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A content analysis of mass media sources in relation to the MMR vaccine scare

Louise Guillaume and Peter A. Bath

In light of the mass media coverage that the MMR (measles, mumps and rubella) vaccine received as a result of questions raised about its safety, a content analysis of mass media articles about the MMR vaccine was undertaken. The analysis examined 227 articles published in five different information sources in a 2 month period. The analysis looked at 94 content-based variables and the key attributes of these articles including word count and date of publication. Descriptive and analytical statistics relating to both article content and format were produced. The analysis showed that the content and format of articles between different information sources varied widely. These differences can be attributed to the information source in which they are published, but the variability in the content of these information sources provides a challenge to parents who were shown to be using the mass media as an information source.

Keywords

content analysis, mass media, MMR vaccine, newspaper, website

Introduction

The MMR (measles, mumps and rubella) vaccine scare has been one of the major health issues in the United Kingdom over the last decade. The publication of research which cast doubt on the safety of the MMR vaccine in 1998 [1] led to widespread media reporting and falling MMR vaccine rates alongside outbreaks of measles which were attributed to those falling vaccine rates. The media coverage received by the MMR vaccine peaked in early 2002. In 2005 the majority of the authors of the paper which originally cast doubt on the safety of the MMR vaccine withdrew the paper, although doubts about the safety

of the MMR vaccine persist, with low uptake figures and with measles outbreaks a cause of concern for public health officials and parents of children.

The rationale for undertaking a content analysis of mass media reporting about the MMR vaccine scare was related to the perceived importance of the scare to parents in terms of their decision making about the MMR vaccine, and to the importance of the media as a source of information for parents [2–5]. A content analysis of media portrayal of the questions relating to the safety of the MMR vaccine and the subsequent health scare allows a deeper examination of an important contributor to the MMR vaccine scare. Previous literature has emphasized the media's role in reporting the concerns about the safety of the MMR vaccine: for example, Pareek and Pattinson [4] found that the media were the main source of parents' information about side effects of the MMR vaccine, and Evans et al. [5] found that parents who were unsure about the MMR vaccine were heavily influenced by the mass media. Other research examining the information needs of parents as a result of the MMR vaccine scare [2] further emphasized the importance of the mass media as an information source to parents, and suggested that parents may have viewed the mass media as a potential contributor to the MMR vaccine scare. These findings suggested that an analysis of the reporting of the MMR vaccine in the mass media would provide an interesting insight into the role of mass media as an information source during health scares.

Methodology

Content analysis uses both qualitative and quantitative methods to make inferences from given information. Quantitative content analysis is objective and systematic [6], replicable and valid [7], and summarizing and quantitative [8]. However, qualitative content analysis is used to examine language, characterization and imagery [9] and the differences between manifest and latent content [10]. The content analysis undertaken here follows the definition of Schwandt, who stated that the key aspects of a content analysis study are 'a variety of means of textual analysis that involve comparing, contrasting and categorising a corpus of data' [11, p. 21].

It was essential that the data collection tool was generated from existing data so that it had a firm theoretical grounding. As Silverman advised, 'the terms counted are not determined by an arbitrary or common sense version of what may be interesting to count in a text' [12, p. 128]. The data collection tool was based on the aims of the content analysis, previous research undertaken by the authors and, as Cavanagh [13] recommended, relevant literature and research findings. The data collection tool was developed before the content was examined; however, themes that emerged from the content analysis but were not included in the data collection tool were added to it and the data were reanalysed in light of these emergent themes.

Methods

Search strategy

The sample was a stratified convenience sample. It was decided to focus on UK newspapers and WWW news sources. Using Miles and Huberman's [14] definition of a conceptual

question, it was decided that the newspapers to be analysed would be selected in order to gain a broad overview of media coverage. Therefore, the sample included broadsheet and tabloid newspapers and reflected the political preference of newspapers. The selected newspapers were *The Guardian* (broadsheet, left of centre), *The Daily Telegraph* (broadsheet, right of centre), the *Daily Mail* (tabloid, right of centre) and *The Sun* (tabloid, right of centre, but supportive of the Labour government). News stories that had appeared on BBC News Online during the study period were also sampled. The sample was limited by date in order to work with data collected during a specific episode of the MMR vaccine scare. As Lewis and Speers [15] point out, the peak of media coverage about the MMR vaccine was 28 January 2002 to 28 February 2002. The timeframe selected was 1 January 2002 to 28 February 2002. The search strategy for the articles for the content analysis was based upon the aims of the content analysis. The search used the phrase 'MMR' in the full text search box. This approach was taken to ensure that all articles which mentioned the scare that surrounded the MMR vaccine would be retrieved but retrieval of non-relevant articles would be minimized, i.e. to maximize recall and precision. The search was also limited to the above dates. The data collection tool comprised a list of individuals, content and themes relating to the MMR vaccine scare. These were selected based upon previous research, a review of literature and the aims of the content analysis. Ninety-four different variables were included in the data collection tool in five main areas: named and unnamed individuals, incidents, issues and themes. These were further broken down into whether the individual, incident or issue was in favour of the MMR vaccine, against the MMR vaccine or neutral with respect to the MMR vaccine.

Process of analysis

The first stage of data collection took the form of analysing the sample in terms of a number of key attributes including word counts and dates. These data were entered into SPSS 11.5 and descriptive statistics were produced. These aimed to measure the frequency of aspects of the MMR vaccine scare in the different sources. The format of the article was also measured and an assessment was made of whether the MMR vaccine scare was the focus of the article or mentioned in the article alongside a related or unrelated issue.

The second stage of data collection was the content analysis, which consisted of reading the sample documents, highlighting important concepts and placing these into categories as appropriate, before recording the findings using the data collection tool. As previously discussed, if any emergent content became evident then this was incorporated into the data collection tool in the form of new categories: all documents were then re-analysed using the new categories. The purpose of this was to measure the meaning of the MMR vaccine scare in different sources. The data from the data collection tool were then entered into SPSS 11.5 and analysed using descriptive statistics and χ^2 (chi-squared) tests. Where appropriate, i.e. to account for multiple comparisons and to avoid type I errors, a was set to 0.01 for χ^2 tests of association. For all other χ^2 tests, a was set to 0.05. The data presented here refer only to articles where the MMR vaccine was the focus of the article. As all the χ^2 analyses were carried out on 2 × 2 tables, the continuity correction was used.

Before the articles from the newspapers and online sources were analysed, the articles had to be checked to ensure that there were no duplicate articles (i.e. articles entered into the database twice erroneously). Articles that reviewed the reporting of the MMR vaccine scare in other information sources, i.e. what other newspapers said, were excluded.

Any content that was not included in the *a priori* data collection tool was included in the form of categories and the articles were reanalysed using these categories.

Results

Overview

A total of 227 articles were retrieved and included in the content analysis. Of these, 53 were from *The Guardian*, 38 from *The Daily Telegraph*, 33 from the *Daily Mail*, 60 from *The Sun* and 43 from BBC News Online.

The MMR vaccine received the majority of coverage in the first 2 weeks of February, as Table 1 shows.

The word counts of all articles in which the MMR vaccine appeared ranged from 11 to 2948 (mean = 653, SD = 535, median = 535). There was considerable variation in word length per article across the five sources, as the mean, median and range in Table 2 indicate.

Article content

The most frequently occurring content in all of the articles analysed was about the measles outbreaks that were occurring across England in January and February 2002 ($n = 78$). These articles reflect the currency of this reported consequence of the MMR vaccine scare. In addition, 51 articles mentioned the uptake figures for the MMR vaccine as they were in January and February 2002, and also discussed the problems of low MMR vaccine uptake. This was attributed to the MMR vaccine scare and was reported to have led to the measles outbreaks that were occurring. Fifty articles mentioned the problem of low MMR vaccine uptake. These figures may have been presented for a variety of reasons, e.g. to indicate that falling MMR vaccine rates were dangerous or to suggest that falling MMR vaccine

Table 1 Date when most articles published

Source	*Date*	*Number of articles*
Daily Mail	8 February 2002	5
The Daily Telegraph	8 February 2002	8
The Guardian	7 February 2002	9
The Sun	7 February 2002	10
BBC News Online	6 February 2002	10

Table 2 Word counts of articles

Source	*Mean*	*Median*	*Range*
Daily Mail	1155	1028	384–2718
The Daily Telegraph	698	598	134–1595
The Guardian	759	703	150–2948
The Sun	258	156	11–1233

rates indicated that there was a problem with the MMR vaccine. Issues regarding MMR vaccine uptake tended to be presented numerically, which gave parents the opportunity to use factual information in their decision-making process.

The MMR vaccination status of Leo Blair (the son of the Prime Minister, Tony Blair) was a frequently occurring theme (n = 51) and indicates how the reporting of the MMR vaccine scare was undertaken. All of the articles that mentioned Leo Blair were either neutral or negative about the decision of Tony Blair not to reveal the MMR vaccination status of his youngest child on the grounds of privacy.

There was a more frequent occurrence of articles (n = 44) describing children who had been damaged by measles, mumps and rubella than children whom parents alleged had been damaged by the MMR vaccine (n = 21). This is interesting, in light of the mostly negative coverage that the MMR vaccine received in the articles analysed.

In the wider context of the vaccine scare, content on the alleged link between the MMR vaccine and autism/bowel disorders which was proposed by Wakefield et al. [1] was examined. A greater number of articles mentioned the link between the MMR vaccine and autism (n = 68) and the link between the MMR vaccine and bowel disorders (n = 52) than refuted the link (autism = 28, bowel disorders = 21). This also reflects the nature of the reporting of the MMR vaccine scare, in that articles which mentioned the link between the MMR vaccine and autism/bowel disorders stated that the link was 'alleged' but did not go into detail to refute the link. The research of Wakefield et al. [1] was mentioned in 31 articles, but 17 of these mentioned the limitations of the research.

Articles included content that recommended single vaccinations against measles, mumps and rubella (n = 48) and reported on the increased demand for single vaccinations (n = 52). Only 21 articles mentioned the risk to health from single vaccines, whereas 26 mentioned single vaccines as having financial implications for parents.

Content and associations

In terms of individuals and content, no significant associations were found between mention of parents who were pro MMR vaccine and article content, mention of parents who were unsure about the MMR vaccine and article content, and mention of health care professionals (HCPs) who were unsure about the MMR vaccine and article content.

Table 3 provides details of the results of the χ^2 tests to determine whether there was an association between whether individuals were mentioned or not and whether specific issues were included in the article contents or not.

There were highly significant associations between the mention of Andrew Wakefield in articles and the article contents, including the mention of autism and bowel disorders and the MMR vaccine, i.e. addressing the links which Wakefield et al. [1] had proposed existed between the MMR vaccine and autism/bowel disease. Of the 32 articles in which Andrew Wakefield was mentioned, 24 (75%) mentioned that autism was related to the MMR vaccine, compared with the 136 articles that did not mention Andrew Wakefield, of which 44 (32.4%) mentioned that autism was related to the MMR vaccine. With respect to the alleged bowel disease and MMR vaccination link, of the 32 articles in which Andrew Wakefield was mentioned, 26 (81.3%) mentioned that bowel disorders were related to the MMR vaccine, compared with the 136 articles that did not mention Andrew Wakefield, of which 31 (22.8%) mentioned that bowel disorders were related to the MMR vaccine.

Table 3 Results of χ^2 tests

Individual	*Issues included in the content*	χ^2	*d.f.*	*p*
Andrew Wakefield	Autism related to MMR vaccine	17.825	1	0.00
Andrew Wakefield	Bowel disorders related to MMR vaccine	20.277	1	0.00
Andrew Wakefield	Wakefield research	98.505	1	0.00
Andrew Wakefield	Wakefield research limited	23.383	1	0.00
Tony Blair	MMR OK worldwide	6.566	1	0.01
Tony Blair	Leo Blair	76.050	1	0.00
Parent (anti MMR)	Child damaged by MMR	32.485	1	0.00
Parent (anti MMR)	Single vaccines, cost to individual	6.952	1	0.008
HCP (pro MMR)	Damaged child, measles	6.447	1	0.01
HCP (anti MMR)	Single vaccines, recommended	9.255	1	0.002
HCP (anti MMR)	How to arrange single vaccines	8.046	1	0.005

d.f. = degrees of freedom; *p* = probability.

As in the case of Andrew Wakefield, the associations that were found between the mention of Tony Blair and content relating to the MMR vaccine scare were expected. The mention of Tony Blair was significantly associated with the mention of Leo Blair and also with the fact that the MMR vaccine is used worldwide. Of the 56 articles that mentioned Tony Blair, 10 (17.9%) mentioned that the MMR vaccine was used worldwide with no problems, compared with the 112 articles that did not mention Tony Blair, of which five (4.5%) mentioned that the MMR vaccine was used worldwide with no problems. With respect to the mention of Leo Blair, of the 56 articles that mentioned Tony Blair, 42 (75%) also mentioned Leo Blair, compared with the 112 articles that did not mention Tony Blair, of which nine (8%) mentioned Leo Blair.

The mention of parents who were not in favour of the MMR vaccine was found to be associated with allegations that children had been damaged by the MMR vaccine, but was also found to be associated with the mention of cost of the single vaccine to the individual. Of the 40 articles that mentioned parents that were anti MMR vaccination, 16 (40%) mentioned a child that was alleged to have been damaged by the MMR vaccine, compared with the 128 articles that did not mention parents that were anti MMR vaccination, of which five (3.9%) mentioned a child that was alleged to have been damaged by the MMR vaccine. With respect to the financial cost of single vaccines to individuals, of the 40 articles that mentioned parents that were anti MMR vaccination, 12 (30%) mentioned the cost of the single vaccines, whereas the cost of single vaccines was only mentioned in 14 (10.9%) of the articles that did not mention a parent that was anti MMR vaccination.

The mention of HCPs who were pro MMR vaccination was found to be associated with content relating to the mention of the conditions of measles, mumps and rubella. This emphasis on measles, mumps and rubella can be seen in the associations between the mention of HCPs who were pro MMR vaccine and the mention of children who had been damaged by measles. Of the 46 articles that mentioned an HCP who was pro MMR vaccination, 19 (41.3%) mentioned a child that was damaged by measles, compared with the 122 articles that did not mention an HCP who was pro MMR vaccination, of which 25 (20.5%) mentioned a child that was damaged by measles.

The mention of HCPs who were against the MMR vaccine was found to be associated with the mention of single vaccines. Of the 15 articles that mentioned an HCP who was anti MMR vaccination, 10 (66.7%) contained content that recommended single vaccines, whereas of the 153 articles that did not mention an HCP who was anti MMR vaccination, 38 (24.8%) contained content that recommended single vaccines. With reference to how to arrange single vaccines, of the 15 articles that mentioned an HCP who was anti MMR vaccination, five (33.3%) contained content that recommended single vaccines, whereas of the 153 articles that did not mention an HCP who was anti MMR vaccination, 10 (6.5%) contained content that recommended single vaccines.

The MMR vaccine scare: focus of the article?

Of the 227 articles retrieved, 168 (74.0%) had the MMR vaccine as the main focus of the article; in 59 articles (26.0%) the MMR vaccine was only mentioned.

Focus and word count. In all sources, the MMR vaccine was more likely to be the focus of the article than to be mentioned in the article: this reflects the currency of the issue at that time. However, there was a significant association between information source and whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine ($\chi^2 = 9.72$, d.f. = 4, $p = 0.025$). The source that had the highest proportion of articles that were focused on the MMR vaccine was *The Sun* (51 out of 60 articles, 85%) and the source that had the lowest proportion of articles that were focused on the MMR vaccine was *The Guardian* (32 out of 53 articles, 60.4%).

Focus and format. There was a significant association between whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine in relation to the format of the article ($\chi^2 = 54.85$, d.f. = 4, $p = 0.001$). Of the 168 articles that focused on the MMR vaccine, 100 (59.5%) were news articles, compared with the 59 articles that mentioned the MMR vaccine, of which only 13 (22%) were news articles. In contrast, 21 (52.5%) of the articles which mentioned the MMR vaccine were column/comment articles, whereas only 22 (13%) of the articles which focused on the MMR vaccine were column/comment articles.

Focus and content. The key individuals and groups that were mentioned in articles were compared in terms of whether they were in an article that was focused on the MMR vaccine or whether it only mentioned the MMR vaccine. The results are shown in Table 4.

As Table 4 shows, 430 individuals/groups were mentioned in the 168 articles that focused on the MMR vaccine and 59 individuals/groups were mentioned in the 59 articles that mentioned the MMR vaccine. There was a significant association between whether articles focused on the MMR vaccine or mentioned the MMR vaccine in relation to individuals who were included in the article ($\chi^2 = 73.78$, d.f. = 7, $p = 0.001$): articles that focused on the MMR vaccine were more likely to mention individuals than articles that only mentioned the MMR vaccine. Politicians were the most frequently mentioned individuals/groups in articles where the MMR vaccine was the focus, and Tony Blair was the most frequently mentioned individual/group in articles where the MMR vaccine was mentioned.

Focus and stance. Table 5 presents the number of times that individuals in favour, against or neutral about MMR vaccination were mentioned (Andrew Wakefield was considered to be against the MMR vaccine and Tony Blair and the CMO were considered to be in favour).

Table 4 Focus and article content

Key individuals	*Focused on MMR n (% of these articles)*	*MMR mentioned n (% of these articles)*	*Overall n (%)*
Andrew Wakefield	32 (7.4)	1 (1.7)	33 (6.8)
Tony Blair	56 (13.0)	27 (45.8)	83 (16.9)
CMO	30 (7.0)	2 (3.4)	32 (6.5)
Parent	66 (15.3)	5 (8.5)	71 (14.5)
HCP	65 (15.1)	4 (6.8)	69 (14.1)
Other politician	82 (19.1)	13 (22.0)	95 (19.4)
Other scientist	27 (6.4)	2 (3.4)	29 (6.1)
Other	72 (16.7)	5 (8.4)	77 (15.7)
Total	430	59	489

Table 5 Stance of individuals and groups

Stance	*Focused on MMR n (%)*	*MMR mentioned n (%)*	*Total n (%)*
In favour	249 (57.9)	43 (72.9)	292 (59.7)
Against	143 (33.3)	10 (16.9)	153 (31.3)
Neutral	38 (8.8)	6 (10.2)	44 (9)
Total	430 (100)	59 (100)	489 (100)

There was a significant association between whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine in relation to the stance of the article ($\chi^2 = 6.46$, d.f. = 7, $p = 0.05$). As Table 5 indicates, individuals/groups who were in favour of the MMR vaccine were a higher proportion of all individuals in articles which mentioned the MMR vaccine (43 out of 59 articles) than articles which focused on the MMR vaccine (249 out of 430 articles). (These figures need to be interpreted with caution. As stated above, the occurrence of e.g. Tony Blair in an article would lead to the article including an individual who was in favour of the MMR vaccine. However, the inclusion of Tony Blair in an article may be an indication that the article is adopting a negative stance towards Tony Blair with respect to his views about the MMR vaccine.)

Discussion

The results of the content analysis provide insights into the role of mass media as an information source for parents of young children during health scares. The retrieval of 227 articles that reported on the MMR vaccine from five sources during the 2 month sampling period, and the finding that almost three-quarters of these focused on the MMR vaccine rather than just mentioned it in passing, highlight the importance of this news item during time and the extent of information. The finding that *The Sun* had the lowest mean word count and the Guardian the second highest mean word count suggests that shorter

articles tended to be more focused on the MMR vaccine whereas longer articles (*The Guardian* had the second highest mean word count) tended to address broader issues and mentioned the MMR vaccine scare, in addition to focusing on it. This higher word count may indicate that more issues are being mentioned in the article or that the article is covering the issues in greater depth.

The different ways of reporting (i.e. focusing on or mentioning the MMR vaccine issue) may reflect the approach that the writer of the article is adopting to the reporting of the MMR vaccine scare. Articles that mentioned the MMR vaccine (rather than exploring the issue in any depth) tended to be negative, opinion-based articles which used the MMR vaccine to criticize the government. In contrast, articles that were focused on the MMR vaccine tended to examine the issues in more detail, for example, looking at the health implications of a measles outbreak. The analysis of article content revealed the complexity in the reporting about the MMR vaccine and the MMR vaccine scare, and indicated that generalizing about the stance of an article based upon the issue being reported may be misleading. For example, the inclusion of Tony Blair in an article means that an individual who is in favour of the MMR vaccine is being included in an article. However, the inclusion of Tony Blair may also have been in an article which is negative about the MMR vaccine, e.g. the failure of Tony Blair to reveal his son's MMR vaccination status. Similarly, an article mentioning Andrew Wakefield could be anti MMR vaccination and supporting his research, or might be pro MMR vaccination if it was criticizing his research. The implication of this is that articles need to be viewed holistically, rather than in terms of their constituent parts. This may be how parents view articles and may also suggest why there was not total agreement in the subjective and objective assessments of the articles.

The MMR vaccine scare was characterized in the mass media as a two-sided debate about the safety of the vaccine. The anti MMR vaccine lobby based its argument on the research of Wakefield et al. [1] and supported this by anecdotal evidence of children alleged to be damaged by the MMR vaccine. As this research was the trigger for the MMR vaccine scare, the pro MMR vaccine lobby had to address two issues: refuting the evidence of Wakefield et al. [1] that the MMR vaccine poses a risk to children, and promoting the MMR vaccine as an important way to deal with the diseases of measles, mumps and rubella. Both 'sides' of the MMR vaccine debate were presented in the media as having compelling arguments. However, Hargreaves et al. [16] found that the burden of proof was placed on those who supported the MMR vaccine to prove that it was safe.

The finding that politicians were the most frequently mentioned individuals/groups in articles focused on the MMR vaccine, and were the second most frequently occurring individuals in articles in which the MMR vaccine was mentioned, provides an insight into the way in which the MMR vaccine was reported in the mass media. The MMR vaccine scare was presented as a political issue and politicians were often quoted or their viewpoint mentioned in articles relating to the MMR vaccine scare. The finding that parents and HCPs were the second and third most frequently mentioned groups is reassuring as it could be argued that (after children) they were the major stakeholders in the MMR vaccine scare.

The message that parents would have received about the MMR vaccine through the newspapers was influenced by the presentation of the MMR vaccine in articles. Parents may have viewed articles in their entirety, or may have focused on the constituent parts that interested them. People may have been influenced by the overall stance of the article, e.g. whether it was pro or anti MMR vaccine, but they may also have been influenced by

individual constituent parts, e.g. the incidence of measles in the population. These different ways in which people received messages from the media suggest that looking at the presentation of the MMR vaccine in articles alone cannot imply how parents are receiving the message about the MMR vaccine that the author of the article is trying to promote.

The mass media differ from other information sources (e.g. leaflets) in that they present information on a wide variety of different issues and news stories, in addition to the MMR vaccine scare. The media are an information source, but in the context of the MMR vaccine scare they have a very different role from other information sources such as leaflets. While the media are used as an information source, providing objective information to those who are using the information source is not the primary aim of the media. Rather the media aim to engage readers/listeners and, in the case of newspapers, to sell as many as possible for financial gain. For those who access newspapers, the information they provide is often difficult to avoid and the format in which it is presented may influence individuals to adopt a particular stance or course of action. This has implications in that the media are an important information source for parents, and while parents may buy newspapers for their general news content, they can inadvertently fulfil a specific role in information provision for parents. This is interesting when seen in the context that the media in part generated much of the mistrust in official information sources.

Limitations

The main limitation of the content analysis is that, due to resource constraints, only one researcher undertook the data collection and coding. This meant that it was impossible to check that the data being collected were valid, i.e. that when categories were recorded, they were categories that existed and that the categories were represented accurately. In addition, a relatively small number of articles (n = 227) from five information sources were examined; however, this was in part due to the intention to analyse a single complete episode of the MMR vaccine scare, as well as due to resource constraints.

Conclusion

A content analysis was undertaken on 227 articles which were either focused on or mentioned the MMR vaccine. The analysis found that mass media reporting about the MMR vaccine examined not only issues relating to the vaccine itself, such as the safety of the MMR vaccine, but wider issues such as trust in politicians and the right to privacy of Tony Blair. The media reporting was characterized by specific events/episodes that led to increased coverage relating to the MMR vaccine. The initial media reporting about the MMR vaccine originated from the initial article by Wakefield et al. [1] and, at the time of the publication of the articles that were examined in this study, measles outbreaks were occurring, and the refusal of Tony Blair to reveal the MMR vaccination status of his son was receiving substantial coverage in the media. The content analysis has highlighted the reporting relating to the MMR vaccine as a health scare as defined by Klaidman [17] and Ward [18]. The MMR vaccine scare can be described as a health scare, as in the media there was incomplete information about risk, unpleasant consequences (the characterization of children allegedly damaged by the MMR vaccine) and human interest stories with little scientific reinforcement.

While the content analysis of articles that included the MMR vaccine revealed the themes, individuals and content that were included in and associated with these articles, this needs to be viewed within the context of the political affiliation of the sources analysed and the extent to which this affiliation influenced the way in which the MMR vaccine scare was reported. White examined the media interest in the MMR vaccine status of Leo Blair and found that the *Daily Mail* had carried out a 'campaign' for a 'confession' from Tony Blair [19, p. 120].

The aim of the mass media is not to provide its readers/viewers/listeners with objective information to allow informed decision-making. Rather the aim of the mass media is to entertain, to reach a wide number of individuals and to make money (in the majority of cases). In relation to the MMR vaccine, this provides a problem for parents as they are often making a decision based on media information, first because it is difficult to avoid information from the media and second because they do not trust the information that they are receiving from HCPs as they believe that this information is biased. However, the content analysis has indicated that media biases and agendas influence the way in which the MMR vaccine is presented in the media. It is important that parents, if they are making decisions based upon the mass media, are aware that the common division of tabloid/broadsheet oversimplifies the appraisal of quality and bias that people often make when assessing the information that they receive from the media.

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