

Development of science journalism in Bosnia and Herzegovina

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Abstract

Science journalism is greatly underdeveloped in Bosnia and Herzegovina. Media outlets do not have journalists who are specialized to report on science and there are no TV or radio shows wholly dedicated to science and technology. Most media outlets in the country lack financial resources and capacities to train their journalists to report on science. The level of media and information literacy of citizens is considered poor since media and information literacy is not taught at primary and secondary schools. In addition, the popularity of disinformation on COVID-19 demonstrated that there is an urgent need for the development of science journalism in Bosnia and Herzegovina.

The aim of this paper is to assess the needs of journalists and media outlets in Bosnia and Herzegovina for science journalism and present recommendations on how to advance science journalism in the country. The paper is based on a mixed methodology, with quantitative data giving objectivity and qualitative data providing explanations to the research topic. The results of the research

indicate that journalists in the country lack skills and knowledge on how to find credible sources of science information and how to popularize scientific topics among the general audience. Some of the main obstacles identified by the respondents in the research are disinterest from the public towards scientific topics, lack of science experts and scientific illiteracy among journalists and the general public.

Introduction

Science journalism is greatly underdeveloped in Bosnia and Herzegovina (BiH). The media landscape in the country is characterized by a large number of media outlets and by low marketing revenues, which have fallen significantly over the past decade.

In total, there are three public broadcasters, 107 television stations, 157 radio stations, 8 news agencies and 8 dailies, 200 different publications and magazines and over 600 online news media.¹ Digital transformation impacted the production, consumption and distribution of news and shortened the news cycle, which, coupled with competition for audience share and profit demand, led to a decline in journalistic standards (Sokol 2021b). The media moved away from the values of verification of information and quality reporting towards sensationalism and content that often contains only one source (Sokol 2021b).

The mainstream media publish content on a variety of topics with a focus on current and political events, but there is a lack of in-depth reporting and specialized reporting on issues such as ecology, science, and economy (Sokol and Jukić-Mujkić 2021). Many local and regional advertisers moved their ads from traditional media to digital platforms impacting the traditional media's revenues that have been falling consistently (Petković and Hodžić 2019). Due to the shortened news cycle and lack of financial sustainability, media outlets do not have sufficient revenues and capacities for science journalism. In addition, media outlets in the country have been suffering financial losses during the pandemic of COVID-19 (Sokol and Jukić-Mujkić 2021). Media outlets do not have journalists who specialize in science reporting and there are no TV or radio shows wholly dedicated to science and technology.

Eleven universities, both public and private, offer media-related studies but none have specialized courses on science journalism (Sokol and Jukić-Mujkić 2021). Media organizations and journalist associations, on the other hand, have been providing educational activities for professional journalists on media literacy, disinformation and verification of information but there is a lack of experts, educational materials and courses on science journalism. In addition, the level of media and information literacy among citizens is considered poor and it is not part of primary and secondary school curricula (Hodžić, Bašić-Hrvatinić and Petković 2019). A recent study demonstrated that only a quarter of BiH adults (24 percent) believe in their ability to identify false information in the media and more than half of adults who use the internet (56 percent) do not perform any fact-checking of information they encounter online (Hasanagić, Popović and Lević 2021).² Another study showed that young people are especially vulnerable to problematic content online and when faced with examples of disinformation many were not able to recognize them (Hodžić and Sokol 2019).³

The need for science journalism was especially visible during the pandemic of COVID-19. The pandemic was followed by infodemic – large volumes of information and disinformation about the virus that left the public confused and unable to recognize reliable sources.⁴ The pandemic brought huge volumes of disinform-

1 Information has been retrieved from the registers of the Regulatory Agency for Communication of BiH and the Press Council BiH. A recent study by Osmančević (2021) identified the number of online news media.

2 The sample size was 1,450 respondents.

3 The study was based on focus groups with young people across BiH.

4 See the definition of the World Health Organization. https://www.who.int/health-topics/infodemic#tab=tab_3

mation on an unprecedented scale – conspiracy theories about the origin of the virus and vaccines circulated on the internet and social networks (Krupalija et al 2021; Sokol 2021a). Poor communication from health authorities and the lack of an official government's campaign on the importance of immunization further undermined the public's health response (Sokol 2021a). In November 2021, despite the availability of vaccines, only 20 percent of the population of Bosnia and Herzegovina got vaccinated (Augustinović and Milojević 2021). Such a situation demonstrates that there is an urgent need for the development of science journalism in BiH.

Conference on science journalism in Bosnia and Herzegovina

The Bosnian-Herzegovinian American Academy of Arts and Science (BHAAS) in partnership with Mediacentar Sarajevo, in April 2021, started a project named Development of Science Journalism in Bosnia and Herzegovina, supported by the Open Society Fund in Bosnia and Herzegovina. The nine-month project consisted of various activities primarily aimed at educating journalists about science journalism and raising awareness on the importance of this type of journalism among media workers and the general public. The project developed under the premises that accurate reporting on scientific matters is a relevant issue during the COVID pandemic and that it will be one of the crucial elements of our societies that are about to face colossal challenges of scientific nature such as global warming, sustainability, novel pandemics, etc. Science journalism is also an important weapon that must be utilized in the fight against disinformation.

The central activity of the project was a three-day Science Journalism Conference held in July 2021 that gathered science journalists and scientists from Bosnia and Herzegovina and the region (Serbia, Croatia, and Slovenia). The main purpose of the conference was to offer editors, journalists, and others interested in the topic, useful knowledge, experiences and advice from expert science journalists and scientists from the region. The conference included sessions such as creating popular radio and TV shows on science, selecting and interviewing scientists, interpreting statistical data, finding reliable sources and fact-checking information on science. Prior to the conference a survey and a focus group were conducted, which helped define the needs of journalists, scientists and science communicators, whose results are integrated into this paper.⁵

Methodology

The aim of this paper is to assess the needs of journalists and media outlets in Bosnia and Herzegovina for science journalism and suggest recommendations on advancing science journalism in the country. The paper is based on a mixed methodology, with quantitative data giving objectivity and qualitative data providing explanations to the research topic. The main research questions were:

- What are the needs of journalists and media outlets for science journalism in BiH?
- What are biggest challenges/problems when it comes to reporting on science?
- What is the quality of media reporting on science in BiH?

The findings of the paper are prepared based on a survey conducted in May 2021 among journalists, journalism students and students of scientific studies and a focus group discussion with scientists and journalists, representatives of the mainstream media outlets held in June 2021. The survey and the focus group were conducted in order to better understand common challenges and identify specific needs of media outlets for science journalism in Bosnia and Herzegovina.

The survey included 95 responses: out of which, 35 percent were journalists, 16 percent editors, 14.9 percent students of medicine or natural sciences, and the remaining included media experts and other professions. Besides basic professional and personal information, respondents were asked to select topics on science journalism about which they are interested to learn and to describe in a few sentences the specific challenges when it comes to reporting on science in Bosnia and Herzegovina.

The focus group was held in June 2021, which included ten participants, scientists, medical doctors, representatives of the media and the fact-checking organization. The aim of the focus group was to discuss in-depth the challenges and needs of the media in Bosnia and Herzegovina in reporting on science, the attitudes of scientists towards media content on science in BiH, their communication with journalists and the

⁵ About the conference see: <https://bhaas.org/konferencija-naucnog-novinarstva/>

experience of journalists in covering scientific topics. The discussion also focused on media reporting on the virus COVID-19 and vaccines.

This is a first study of its kind focused on the needs and challenges the media outlets and journalists face in BiH when covering scientific topics. The studies on the media sector in BiH mostly focus on issues such as media policies, protection of journalists, hate speech, regulatory and self-regulatory frameworks, media literacy or analysis of media reporting on specific topics, such as gender-based violence. There is a need for more research on media reporting particularly related to science, ecology and climate changes.

Media reporting on science and climate changes in BiH

Journalistic in-depth reporting on science is absent in the BiH media. The media have been reporting about the results of certain surveys, statistics and research sensationally, one-sidedly, without explaining the shortcomings of a study and often without sources (Kalinić 2021a). They largely focus on news from the fields of health, lifestyles, nutrition, use of supplements, but lately, also about COVID-19 and vaccines. Jelena Kalinić, a science communicator in the country, analyzed how journalists use sources when covering such topics without questioning their credibility. It was found that, when covering topics on food and health, journalists only publish data without emphasizing what scientific method was used (Kalinić 2021a).

She provides an example of news that was published in many international and local media about a study on how bee venom destroys cancer cells. She argued that in most cases the media omitted the fact that it was a preliminary study in vitro, on cell cultures, and the path from such studies to clinical use is quite long. Another issue that she identified was the use of predatory journals and preprint works in journalistic content which have not yet been reviewed and the methods and procedures on the basis of which the research was conducted have not been verified as credible sources (Kalinić 2021b).

Media outlets do not have specialized journalists and special columns or programmes dedicated to climate change and environmental protection (Vatreš 2021). Although a globally relevant problem with potentially irreversible consequences, the issue of climate change in BiH media mainly comes down to informing the public about gatherings of world leaders, such as the 26th UN Conference on Climate Change held in Glasgow. Media reports on air pollution in urban areas during the winter, on the struggles of the local population against the construction of mini-hydropower plants and protests against illegal landfills are reactive and daily, created to convey information about an incident or protest. The lack of quality, independent, analytical and well researched stories on climate change and protection of the environment contributes to the general public's lack of information about these problems (Vatreš 2021).

Results of the survey

The aim of this research was to better understand common challenges and identify specific needs of media outlets for science journalism in Bosnia and Herzegovina. In the survey respondents had to choose three out of twelve topics in science journalism education about which they wanted to learn more and needed more skills and knowledge. The five most popular science journalism education topics identified by the respondents were: Choosing credible sources of information and fact checking (53.7 percent); How to become a science journalist and how to win media space with science topics in BiH (52.6 percent); How to make an attractive science journalism story about local science and scientists (42 percent); Reporting on a controversial topic (32.6 percent); Creating a TV or radio program about science (30.5 percent).

The five most popular science journalism education topics:

1. Choosing credible sources of information and fact checking (53.7 percent)
2. How to become a science journalist and how to win media space with science topics in BiH (52.6 percent)
3. How to make an attractive science journalism story about local science and scientists (42 percent)
4. Reporting on a controversial topic (32.6 percent)
5. Creating a TV or radio program about science (30.5 percent)

The questionnaire included an open-ended question about the biggest challenge/problem when it comes to

reporting on science in the BiH media. A large number of respondents expressed the view that the biggest challenge to science journalism in BiH is the disinterest of the public due to which the media do not report on scientific topics. Other most common challenges that were identified included: scientific illiteracy among journalists and the general public, lack of science experts, lack of financial resources, and disinformation on scientific topics.

The five most common problems/challenges for journalists when reporting on science:

1	Disinterest of the public
2	Lack of scientific literacy among journalists and the public
3	Lack of experts who would be available as sources to journalists
4	Lack of financial resources
5	Disinformation

Discussion: needs and challenges of media outlets

The results of the questionnaire demonstrate that journalists in BiH need more training in finding credible sources of information when reporting on science and skills about conveying complex scientific topics to the general audience. Some of the biggest challenges identified by the respondents include disinterest from the public, scientific illiteracy among journalists and the general public, lack of science experts, lack of financial resources, and disinformation on scientific topics.

Finding and choosing credible sources of information and fact-checking have been especially problematic for journalists in BiH, particularly on topics such as science, technology, climate change, and ecology. The fact-checking platform has debunked numerous examples of disinformation on scientific topics coming from mainstream, non-professional and anonymous media and content for using non-reliable sources (Krupalija et al 2021). Media representatives, on the other hand, argue that they do not have time to fact-check information, especially when it comes from sources such as news agencies, which they assume must be credible (Sokol and Jukić-Mujkić 2021). Previous studies have pointed out that most articles on online media in Bosnia and Herzegovina have only a few sources, many only one (one-source journalism). They also showed that when reporting on vaccines, for example, the most dominant sources are political figures (Sokol and Jukić-Mujkić 2021). One respondent wrote that the main challenge to science journalism is: "The availability of credible sources, as well as verified information. Today's journalists do not have enough time and resources to investigate due to the rapidly developing media and the speed of information flow".

Focus group participants confirmed the difficulty to find and choose credible sources especially on topics about which journalists are not familiar with.

"I am also not sure every time whether a certain study is credible or not credible and I sometimes need five days of inquiries, conversations with experts, checking what that journal is, what was the methodology of the study and the like, to make a conclusion whether it is a generally credible source that I may put into my text. Journalists do not have time for that." Representative of the fact checking organization, Bosnia and Herzegovina, focus group, June 2021

Another common problem in media reporting on science is the phenomenon of false balance, in which journalists present an issue as being more balanced than the evidence supports. Reporting on COVID-19, especially at the beginning of the pandemic, included interviewees who represented the scientific consensus and those who claimed that the virus was artificially created or did not even exist. Such reporting, according to the participants of the focus group, highly influenced the attitudes of the public. It made scientific consensus appear as a debatable issue. Another reason for the phenomenon of false balance and non-verified sources in the traditional media, as mentioned by focus group participants, is that conspiracy theories and disinformation are attractive to the public and the media publish them with the aim to attract readers' attention and thus more revenues.

The biggest challenge identified by the respondents when it comes to reporting on scientific topics is the disinterest of the public. One of the respondents wrote that the main challenge to science journalism is "Disinterest from the audience. These are texts that are otherwise longer and 'tiring' for the audience and it is believed that they would not choose to read such texts." Focus group participants argued, however, that the main problem is the lack of specialized journalists who would translate the language of science to the general public in an easy and interesting way. The results of the questionnaire demonstrate that journalists

need more knowledge and skills in order to convey complex scientific topics to the general public.

It should be noted, however, that there are no in-depth research studies on the audience needs in BiH. Media outlets in Bosnia and Herzegovina mostly publish content that attract their readers' attention and consider more complex and longer reads uninteresting for their readers. A recent study on media consumption habits of adults in BiH demonstrated that BiH adults are most likely to watch/listen to/follow the news and informative content (71 percent). This is followed by entertaining content (64 percent), feature films and shows (51 percent), sports (39 percent), documentaries (35 percent) and various topics that interest individual adults (37 percent). Educational content is watched/listened to/followed by a quarter (25 percent), while content on their hobbies by a fifth (21 percent) of adults. Nearly a fifth (18 percent) watch/listen to/follow cultural content, and slightly fewer (15 percent) religious content (Hasanagić, Popović and Lević 2021). There are no research studies on how many people follow scientific topics and whether they would like to have more media content on science in BiH. A research study on media consumption habits of youth in BiH showed that young people are interested in topics on science and ecology (Sokol 2021c).

Another obstacle identified by the respondents towards the development of science journalism in BiH is the lack of science experts. According to the respondents, there are not many experts for particular scientific fields in the country and often experts are unavailable to the media either by personal or institutional choice, and are not always reliable in terms of the information they provide. Respondents also argued that some experts are unable to explain complex scientific topics to the public and that there is a lack of a systematic support for science in the country. According to one respondent, the biggest challenge in science journalism is "scientists and experts who do not know how to adequately explain scientific facts and are unaccustomed to communicating with journalists".

Focus group participants claimed that, for example, during the pandemic only a small number of experts were available to the media and that there is a need for a registry of scientists whom journalists could contact for specific topics. One participant stated that there are many professionals in the country but they do not have the necessary skills for communication and that there is a need for a systematic support to equip such individuals with better communication skills, especially during the periods of crises. Finding a competent interviewee on scientific topics is a challenge for media outlets. Journalists need to be trained where to search for experts and how to prepare questions for interviews (Đukanović 2021). Journalists in the focus group stated that they had difficulties in obtaining information from public institutions and especially health institutions, which they claim are not open to the public. Even though the country has good Freedom to Access Information laws, their implementation is inadequate and journalists struggle to obtain information from public institutions (Media.ba 2019).

Conclusion and recommendations

Science journalism is underdeveloped in Bosnia and Herzegovina. Most media outlets in the country have been suffering financial losses, lack of proper financial revenues and capacities to train their journalists to report on science. Media outlets do not have journalists who are specialized to report on science and there are no TV or radio shows wholly dedicated to science and technology. Respondents in the questionnaire and participants in the focus group discussion identified a number of challenges to the development of science journalism in BiH including disinterest of the public, lack of science experts, scientific illiteracy among journalists and the general public, difficulties in obtaining information and distinguishing reliable and non-reliable sources. The pandemic of COVID-19 demonstrated that there is an urgent need to develop science journalism in BiH and to raise the capacities of journalists to report on scientific topics. Due to this, it is very important to provide educational courses and materials on science journalism to journalists, provide education in public communication to science experts and conduct awareness-raising campaigns on the importance of science journalism in BiH.

Recommendations

Departments of journalism and media organizations should provide educational activities and educational materials for journalists on science journalism regularly. Such educational activities should include training modules on locating credible sources on science and translating difficult scientific language to the general

public. Training courses in communication should also be given to scientists who should be equipped and capacitated to work with the media.

Media organizations together with scientific institutions should prepare and update regularly a registry of experts on scientific topics whom journalists could contact for information.

Media organizations and scientists should conduct advocacy and awareness-raising campaigns on the importance of science journalism and should work on its popularization in BiH.

The state, foreign donors and media organizations should provide grants to media outlets and freelance journalists to report on science, climate change, ecology and technology.

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