

Methodological triangulation to obtain truly interesting results¹

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Introduction

The study I'm presenting is a reflection on the research I've undertaken over the last twenty years in the field of science communication. During this time, I've carried out content analyses on science-related news items, analysed the results of various science and technology social perception studies and undertaken a number of interviews to support the studies published. However, for five years now, I've observed a pressing need to use various data collection methods to obtain more accurate (or precise) results which reveal very subtle nuances with respect to the research, even though these are not statistically significant. My point of view is to use qualitative and quantitative data collection techniques, not exclusively, but linked, to improve the results of the analyses undertaken, using methodological triangulation as a rule to obtain better results.

To illustrate this reflection, I have chosen the study I am currently working on with my research team. The project is called *Analysis of institutional campaigns on human papillomavirus vaccination* (CSO2011-25810), and is funded by the Spanish Ministry of Economy and Competitiveness and co-financed by the European Commission's ERDF funds. The aim of the research is to analyse how institutional campaigns for HPV vaccinations have been carried out in Spain, as this was a new vaccination added to the official vaccination schedule, and was accompanied by a certain amount of controversy. Scientists' and experts' arguments clearly indicate a lack of consensus between the "for" and "against" positions with regard to HPV vaccination.

¹ The work presented in this paper was carried out as part of the project *Analysis of institutional campaigns on Human Papillomavirus vaccination* (CSO2011-25810), funded by the Spanish Ministry of Economy and Competitiveness and co-financed by FEDER funds of the European Commission.

This controversy within the scientific community has translated to uncertainty among the affected population. The hospitalisation of two girls in Valencia after being vaccinated also caused concern among those responsible for deciding whether to have their daughters vaccinated.

Methodology

This research project poses a series of significant challenges:

1. Raise awareness of the controversy over HPV vaccination, as despite the fact that institutional campaigns link the vaccination with cervical cancer prevention, number of the girls vaccinated in Spain stands at around 50%.
2. Evaluate the testimonies of people affected by the vaccine as statistically significant.
3. Examine the arguments for and against HPV vaccination, on an equal footing.
4. Analyse the value of the media with regard to the perception of the risk of developing cancer among those who have to decide whether or not to have their daughters vaccinated.

Discussion

There is no consolidated anti-vaccination movement in Spain. There is a group in Catalonia, the *Liga para la libertad de vacunación* (“*League for Vaccination Freedom*”), which has gained a high profile, particularly through the internet and social networks. However, socially-speaking, this is not the movement that has generated certain uncertainty around this vaccination; an association has been created for Victims of the Vaccination for Human Papillomavirus, which has achieved greater presence in the media. In 2007, when the vaccination was included in the official schedule, various public health specialists, doctors, epidemiologists, virologists and biologists questioned the use of mass HPV vaccination on the grounds of cost effectiveness and the low rates of cervical cancer in Spain. Eight thousand healthcare professionals signed a statement requesting that the Ministry of Health impose a moratorium, which was ignored. The existence of this statement has been one of the main arguments used by groups which do not believe in the need for mass vaccination.

In this project, our first step was to undertake an analysis of the content of the online editions of seven daily newspapers, from 2007 to 2013. We chose the year 2007 because that was when the HPV vaccination was included in the official vaccination schedule for adolescents (aged 11-14), and we closed the study in 2013 to evaluate the continuance of publication of news items on the vaccination. Most of the pieces published were about the institutional campaigns carried out in Spain's various Autonomous Communities. In total, we identified 297 documents in seven newspapers: *ABC*², *El Comercio*³ and *Las Provincias*⁴ (which belong to the publishing group Grupo Vocento de Comunicación), *El Levante*⁵ and *La Nueva España*⁶ (which belong to Grupo Editorial Prensa Ibérica, a regional media group), *El País*⁷ (which belongs to PRISA) and *El Mundo*⁸ (owned by Grupo Unidad Editorial). *Levante* and *Las Provincias* are published in the Community of Valencia, *El Comercio* and *La Nueva España* are published in Asturias and *El Mundo*, *El País* and *ABC* are published in Madrid with a nationwide print run. Three different Madrid-based publications were chosen in order to represent the ideologies of the three main social trends.

The study of the institutional campaigns is being carried out in three Autonomous Communities: Valencia, Madrid and Asturias.

Results

The analysis of the press articles provided us with very interesting data, but these alone do not reveal details of importance for the research project. Articles on HPV vaccination have been published constantly; some documents highlight the risks and others highlight the benefits, although the stance, the length of the pieces, the sources and the tone of the articles were more forceful and tougher with respect to the "risks" than the "benefits". A total of 297 articles were run. There are 149 "pro-vaccination" texts vs. 127

² *ABC* is a right-wing, pro-monarchy, catholic publication.

³ *El Comercio* is a conservative daily.

⁴ *Las Provincias* is a conservative daily. Regionalist stance (Valencia).

⁵ *El Levante* is a progressive daily.

⁶ *La Nueva España* is a liberal publication.

⁷ *El País* is a centre-left, social democrat daily, closely aligned with the socialist PSOE party.

⁸ *El Mundo* is liberal centrist daily.

“anti-vaccination” pieces. From the data collected, we could deduce that the number of texts on the benefits of the vaccination, in absolute terms, is greater than the number printed on the risks. However, this data was not obtained using an algorithm programme – using word search engines – we consulted each of the documents individually, as the volume was entirely manageable.

We cross checked the arguments published in the newspapers against the testimonies from four in-depth interviews, two of which were carried out with people affected by the vaccination – the mothers of girls who suffered adverse effects after being vaccinated. The other two interviewees were a molecular biologist who explained, from a scientific perspective, why mass vaccination is not justified, and a healthcare expert from the Community of Valencia, who described the advertising strategies used to drive an increase in the number of girls being vaccinated every year.

Discussion

We also took into account a perception study published in 2013 by Sanz Barbero *et al* on the risk of developing cancer. The authors showed that the perception of the risk of developing cervical cancer is very low among the Spanish population. In Spain, tobacco and sun exposure are considered major risk factors for the development of some form of cancer, whereas sexually transmitted diseases are not considered important factors. The data source analysed was the *Oncobarómetro*, a population database representing Spanish citizens over the age of 18 which includes information on knowledge, attitudes and perceptions around cancer. The questionnaire was designed by the Cancer Observatory at the Spanish Association against Cancer and the Centre for Sociological Research (CIS). The field work was undertaken by the Centre for Sociological Research between November and December 2010. The sample comprised 7,938 men and women living in Spain. The interviews were carried out in person. The microdata from this survey are available on the CIS website.

Conclusions

Methodological triangulation allowed us to refine (distil) the arguments identified, which clearly indicate a lack of scientific consensus over the years of the study. This provided us with evidence of the controversy within the scientific community

and the uncertainty among the population. As was confirmed in one of the interviews, with an expert from the Community of Valencia, the government has not achieved its goal of vaccinating the entire population, as it has with other vaccinations. The perception of risk for this vaccination is clearly higher than it is for others.

The arguments of those in favour of the vaccination are backed by clinical trials which have presented scientific evidence that vaccinations offer a high degree of safety and are effective. On the flipside, the arguments of the experts who are anti-HPV vaccination are based on the following premises: a) cost effectiveness, given the low rates of cervical cancer in Spain; b) the medicalisation of girls and adolescents during a healthy phase of their lives; and c) the vaccination of girls is deemed equivalent to carrying out a large-scale public health experiment, as the results will not be known for around 25 years.

The mothers of the girls affected by the vaccination said in their interviews: “We are not anti-vaccination; we are anti-HPV vaccination”.

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