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Abstract

The media are crucial players in the construction of, and communication about, risk. Yet their role is often under-theorised, and sometimes misrepresented or parodied. In particular, the media are accused of routine sensationalism. Journalists are blamed for exaggerating risk, 'whipping up hysteria' and distorting reality. Academic studies of the media, however, suggest a more complex picture. The first half of this article reflects on the theoretical and methodological considerations which inform studies of 'risk reporting' and highlights some of the key questions when designing or assessing such research. The second half of the article draws out some common findings about how 'risk reporting' operates, focusing, in particular, on what we know about 'news values' and media production processes. It outlines the factors influencing media coverage of risk: from the organisation and resources of different source agencies through to the news gathering routines of journalists, and reflects on the 'cultural givens' which inform representations of diverse hazards.

Key words: media, risk, health, methods.

Reflecting on the literature about 'risk reporting'

Scientists and policy makers often complain that the media misrepresent risk statistics and 'distort the facts'. The press, television and radio are accused of giving a platform to scaremongers and mavericks, leading to 'irrational' shifts in public behaviour (whether that is the drop in beef consumption, shifts in use of 'the pill' or simply a deluge of anxious enquiries to GPs). Journalists are said to be 'risk junkies', seeking out ever more fantastic and doom-laden scenarios with which to titillate and terrify their audience. After all, 'good news is no news' (see Freudenburg et al, 1996: 31-12).

Certainly the column inches in newspapers do not always neatly parallel scientifically-defined hierarchies of risk. The rare but terrifying 'Flesh-Eating Bug' has narrative appeal to the media and their audiences regardless of its practical relevance to most people's lives. A death from an aeroplane accident is 6,000 times more likely to make front-page news than a death from cancer. Assaults on children by strangers are more likely to receive coverage than abuse within the home (Kitzinger and Skidmore, 1995). Chemical factory or nuclear accidents receive far greater attention than the death toll caused by smoking (Greenberg et al, 1989). Nor do patterns of media attention parallel the actual trajectory of any particular threat. For example, coverage of salmonella poisoning dramatically decreased, while actual examples of such poisoning increased (Miller and Reilly, 1995), and coverage of river pollution has been shown to increase while actual pollution decreases (Kepplinger and Mathes, 1987). Clearly the media do not simply 'mirror reality' in their risk coverage. Journalists do not operate in the same way as (or necessarily reflect the mainstream views of) doctors, scientists, researchers or health officials in presenting information to the public (Rothman and Licher, 1987; Greenberg et al, 1989).

However, accusations of 'media sensationalism' obscure rather than clarify the processes which influence media coverage (and, indeed, imply that official providers of risk information act on a purely 'scientific' basis). Such accusations are also themselves indiscriminate and exaggerated. While some overviews of 'risk reporting' conclude that 'the major components of risk studies, probabilities and magnitudes, seem to play only a minor role in the media coverage' (Renn, 1991), other overviews suggest quite the opposite. For example, Freudenburg and colleagues analysed 128 hazard events and concluded that, overall, *'the amount of coverage is predicted only by the objective characteristics of the hazard events'* (Freudenburg et al 1996: 38, emphasis in original).

Individual case studies demonstrate that, at times, journalists closely ally themselves with official judgements about health threats (see Miller et al., 1998) and many researchers argue that, if anything, journalists are too unquestioning of official scientific declarations (Friedeman, 1986, 28; Nelkin, 1991; Durant, 1992, 107). The media are shown to have 'played down' rather than 'played up' the potential dangers of particular crises (Stephens and Edison, 1982) and a meta-analysis of 52 studies of the media coverage of environmental risk concluded that 'there is more reassuring than alarming news' (Schanne and Meier,

1991:151). Indeed, Freudenburg and colleagues concluded that, on the whole, newspaper accounts appeared less 'sensationalist' than straightforward factual summaries of the story (Freudenburg et al 1996: 38). The authors of this last study suggest their own theories for the widespread conviction within the risk assessment community that journalists exaggerate risk. One theory they present is that risk assessors, like the general public, may be susceptible to the 'availability heuristic'; because people can easily recall examples of dramatic and sensationalist coverage they over-estimate the frequency of such coverage. Thus people may judge 'media reporting' by a few tabloid headlines.

How are we to assess the competing claims of professional observers and academic researchers? Why are studies of media reporting coming to such diverse conclusions? What generalisations, if any, can be made about 'risk reporting'? In answering such questions it is necessary to discuss both the methodological and the conceptual underpinnings of different studies. It is also relevant to reflect on the status of 'risk' as a key conceptual category within sociology. This last process is crucial because, as Mildred Blaxter points out 'risk' is an elastic and enigmatic word and 'with a fashionable concept such as this, there is a considerable risk in the assumption that we are all talking about the same thing' (Blaxter, 1999: pp). Indeed, when applied to the media, the term 'risk reporting' is a slippery concept, which is often used to conjure up an illusory connection between very diverse case studies. The categories of 'consumer reporting' or 'war reporting' already exist within the media. We 'know' the former is represented in 'consumer affairs' programmes and that the latter is personified by 'war correspondents' such as Kate Adie from the BBC. Classifying 'risk reporting' involves a different level of categorisation from researchers. 'Risk reporting' is neither a structural nor a conceptual organisational category for journalists and editors (or at least has not been until recently, although signs are that they too are beginning to respond to the zeitgeist of the 'risk society').

There has been a dramatic increase in the number of articles published about the media and 'risk' in recent years. However, studies of the media coverage of 'hazards', 'crises', 'threats', 'dangers' or 'uncertainty' pre-date the recent popularity of 'risk' as a sociological concept. There is a long history of examining how the media construct social problems and present reality (Hilgartern and Bosk, 1988; Schoenfeld et al, 1990). There is also an abundance of research into how journalists relate to scientists or present scientific and technological developments (see Goodell, 1977; Friedman et al, 1986; Nelkin, 1987; Rogers and Chang, 1991; Hanson, 1994; Peters, 1995). The reporting of the environment, war and terrorism, capitalism and socialism, health, politics, crime and interpersonal violence have all also been traditional areas of study within media sociology (Golding, 1974; Glasgow Media Group, 1976, 1980; 1985; Schlesinger and Tumber, 1994; Mazur, 1990; Franklin, 1994; Miller, 1994). Each of these areas involves elements, which could be described as 'risk reporting'. Indeed, perhaps the most widely disseminated media studies theory, that of 'moral panic', was developed while examining how the threat of gang violence from 'Mods and Rockers' came to be amplified through the media in the 1960s (Cohen, 1972).

Reviewing the academic literature on the media and risk can thus involve examining case studies which range from research into the media reporting of nuclear accidents (Stephens and Edison, 1982), drugs (Shepherd, 1981) or famine (GUMG, 1976), to the reporting of sex crimes (Soothill and Walby, 1991), industrial disputes (Philo, 1991), genetics (Cunningham Burley et al, 1998) or food scares (Macintyre et al, 1998). However, these studies rarely allow for neat comparison and the findings of each are clearly influenced by the substantive nature of the particular topic under consideration. The extent to which the findings are generalisable varies between studies and researchers' understandings of 'risk' are not necessarily identical. Writers in this area also display very different levels of knowledge about media studies theory. In some cases researchers have approached 'media analysis' in a very simplistic way, with no apparent knowledge of existing debates around notions such as 'objectivity', 'bias' and 'balance'. Often people seem to feel equipped to analyse television or newspaper reports without any special training in a way that they would rarely dream of doing about other issues. For example, content analysis findings are often accompanied by implicit or explicit assumptions about the impact of such reporting, yet few studies include any analysis of readers' and viewers' actual reactions. Although they draw on the psychological literature in this area, some researchers display little knowledge of the extensive debate within media studies about media effects and audience reception processes (see Curran, 1990; Corner, 1991, Corner and Richardson, 1994; Ang, 1996; Barker and Petley, 1997).

There is, therefore, a wide divergence in quality and focus between different studies. Reflection on these differences is essential to contextualise and evaluate their findings. Such reflection can also provide useful points of reference for future studies.

Researching 'risk reporting': key methodological and theoretical considerations

Any research endeavour involves setting parameters. How those parameters are chosen is crucial. Evaluating or developing a study about the media and risk involves addressing questions such as: what is the most appropriate focus through which to examine 'risk reporting'? When is a report '*about*' risk? Should the focus be upon a particular crisis (such as a 'pill scare' or nuclear accident) or take a broader views (such as examining representations of contraceptive risks or studying environmental coverage). Which media outlets and formats should be included? What time spans are appropriate? How should media content be analysed and how can findings be interpreted?

For example, decisions about how stories are defined as being 'about' risk (benefits or harms) and when they are judged irrelevant are crucial. The 'correct' definition is not self-evident. When studying the media profiling of 'risks' associated with sporting activity, should the researchers only examine news articles which explicitly address risk of injury (such as reports about brain damage in boxing) or should they include general articles from the sports pages? When studying 'toxic shock syndrome' should the disease be considered to be the hazard or is the tampon the appropriate focus? (Singer and Endreny, 1987:19). Studies examining stories about different types of 'hazard' may also involve some 'hazard classification' to allow for comparison and to provide a grid from which to select examples for more intense investigation. Singer and Endreny (1987), for example, collected 1,276 hazard stories. They assigned each hazard to one of six broad categories. They defined these categories as: natural hazards (e.g. flood); activities involving benefits and costs (e.g. smoking); energy hazards (e.g. fire); 'materials hazards' (e.g. nuclear radiation); 'complex technologies' (e.g. abortion) or illness (e.g. cancer). They excluded crime, terrorism and suicide. These classifications and exclusions carry their own implications; they are not the only way of mapping risk stories and alternative categorisations, and the inclusion of hazards such as crime, might have generated different findings.

Even if there is only one object of study, such as 'the car'; it may not be obvious *which* 'risks' should be the subject of inquiry. For example, to understand how the media present risks associated with the car many researchers might analyse coverage of car accidents (perhaps comparing this to other causes of death and injury such as aeroplane crashes). However, the study could include reports about lead pollution, 'road rage', and the impact of motorway building. The analysis might also be usefully contextualised by comparing coverage of the car to coverage of public transport (including the dangers of assault on buses and trains or while walking home from the station). All these forms of media representation are part of our cultural repertoire for thinking about cars and risk. Where researchers draw the line is likely to influence their findings about the 'balance' of 'risk' coverage and its likely impact on public perceptions (and on policy).¹

Once researchers have established their definition of 'relevant' articles and their classification frame (which risks are studied, which media reports are deemed to convey risk information, what types of risks these are) there remain questions about the sampling universe. Some research findings are based on simply analysing the front page on one newspaper, others sample from all national press, television (and occasionally radio) reporting. In some studies local media are also examined and this can be important where local community activity is mobilised. For example, it would be foolish to ignore the local media when studying coverage of road protests or disputes about developing a local site (Burgess and Harrison, 1994) or examining the 'panic' about convicted paedophiles being released into communities (Kitzinger, in press).

The range of media formats included also varies in these studies. Many focus solely on news reporting, while some include fiction, chat shows and soap opera. Again, the range of media included is likely to influence findings. For example, at a time when genetic science receives little attention on the front page of the newspapers or in TV news reporting, it may be the subject of dramatic speculation in science fiction and futuristic drama. These representations may be important sources of popular imagining around the risks and benefits of such science. Similarly, in evaluating the messages conveyed about 'risks and the car' additional perspectives would be provided if, instead of confining the study to 'hard news' reporting, researchers analysed car advertisements and the articles in Sunday papers which promote ideas about speed, freedom and safety features.

Whatever the range of media outlets and formats, researchers cannot be entirely 'comprehensive' of coverage over time. All researchers have to decide on some type of time frame. Time scales used in existing studies of 'risk reporting' range from examining one week of coverage to tracing coverage over several consecutive years. Longer time scales offer different perspectives on risk reporting. For example, a peak of coverage of toxic shock syndrome at one moment in time might be judged 'excessive' leading to an 'unwarranted' response from the tampon-buying public. However, over a longer time period the story may cease to be newsworthy and people's knowledge about the risks might be judged more 'balanced'.

Comparisons between media coverage at different points in time, several years apart, also add important perspectives. Studies adopting this method demonstrate how coverage shifts under different historical conditions. In 1976 coverage of recombinant DNA focused on risks, two years later the emphasis had shifted to focus on benefits, relegating safety issues to second place (Pfund and Hofstadter, cited in Singer and Endreny, 1987: 20). In 1990 reporting of BSE peaked, only to die away during the following five years until it re-emerged as a high-profile issue in 1996 (Miller and Reilly, 1995). Such studies remind us of the importance of social and political context in understanding 'risk reporting'.

Studies do not only vary in the range, depth and span of their samples. There is also a wide variety in the type of content analysis conducted. 'Analysing the media coverage' may mean counting column inches or the number of times words such as 'risk', 'benefits' and 'panic' are employed (Hammond, 1997). It may mean simply examining the proportion of 'alarming' to 'reassuring' statements or it may include in-depth qualitative analysis of metaphors and images. Which methods are adopted depends in part on the main research question. Charting the basic amount of coverage may be important for understanding how 'risk reporting' rises and falls, and the extent to which the issue is on the public agenda. Looking more closely at narratives and images may be more important in assessing how messages are framed and communicated. One dramatic image of a mushroom cloud may be worth a thousand words. An individual account of injury may have greater impact than any number of dramatic statistics (see Wilkins and Patterson 1987; Reen 1991: 298; Cottle, 1994; Eldridge et al, 1997).

Interpretation of findings adds a further layer of complexity to comparing studies, especially where impact upon audiences is based on supposition rather than direct data. This can best be illustrated by looking more closely at one form of analysis: analysis of 'balance'. If researchers find an equal number of 'alarming' and 'reassuring' statements how can we evaluate this as evidence of 'balance'? The answer to this question depends in part on whether one believes that, in the situation in question, people *should* be alarmed or reassured. It also depends on the extent to which such analysis has been context-sensitive (taking into the account the ways in which different sentiments were framed and how each speaker was introduced).

Over and above this both the 'effects' and the 'value' of 'balanced' coverage are disputed. Some theorists argue, for example, that the very existence of a public debate is likely to increase people's sense of the risks. The net result of an 'even-handed story' may be to convey to readers that the experts are unable to agree and that the public should be alarmed (Mazur, 1984). Other researchers criticise journalists' commitment to 'balance' for giving spurious status to unreliable views and failing to provide citizens with the tools with which to evaluate different perspectives. Wartenberg and Greenberg criticise the media's presentation of risk because:

Readers are given the bottom line, from different points of view, but little information from which to assess the reliability of those views or the process by which those views have developed. (Wartenberg and Greenberg, 1992, 391)

Journalists' commitment to 'balance' can be used as a substitute for validity judgements resulting in a journalistic levelling which rhetorically transforms competing discourses into equivalent ones (Dunwoody & Peters, 1992, 208-9; Taylor and Condit, 1988). The notion of 'balance' has also been criticised for offering a spectrum of 'reasonable' opinion while ignoring alternative framings of the question, locking debate into one set of discourses, excluding radical alternatives.

The above debate about 'balance' hints at more profound differences between studies of 'the media and risk' than the methodological diversity discussed so far. Studies of 'risk reporting' differ in the extent to which they self-consciously theorise about 'risk reporting', the level of critical reflection about the concept of risk itself and their ideal image of the media's role.

Reflecting on 'risk' and the ideal role of the media

Traditionally researchers have studied media reporting of risk to assess the extent to which it accurately reflects experts' assessments. Some studies judge the media to be at fault for failing to provide consumers with adequate information to make risk judgements (Ryan et al, 1991). Others criticise

journalists for giving disproportionate attention to 'minor' hazards or focusing on serious but rare risks. Singer and Endreny (1987), for example, studied 4 months of TV, press and magazine 'risk reporting' in 1984 and examined a 4 week sample from 1960. This is an impressive, extensive and methodologically reflective study. However, it is firmly located within a traditional paradigm for evaluating media 'failures'. Their study showed that the amount of media attention to a 'hazard' is unrelated to the number of deaths it causes per year but will focus on catastrophic events. This tendency, they argue, 'poses a serious obstacle to the accurate perception of risk' (Singer and Endreny, 1987: 14). They also judge the media's provision of 'risk information' to be 'woefully inadequate' because information about benefits was included 'much less often' than information about harms (Singer and Endreny, 1987: 17). The media are also condemned for failing to put risks in perspective: 'not only the perspective of alternative hazards...but even the perspective of how likely such outcomes are: that is, the risk of their occurrence' (Singer and Endreny, 1987: 25; see also Wartenberg and Greenberg, 1992).²

Many researchers continue to be concerned about the 'accuracy' of risk reporting. However, such concerns have been joined (and in some cases undercut) by wider debates about the meaning and definition of 'risk' and the criteria by which we should judge 'risk information'. Concerns about 'accuracy' have been joined by concerns about 'citizen involvement' or 'empowerment' in risk assessment and questions about 'who has the right to define risks in a democracy' (Scahne and Meier, 1992:152).

Those arguing for a re-assessment of risk assessment point out that risks can never be eliminated 'they can only be reduced, and usually at marginally increasing costs. Trade-offs are therefore inevitable, and these require value judgements' (Lichtenberg and MacLean, 1991: 157). Risk calculations therefore involve far more than objective scientific calculations of probability and seriousness. The scientific approach to risk is seen merely to 'divert attention away from the question of how to act in the face of uncertainty'. It is criticised for assuming that 'uncertainty is a problem that can be cracked by science' and failing to address the problem of 'how to proceed in the absence of agreed facts' (Adams, 1995: 194-5). One can not simply rely on accurate communication of expert risk assessments to the lay public because this 'cannot be expected to resolve the conflicts which inevitably arise in society over the choice and implementation of technologies' (Cannell and Otway, 1988: 531). Such critical approaches do not, however, necessitate abandoning all attempts to evaluate *who* is qualified to have an opinion. As Adams suggests, few people would be ready to grant equal status to the opinion of alchemists and astrologers alongside advice from chemists and astronomers (Adams, 1995: 186).

Such perspectives do, however, mean that commentators increasingly view the media as being a legitimate alternative space for debate, rather than an inadequate transmitter of official information. From this perspective the media are seen inevitably to select reality. As Lichtenberg and MacLean point out:

It would be absurd to expect your daily newspaper to give an accurate picture of 'reality' full stop. There is altogether too much reality: subatomic reality, chemical reality, astronomical reality, psychological reality, political reality, and lots of other realities too [...]. We are interested in what's new, unusual, changing, likely to affect us in ways we need to know about. [...] A newspaper that produced even a representative slice of reality would be excruciatingly dull. (Lichtenberg and MacLean, 1991, 165-167)

Some studies of 'risk reporting' have thus shifted away from simply measuring 'accuracy' and 'balance' toward alternative ways of evaluating and engaging with media representations. Researchers from this perspective challenge assumptions that the media are 'failing' if coverage is not proportionate to the probability and severity of the risk or if the trajectory of coverage differs from the pattern of the threat (as measured by extent of pollution or the number of food poisoning cases etc.). Dunwoody and Peters, for example, question Kepplinger's presentation of his research which showed the coverage of river pollution increased as actual pollution decreased.

Implicit in the arguments of Kepplinger and others is the assumption that mass media can and should reflect some objective notion of reality. Specifically, they seem to expect the extent and intensity of media coverage to correspond to the magnitude of risks as determined by experts. But from the viewpoint of lay people there may be good reasons for allowing other dimensions of risky situation to have an impact on the characterisation of those risks. (Dunwoody and Peters, 1993: 206)

They suggest that it may be quite appropriate for the media to respond to, and address, other elements of risk such as the presence of political conflict, 'risk management problems, the voluntary/involuntary nature of the risk or its catastrophic potential' (Dunwoody and Peters 1993: 206-207). They cite Mazur's work that showed that the degree of media interest in nuclear power paralleled the number of participants in the largest anti-nuclear demonstration in each year. Media coverage thus might reflect not the 'objective hazard' but the indicators of social and political activity around those issues and this, they argue, may be an appropriate correlation. Rather than seeing the media's role as that of 'mirror' to experts' definitions of risk, these theorists argue that the media may, quite rightly, filter such definitions and introduce other dimensions and criteria. Some newspaper editors obviously feel the same. When newspaper editors were asked to submit examples of their newspaper's best reporting on 'environmental risk' only 32% of articles dealt with risk in the traditional sense and only 17% directly with riskiness itself. The focus of much of the reporting was on other aspects such as who was to blame (Sandman, 1988).

In this context it seems to me that the important questions are not do the media 'play up' or 'play down' risk - but *which* risks attract attention, *how, when, why* and *under what conditions*. Rather than assuming that the media inevitably 'exaggerate' risk or inevitably conspire with the powers-that-be to reassure the public, we need to understand circumstances under which the media may

address risks and the struggles which inform how this is done. Drawing on the studies referred to above, and other related literature, I will now go on to highlight some of the key factors likely to impact upon the way in which risk is constructed in press, television and radio reporting.

So, what do we ‘know’ about ‘risk reporting’?

Given the methodological and theoretical debates outlined above, any summary of research findings has to be approached with caution. In addition, the variety of findings from different case studies suggests that how a message or ‘signal’ is transformed or ‘amplified’ by the media is a complex process that does not follow one simple set of rules. As Renn comments: ‘Reviewing the abundance of theoretical suggestions and partially confirmed empirical results, one may come to the conclusion that the signal amplification process in the media is almost random or at least void of any systematic pattern’ (Renn, 1991: 316). He declares that media coverage:

reflects internalized individual values, organisational rules and external expectations. It depends on the issues itself, the institutional context and the political salience of the issue which of the three factors is likely to dominate the signal transformation process. A universal theory of how this transformation takes place is therefore not likely to evolve (Renn 1991: 307).

Nevertheless, there are some re-occurring findings and insightful suggestions evident in the research into ‘risk reporting’. These can be classified into different intersecting themes around the ‘nature’ of the risk, news values and the internal dynamics of media organisations.

- The media will tend to focus on risks which kill or injure many people at one time, rather than have a cumulative effect over the year (e.g. Singer and Endreny, 1987; Hansen, 1994).
- Unusual risks are more attractive than common risks. In general ‘man bites dog’ is a news story, vice versa is not (Dunwoody and Peters, 1992: 205).
- Journalists seek out the ‘human face’ of science and of risk (Hansen, 1994).
- Personal accounts may allow a risk to enter the media in spite of official denials (Kitzinger, 1998). The absence of existing ‘victims’ may make a story less newsworthy, prospective or hypothetical victims are not enough to guarantee coverage (Kitzinger and Reilly, 1997).
- Media interest in a particular risk will often be stimulated by the death of one famous individual rather than the overall ‘body count’ (Rogers and Chang, 1991).

- Reporting tends to be 'event' orientated rather than issue orientated (Kristiansen, 1988). A crisis such as a famine will attract attention; the process which leads up to this crisis has little media value.
- Long-term and continuous developments (such as environmental degradation) have less chance to manifest themselves within the production cycles of the media because journalists are concerned with the 'news of the day' (Hansen, 1991).

Systematic reviews of which types of research are reported in the media suggest that there is some truth in the cliché that 'Bad news is good news'. Positive evidence of 'harm' is usually more newsworthy than evidence of 'benefits' or lack of harm.

- Journalists are more likely to pick up on research reports which have *positive* findings of risk, rather than research which reports no evidence of risk (e.g. Korn and Klein cited in Chapman and Lupton, 1994: 34)
- Exceptions to this are when reports of 'safety' or 'lack of danger' go against received wisdom or when there are other reasons for a particular media outlet to oppose central government declarations of danger. Examples of this would include the *Sun's* headline 'Straight sex cannot give you AIDS - Official' (17 November 1989) and the *Sunday Telegraph's* recent headline 'Passive smoking doesn't cause cancer - official' (8 March 1998).

The procedures through which a risk is addressed and the extent to which it is located and visible within a particular locale will also influence its media profile. For example:

- The media will often examine a 'risk' through official procedures such as permit applications or regulatory decisions. The focus on bureaucratic procedures may advantage some questions (such as: has standard procedure been followed in setting up this new power plant?) over others (such as: could conservation eliminate the need for this new facility?) (Kunreuther et al. cited in Freudenburg et al, 1996: 34).
- A geographically bounded event - such as an oil spill - will provide a more media friendly crisis than one without a 'news centre', e.g. an emergency centre. (Greenberg et al., 1989)
- The existence of strong visual images increases the chances of television reporting of a risk.

Rather than the actual risk 'statistics' being the key determinant of a story's news value, other factors will be relevant. Conflict and blame are key criteria in media attention to risk:

- Media interest will be stimulated by overt conflict between stakeholders (Peters, 1980) and perceived government vested interests and secrecy (Miller and Reilly, 1995).
- Scientific uncertainty is not necessarily attractive to journalists – controversy *is* (Kitzinger and Reilly, 1997).
- Sources (scientists, lobby groups etc.) who express tentative or qualified positions or say ‘we don’t know’ are less likely to be cited than those who express firm opinions one way or the other (Sandman, 1987: 100).
- The ability to blame someone (an official, an institution, the government) may be an important criterion in attracting the media to a risk story (Sandman et al, 1987).
- Crucially, it depends who (or what) is to blame. A story may be resolved and disappear from the media once blame is seen to lie at the door of ordinary individuals. For example, the salmonella in eggs story was ‘resolved’ once *consumers* rather than *producers* were seen to be at fault (Miller and Reilly, 1995).

Which risks attract attention and how they are reported will also relate to how journalists’ view their role and what they perceive to be relevant to themselves, their audiences and their editors.

- Reporting will be influenced by journalists’ ‘mental maps’, and how they ‘frame the story’ (e.g. as ‘risk’ or ‘accident’) (Dunwoody and Griffin, 1994).
- Journalists’ judgements about the perceived relevance of a crisis will be influenced by the degree of cultural, political or geographical proximity of the threat to themselves and their perceived audiences (Litchenberg and MacLean, 1991; Adams, 1986; Kitzinger, 1998).
- Particular attention may be given to a risk because of journalists’ and/or editors’ personal identification with the threat. Reporting may therefore reflect the priorities of journalists as these are influenced by hierarchies of class, gender etc within media organisations (Carter et al., 1998).
- Journalists write ‘for’ an imagined audience that includes ‘the most important audience of all’: their editor. Editorial influence will often be more important than any one journalist’s opinion about a risk story (Dunwoody and Peters, 1992).

Journalists’ actions are also constrained and shaped by the institutions in which they work. Once a particular risk has attracted media attention then internal dynamics will influence how reporting develops. Key factors include:

- Media interest feeds off itself. Although competing organisations may ignore each others' 'scoops' (Dunwoody and Peters, 1992: 210), once a critical mass of media interest builds up this is likely to spiral through different media outlets and formats (Kitzinger and Reilly, 1998).
- Journalists, aided by their news sources, facilitate the creation of patterns in events which can establish a 'crime wave against the elderly' or a pattern of violence from children. Thus the collapse of one bridge can be transformed from an isolated event into an example of hazardous conditions across the nation's highway system (Stallings, 1990: 89).
- The existing profile of media outlets and formats will influence the space and 'carrying capacity' available to dedicate to particular risks. The existence of 'the environment' supplements or women's pages create opportunities for addressing particular types of risk.
- Reporting will shift over time depending on internal media dynamics such as the development of 'story fatigue'. A story may become 'old news' even while the risk persists.

While the above patterns may commonly apply they will not be true of every risk under every circumstance. It is important to remember that the extent of interest and nature of reporting will depend on other aspects of the story over and above its 'risk' characteristics. Sometimes a 'risk story' acts as a vehicle for other agenda. Breast cancer attracts seven times as many headlines as comparable killers, such as lung cancer, and much more coverage than bowel cancer. This is nothing to do with its 'risk' characteristic but has a great deal to do with the 'sexiness' of the breast and the ways in which breast cancer has been promoted as an issue by supermodels and pop stars (Saywell et al, in press, Henderson, 1997). It is also important to realise that the available discourses in discussing any particular risk and its cause will vary depending on the particular topic. For example, some coverage of Chernobyl was able to portray this as a 'Russian' problem and present the Soviets as low-tech bumlbers (Wilkins and Patterson, 1987: 87) and particular moral agendas may be expressed in the media's attention to doctor-patient HIV transmission (Brown et al, 1996).

The above discussion has focused on 'news values' and journalists activities. However, no account of media production processes is completed without giving equal attention to the activities, resources and motivation of sources and the source-journalist interface. After all, journalists do not conjure risk stories out of thin air.

Source activity, and the relationship between journalists and their sources, is central to the media production process. Although often ignored in 'media-centric analysis' (Schlesinger, 1990), several researchers into the media coverage of risk either comment on source-journalist relations, or have actually included this as part of their study (e.g. by interviewing sources, examining press releases and tracing the origins of particular stories) (see Hansen, 1994).

Schanne and Meier, for example, obtained the press releases from which media reports were produced. They concluded that 'whenever news is more alarming than reassuring it is related to alarming official announcements and press releases' (Schanne and Meier, 1992: 151). Other researchers also stress the importance of sources. Singer and Endreny, for example, note that between 1960 and 1984 reporting about abortion changed. Reporting in the 1960s, during the campaign for abortion rights, focused on the risks to women of illegal abortions. In 1984 such risks were ignored and the focus was on the harms to the fetus (Singer and Endreny, 1987). It would be naive, they argue, to see journalists as structuring these debates:

Rather, they tended to accept the frames provided by the dominant institutions currently active in the debate. For example in 1984 the initiative on abortion was being taken by the Catholic Church and by 'right-to-life' groups trying to change the current legal status of abortion in the United States. The terms of the debate, as framed by these organizations, emphasized the harm done to the fetus, and the media covered these organizations and framed the issue in their terms. Earlier, the pro-abortion forces were the ones trying to change the status quo: and when the media covered their activities, they covered the issues these groups raised instead. (Singer and Endreny, 1987: 22)

Stallings makes a similar point. However, he highlights the importance of how sources are selected. He shows how source selection by journalists led to selective representation of the 'causes' of unsafe bridges:

Put simply, the selection of an image of risk - including patterns of causation - takes place in the selection of news sources. There were no Marxist explanations of falling bridges as the by-product of advanced capitalism because there were no Marxist sources identified or quoted in the [*New York Times*]. Similarly, there were no organisational, cultural and economic patterns of causation because the sources used in preparing these news accounts did not include sociologists, anthropologists and economists. (Stallings, 1990: 87)

In order to understand 'risk reporting' we thus need to go further than deducing patterns through case studies of media coverage. Rather than basing explanations solely on 'news values', it is also important to how sources operate and how journalists select and assess contributors to a story.

The first, and most important point here, is that the media privilege 'official sources':

- Authority and 'official sources' have privileged access to the media (Stallings, 1990; Schanne and Meier, 1992).
- Some media outlets will also be sensitive to commercial considerations. For example, the use of press releases by some media organisations depends

on whether the respective source is also advertising in the medium (Dunwoody and Peters, 1992: 217).

- Journalists will often rely on the 'bureaucratically visible' rather than those with most direct expertise (Shepherd, 1981; Dunwoody and Peters, 1992).
- Information that can be attributed to an 'official' source is less likely to be scrutinised for validity than information from 'alternative sources'. Journalists feel freer to present 'contentious' statements if these can be identified as 'official'. (This is evident in the headlines quoted earlier, with the headline about passive smoking being 'safe - Official' being based on a highly selective interpretation of a study by the World Health Organisation).
- Policy initiatives and official press releases are a key source of news stories. In the first instance 'the press conference' privileges official voices as they control the event under tight deadlines.
- A lack of policy events will often mean a lack of media interest. (Thus journalists and editors interviewed in the mid 1990s commented that genetics was not a 'big news story' because of the lack of legislation, and those talking about BSE commented that as 'nothing was happening' it was no longer of media interest) (Kitzinger and Reilly, 1997).

Reporting about risk, where this involves a crisis, may exacerbate this privileging of official voices because:

- In a crisis journalists will often seek out an 'information-czar', relying on a single official source which they feel to be reliable and trustworthy (Schanne and Meier, 1992: 152).
- In the face of tight deadlines in a 'disaster', journalists will turn to those agencies seen to have responsibility for a specific topic. Early reports therefore may frame the crisis in ways which exclude the perspectives of 'opposition groups', except where there are established patterns of contact (Stallings, 1990; Fredenburg et al, 1996).

However, it is also true that a crisis or 'risk story' may generate tensions that disrupt routine journalistic practice:

- Journalists may shift the ground rules once they see a story as a 'risk story'. They may then become more critical of official sources, concerned about motives and open to treating different positions as legitimate (Dunwoody and Peters, 1992).
- One criterion journalists may use when selecting a source is the speaker's willingness to go beyond formal risk assessment statements to comment on political problems and solutions. Sources on different sides of a debate may differ in their willingness to do this (Dunwoody and Peters, 1992: 216).

- If official sources are seen to 'hold back' on journalists, they will be more prepared to seek out alternative opinions and give a platform to 'mavericks' (Kitzinger and Reilly, 1997).
- However, an isolated maverick voice (such as Richard Lacey's pronouncements about BSE in the early 1990s) will have limited news appeal over time, if it remains 'a voice in the wilderness' (Kitzinger and Reilly, 1997)

It is not just a question of journalists' choices, but also of the resources and motivation of the 'claims makers' seeking (or responding) to media attention.

- Official sources have greater resources in terms of dedicated PR people, money and status
- However, the efficacy of official sources may be undermined by bureaucratic and political restrictions (inhibiting them from providing a quick and 'quotable' response to journalists' enquiries).
- Alternative sources may have 'better' resources in terms of being able to process requests quickly, provide vivid quotes and provide 'human interest' stories (Kitzinger, 1998; Miller et al, 1998).
- The trajectory of a risk story will not only depend on 'the media' it will depend on how the story is released and managed (e.g. Hammond, 1997)

Source motivation is also a crucial but often neglected area of research. Here it is important to note two points:

- The media may be identified as the only avenue for 'whistle-blowing' or having a problem taken seriously. If alternative avenues are available their willingness to speak to the media may be curtailed.
- Sources speaking to journalists will not only be trying to communicate to 'the public'. A more important aim for them may be particular ministers, or other government departments (Miller et al, 1998).

Conclusion

The media are central to theories about risk – whether that is conceptualised in terms of 'moral panics' (Cohen, 1972); 'risk amplification' (Kasperson et al., 1988) or the 'Risk Society' (Beck, 1995). However, these grand theories neglect to provide a thorough analysis of processes of media production or to present empirical evidence of how media coverage develops. (For critical discussion of 'moral panics' see Miller et al, 1998; see also Pidgeon, 1997 on amplification theory and Cottle, 1998 on the media and risk society). Nevertheless, these theories throw up important challenges and there is a rich collection of health-

related case studies about how the media treat various 'hazards' that can be used to explore this area.

This article has attempted to provide an overview of some of these studies and to point out the limitations to some of this research as well as highlighting re-occurring findings. While attempts to research and to generalise about 'risk reporting' should be treated with caution, and the very concept of 'risk reporting' is of uncertain status, this remains a fascinating and important area of study. Media theory and risk theory will both benefit from the dialogue between them and such dialogue is essential to understanding the contemporary world. Further research is needed which combined rigorous and in-depth methodologies, with theoretically reflexive approaches and multi-levels research designs that give due attention to production processes and audience reception alongside analysis of media content.

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¹ Media are now an integral part of risk controversies. Concerns about media coverage will influence how advice is framed and presented, how the resources of an organisation are expended and even the nature of research and the development of policy (Miller, 1998).

² The media are seldom the sole source of information on which people draw when assessing, and reacting to risk. For example, the disproportionate fear of stranger-abduction of children is reinforced by patterns in people's everyday experience of their lives and 'gossip' within communities (Kitzinger, in press). Similarly a woman's fear of street attack, while influenced by the media, may also be shaped by experiences such as encountering a group of drunken men blocking the pavement and catcalling. Similar dynamics of 'experienced threat' are evident in women's particular fear of breast cancer (rather than other types of cancer). This may be media-mediated but will also be influenced by women's embodied experience (e.g. the common experience of finding benign breast lumps).

