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Science Journalism in Pakistani Print Media: A Content Analysis of Daily Dawn and The News International

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Abstract: *Science journalism is a special form of journalism that primarily covers topics such as science, engineering, technology etc. This study has been conducted to find out the coverage of Science Journalism in Pakistani English Print Media. The researcher applied both Qualitative and Quantitative content analysis methods for the collection of the data. Through this method the researcher collected data from the Pakistani English newspaper; Daily Dawn and The Daily News International. The researcher collected data from five pages including pages 1, 2, 3 4 and 12. The researcher collected data from three days including Monday, Wednesday and Friday through a systematic sampling procedure from 6 months of Newspapers (N=72+72=144). It is found that both newspapers covered science journalism whereas; a total of 211 news stories were published in 6 months from January 1, 2022, to June 30, 2022. Daily The News published 46.9% while 53.1% were published by Daily Dawn. The results revealed that The Daily Dawn has given more coverage as compared to The News International in the last six months of 2022 science journalism.*

Key Words: Content Analysis, Print Media, Science Journalism, Science Coverage, Science Communication

Introduction

Every day new inventions and innovations are explored in different fields of science which we all know through media projection. This study was conducted to examine the level of coverage of science journalism in print media because it is the most influential media for educators. Besides, without media, we can access new information about our world and we all could know about up-to-date scientific exploration, innovations and inventions.

Science Journalism

Journalism is playing an important role to explain different aspects of life because it highlights the importance of that habit to people. Science journalism has also a significant role to disclose the advantages and disadvantages of scientific inventions and innovations. Science Journalism includes such as Medical, Information technologies, Chemistry, Botany, Zoology, Psychology, Laboratory, Geo Science, and Medicine etc. In this study, the researcher wants to find out the coverage of science journalism in print media. Because to search out the importance of science journalism as well as the different

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subjects related to science and technology. Science journalism plays an important role in the development of the country, for example, by promoting scientific literacy (Nelkin, 1995). Science journalism offers one of the best ways to educate people about value judgment (Elliott, 2019).

Science journalists help the general public comprehend science by transmitting information from the scientific community to the general public (Nanayakkara & Hullman, 2020).

Science journalism affects a wide range of people, including the general public, scientists, and policymakers. Science has been regarded as the pivot around which a country's development revolves (Merkel, 1998).

Science journalism is a special form of journalism that primarily covers topics such as science, engineering, and technology (L Güenther, 2019). Similarly, Science journalism disseminates science news and other information to the general public (GCU Blog February 8, 2019).

Science journalism brings scientific coverage to the masses. This area usually includes conversations between scientists, journalists, and the general public (Definition April 12, 2022). Additionally, Science journalism is a type of journalism in which journalists cover natural sciences (botany, chemistry, zoology etc) innovations, as well as cover the medical field (Wormer, 2008).

Statement of the Problem

Print media has a great role in all spheres of life that's why it would play also a role in science journalism promotion and projection. In this study, the researcher wants to find out the coverage of science journalism in Pakistani English print media including "The Daily Dawn" and "The News International". Because that is why Pakistani English print media gives coverage to science journalism and how much does it give coverage to it? As to find out the importance of science journalism in our country.

Significant of the Study

The researcher wants to search out the coverage of Science Journalism in The Daily Dawn and The News International, find out the importance of Science Journalism and also identify the kinds of science journalism. To find out the relationship between Science and Journalism to understand the definition of Science Journalism and also educate the people about Science Journalism.

Objective

- To find out the coverage of Science Journalism in Pakistani English Print Media.
- To search out the dimensions of Science Journalism in the selected Newspaper.
- To find out the importance of Science Journalism.

Research Questions

RQ1: How much coverage has been given to Science Journalism in Pakistani English newspapers?

RQ2: Have the Newspapers given importance to Science Journalism?

RQ3: What are the types and kinds of science journalism?

RQ4: Who has covered the Science stories?

RQ5: How much space has been given to Science Journalism?

RQ6: Which page has Science Journalism covered more?

Hypotheses

H1: It is more likely that Daily Dawn covered Science Journalism more than The News.

H2: Daily Dawn covered more news about Science Journalism on the Front page as compared to the News.

H3: Daily The News used more foreign news sources than Daily Dawn in the coverage of Science Journalism.

Literature Review

The Urdu publication Daily Express has extensively covered science and technology. Despite having a solid reputation and being a top English daily, "Daily Dawn" has not given science and technology adequate coverage, and therefore the function of such a powerful newspaper in instilling knowledge has not been fulfilled. The hypotheses are disproved based on the facts gathered (Rashid, 2020).

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Patients, the general public, policymakers, and health professionals all rely on the media for health-related information, and it has a significant impact on their knowledge and opinions. There have been no studies on the content, nature, or quality of health journalism in Bangladesh yet. Only 44 per cent of the stories were positive about healthcare issues, while 27.1 per cent dealt with malpractice or treatment problems. Many publications (49.9%) featured dubious medical material, the majority of which was about unregistered physicians (67.5%), who are commonly referred to as "doctors." Unregistered doctors reported treatment errors seven times more frequently than registered physicians (p0.001). A survey was completed by 23 medical or health journalists (response rate: 77%); the majority of them (78.3%) had no prior training in health journalism, and just 26.1 per cent of them had it through their media company. Journalists admitted to having insufficient knowledge of medical terminology (73.9%), ethics (95.7%), and relevant laws (91.3 per cent) (Khasru et al., 2021).

This article looks at how science is now covered in German print media. It tackles the following concerns: (1) how to define science journalism; (2) if there is a distinction between various scientific areas; and (3) how various definitions of science journalism lead to various interpretations. Two forms of scientific coverage were looked at in a systematic, two-part content study of German newspapers (N=1730 and N=1640). Traditional science journalism is mostly uncritical and motivated by scientific developments. Science coverage may be broadly characterized by a wider variety of journalistic approaches, driven by non-scientific events, and with an emphasis on the views of scientific authorities. The special position of the humanities and social sciences in German scientific reporting is also covered in the paper (Summ & Volpers, 2016).

The New York Times' weekly science feature, Scientific Times, is a prominent and potent influence in the field of science journalism. The results of a twenty-year longitudinal analysis of Science Times are compiled in this article. The size of the section, advertising, and coverage focus in terms of the disciplines and themes covered by sampling every five years from 1980 to 2000 were all investigated by the writers. Science Times had a page count of 1.7 pages for each issue in 1980 (advertising excluded), and 5.4 pages per issue in 2000. It is commonly believed that the growth of the Scientific Times in 2000 outpaced the heyday of computer-related advertising, which led to the demise of scientific sections in other newspapers. In general, medicine, health, and behaviour attracted the greatest interest, however, the proportion changed over time. Study results were the most prevalent topic, but explanations, evaluations, and profiles were all quite important. In light of the Science Times' institutional context, the results are discussed (Clark & Illman, 2006).

Agenda Setting Theory

The ability of the media to influence individuals' cognitive processes and frame their way of thinking is referred to as the agenda-setting function of mass communication. The most significant effect of the media may be its capacity to psychologically organize and arrange our reality for us. The mainstream media may not be very great at telling us what to believe, but they are astonishingly successful at providing us with something to think about, in my opinion (Shaw and McCombs 1968).

Science Journalism and Agenda Setting

This study, which covered the period from 1970 to 1990 and the subject of pollution, validated the agenda-setting theory. There was no relationship between the public agenda and the circumstances in the real world for this issue. Additionally, despite a general decline in pollution, media coverage has grown. However, in the instance of rubbish pollution, there was a positive correlation between the media agenda and actual events (Ader,1995).

Research Methodology

There are two types of research methods Qualitative research and Quantitative research. The researcher used Quantitative and Qualitative methodologies. The researcher conducted research theory Content Analysis where both Qualitative and Quantitative codes, categories and themes were developed according to the objectives and hypotheses.

Population

In this research, the population was print media including two Pakistani English Newspapers; "The Daily Dawn" and "The News International".

In this research, the researcher used the Systematic Sampling method to collect the data. Through this method the researcher collected data from the Pakistani English newspaper; Daily Dawn and The Daily News International. In the first stage, the researcher divided the newspapers into five pages where data was collected from the five pages including pages 1, 2, 3 4 and 12. In the 2nd stage, the researcher collected data from every Monday, Wednesday and Friday Newspaper of 6 months Newspapers (3*4=12, 12*6=72) (n=72+72=144).

Sample size

The sample size of this study was 6 months of Newspapers (3*4=12, 12*6=72) (n=72+72=144).

Data Collection Tools

In this study, the researcher collected data from the newspapers of different pages. The researcher collected data through content analysis using a coding sheet. The coding sheet was developed under the consideration, observation, question and hypothesis also took help from the literature review. After developing the sheet it was had over to the subject experts for validity and reliability. The corrections were done after the experts' recommendations. Twoweek data was extended in the coding sheet and checked its reliability. The results were reliable and then it was applied for data collection. The coding sheet consisted of two parts including quantitative content and qualitative content.

Findings and Discussion

This section is based on the results and discussion of the data. It has been divided into three portions including descriptive data, hypotheses results and discussion.

Descriptive Data Analysis

Table 1

Coverage of Science Journalism in the selected Newspapers

Newspaper	F	%
The News	99	46.9
Dawn	112	53.1
Total	211	100.0

Table 1 shows the newspaper coverage of science journalism that a total of 211 news stories were published in 6 months from January 1, 2022, to June 30, 2022, which Daily The News published 46.9% while 53.1% were published by Daily Dawn. The results revealed that The Daily Dawn has given more coverage as compared to The News International in the last six months of 2022.

Table 2

Pages-wise coverage of science journalism in the selected Newspapers

	Frequency	Percent
Page-1	26	12.3
Page-2	54	25.6
Page-3	66	31.3
Page-4	32	15.2
Page-12	33	15.6
Total	211	100.0

Table 2 shows the newspaper coverage on the base page about science journalism 12.3% of news stories were published on the front page, 26.6% on page 2, 31.3% on page 3, 15.2% on

page back page and 15.6% published on page 12. The results revealed that most of the coverage of the news stories has given on page-3 in the pages of the selected newspapers.

Table 3

Placement-wise coverage of science journalism in the selected Newspapers.

	Frequency	Percent
Top	57	27.0
Middle	117	55.5
Down	37	17.5
Total	211	100.0

Table 3 shows that the newspaper coverage on the basis of placement about science journalism that 27.0% of news stories were published on the top of the newspaper, 55.5% in the middle and 17.5% were published on the down of the newspaper. The results declared that most of the news stories were published in both selected newspapers in the middle position.

Table 4

Pictures-wise coverage of science journalism in the selected Newspapers

	Frequency	Percent
Yes	26	12.3
No	185	87.7
Total	211	100.0

Table 4 shows that the newspaper coverage on the basis of pictures about science journalism in which 12.3% was yes while 87.7% picture was no option. The findings revealed that on the basis of picture coverage in both newspapers, news stories were published very less in number.

Table 5

Faculty-wise coverage of science journalism in the selected Newspapers

	Frequency	Per cent
Medical Science	157	74.4
Social Sciences	2	.9
Natural Science	30	14.2
Technology	4	1.9
Others	18	8.5
Total	211	100.0

Table 5 explained faculty-wise coverage of the Science journalism news stories 74.4% coverage was given in Medical science, .9% in Social science, 14.2 in Natural science, 1.9% in Technology and 8.5% in other faculty. The results showed that most coverages was given on faculty base in Medical science.

Table 6

Subject-wise coverage of science journalism in the selected Newspapers

	Frequency	Percent
Agriculture	4	1.9
Chemistry	2	.9
Electrical Engineering	6	2.8

	Frequency	Percent
Environment	14	6.6
Health	150	71.1
IT	11	5.2
Mechanical Engineering	1	.5
Metrological	2	.9
Pharmacy	5	2.4
Psychology	2	.9
Social Media	1	.5
Software	1	.5
Surgical	1	.5
Tourism	11	5.2
Total	211	100.0

The table shows the newspaper coverage subject-wise on the bases of science journalism that 1.9% coverage has given Agriculture, Chemistry .9%, Electrical Engineering 2.8%, Environment 6.6%, Health 71.1%, IT 5.2%, Mechanical Engineering .5%, Metrological .9%, Pharmacy 2.4%, Psychology .9%, Social media .5%, Software .5%, Surgical .5% and Tourism 5.2%. The finding revealed that subject wise most of the news stories were published in Health subject.

Hypotheses Results

H1: It is more likely that Daily Dawn covered Science Journalism more than The News.

Table 7

	Frequency	Percent
The News	99	46.9
Dawn	112	53.1
Total	211	100.0

The newspaper coverage of science journalism that a total of 211 news stories were published in 6 months from January 1, 2022, to June 30, 2022, in which Daily The News International published 46.9% while 53.1% were published by Daily Dawn. The results revealed that The Daily Dawn has given more coverage as compared to The News International in the last six months of 2022.

The results supported the H1 that Daily Dawn covered more news than The News International regarding science journalism.

H2: Daily Dawn covered more news about Science Journalism on the Front page as compared to the News.

Table 8

*Newspaper * page Cross tabulation*

		Page-1	Page-2	Page-3	Page-4	11	Total
Newspaper	The News	13	30	28	21	17	99
	Dawn	13	24	38	**33**	16	112
Total		26	54	66	32		211

Table 8 shows that The News International covered 13 stories on the front page, while Daily Dawn covered 13 stories on the front page as well. On page 2, The News International covered 30 stories and The Daily Dawn 24 news stories. The News International covered 28 stories on page 3 while The Daily Dawn covered 38 stories. On page 4 The News International covered 11 news stories and The Daily Dawn covered 21 stories. The News International covered 17 news stories on page 12, while The Daily Dawn covered 16 news stories.

The findings disapproved H2 because both newspapers covered equally Science journalism news stories on the front pages, While The News covered more news on the 2nd page and Dawn on the 3rd page.

H3: Daily The News used more foreign news sources than Daily Dawn in the coverage of Science Journalism.

Table 9

*Newspaper * sources Cross tabulation*

		Sources															
		AFP	AP Agencies	APP	Bureau Report	Byline	Correspondent	NCOC data	News desk	News report	Online	PARC	Reuters	Staff reporter	White star	Total
Newspaper	The News	4	0	0	5	27	33	20	0	5	4	0	0	0	1	0	99
	Dawn	4	1	2	0	0	63	3	14	0	0	1	1	3	17	3	112
Total		8	1	2	5	27	96	23	14	5	4	1	1	3	18	3	211

Table 9 illustrates that both newspapers covered 211 pieces of news information in the last six months of 2022, in which 09 news stories of The New International were dependent on foreign sources, while 15 news stories were adopted from foreign news agencies like APF, AP< Reuters etc. The results of the study not supported the H3 but accepted the alternative hypothesis that Daily Dawn is more dependent on foreign sources as compared to The News International.

Conclusions and Recommendations

This study was conducted to find out the science journalism coverage in two English newspapers from January 2020 to June 2022. The researcher collected data through a self-developed coding sheet under the consideration of the literature review.

It has been found that in the last six months, both newspapers covered science journalism but daily dawn gave priority to it in the base of published news stories as compared to Daily The News International. Because Daily Dawn is giving more coverage to official news as compared to the new international. The status of daily dawn is more authentic in public than the other newspapers in Pakistan.

It is also concluded that the majority of the news was published in the month of January because, at the beginning of the year, most of the scientific societies release their reports and news.

It has been revealed that most of the news stories have been covered on page-3 in both newspapers. While less number of news stories were found on the front page.

It is also highlighted that most of the news stories were published in one column and middle position about Science Journalism in both newspapers. But less number of stories were published in column 3 and also few stories were found in the top position.

It is found that most of the news stories were published with a byline in both newspapers and picture source stories were very less in number in the selected newspapers. It is concluded that the reporters' hard work covered science events and stories. It is inferred that both English newspapers were dependent on foreign news sources as compared to local or national sources.

It is also found that the number of picture source stories was 26 in all 211 news stories about Science Journalism in newspapers The Daily Dawn and The News International. It is a famous China's quote that "A picture is worth a thousand words" but in this case, the majority of science journalism news stories were published without pictures which is less important given the issue. Besides, visuals are more easily understandable for humans that's why pictures with news stories would be better than less pictorial presentation.

It is also concluded that most of the news stories in attributed to institutions by the selected newspapers. The data also revealed that most of the news stories about Science Journalism were published in quoted press releases in both newspapers. The results show that science beat journalists are lacking or have less information about science journalism.

It is also disclosed that news stories published about Science Journalism covered national and international scientific inventions, innovation and exploration, while the majority of national news stories were filed from the Islamabad credit line as compared to other parts of the country. It also shows that science journalism news is restricted to the capital city while provincial metropolitan cities haven't the sensitivity of science journalism.

The findings also explored that more news stories were covered about Medical science as compared to other faculties including natural sciences, social sciences, computer science, life sciences etc. while more coverage was given to the Health side in both newspapers but ignored the other subject related scientific news.

Recommendations

In last the researcher would like to recommend the following recommendations;

- Media should give more coverage to science journalism to aware and educate people.
- The media should produce science journalists to cover science journalism-related events and activities.
- Newsrooms should consider the introduction of senior science reporters and scientists as guest editors in newsrooms.
- To facilitate the rapid exchange of knowledge and experience within the area, regional networks must be established.
- Scientific information should be made accessible in regional languages and regional languages should be accorded the significance they deserve for science communication at the grassroots level.
- The government should create or fund institutions that teach scientific journalists and communicators about all types of science journalism.
- Exchange programmers for students, scientific journalists, scientists, and journalists to go to and stay in other member nations may be developed.
- Pakistan may plan to host an annual event like a regional scientific festival or conference.

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