
Medical and Health News and Information in the UK Media: The Current State of Knowledge The State of Public News and Information in the UK on Health and Health Care Research Project

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CONTENTS

Introduction

Differing informational logics in medicine, health and journalism

Concerns about coverage are related to its effects

1. Theoretical approaches to understanding media coverage and its effects
2. Evidence regarding medical/health news coverage
 - 2.1. Some evidence regarding coverage from the US
 - 2.2. Evidence about medical/health coverage in the UK
 - 2.3. Evidence about ways that health topics are treated
 - 2.4. Evidence about the emphasis of coverage
3. How is the internet affecting coverage?
4. Conclusions and implications

Bibliography

Introduction

This study explores what is known about medical and health news and information conveyed in major media in the UK. The public's awareness and understanding of medical and health information are central to their perceptions of its importance to their own lives and their families and to their behavioural responses to it. Because the public generally gets most information and explanation of its importance from mass media, the quality and quantity of information in television, newspaper, magazine, and internet reports and features are central to shaping public knowledge, opinion, and reaction.

Concerns over news coverage of medical and health issues are related to general concerns over coverage of science and its effects, but its relations with the public are much more complex and intense. It is highly relevant at a personal level to the general public because issues have distinct effects on individuals, families, and community health and well-being; it has consumer and consumer protection aspects related to the provision for services; and it has social and political aspects because of the roles that national and local authorities play in health care provision.

A good deal of attention has been paid to issues of general reporting of science, typically focusing on public knowledge of science, the processes of science, support for science, and the processes of and influences on news choices (Nelkin, 1995; Gregory and Miller, 1998; Friedman *et al.*, 1999; Kiernan, 2006; Bauer and Bucchi, 2007; Goldacre, 2008; Holliman *et al.*, 2008). Inexplicably there has been far more limited attention paid specifically to reporting medical and health issues.

The science coverage debate has overlapped with the medical and health coverage debate where reporting involves research and research results, but much of the coverage of medical and health news and information is focused on issues of diseases and conditions, prevention, risks, treatments and protocols, health service provision, and policy that are less directly part of the general science debate. Here the gaps in knowledge and evidence appear great. Concerns about medical and health reporting include the general concerns regarding news of science and scientific research, but are much broader because many more issues and interests are involved.

The importance of medical and health news and information is recognised by medical researchers and practitioners and journalists; however, they view media news reports and practices through different lenses coloured by their professions and professional practices. Coverage has different implications for the three groups.

Researchers see the need for media coverage to generally improve public knowledge of science by providing a realistic view of science, its processes, and scientific results. Simultaneously they also want to have coverage that is favourable for reputation building for researchers and their institutions and for building public and political support for increased research funding from which they benefit.

Practitioners want coverage that improves public knowledge in ways that lead to better understanding of risks of disease and conditions, treatment options, and behaviours that promote better preventative and therapeutic outcomes. Similarly they want coverage that builds public confidence in health care institutions and practitioners.

Media professionals want coverage that informs the public about medical and health advances and debates, protects the public against risks, and exposes inefficiencies or corruption in medical and health institutions or delivery.

The Science Media Centre has observed (2002: 9) that the

media plays a pivotal role in our culture, to the extent that it can influence both parents and health workers far more than government or science are able to. This places a huge duty on reporters and editors to cover stories responsibly, presenting them in a way that will serve the public good. It also means that if scientists want to communicate effectively with the public, they must first communicate effectively with the media.

Differing informational logics in medicine, health, and journalism

Dissatisfaction about media coverage on the part of medical researchers and practitioners often results from the differing logic of scientific research reports and medical/health informational campaigns and that found in journalistic reports. Medical and health researchers and professionals tend to compare the style, tone, and quality of media stories with those of articles in medical and health research journals, professional publications aimed at medical and health professionals, or information they include in their medical and health campaigns. However, there are also significant differences in the use of evidence by media and by the medical/health community (Goldacre, 2008).

Information in medical and health scientific journals is based on scientific communication logic designed to inform about explorations of potential advancements and scientific debates. It is theoretically informed and evidence-based, often based on multiple narrow tests, and designed to collectively provide evidence over time that establishes a base of accepted knowledge to be applied by medical and health practitioners. These scientific reports convey theoretical bases, methods, and results used in research to experts in the field and typically reveal only incremental increases in knowledge.

Publications for practitioners convey recommendations and best practices based on knowledge developed in research and accepted as fact by professional and governmental authorities and integrated into treatment protocols. These are produced for the purposes of advancing professional knowledge and focus on implementation of practices and treatments that have been accepted by authorities.

In addition, medical and health practitioners often produce information campaigns designed to improve the behaviours of the public and these are based on accepted knowledge and on prevention and treatment protocols approved or recommended by medical and health authorities. The style of this communication tends to be authoritative explanation and recommendations for use by the public. Such materials are generally produced and distributed by medical and public health authorities.

These three informational approaches seen in the medical and health community differ significantly from the journalistic approach. The logic of news is to report on contemporary events, developments, debates, and conflicts in society. It is concerned with what is novel, what affects the public, and whether social institutions are effectively addressing public challenges. It has a critical stance towards all authorities – including science, medical, and health institutions – and its logic is based on holding power to account and finding and reporting different perspectives on issues. When feature content – rather than news – is involved, it tends to focus on issues of human interest, lifestyle, personal improvement, and general information provision. In both approaches, the style of presentation in media is designed to be engaging, lively, and entertaining and tries to provide completeness and specific understanding as far as possible within each individual report. Because journalistic narratives emphasise storytelling and providing

information at a personal level, they often are based on personal experiences of members of the public.

The issue of timeliness in news coverage creates challenges when covering medical research developments. Sir Richard Doll has noted that this creates challenges because

The media does not like harping on about things that have been public knowledge for some time. You like things that are new. But unfortunately things that are new are often wrong, whereas things that are true take time to build up. By the time really clear evidence is available, it may no longer be interesting to the media. (Harrabin et al., 2003: 8)

The differences in approach between the three types of medical and health communications produce variations in the narratives, discourse, tone, style, and substance of the content provided. In recent years, efforts have been made to try to create bridges and understanding. In the UK, the Science Media Centre (www.sciencemediacentre.org) is designed to help journalists get in touch with reputable researchers and authorities in all areas of science – including medical and health experts – and to help provide briefings on rising topics of interest with the intent of improving coverage. An association of journalists specialising in medical reporting – the Medical Journalists’ Association (www.mja-uk.org) – works to help improve knowledge and practices. The NHS offers a web guide, *Behind the Headlines*, designed to respond to news reports quickly and provide more scientific context to the stories.

It is generally recognised that science and medical journalism has improved in the past decade. This is partly because of the efforts made by all interested parties and because the number of journalists with medical and health educational backgrounds is increasing; in addition, many physicians, nurses, and health professionals write or present broadcast reports, particularly for magazines and local media.

Journalism training programmes in the UK have made significant efforts to document challenges and improve coverage of science generally. The Science and the Media Expert Group created by the UK Department of Business, Innovation and Skills studied science journalists and their working practices and conditions and found that increasing workloads led to ‘pack journalism’ and reduced time for fact checking (Williams and Clifford, 2009). The University of Cardiff School of Journalism has established a Risk, Science, Health and the Media research group to study challenges of coverage. The BBC College of Journalism works to educate reporters about issues of risk and use of statistics through online information and the importance of not misrepresenting science (BBC College of Journalism, n.d.).

Concerns about coverage are related to its effects

News coverage raises concern because of its effects on public understanding of medical and health issues, but more specifically because of its effects on choices and behaviours that have implications for personal health, family health, and community health.

Researchers and practitioners often complain that the usual media approach produces misperceptions and wrongly frames medical and health information and debates. These are important concerns, but to date have not been significantly explored or substantiated. Much of this opinion about the state of UK media coverage of medicine and health is based on unsystematic observation, anecdotal knowledge, and limited and dated research. So far, even the frequency and quantity

of information and the characteristics of creators of UK medical and health information in media have not been established. No systematic inquiry into quality has been carried out and little research has been conducted to correlate or establish causation between the media content and public knowledge and behaviour in the UK.

Medical and public health authorities have been generally critical of mass media coverage of medical and health news in the UK and typically base their assessments on anecdotal evidence. They tend to critique news coverage as being limited, skewed, and emphasising conflicts and risks. They often place responsibility for this on journalists' selection and presentation of experts.

They point out difficulties created by incidents such as that of the measles, mumps, and rubella vaccine link that was widely reported after it appeared in the medical journal *The Lancet* in 1998. Media reports of the study led many members of the public to refuse vaccinations for their children. Subsequent investigations by *Sunday Times* journalist Brian Deer and the *British Medical Journal* have since concluded that the study's data were manipulated, breached research protocols, and constituted fraud on the part of the medical researcher, who has since been disciplined (Science Media Centre, 2002; Lewis and Speers, 2003).

Although such incidents reveal some of the influence of media reports on public perceptions, attitudes, and behaviour, they do not provide systematic and methodical evidence of the extent to which medical and health issues are covered in the media, how they are covered, the quality of the information conveyed, nor its effects.

To gain a comprehensive understanding of media medical and health news and its effects, a wide variety of questions need to be answered:

- How much contemporary medical/health coverage is there in the UK?
- How regularly does it appear?
- What medical/health issues or types of topics dominate and what are missing?
- What is the nature of the news/info provided (prevention, treatments, epidemics, disease rates, medical debates, etc.)?
- Who is producing the coverage? What is their background and training?
- What role(s) do medical researchers, practitioners, and policy-makers play in drawing attention to topics and generating coverage?
- What is the quality of the medical/health news and information provided?
- What sources are used in coverage and how do they influence it?
- How is the news framed?
- Where does the public get its medical/health information and news? Which is used most for different types of information and news? Does it matter which media are used?
- What are the public perceptions of the risks of various medical/health problems? How do those compare to what is regularly encountered by professionals?
- What are the public perceptions of the efficacy of preventative actions/behaviours? How do those compare to their known effects?
- What are the public perceptions of the causes of disease/conditions?

To date little research addressing such questions has been carried out in the UK, so most of the concerns about news coverage are based on opinion and belief, rather than substantive evidence.

1. Theoretical approaches to understanding media coverage and its effects

Two theoretical approaches are important in understanding media coverage of medical and health topics: framing theory and agenda-setting theory.

Framing theory argues that the construction of media reports and the presentation of the information provide readers, listeners, or viewers a perspective with which to view, interpret, and react to the news or information (Pan and Kosicki, 1993; Reese *et al.*, 2003). This social construction of meaning provides ways for people to rapidly make sense of and organise information provided (Johnson-Cartee, 2004). This is particularly relevant for medical and health topics because media often use frames related to factors such as causality, prevalence, risk, or responsibility and effectiveness of responses. How those frames are constructed and the influences on their construction are important areas for research.

Agenda-setting theory posits that media coverage elevates or relegates topics and information by whether coverage is given, the amount of the coverage, and the importance it is given compared to other topics (McCombs and Shaw, 1972; Dearing and Rogers, 1996). When the media choose to cover a topic and pay it significant attention the topic is given salience to the public and seen as needing attention or requiring action (McCombs, 2004). Topics receiving significant coverage by the media get transferred to the 'public agenda' as needing response or action. In addition to giving topics attention, choosing inadvertently or knowingly to omit or downplay certain topics tends to reduce their importance in the minds of the public and moves them further down the public agenda for action. Thus, it is crucial to understand the influences that underlie news choices that create the agenda.

Much of the criticism of media medical and health coverage levelled by medical and health care researchers and practitioners involves whether the framing was appropriate and the agenda set was warranted, rather than the general accuracy of the information in the news stories.

Medical and health research institutes and pharmaceutical and medical device manufacturers often employ significant press relations activities to attract coverage for their research and advancements (Kiernan, 2006; Goldacre, 2008). These involve efforts to obtain coverage that positively frames their work and places it on the agenda in order to serve their particular interests. It has been argued that media personnel sometimes do not (or are unable to) effectively gauge the importance of some the stories presented to them in this way (Nelkin, 1995; Bauer and Bucchi, 2007).

As a starting point for understanding these factors, this report reviews studies that consider questions related to media coverage of medical and health issues. Research on the topic is sparse not only in the UK but elsewhere as well; nevertheless the existing studies provide some context and indications about the state of medical and health content in the mass media.

2. Evidence regarding medical/health news coverage

One would expect a significant body of evidence about medical and health information to exist and, at first glance, the literature of medicine, public health, and journalism appears replete with studies. Most of the literature, however, involves effectiveness of public health campaigns or how to relate medical and health news to the media. Where studies of media coverage itself exist, they tend to be descriptive and presume rather than provide evidence of the effects of the coverage.

2.1. Some evidence regarding coverage from the US

Efforts to improve medical and health coverage in the US have been underway longer than in the UK and research funding has been used to gain a better understanding of the coverage and establish ways to improve it. Some of the most significant studies of media coverage of relevant issues have thus taken place in the US and provide a wider context in which to consider coverage in the UK.

The Kaiser Family Foundation and Pew Research Center recently completed major research on health news coverage in the US media (2008, 2009) that explored a broad spectrum of health issues, across a wide range of news media. Two studies were conducted during two different time periods; the first commenced January 2007 and concluded June 2008 and the second commenced January 2009 and concluded June 2009. The first study showed that health news was the eighth biggest subject in the national news, comprising 3.6% of all coverage. Specific diseases, such as cancer and diabetes, received the most coverage, at 41.7% of all health coverage, followed by public health issues such as food contamination, tainted vaccines, and binge drinking at 30%.

According to the Kaiser-Pew research, cancer received the most attention among diseases and conditions, accounting for 10.1% of total health coverage. The study linked some of the attention to cancer to announcements of cancer in public figures, with the evidence that the highest spike in reporting on this disease occurred in March 2007, when news broke of the recurrence of cancer in two public figures – Elizabeth Edwards, the spouse of then-presidential candidate John Edwards, and then-White House Press Secretary Tony Snow (see Metcalfe *et al.*, 2010, Chapman *et al.*, 2005, and Twine *et al.*, 2006, regarding media coverage and public reaction to a celebrity illness).

The follow-up study conducted six months after the first one highlighted that health news coverage was overall on the rise, representing 4.9% of all coverage, but also showed certain changes, which appeared to have been associated to political issues and an outbreak of swine flu. For example, while President Obama and the US Congress were debating health care reform, the media's attention to health news increased and coverage shifted from a focus on specific diseases and conditions to a focus on health policy and the state of the US health care system. The swine flu outbreak which occurred in the time frame of the research became the second biggest health news story, garnering 30.2% of media coverage regarding health. These findings show that there are many different factors in daily issues that can act to influence media coverage on health, such as a celebrity cancer diagnosis, a political debate, and an unexpected acute disease outbreak. Hallin *et al.* (2010) noted that, even though neoliberalism has had a great impact in the field of health by stressing individual responsibilities, the role of the state has been emphasised in public health reporting, revealing a politicised approach.

Wang and Gantz (2007, 2010) conducted research on health content in US local television news. Two studies were conducted during two different time periods, the first in 2000 and the second between December 2004 and June 2005. The first

study indicated that one in ten local news stories focused on health topics, in which cancer and health policy /law appeared most often. The follow-up study, showing that 8.1% of the news stories were devoted to health content, also confirmed that health news remained a staple on local television news in the US and is an important channel for dissemination of health information.

Although these studies provide some understanding of coverage research, methods, and findings in the US, they are not fully applicable to the UK because of the differences in medical and health provision systems and media systems.

2.2. Evidence about medical/health coverage in the UK

Existing research on what gets covered in the UK is limited; however, some is notable.

Weitkamp (2003) examined coverage of science, health, and medicine in five UK national newspapers and confirmed earlier reports (see Hansen, 1994) that within science reporting, medicine and health-related topics tended to dominate newspaper reports, accounting for more than 50%, whereas the next most treated, biology-related topics, accounted for less than 20%. Weitkamp explained that this may reflect the need to make news stories relevant to the readers. This media preference for health and medicine stories was inferred by the allocation of journalists specialising in health, medicine, and science within the British media, with a two to one ratio of reporters covering health and medicine to science.

The study also pointed out the presence of health question-and-answer columns in weekend papers as opposed to the absence of similar columns for science in the newspapers studied. While this study showed that the UK national newspapers put more weight on medicine and health-related topics over science, as well as scrutinising the sources of the stories, it failed to show the proportion of health-related topics in UK national newspapers compared with all other coverage. Entwistle and Hancock-Beaulieu (1992) are noteworthy, as they were able (1) to highlight an overview of the coverage on health, as presented by the media; (2) to compare the coverage of popular and quality papers; and (3) to analyse the differences in health topic coverage between 1981 and 1990 by reporting on a content analysis study of eight national newspapers. The authors concluded that, unlike Kristiansen and Harding's (1984) finding that the press coverage of health was modest and lacking in 1981, there is no dearth of health-related articles in the UK press and, in fact, media coverage on medicine and health has increased rapidly. The most common subject categories in 1990 were disease (31.4%), preventive medicine (11.3%), including diet and exercise, and the National Health Service (13.2%). It was noted that the proportion of health articles in the disease category rose from 24% in 1981 to 31% in 1990 and illnesses caused by food poisoning were suggested to be a major contributor to this increase.

Entwistle and Hancock-Beaulieu also noted clear differences between quality and popular press coverage of health, noting that the quality press provides more satisfactory information about health issues. For example, epidemiological information, such as morbidity /mortality rates and incidence of prevalence, was given in 26% of quality articles mentioning diseases, but in 13% of popular articles. Discussing diseases, the quality papers more often covered causes than treatment; the reverse was found for popular papers, which more often placed responsibility for health with the individual, with self-medication products for symptom relief being more frequently promoted in these papers. This finding concerned the researchers as 'the readers of popular papers tend to be concentrated in lower occupational social classes, where health problems are more likely, but their understanding of these is unlikely to be much enhanced by their daily newspaper'

(Entwistle and Hancock-Beaulieu, 1992: 380). However, this research was conducted more than 20 years ago. Therefore further investigation needs to be done to see if the situation has improved at all.

Lewison *et al.* (2008) found that breast cancer stories were over-represented on the BBC between 1998 and 2006 by comparison to the risks prevalence of the disease. A recent study of mental health research covered on the BBC found that it has been slowly increasing since 2000, but that it has overemphasised Alzheimer's disease relative to other mental health issues (Evaluamentrics, 2008). That view is reflected by Bithell (2010), who argues that mental health issues generally get limited reporting while certain issues are over-reported and excessive links are drawn between mental illness and crime or violent behaviour. She maintains that there is a need for mental health professionals to work to increase coverage, provide better information, and work with reporters to understand mental health issues.

2.3. Evidence about ways that health topics are treated

The manner in which topics are treated is important, as it affects the audience's/readers' way of perceiving the issue. There are several theories regarding this view. Communication theory affirms that the media do not simply mirror the reality but 'represent, or depict in particular way, the people, places, events, ideas and institutions that constitute our world' (Gascher *et al.*, 2007: 558). Agenda-setting theory stresses that the media have the power to direct our attention towards certain issues (Gupta and Sinha, 2010). The media, with the power of suggesting to their readers what to think about, can also impact how audiences feel about an issue (Scheufele, 2000). Framing theory emphasises that selecting some aspects of a perceived reality and making them more salient in a communication text draws attention to certain features of an issue while minimising attention to others (Shih *et al.*, 2008).

There have been attempts to look at the ways particular diseases are treated in media stories (e.g. Freimuth *et al.*, 1984; Fisher *et al.*, 1981; Clarke, 1992). For example, Huang and Priebe (2003) assessed the content and tone of articles on mental health care in the UK print media by comparing them with reporting in the USA and Australia. The results of the comparisons concluded that the predominant tone of the articles was negative, though there were slightly more positive articles in the US and Australian media. Negative tone towards mental disorders is a concern because it may contribute to stigmatising that condition in a given society.

Karpf (1988) examined the media's reporting of health and medicine in the UK. Concentrating on the ways British radio and television programmes framed health topics, she identified four paradigms of media treatment of health and medicine: the medical approach, celebrating medicine's curative powers; the consumer approach, criticising the inequality of the doctor-patient relationship; the look-after-yourself approach, appealing for changes in individual behaviours; and the environmental approach, stressing the social origin of illness and concentrating on preventable causes rather than pathology and cure of health problems.

Karpf argues that, although there have been a great number of critical medical programmes over the past decade, the media mostly still portrayed medicine as the triumphant conqueror of disease, in 'miracle cure' reporting of heart transplants and test-tube babies. 'By excluding or marginalising other perspectives – notably, a more explicitly political analysis of the origin of illness – the media play a significant part in narrowing public debate about health, illness and medicine' (1988: 2). In the same vein, Gascher *et al.* (2007) questioned health literacy in Canadian daily newspapers and they became concerned that Canadian health reporters overemphasise the roles of the health care system and personal health habits in Canadians' health, while

underemphasising the role of social determinants. Two-thirds of health stories focused on health care and only about 5% of stories dealt with broader social influences upon health, according to their research.

Clark (2008) found that stories about research funded by pharmaceutical companies tend to give more favourable accounts of a drug than do those whose grants come from independent sources. This is probably due to the influence of the large-scale press relations activities of pharmaceutical firms in drawing attention to and explaining their views of the drugs.

Viswanath *et al.* (2008) interestingly paid attention to the individual characteristics of health and medical science reporters and editors, and their occupational practices leading to the development of health and medical science news. The study addressed discordance in understanding how journalists and editors develop news stories on health and medical science and advised the value of questioning who is choosing the topics, who is writing the articles, and who has the power to edit and decide to publish them.

2.4. Evidence about the emphasis of coverage

The emphasis of news and information provided in the media and whether it aligns with risks has been questioned as well. Frost *et al.* (1997) compared representation of mortality in US national print news and media to actual mortality and risk factors for mortality in 1990. They found significant differences between the proportions of text devoted to particular causes of death relative to the actual number of attributable deaths. For example, the lowest-ranking risk factor for mortality, use of illicit drugs, and the second most important risk factor, diet and activity patterns, received nearly equal news media coverage. This over- and under-emphasis on certain causes of death was given several explanations: competition for viewers and commercial interest, driven by rarity, novelty, commercial viability, and drama more than by concerns about relative risk.

The reporting of food-related risk often attracts disproportionate publicity in relation to actual risk and has been reviewed (Carslaw, 2008; Forsyth, 2001; Harrabin *et al.*, 2003). Cooper *et al.* (2011) evaluated the scientific quality of newspaper reporting related to dietary advice. It turned out that misreporting of dietary advice by UK newspapers is widespread, which may contribute to public misconceptions about food and health. They identified articles relating to nutrition in the ten top-selling national newspapers in the UK, and graded the evidence for the claim using two grading systems: the Scottish Intercollegiate Guideline Network (SIGN) grading system (Harbour and Miller, 2001), and the World Cancer Research Fund's (WCRF) scale (WCRF, 1997). They found that 65% and 62% of total claims were based upon 'insufficient evidence' according to the SIGN and WCRF grading systems respectively. Cooper *et al.* stated that such misreporting occurred because newspaper journalists commonly source news from individuals and organisations who are working for industry, government departments, universities, journals, or charities to broadcast their respective views and advice, and these are often reproduced uncritically. However, this study has a significant drawback: it investigated only one, randomly selected week of claims. Therefore, it is hard to generalise the findings to the overall quality of dietary advice given in UK newspapers. Nevertheless, such a study could be developed to expand the research sample size and time period and broadened to include non-dietary health claims, as well as expanded beyond newspapers to other media outlets.

An assessment of the accuracy and impartiality of science (including medical) coverage on the BBC generally gave it high marks for coverage, but expressed concern that reliance on a limited number of scientists and scientific organisations

and institutions put its coverage at risk. It also noted that some traditional editorial guidelines are inappropriate for science coverage; for example, instead of providing equality of views for marginal medical opinions there should be a greater sense of the weight given to differing viewpoints (BBC, 2011).

3. How is the internet affecting coverage?

The internet is displacing use of some traditional media platforms. Many print and broadcast media have established presences on the web to serve those who prefer news and information on digital platforms. This permits medical and health news from traditional sources to be accessed online. In addition, new, specialised health and medical sites have emerged, many operated by health services and medical societies. Those operated by traditional media tend to be used by the public on a day-to-day basis as part of their general news and information reception. The specialised sites tend to be used by the public when they, family members, or friends are diagnosed with diseases or conditions and they are seeking specific, authoritative information.

The Kaiser and Pew study (2008) predicted that it is likely that viewers will be exposed to less news coverage of health and health policy 'as consumers migrate from broadcast to cable, and from print to online; as newspapers cut pages, reporters and editors; as the amount of advertising on TV goes up and the news hole shrinks; as all of these shifts occur' (2008: 8). However, that does not mean that an individual will have less opportunity to learn about health.

The internet makes it generally easier and cheaper to access information. A survey showed that approximately 73 million adults in the United States reported using the internet to locate health information (Horrigan, 2006). In the same context, print newspapers have revamped their companies to include online news websites, reaching as much as 80% of their extended audience (Shafer, 2006). However, there seems to be a lack of research about online media coverage on health. One relevant study is Habel *et al.* (2009), which examined the quality, content, and scope of human papillomavirus (HPV) vaccine news coverage on the internet in the US starting on the day it was approved for use. Online news coverage of the HPV vaccine is interesting in terms of the vaccine's potential for controversy over its efficiency and safety. Between June 2006 and September 2006 a sample of 250 internet articles on the HPV vaccine were identified. The coding instrument captured how the headline was depicted and how the vaccine was labelled in addition to information about HPV, cervical cancer, the HPV vaccine, and current social issues and concerns about the vaccine. While the HPV vaccine was being marketed as a vaccine to prevent cervical cancer, information about vaccine safety and side effects, duration of vaccine protection, and availability of the catch-up vaccine for females aged 13–26 was repeatedly missing. This research highlights the importance of monitoring media coverage of medical and health care technologies as a dynamic process across time, especially around significant events.

Similar studies on internet news and information in the UK are lacking.

4. Conclusions and implications

When viewed as a whole, the literature of media coverage on medical and health issues in the United Kingdom is spotty and relatively weak. The number of studies is highly limited, they investigate a narrow range of media and units of media, and rarely ask more than rudimentary questions.

Most studies are primarily descriptive research or based on weak content analyses that do not assess the content in depth. As a whole they are relatively unsophisticated and use methods that only minimally meet social science conventions of evidence, validity, and reliability. Cross-tabulation of results, tests of statistical significance, and multivariate analyses are noticeably absent. No audience effects research related to medical information has been conducted in the UK. Even the actual base of public knowledge remains unassessed because no large-scale surveys of the public have been conducted or even surveys of health care professionals who deal with them daily.

Much of the 'knowledge' about media coverage is based on opinions of medical and health personnel expressed in forums and seminars, many of which are based on unscientific observations and make significant assumptions of effects with little evidence. Many of these discussions were sparked by specific incidents of high-profile coverage in which debates about coverage emerged. Conclusions reached were often based on casual observation, conjecture, and generalisation.

Although some study of coverage in media has been made in the US, domestic research is needed in the UK because conditions and settings in which medical and health information is conveyed vary and these can be expected to produce significant differences. This is because the UK differs in terms of geography and population size, media structures and practices; it has different environmental, lifestyle, and heredity influences on disease, conditions, and health; some prevention and treatment protocols vary; the economic bases of care differ; and the structure of medical and health care provision and services – including the amount of choice of physicians and health organisations – is very different.

While there is an abundance of updated research about the uses and effective role of media and communications in public health and medical campaigns, the few UK media coverage studies on health and health care are largely out of date. Apart from Karpf (1988), Entwistle and Hancock-Beaulieu (1992), and Harrabin *et al.* (2003), it is hard to find research about availability and coverage of health/medical information in the mass media. Considering that the last available study was conducted eight years ago, and was rather limited in scope, robust contemporary research is necessary. The US studies conducted by Kaiser and Pew in 2008 and in 2009 can provide a model for some of the needed research.

The most research on UK media coverage on health (Harrabin *et al.*, 2003) traced health coverage on BBC television's *Ten O'clock News* and *Newsnight*, and Radio 5 Live's 8.00 am *News Bulletin*. It also traced health news and features and feature coverage in the *Guardian*, the *Daily Mail*, and the *Daily Mirror*. The study confirmed that the major media were more interested in NHS waiting lists and health service crises – which are significant in terms of effectiveness of delivery of services – than in stories about the obesity epidemic or damage to health from alcohol or tobacco.

It is also clear that, in addition to research establishing contemporary provision and use of medical and health news, there is a significant need to measure public knowledge and perception of health and medical issues and to establish the actual effects of coverage. These issues go far beyond the research that is currently available, and so many fundamental questions remain unanswered.

These include questions of whether differences in media use affect public perceptions of medical and health issues. Do those who get news and information primarily from television have different perceptions from those who get it primarily from newspapers? Why or why not? Do the perceptions of tabloid readers differ from those of the quality press? Why or why not? Do those who seek additional information from internet sources differ from those who don't? Why or why not?

Research is also needed to determine where and how news agendas are established and whether they affect the types of stories carried. To what extent do the press relations activities of researchers, research institutions, companies, health providers, and policy-makers influence the choice of stories and to what extent is it important? Similarly, questions need to be asked about how news stories are generated and selected and the effects this has on researchers, practitioners, policy-makers, and the public.

This review of the current state of literature reveals that there is significant reason for concern about media handling of medical and health issues. A great deal more needs to be known about media coverage and its effects. This knowledge will be crucial for improving health by influencing the knowledge and behaviour of the public and is vital for understanding how to improve news practices and dissemination of medical and health information in the UK.

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