

Content analysis of the media reporting on the Fukushima nuclear accident in three European countries

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Abstract

The nuclear accident in Japan induced enormous media coverage. In general, mass media play a dominant role in communication on nuclear emergency issues. It is the prominent information channel for the general public, acting as the “watchdog” of the society. Analysing the media content allows gaining a better insight into the way that a nuclear accident is reflected in nowadays society. It also provides useful lessons to be learned for risk communication in nuclear emergencies.

In this study media reporting on the Fukushima nuclear accident in three European countries Italy, Belgium and Slovenia, was analyzed and compared. The newspapers included in the analysis were *Le Soir* and *De Standaard* in Belgium; *Corriere della Sera* and *La Repubblica* in Italy and *Večer* and *Delo* in Slovenia. The articles coded were directly or indirectly related to the Fukushima nuclear accident and were published between the 11th of March, 2011, until 11th of May, 2011.

The paper reports on quantitative aspects, such as the number of articles published and the main issues addressed, as well as on qualitative aspects such as the connotation of the articles with respect to nuclear energy. Differences and similarities across the three countries as regards the media discourse and content are highlighted and analysed.

Key Words: Fukushima nuclear accident, mass media, content analysis

1. Introduction

On March 11, 2011 Japan was struck by a 9.0 magnitude earthquake, followed by a devastating tsunami. The disaster had impact on Japanese nuclear power plants and in particular on the reactors of the Fukushima Daiichi site, located on the North-Eastern coast, that had most serious consequences. The Fukushima nuclear incident led to a large radiological contamination of the environment, atmosphere and Pacific Ocean, due to which it received the highest possible rating on the International Nuclear Event Scale (1). A series of countermeasures were taken at different time moments in order to reduce the radiation risk for the population. More recently, environmental remediation activities in the deliberate evacuation area and the restricted area are in process or under evaluation (2).

The nuclear accident in Japan is believed to affect the perceptions and the views of the public regarding the safety of nuclear power plants, not only in Japan but worldwide; the media play a major role in such conditions.

In this paper the analysis of the mass media, which can be considered the major source of information for the public opinion, was addressed, this also in view of the important role they play in risk communication as a bridge between institutions and citizens.

Especially in case of a nuclear accident, the media play a vital role in communicating with the public. The present work, analyzing the media reporting on the Fukushima nuclear accident, can help nuclear managers to deliver more effective risk messages to and through the media.

2. Methods

For the content analysis of the media reporting on Fukushima nuclear accident we used the coding and framing method. Coding, for both content analysis or discourse analysis, is based on the quantification of different aspects of the text and the reflection on the identities and motivations of the authors; it can be used to examine either the stability or the flux in the discourse around an issue. This approach allows the correlation of a large number of data and categories and it is commonly used as a scientific method in media research.

In the present study, media reporting includes the analysis of the main press opinion leaders in three European countries, by considering “*Le Soir*” and “*De Standaard*” in Belgium; “*Corriere della Sera*” and “*La Repubblica*” in Italy and “*Večer*” and “*Delo*” in Slovenia. The articles coded were directly or indirectly related to the Fukushima nuclear accident and were published between the 11th of March, 2011 and the 11th of May, 2011. This time sampling of two months was focused on the initial moment of the crisis management, which makes the culture of a nuclear issue visible in mass media.

Each article, in the six different newspapers, was coded (3) by two independent coders for each language group, in the following nine categories of data: **a)** meta data, **b)** type of article, **c)** narrative codes, **d)** issue codes, **e)** tendency of article, **f)** sources of information, **g)** primary or secondary importance, **h)** focus of the article, and **i)** numeracy. Where for example, the type of article includes News, Interview, Editorial, Column, Letter; the narrative codes consider if an article concerns a domestic issue, an issue of EU or Japanese issue, and consider if an article concerns emergency management phase, like preparedness, response, recovery and evaluation. The issue codes are intended to establish the major topic category, including: energy, health, food, nuclear technology, radiation effects, protective actions, tsunami or earthquake, nuclear waste.

The focus of the articles includes: technical aspect, crisis management, affected inhabitants, international reaction, safety/risk aspect, future of nuclear, energy consumption and energy supply, sustainable energy, responsibility for the accident and consequences, economic impact. In the numeracy category we looked at what units are used to describe radioactivity and if the article presented any risk comparison related to radiation, for example with radiation risks from medical purposes, with risks from flying, from natural radiation background, with professional exposure to radiation of workers at nuclear installations, with limits or norms, or with a historic nuclear accident e.g. Chernobyl .

A total of 720 articles were selected for coding: 117 articles published in *Le Soir*, 143 articles in *De Standard*, 151 in *Corriere della Sera*, 119 in *La Repubblica*, 81 in *Večer* and 108 in *Delo* and more than 100 variables were coded in each article, that is 260, 270 and 190 articles from Belgium, Italy and Slovenia respectively.

3. Results and discussion

From the analysis of the number of articles per day or per week on the subjects related to Fukushima nuclear accident, as shown in fig.1, it is clear that the event attracted a great attention by media press at the early beginning and within the first week. The highest number of articles in the first week was found in Italy, where in the previous months a fierce debate

on the possible return of nuclear power was ongoing. The number of articles in the successive weeks had a general monotonous decrease with a reduction, by considering the total of the articles, to the 50% of the initial number in between the third and fourth week.

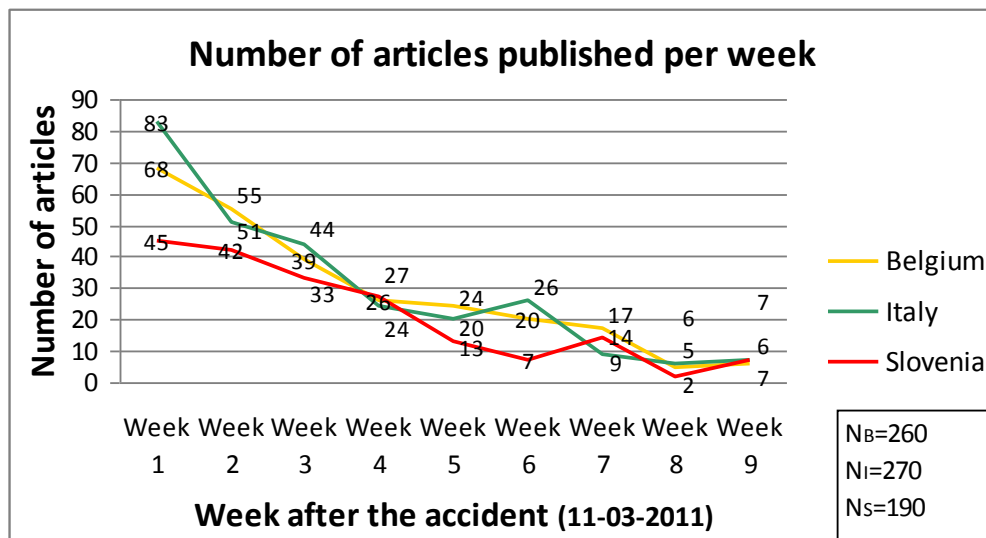


Fig. 1 – Number of articles published per week in the three Countries

Media focused their attention to many topics at the time of the event, but with time they reduced their attention to few topics only. The focus of articles in the three countries was most of the time on crisis management, safety and risks aspects or the future of nuclear. In Italy, as opposed to both Belgium and Slovenia, the attention was significantly more focused on safety and the future of nuclear, as shown in fig. 2. The trend with time in the article focus, showed in fig. 3, tends to give more attention to the discussion on the future of nuclear energy.

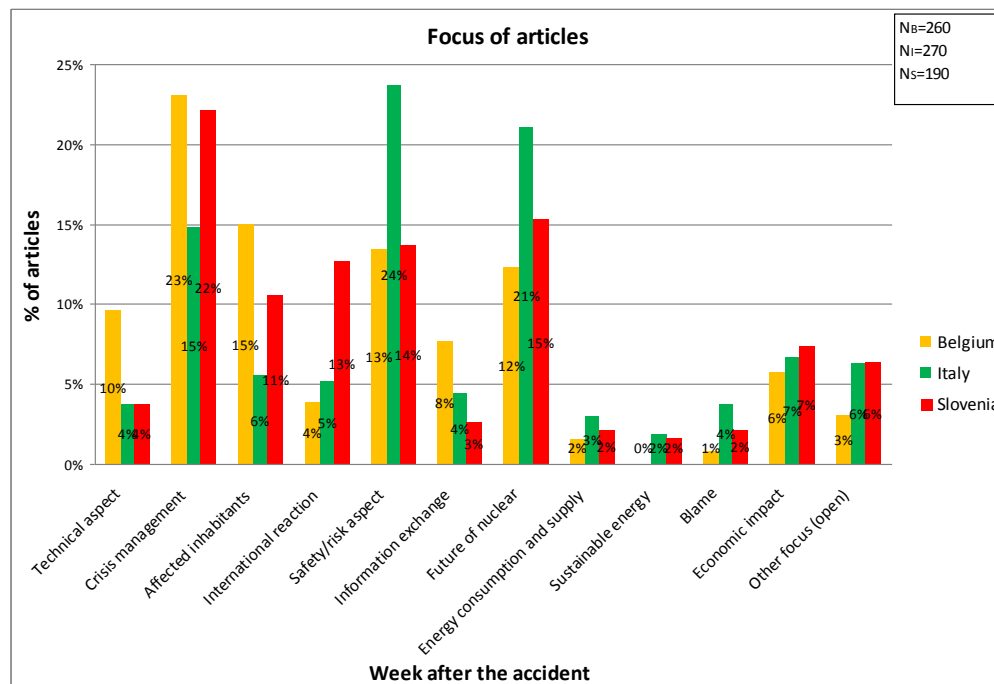


Fig. 2 – Percentage of articles per Country focused on the different aspects, as discussed in paragraph 2.

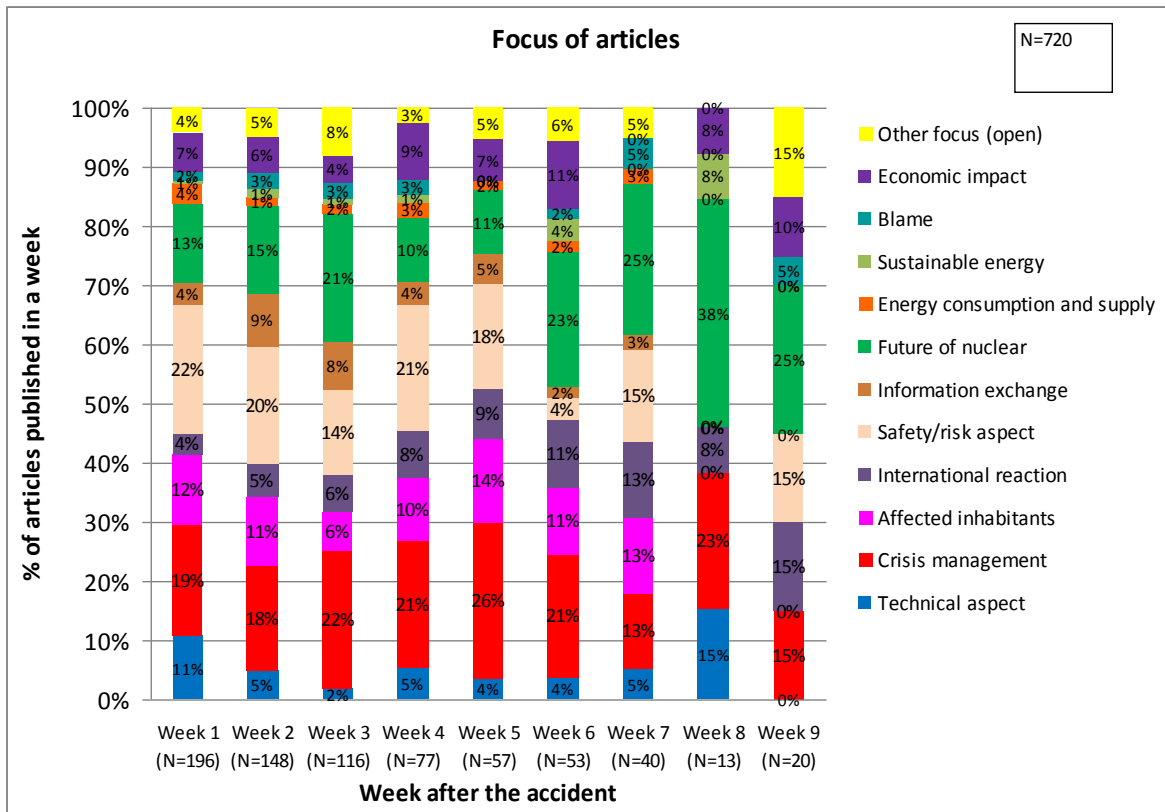


Fig. 3 – Percentage of articles focused on the different aspects in the successive weeks

As illustrated in figure 3, it is surprising that the search for scape goats (blame) is not significantly increasing through time. On the other hand, an increasing focus on the future of nuclear energy and international reaction can be identified.

In the selected articles, the Fukushima accident is not always the main concern. Figure 4 shows that 85% and 84% of the articles published in the Belgium and Slovenia, and 64% of the articles published in Italy, are completely related to the Fukushima nuclear accident. The remaining articles only mentioned the Fukushima nuclear accident, but they discussed other aspects, from the future of nuclear power plants (particularly in Italy) to the cancellation of sport events in Japan.

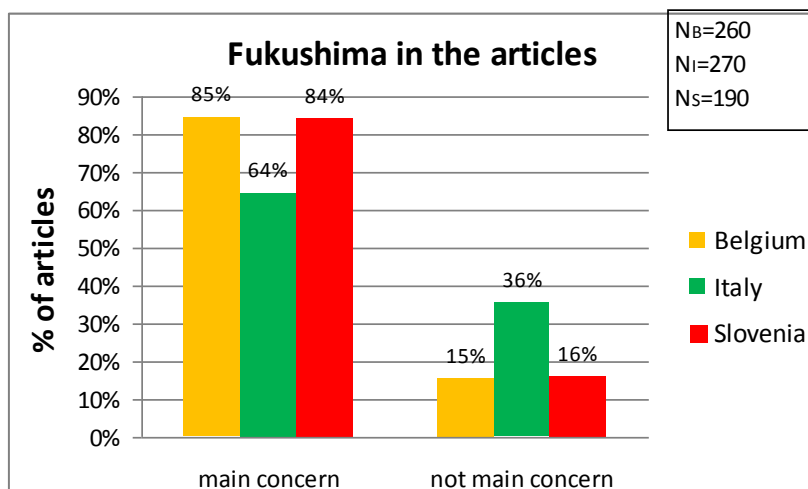


Fig. 4 - Percentage of articles having (or not) Fukushima accident as main concern

As it could be expected in the first two months after the accident, the majority of the articles were events in Japan (see Figure 5). More than half of the articles were primarily or exclusively concerned with the accident in Japan and the development of the situation at the affected nuclear power plant. The second largest category of articles had as main concern an international or global dimension; this category included all the articles that discussed the future of nuclear energy without being specifically linked to any national context. Figure 5 shows that quite some articles were related to domestic concerns as well, once again particularly in Italy, where 29% of the articles discussed the consequences and developments concerning the national situation. Slovenia showed much stronger focus on the international or global concerns, with two times more articles focused on such issues than in Italy and Belgium.

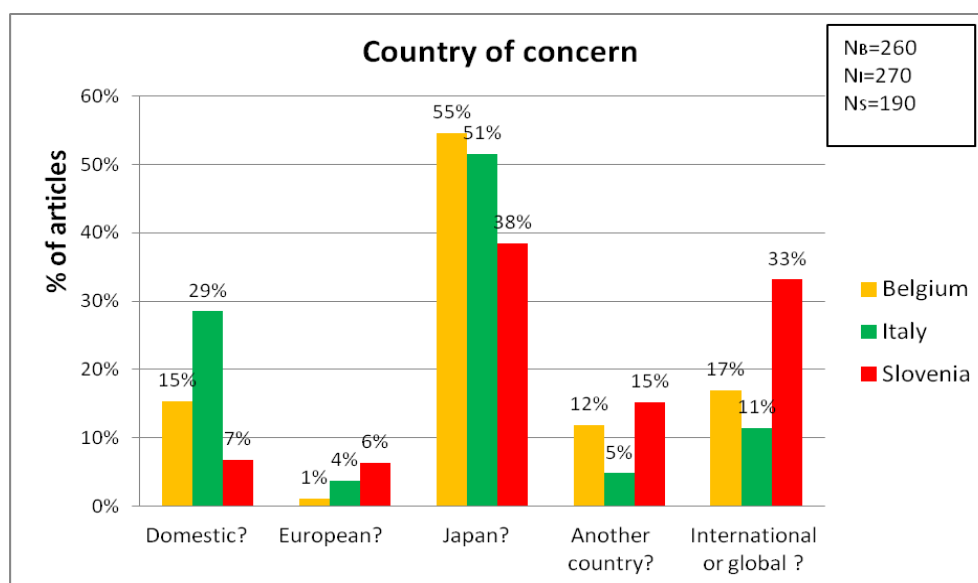


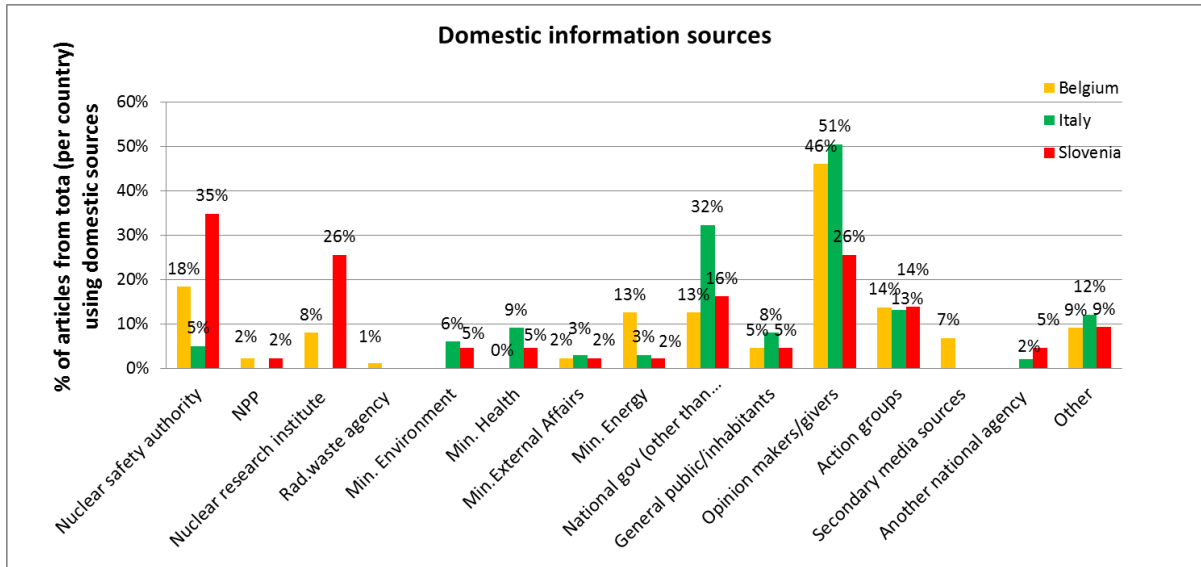
Fig. 5 – Country of concern in the media articles

In order to identify the most important actors in the media reporting about the nuclear accident, we identified the information sources included in each article. These were organized in three groups: domestic sources, external sources (e.g. IAEA) and Japanese sources (see Figure 6a,b,c).

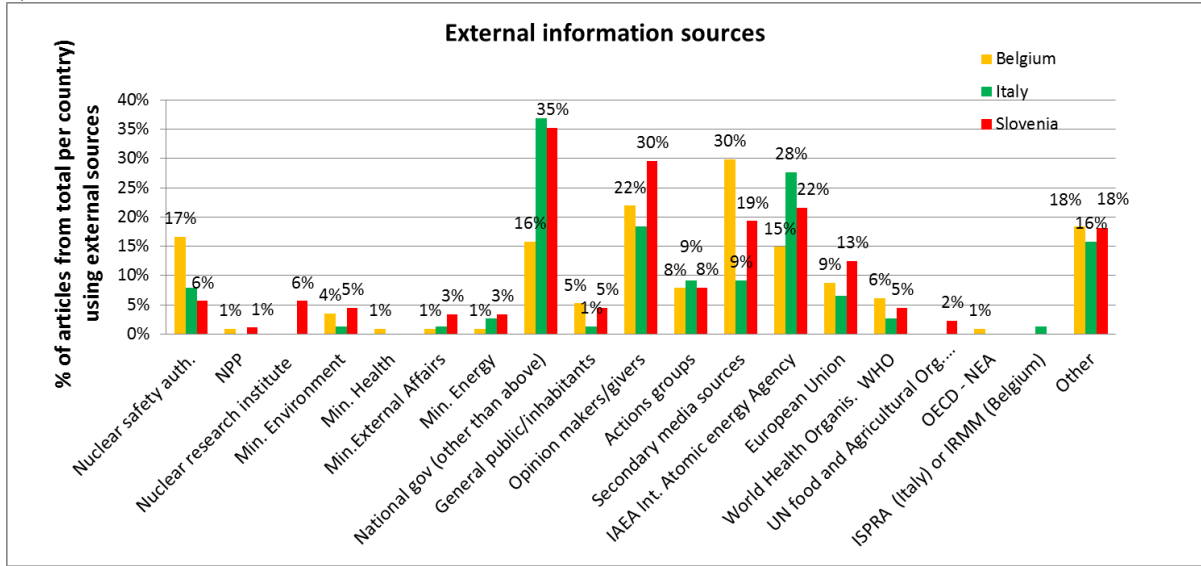
In general, the articles related to the nuclear accident in Fukushima reported about a broad spectrum of actors, from inhabitants to politicians and action groups. The articles had on average three information sources. Among the Japanese sources, the most quoted sources were the government and TEPCO. In Belgium and Italy, the most quoted information source was opinion makers /givers, whereas in Slovenia, where nuclear energy was not under public discussion, the main domestic source was the nuclear safety authority.

The analysis of the information sources shows that the newspapers analysed acted as an arena of discussion, voicing the opinions of a plurality of stakeholders with different values and interests. This is confirmed by the fact that, even if news and features prevail in the reporting about nuclear accident, about every fourth articles is a subjective opinion. In other words, the nuclear accident was often framed in its broader context, for instance the context of international information exchange in case of emergency, nuclear safety, energy needs or international (political) discussion on nuclear energy.

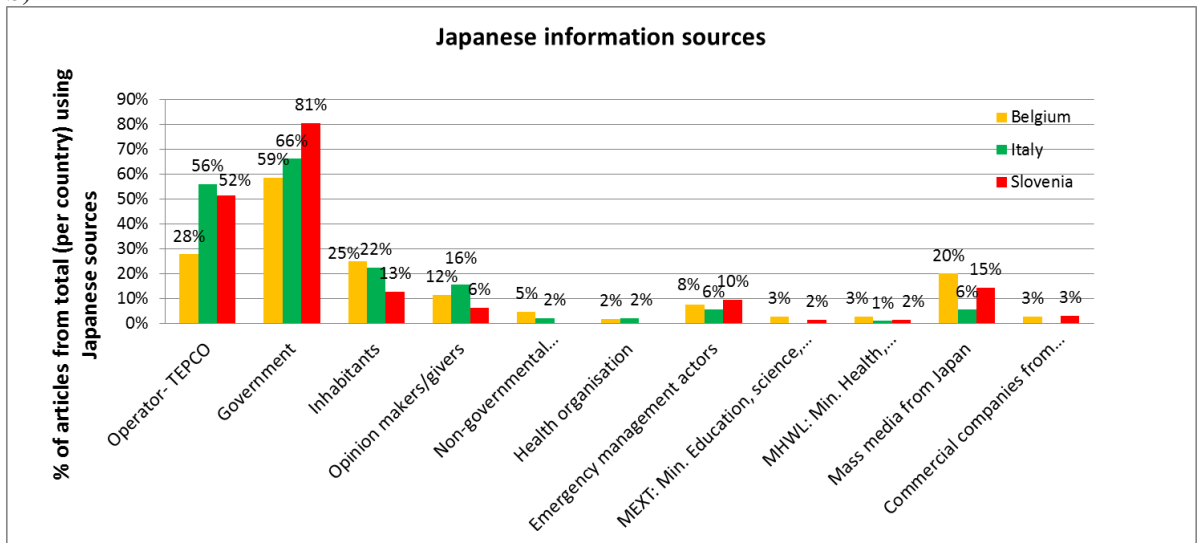
At the same time, preliminary results show that the orientation of the articles about the nuclear accident towards nuclear energy was mostly neutral.



a)



b)



c)

Fig.6 – Information sources: a) domestic; b) external; c) Japanese

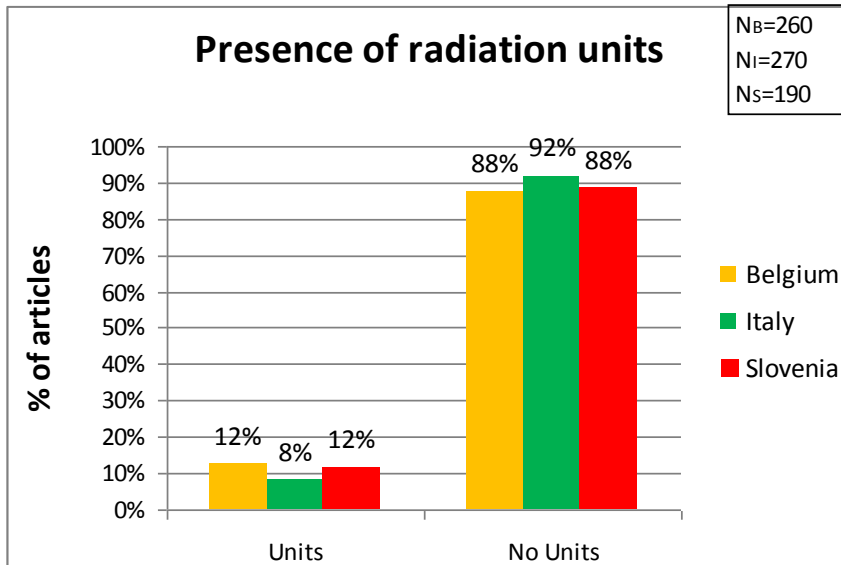


Figure 7 – Presence of radiation units

It is interesting to consider that although the media attention is about radiation, risks and danger, only about 10% of all articles contains radiation units, as shown in Figure 7. We have also found that there was a very large variation in the measurement units used, the most often used being “mSv” (30% of all articles reporting about measurement units).

The analysed articles often use a descriptive risk comparison. Figure 8 shows risk comparisons used in the three countries. Overall, the most oftenly used comparisons were with a historical nuclear accident, with legal limits and norms and with the natural radiation background.

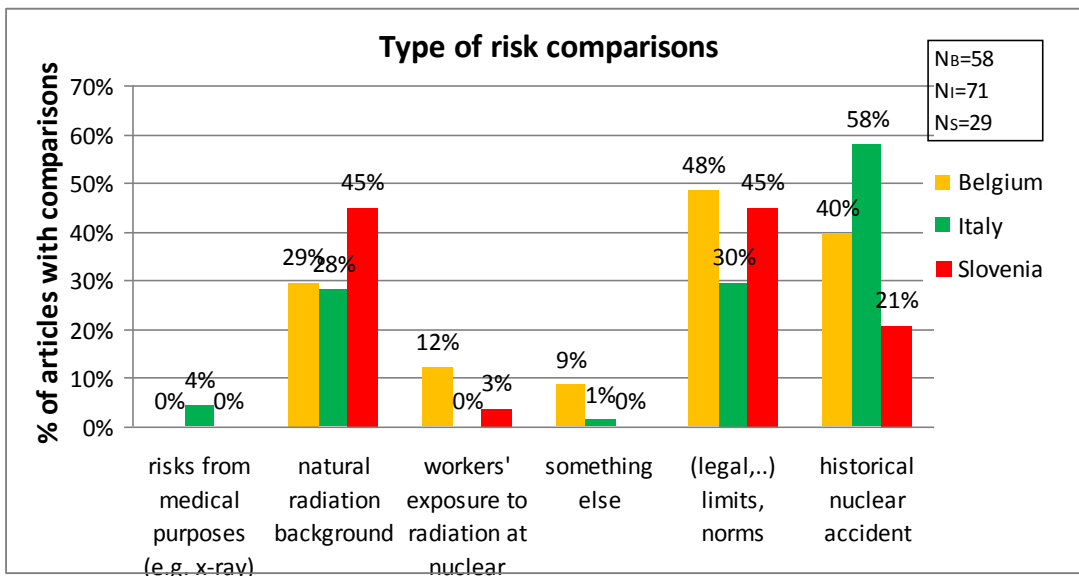


Fig. 8 – Percentage of articles with respect to the different types of risk comparison

4. Conclusions

The present work analyzes and compares the media reporting on the Fukushima nuclear accident in three European countries: Italy, Belgium and Slovenia. A classical content analysis was conducted on the six major newspapers considered as opinion-leading in the three countries. All the articles were directly or indirectly related to the Fukushima nuclear accident published between the 11th of March, 2011 and the 11th of May, 2011 were collected and coded.

Preliminary results show that the analysed media focused their attention on many topics, including the discussion on the future of nuclear power. At the same time, the articles related to the nuclear accident in Fukushima reported about a large spectrum of actors, from inhabitants to politicians and action groups. These results show that the newspapers analysed acted as an arena for discussion, voicing the opinions of a plurality of stakeholders with different values and interests.

This interpretation is confirmed by the fact that, even if news and features prevail in the reporting about nuclear accident, a relatively large number of articles – about one every fourth – is a subjective opinion. At the same time, the nuclear accident was often framed in its broader context, for instance the context of international information exchange in case of emergency, nuclear safety, energy needs or internal or international political discussion on nuclear energy. Nevertheless, the orientation of the articles about the nuclear accident towards nuclear energy was mostly neutral.

Lastly, although the media attention was focused on about radiation, risks and danger, only about 10% of all articles contain radiation units and they often used a descriptive risk comparison.

To conclude, this work, providing a vivid testimony of the dynamics that oriented the mass media in case of a nuclear accident, aims at offering more insights into the development of more effective strategies on risk management, with particular regard to present and future controversies on nuclear power.

5. References

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