854	578.5	3

2.3 Operation Status of 10 WeChat Official Accounts of Core Medical Journals in Colleges and Universities

By investigating the push information of 10 social media of core medical journals in colleges and universities from January 1 to December 31, 2020, the operation status of

the WeChat official accounts of the journals was statistically analyzed from the aspects of the average monthly push frequency, the type of push information, the access to documents, the custom menu, the characteristic menu, and the value-added services, so as to analyze and discuss the communication influence of medical journals in social media. The results are shown in Table 3. The differences in the push frequency of different journals are more obvious, with the average monthly push volume ranging from 1.1 to 18.8; most of the push information of the journal's official accounts is mainly in the text types of original content, journal catalogs, and paper reprints, and only the Journal of Southern Medical University and the Journal of Jilin University (Medical Edition) have video information; among these journal's official accounts, 90% have the online submission function, 70% have paper writing guidance, 30% have popular science knowledge release, but none of the journals have the release of topic selection guidelines and reader feedback interaction, and only 20% of the journal's official accounts have external links to the official website. The characteristic menus are mostly current issue catalogs, past issue browsing, and paper retrieval, and there are relatively few special columns and scientific research forums; a few journals have value-added services such as statistical services and advertising cooperation.

Table 3. Statistical Table of the Operation Status of 10 WeChat Official Accounts of Core Medical Journals in Colleges and Universities

Journal Name	Average Monthly Push Frequency /Time	Online Submission	Paper Writing Guidance	Popular Science Knowledge	Reader Feedback Interaction	External Link	Characteristic Menu	Value-Added Service
Journal of Zhengzhou University (Medical Edition)	1.5	No	Yes	Yes	Yes	Official Website	Special Collection; Expert Interview; Scientific Research Forum; Patient Sharing; Live Broadcast Room	Statistical Service
Fudan University Journal of Medical Sciences	1.3	Yes	No	No	No	No	Current Issue Catalog; Past Issue Browsing; Paper Retrieval	No
Journal of Sun Yat-sen University (Medical Sciences)	12.8	Yes	Yes	No	No	No	Current Issue Catalog; Past Issue Browsing	No
Journal of Southern Medical	18.8	Yes	Yes	No	No	Official Website	Current Online Issue; Past Issue Browsing	No

University								
Journal of Shandong University (Medical Edition)	1.6	Yes	Yes	No	No	No	Article Retrieval; Current Issue Catalog; Past Issue Catalog; Special Issue	Advertising Cooperation; Magazine Subscription
Journal of Chongqing Medical University	1.8	Yes	Yes	Yes	No	No	Current Online Issue; Past Issue Browsing	No
Journal of Zhejiang University (Medical Edition)	2.1	Yes	No	No	No	Micro Forum	Latest Acceptance; Current Issue Catalog; Past Issue Browsing	No
Journal of Xi'an Jiaotong University (Medical Edition)	1.6	Yes	No	Yes	No	No	Article Browsing	No
Journal of Jilin University (Medical Edition)	1.1	Yes	Yes	No	No	No	Online Reading; Past Issue Browsing; Recommended Articles; Paper Retrieval; Current Issue Catalog;	CNKI Current Issue Catalog; CNKI Past Issue Browsing
Journal of China Medical University	1.1	Yes	Yes	No	No	No	Current Issue Catalog; Past Issue Browsing; Paper Retrieval	No

3 Correlation Analysis between Social Media Communication Indicators and Academic Evaluation Indicators

3.1 Selection of Correlation Indicators

By studying the various indicators of the social media communication of medical journals in colleges and universities and conducting a correlation analysis with the relevant panel data of the academic evaluation of medical journals in colleges and universities in the "Statistical Analysis Database of Scientific and Technological Journals" of China National Knowledge Infrastructure from 2018 to 2020, this study

aims to explore whether social media communication has an impact on the evaluation indicators of the journals and what the influencing factors are.

3.2 Statistical Analysis of the Significance of Correlation

The P-value is a parameter used to determine the results of a hypothesis test, which is the probability that a result more extreme than the sample observation obtained will occur when the null hypothesis is true. If the P-value is very small, it indicates that the probability of the occurrence of the null hypothesis is very small, and if it occurs, according to the principle of small probability, we have reason to reject the null hypothesis. The smaller the P-value, the more sufficient the reason to reject the null hypothesis. In many fields of study, a P-value of 0.05 is usually considered an acceptable parameter with statistical significance. Therefore, in order to study the correlation between the social media communication indicators of journals and the academic evaluation indicators, this study used a statistical research method to conduct a statistical test on the two sets of data, that is, the SPSS 19.0 statistical software was used to process the data, and the Spearman correlation analysis was conducted on the three-year cumulative values of the social media communication indicators and the academic evaluation indicators of medical journals. The result shows that $P < 0.05$ is statistically significant.

3.3 Three-Year Cumulative Correlation Results between Journal Social Media Communication and Journal Academic Influence

From the statistical analysis test results of the correlation coefficient between journal social media communication and journal academic influence, it can be seen that the correlation between the journal influence index and the WeChat communication index is the strongest, followed by the total number of article reads, the number of "likes", and the number of tweets; the correlation between the journal composite total citation frequency and the total number of "likes" is the strongest, followed by the WeChat communication index and the total number of article reads; the journal composite impact factor is correlated with the WeChat communication index, the total number of article reads, and the total number of "likes"; the journal total download volume is correlated with the total number of "likes"; the Web immediate download rate is weakly correlated with the total number of article reads; the average number of reads has no significant correlation with the journal evaluation indicators, and the social media communication indicators of the journal have no significant impact on the cumulative composite immediate index of the journal. The results of the correlation analysis are shown in Table 4.

Table 4. Three-Year Cumulative Correlation Coefficient between Journal Social Media Communication and Journal Academic Influence

Evaluation Index Communication Index	Cumulative Influence Index Value	Cumulative Composite Total Citation Frequency	Cumulative Composite Impact Factor	Cumulative Composite Immediate Index	Cumulative Total Download Volume	Cumulative Web Immediate Download Rate
Cumulative WeChat Communication Index	1.000*	0.891*	0.976*	0.358	0.661	0.612
Cumulative Number of Articles Published	0.879*	0.770**	0.818*	0.176	0.576	0.636
Cumulative Total Number of Article Reads	0.988*	0.879**	0.952*	0.394	0.697	0.685
Cumulative Average Number of Reads per Article	0.455	0.333	0.515	0.406	0.394	0.091
Cumulative Total Number of Likes	0.891*	0.927**	0.867*	0.479	0.721	0.600

*: Significant at the 0.05 level (two-tailed)

4 Analysis of the Reasons for Correlation

The reasons why social media of these 10 medical science and technology journals can improve the academic evaluation indicators of the journals, analyzed using communication theory, are as follows:

4.1 Innovative Diffusion of "Micro-Publishing" Enhances Academic Influence

Through hypothesis testing, it is concluded that the correlation between the journal influence index and the WeChat communication index is the strongest. This conclusion indicates that the innovative diffusion effect of social media has significantly enhanced the academic influence of the journals. The innovation diffusion theory in communication is one of the classic theories of communication effect research, proposed by American scholar Everett M. Rogers in the 1960s, which is about the process by which a new idea, practice, or thing is accepted by the public through the persuasion of the media^[5]. The basic assumption of "innovation diffusion" is that a new idea, practice, or thing perceived as novel by an individual or other adopting unit is spread and confirmed in the process. This study found that the WeChat official accounts of medical science

and technology journals generally publish the latest journal catalogs and abstracts of journal articles, and also promote or provide guides for some key articles. This "micro-publishing" model of social media conforms to the innovation diffusion theory of mass communication, which spreads new knowledge or information, enabling readers to find the information clues they are interested in at the first time through fragmented reading in a limited time, and guiding readers to the full-text reading of scientific journals. "Micro-publishing" is a "socialized publishing model" based on new media technology and promoting the diversified development of academic journals established by scientific journals using the WeChat official accounts in recent years. Its core feature is "micro". In this study, all 10 university medical journals have realized the "micro-publishing" of academic papers through the social media WeChat official accounts, optimizing the publishing process of academic journals, improving the publishing quality of academic journals, promoting the communication, marketing, and diversified development of academic journals, and enriching the publishing forms and content. The cumulative effect of this innovative diffusion communication "micro-publishing" model has a positive effect on enhancing the academic influence of journals.

4.2 Agenda Setting of "Micro-Columns" Enriches the Reading Experience

In the 1970s, American communication scholars Maxwell E. McCombs and Donald Shaw proposed the agenda-setting theory, which states that mass communication can set the "agenda" for the public and affect people's perception of the current major events and their importance. The more the mass media reports on an issue, the more the public will regard this issue as the most important one at present^[6]. In recent years, new media has accelerated the reconstruction of the information flow rules of traditional media, and the traditional hierarchical communication model of scientific journals has also been replaced by the multi-interactive communication model in the new media environment. The agenda-setting theory that studies the interactive influence between the WeChat official accounts of scientific journals and readers has also undergone structural changes. Nowadays, social media is an important tool for maintaining social relationships and acquiring new knowledge. Through the unique functions of social media, the WeChat official accounts of scientific journals can have a greater degree of choice autonomy, so many scientific journals set their own agendas according to the topic selection plan. For example, the WeChat official account of "Journal of Zhengzhou University (Medical Sciences)" has opened up "micro-columns", including special collections, expert interviews, scientific research forums, patient sharing, live broadcast rooms, and other columns corresponding to the paper journal, as well as "micro-columns" such as submission guidelines and argument abstracts, to guide readers to subscribe and pay more attention, and to spread the latest papers and research results of the journal more conveniently. Moreover, important columns can be set as star-marked functions, and the messages they publish will be displayed at the top of the list as the "primary agenda".

4.3 "Micro-Reviews" by Opinion Leaders Increase Citation Frequency

The "opinion leader" theory in communication refers to the "active elements" who often provide information, opinions, and comments in the interpersonal communication network and exert influence on others^[7]. They are the intermediary or filtering link in the formation process of the effect of mass communication. According to this theory, the scientific papers published by the WeChat official accounts of scientific journals are generally condensed or abstract versions, and each article has a function for readers to leave comments and likes. This interactive function setting opens up a convenient space for editors to interact with readers, and more importantly, it plays the role of "opinion leader" for other readers. If the comments and recommendations of a certain paper by readers are positive, the reading volume and citation frequency of this article will increase, and it will be read and referenced by more readers more quickly. For example, the WeChat official account of "Journal of Zhejiang University (Medical Sciences)" has opened up a "micro-forum", where in addition to the comments information from general readers, there are often comments and interview content information from some well-known experts and scholars. Relying on the halo effect of these academic stars, it effectively attracts the attention of readers, and the coverage of the excellent papers is wider than that of the first-level communication of the source journal, so the citation frequency of these excellent papers can naturally be effectively improved.

4.4 Colorful "Micro-Reading" Meets the Diversified Reading Orientations of the Audience

The emergence of the "use and satisfaction" theory in communication is an important turning point in the history of communication development. Most previous communication studies started from the perspective of the communicator, studying how the communicator influences the audience, while the "use and satisfaction" study shifts the focus of the study to the audience. Traditional theories believe that the main task of the media in the communication process is to persuade the audience, and the audience is passive. However, the "use and satisfaction" study regards the audience as individuals with specific "needs", and their media contact activities are a process of obtaining "satisfaction" with specific needs and motivations^[8]. In today's era of continuous development of artificial intelligence, the social media of scientific journals presents a "rich media" communication form, and forms such as short videos, audio animations, etc. give scientific papers a lively and vivid display form, which is different from the boring and monotonous form of traditional paper media and can attract more readers. For example, the medical journals we surveyed encourage authors to introduce their articles through mini videos. The WeChat official account of "Journal of Zhengzhou University (Medical Sciences)" has opened up a special topic of the academic research live broadcast room: "Yanhuang Intervention Science Popularization Forum" has accumulated over 100,000 fans since its launch in 2022. Compared with other columns, the audience volume of the 5-minute live broadcast is larger because the video is easier to understand than the written information reporting the scientific research results. The

WeChat official account of "Journal of Zhengzhou University (Medical Sciences)" has various forms and rich content, which has greatly improved the evaluation indicators of its academic journal. The fragmented information dissemination of social media enables readers to access more extensive content, and the multi-channel information dissemination method meets the diversified reading orientations of readers, enhances the drainage and bedding effect, and makes the content of paper media ride the express train of multimedia to be better disseminated and applied.

5 Suggestions for the Operation Strategy of the Official Account

Although the WeChat official accounts of scientific journals have been operating for many years since their establishment, the research on the promotion effect of WeChat official accounts in the field of academic publishing is still not sufficient, especially the qualitative and quantitative research on the impact of WeChat official accounts on the evaluation of academic journals is not sufficient. Through preliminary empirical research and analysis of communication theory, this article draws some useful conclusions. However, it is deeply felt that there is still much space for research and development in the operation. Here are some strategies that can be used for reference in the future operation of the WeChat official accounts of scientific journals.

5.1 Clarify the Functional Positioning and Innovate Functional Extension

A clear platform positioning and distinctive and innovative content are the basis for attracting fans' attention. In addition to message publishing, the WeChat public platform can also develop some multi-functional menus to meet the needs of readers in the fields of resources, services, and recommendations, including the latest industry progress, article writing training, paper solicitation, and other information, which can attract more followers. If videos and comics are embedded in the posts, the communication effect will be doubled. In addition, the positioning of the platform should not only continue the characteristics and advantages of traditional digital publishing but also combine the characteristics of technology and communication in the era of intelligent media. In the era of intelligent media, the official account of the WeChat has powerful functions, rich interfaces, and a large user scale. As the representative of various scientific journals and new media platforms, the official account platform of the journal can not only push articles daily but also realize the functions of "Journal +" and "WeChat +".

5.2 Attach Importance to Content Promotion and Maintain Academic Advantages

In the era of intelligent media driven by new technologies, what really affects users' choices is not the channel or platform but the content provided. The WeChat official accounts of scientific journals in the era of intelligent media should be based on the advantages of traditional journals' high-quality content resources, mature editing

teams, and efficient manuscript processing models, adhere to the principle of content being king, and launch more practical content. The content of the tweets should not only meet the requirements of the platform positioning but also highly match the needs of users. Relying on new technologies such as big data and cloud computing in the era of intelligent media, analyze the annual hot words of the official account, the number of user readings, and the most discussed topic types, and launch high-quality content. Determine the time, quantity, and frequency of message pushes according to the reading habits and needs of users, and push high-quality content with timeliness and professional value that meets the needs of users, so that users can develop reading habits and enhance the stickiness between fans and the official account, creating a WeChat official account platform with its own journal advantages and characteristic positioning^[9].

5.3 Strengthen Communication and Interaction to Attract Readers' Attention

The WeChat official account platform of scientific journals should enhance the service awareness and strengthen communication and interaction with readers. Functions such as article comments, voting, and automatic replies can be set up, and readers can exchange their comprehensive comments on reading feelings, functional use experience, and plate design suggestions. The journal can reply to the comments and interact with readers, which can deepen the impression of the journal on readers, increase the article reading rate and promotion rate, and help improve the popularity of the journal; it can also obtain new ideas for topic selection planning and improving platform services, and provide a reference for building a more perfect journal official account. At the same time, active forwarding should be encouraged to expand the communication scope of WeChat tweets, increase the overall reading volume of the official account, and also pay attention to increasing the cumulative number of articles published and the number of tweets on hot topics, and increasing the cumulative total number of likes. The users of the official account have the characteristics of "multiple fields and wide regions", gathering industry experts and ordinary reader users. By obtaining feedback information from readers and authors from social media, the journal society can timely release and adjust topic selection information, communicate and interact with authors and readers, thereby forming the ability to improve the relationship between academic journals and readers, which not only helps to enhance the brand communication influence of academic journals but also can add new growth points to the evaluation indicators of academic journals.

5.4 Strengthen Multimedia Linkage and Expand the Dissemination of High-Quality Resources

Publishing original content is an important manifestation of the core competitiveness of the journal WeChat official account and the key to its personalized development and maintenance of the core user group. However, the study found that the communication power of the WeChat official account is often limited to the circle of friends, still belonging to the category of niche communication. To expand the breadth and depth of

communication, a multimedia linkage model must be adopted to expand the dissemination of high-quality original resources. For example, "Union Medical Journal" innovatively launched the "multi-network media linkage rolling dissemination" model, which means that while the articles are published in its own new media matrix, with the help of other network media platforms such as People's Daily Online, Guangming Online, and China National Radio Online, a rolling dissemination is formed to achieve the maximum efficiency of information dissemination and "ignite" the generation of blockbuster articles^[10]. As a comprehensive medical science and technology journal, "Union Medical Journal" currently has 148,000 fans and a total reading volume of 8.608 million times, which is a model for medical journals to use new media platforms to achieve the expanded dissemination of high-quality content. Moreover, its world science and technology journal evaluation index in the "Annual Report of Chinese Academic Journal Impact Factors (2018 - 2020)" has been improving year by year, and the impact factor has reached 1.484. Therefore, the WeChat official accounts of scientific journals should link with more network media in the operation, deeply cultivate high-quality content, carry out expanded relay dissemination, and continuously improve the academic influence of the journals, so as to have a positive impact on the overall evaluation indicators of academic journals.

6 Limitations of the Study and Weak Interaction of the Indicators

This study takes 10 medical journals as the research objects, and the sample size is not large. Therefore, the focus is on analyzing the evaluation indicators with strong interaction using communication theory. For the weak correlation between the Web immediate download rate and the total number of article reads, the lack of significant correlation between the average number of reads and the journal evaluation indicators, and the lack of significant impact of the journal social media communication indicators on the cumulative composite immediate index of the journal, these three conclusions also indicate that the effect of the WeChat official account on improving the various evaluation indicators of scientific journals is uneven. The fragmented reading characteristics of the WeChat official account may cause the attenuation of the cumulative communication effect, and as time goes by, people's memory of the connection between the information source and the content will gradually fade. At this time, the credibility effect dominated by the information source tends to weaken or disappear. In the case of a relatively small sample size, some content of the articles on the WeChat official account is very easy to be ignored and will no longer receive attention and citation. Therefore, this topic should continue to carry out research with big data to better illustrate the problem. In the future, with the help of large journal databases and official account platform databases, correlation studies can be conducted on more evaluation cycle data. The results of this pioneering study found that the operation characteristics of the WeChat official account conform to the laws of communication, and the number of positive correlation indicators in the academic evaluation of the journal is more than the number of non-correlation indicators, which is of reference

significance. In the future, we will take the articles pushed by the official account as the research object to further analyze the role of media communication indicators such as the reading volume, reprinting, and total number of likes of these articles on the academic influence of a single article. We will study the heterogeneity between journals and single articles in the relationship between social media and academic influence, in order to discover more communication characteristics and laws, and provide a reference for the operation of social media for scientific journals.

7 Conclusions

Through the research on the correlation between the WeChat official accounts of core medical journals in colleges and universities and the academic evaluation indicators, we find that the journal influence index has a strong correlation with indicators such as the WeChat communication index, which is related to factors such as the innovative diffusion "micro-publishing" of the WeChat official accounts, the agenda-setting "micro-column", the opinion leader "micro-comment", and the rich and colorful "micro-reading" that meets the diversified reading orientation of the audience. Based on this, it is suggested that the operation of the WeChat official accounts should clarify the functional positioning, develop multi-functional menus, and innovate functional extensions in combination with the characteristics of the era of intelligent media; attach importance to content promotion, base on traditional advantages, launch practical content, push high-quality content according to user needs, and enhance the stickiness of fans; strengthen communication and interaction, set up interactive functions, encourage forwarding, increase the number of posts and the number of views, and enhance the popularity and influence of the journal; strengthen multimedia linkage, adopt a multimedia linkage mode to expand the dissemination of high-quality original resources and enhance the academic influence of the journal.

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