

Mobile Phone Masts, Social Rationalities and Risk: Negotiating Lay Perspectives on Technological Hazards.

Abstract

This paper examines the responses of 37 participants in 6 focus groups to media representations of the health risks associated with mobile phone masts ('base stations') in the light of theoretical debates concerning non-expert understandings of risks (variously characterised as 'lay rationality', 'lay epidemiology', 'popular epidemiology', 'public knowledges', 'social rationality', and 'intuitive risk judgements'). In particular the study discusses the extent to which two particular manifestations of such understandings – non-mediated contextual and personal knowledges ('multiple information sources'), and risk comparisons made between mobile phone masts and a variety of other perceived health risks – are prominent in the data. The paper suggests that analyses of risk responses such as these should differentiate clearly between classes of risks, and avoid suggestions that any particular type of risk response can be unproblematically mapped onto other risk scenarios.

Introduction

The critique of the "technico-scientific perspective" (Lupton 1999: 1) on risk has generated a number of theoretical debates concerning the ways in which those without a scientific background or training make sense of the risk communications with which they are confronted on a daily basis in (late-) modern societies. Technocratic, expert accounts of risk have been accused of applying a 'deficit model' to lay perspectives in which divergences from the scientific account are simply a form of "perceptual pathology" (Douglas 1986: 3) or public 'misunderstanding' (Hobson-West 2003). The psychometric approach to risk perception (see Slovic 2000) has tended towards

"an unproblematic distinction between 'evidence' and 'concern', between 'rational' and 'irrational'" (Stilgoe 2005: 55)¹

Similarly, Haggerty notes that this kind of approach leads to public concerns being held to a 'standard of calculative rationality' which applies an actuarial or statistical calculus to risk perceptions based on probability. He argues instead that public attitudes to risk are informed by a "situational rationality that is shaped by informal knowledges, personal history, anxiety and (...) cultural meanings" (Haggerty 2003: 210). Critics of this conception of risk perception have therefore differentiated between a discursively dominant scientific rationality – technocratic, expert-led – and a variety of 'social rationalities' (Beck 1992; Perrow 1999: 321) produced by non-expert publics. These social rationalities, lay knowledges (Wynne 1996) and socially situated perspectives are both acknowledged and, to different degrees, validated as meaningful. Lupton for instance argues that despite substantial differences between them, the 'risk society' thesis of Ulrich Beck, the 'cultural/symbolic' approach of Mary Douglas, and Michel Foucault's 'governmentality' perspective, represent a sociocultural challenge to a technocratic understanding of risk (Lupton 1999:1). They engage positively with lay public perspectives through an exploration of the "social, cultural and political nature of risk" (Lupton 1999: 5). This approach can also be

¹ More recently, one of the originators of the 'psychometric paradigm' has acknowledged some of the limitations of the approach (Slovic 2000:xxxvi) .

understood as an attempt to promote the ‘democratisation of risk’ (Kitzinger and Reilly 1997).

Social Rationalities

The various alternatives to ‘scientific rationality’ adopt a number of different terms and offer different perspectives on public responses to risk. Adams (1995) and Wilde (1994) employ the concept of risk homeostasis (or ‘risk compensation’), whereby people accept a constant level of risk despite societal attempts to reduce or minimise particular (‘everyday’) risk activities. Understanding risk as a matter of individual psychology, they suggest that with regard to such hazards as road traffic accidents attempts to apply technical solutions to risks leads to individual readjustments which simply shift the risks elsewhere². From within the psychometric paradigm, Slovic argues that (lay) risk perceptions can be understood as ‘intuitive risk judgments’ which take into consideration a wide range of factors (such as ‘catastrophic potential’, ‘controllability’, and ‘voluntariness’) in assessing particular risks (Slovic 2000: 220, 225). This leads to lay comparisons between different risks on the basis of such perceptions. While (as suggested above) the psychometric paradigm has been argued to reproduce some elements of the ‘deficit model’ approach to lay perspectives, Slovic acknowledges the ‘wisdom’ and richness of lay risk judgments (ibid: 231), and the wide range of risk characteristics discussed in this approach suggests the potential existence of a complex network of risk comparisons in lay discourses on risk.

Perrow’s analysis of ‘high risk technologies’ identifies three types of rationality: absolute, bounded/limited, and social. The first can be understood as a kind of ‘scientific rationality’ which ignores any social or cultural criteria, while the second acknowledges the rough estimates (‘heuristics’) which non-experts employ to make sense of risks (Perrow 1999: 315-20). However, social rationality for Perrow both acknowledges the psychometric dimensions of risk and suggests that the variability of such cognitive ‘limits’ amongst the population work positively to promote social bonding (ibid: 321-2). Such a perspective might emerge within lay discussions on risk in the form of contrasting perspectives that generate some kind of synthesis or consensus; certainly, this kind of social rationality might apply to a number of different kinds of risk.

Wynne has criticised those who insist on the necessity of an absolute distinction between expert knowledge and ‘lay public knowledge’, arguing that while not inherently superior to scientific understandings, lay knowledges offer localised, contextualised challenges which raise the possibility of “more legitimate, less alienating forms of public knowledge” (Wynne 1996: 78). In a rather more formal way, ‘popular epidemiology’ describes the process by which lay people, responding to a perceived health risk, develop a challenge to official discourses on the risk involved through collective research and re-definition of the issues involved. This perspective suggests a more ‘socially situated’ science which demystifies and contextualises scientific authority (Brown 1992: 278). However, it is largely relevant to those risks which have been formally recognised and campaigned against by organised social groups. By contrast, lay epidemiology is a term which has been used

² Thus Adams suggests that safety improvements to roads are often “consumed as performance benefit” – that is, drivers take the opportunity to drive faster in order to arrive more quickly while accepting similar levels of risk (Adams 1995: 144)

to describe the way interaction between ‘personal networks’, the wider public sphere, and media representations of formal and informal evidence provides the basis for public understandings of health risks (Frankel et al 1991: 428). This is a rather less formal model than Brown’s ‘popular epidemiology’.

Alongside these generalised attempts to explain non-experts’ lay perspectives on risk, more empirical studies have attempted to investigate the specific contours of public risk responses. The critique of what she calls the ‘rationalist’ perspective leads Hornig to argue that lay publics make use of an “‘expanded vocabulary of risk’” which make use of ‘social context considerations’ (Hornig 1993: 95, 107). Similarly, the notion of ‘risk biography’ has been employed by Tulloch and Lupton (2001) to analyse risk perceptions as deriving from “people *constituting themselves* as audiences in their everyday practices” in an active sense. Thus, they argue that the continuous negotiation of risks in their day-to-day lives leads people to sometimes accept and value expert systems of knowledge, while at other times challenge or reject them in favour of “more experiential, embodied and ‘grounded’ knowledges” (ibid: 14). Petts et al suggest that such negotiations draw on resources such as:

“...personal experience, formal education, the local knowledge acquired through living and working in a particular community and occupation, and the frameworks derived from prior media consumption.” (Petts et al 2001: 71)

It is also worth emphasising that these negotiations are not restricted to psychologically internalised individual assessments of risks, but are constructed in

“the ‘unceasing babble’, the ‘permanent dialogue’ that people have with each other and with institutions” (Joffe 2003: 68).

Joffe also refers to research making use of Moscovici’s social representation theory to highlight the ways in which new phenomena (such as technological risk) are often understood and contextualised through interpersonal reference to everyday experience (ibid: 64).

The present study seeks to set out some examples of what Hornig’ describes as an ‘expanded vocabulary of risk’ as it is used in public discussion of mobile phone mast risks, and also to explore lay public uses of the different – and potentially contradictory – ‘circuits of communication’ represented by both expert and informal information systems (Tulloch and Lupton 2001: 12). The data is derived from focus group interviews with non-experts, and the analysis focuses on two particular themes that arose from the material: non-mediated contextual and personal knowledges (‘multiple information sources’), and risk comparisons made between mobile phone masts and a variety of other perceived health risks. These responses are, I argue, to some extent specific to this particular kind of (technological) risk and substantially context-dependent.

As a relatively recent ‘risk technology’ which is now (in Britain and many parts of the world) virtually ubiquitous, mobile phone masts provide an interesting case study of the public reception of technological risk communications and perceptions of risk. It is however worthwhile in the first instance to set out the context of these risks by briefly summarising the scientific background to the hazards involved.

Mobile phone health effects

The widespread and rapid adoption of mobile phones over the past decade or so “has been accompanied by public debate about possible adverse effects on human health.” (Stewart et al. 2000). These concerns usually focus on the radio frequency (RF) radiation which connects handsets and base stations (commonly known as ‘masts’). This kind of radiation (‘non-ionising radiation’) is generated by many different sources including radio and television broadcasts (Stewart et al 2000: 27), and the scientific evidence suggests the low levels of emissions from handsets are essentially harmless (ibid: 101-2). Furthermore, while emissions from masts are more powerful, exposure levels to individuals are much lower, making them (according to the long-standing orthodoxy of the science involved) an even less likely source of adverse health effects.

Nevertheless, the Stewart report acknowledged that (at the time of writing) there had not been a great deal of research undertaken in to the specific health effects of mobile phone technology (Stewart et al 2000: 3). The main concerns are that mobile phone RF radiation may be responsible for health problems such as headaches, cancers and brain tumours (ibid: 21). The Stewart report found little evidence of adverse health effects from the RF radiation produced by phone masts, but did recommend a precautionary approach in which use of handsets is minimised, especially among children (Stewart et al 2000: 6). Further advice included restrictions on the construction of masts near schools, and that details of phone handset power output (‘specific energy absorption rate’ or ‘SAR’ values) should be provided for consumers.

Mobile phone risk perceptions

The Stewart report’s application of the precautionary principle to the use of mobile phones represents one of the key issues of contention for Burgess, whose book is perhaps the most detailed discussion of the issue to date. He argues that the culture of precaution has led to a focus on public concerns around ‘phantom risks’ and an accommodation of science to (largely unfounded) public fears (Burgess 2004)³. International comparisons suggest different responses to mobile phone risks concerns based on both cultural and political distinctions, while in the UK a ‘health-campaigning media’ and a compliant political class combined to sustain the issue in the public arena (ibid: 215). He takes a ‘social constructionist’ approach to the way in which the risk perceptions around mobile phones were generated in the interactions of protest groups, media representations and ‘largely defensive’ authorities anxious to appease public opinion and acknowledge the fears of ‘ordinary people’ (ibid: 249; Durodie 2004: 1066). While Burgess sets out the way in which media campaigns worked to construct mobile phone fears (not least through the selective use of a small number of activists and ‘dissident’ scientists, and the alarmist reporting of studies with little scientific validity), the emphasis of his analysis tends towards the responses of governments and scientific authorities in their adoption and promotion of the precautionary principle. His suggestion that governments have been ‘defensive’ (Burgess 2004: 249) with a tendency to ‘appease’ public fears of technology (ibid: 106) tends to elide the extent to which authorities can and do attempt to control and

³ These fears are in his view propagated by such notions as Brown’s ‘popular epidemiology’ (1992) which Burgess describes as “an extreme example” of ‘pseudo-science’ (Burgess 2004: 240).

manipulate media agendas (see Manning 2001; Palmer 2000)⁴. His implicit endorsement of a ‘one-way communication of science to the public’ (Burgess 2004: 249) promotes the deficit model of the public understanding of science discussed above, in which irrational lay knowledge needs to be corrected.

Despite Burgess’ focus on ‘public fears’ he has relatively little to say on the specific character of public perceptions of mobile phone risks. Indeed, Siegrist et al (2005) note the relative paucity of studies on lay perceptions of risks associated with mobile phone technology. They highlight Sjöberg’s findings that people link mobile phones with “unknown effects” (ibid: 1254), and cite a Chilean study using the psychometric paradigm (see Slovic 2000) which locates ‘transmission antennas’ as being understood as a “little known hazard with medium dread potential” (Bronfman and Cifuentes (2003) cited in Siegrist et al 2005: 1254). Similarly, their own earlier study suggested lay assessments were concerned with the ‘unobservable’ nature of this ‘new hazard’. They acknowledge the criticism that quantitative studies (including those within the psychometric paradigm) tend to make use of aggregated data which ignore the “substantial individual differences in risk perception” (Siegrist 2005: 1254). Their survey research therefore attempts to set out different levels of perceived risk according to respondent’s trust in authorities, and the frequency of use of mobile phones. Nevertheless, they implicitly repeat some of the assumptions of the “technico-scientific perspective” when they suggest a ‘deficit’ of understanding with those who reject the views of experts:

“We may have to accept that for some people, a scientific discourse is not a valid discourse, and, therefore, does not influence their perceptions of risk.” (Siegrist 2005: 1262)

While the study emphasises the need to understand the complexity and diversity of risk perceptions, the implication is of a need to educate such people in order to eliminate an effectively aberrant view. Furthermore, whilst such studies raise the issue of public perceptions of mobile phone risks, they underline the need for more detailed empirical, qualitative research into the particular forms of such perceptions.

Stilgoe’s discussion of the scientific discourse on mobile phone risks suggests that official advisory responses to public concerns focused on mobile phone handsets’ compliance with the guidelines on SAR values. These were discursively constructed to be the ‘endpoint’ for any interaction between experts and public. This ‘discourse of compliance’ meant that

“The whole field of measurement – constructing SAR – was cordoned off by expertise, with non-experts left only with the question, ‘Does it comply?’” (Stilgoe 2005: 59)

In the official imposition of this tightly circumscribed arena of contestation, the concerns around masts were, in Stilgoe’s view, restricted to the extent that they were not considered to be a legitimate topic of debate (ibid: 58). While handset use could be minimised, exposure to masts - for those living near them - could not be reduced.

⁴ His assertion, for instance, that during the BSE crisis the British government’s policy of reassurance was “based on the best scientific information” (Burgess 2004: 248) ignores the extent to which political effort across Europe was directed at protecting the beef industry (Goethals et al 1998: 95; Lang 1998).

This “skewed distribution of risk” might suggest a particular need to address these fears, but the scientific consensus effectively rejected them as baseless and irrational (ibid: 61).

Wynne’s concern to avoid being seen as uncritically championing lay knowledges (Wynne 1996: 77) implicitly highlights the possibility that such perspectives may well at times reflect the established scientific opinions of expert rationality. Thus, Stilgoe’s discourse of compliance could well find an echo in lay discourses on mobile phone risk. Such distinctions and negotiations need to be investigated empirically on a case by case basis.

Method

The data analysed here were gathered as part of the MA programme in Communications Management at London Metropolitan University during November and December 2004. Six focus group interviews were arranged involving a total of 37 participants, who were selected using the ‘snowball’ method. There were no strict selection criteria for what was intended to be an exploratory study into audience perceptions of mobile phone mast risks; nevertheless the participants were all between 23 and 42 years old, and based in the London area. Three groups were all female, while three were mixed gender, and a majority of the participants were parents. Prompt materials in the form of photocopied newspaper articles concerning phone masts were presented during the interviews in order to provide a media context and stimulate discussion, and an open, semi-structured interview technique was adopted in order to facilitate an unconstrained, ‘natural’ discussion (Hansen et al 1998).

Analysis of the focus group data generated a number of themes which illustrate the complexity of lay risk rationalities. In this paper, I intend to focus on just two of these themes: the discursive use of contextual knowledge derived from sources other than the mass media; and the use of comparisons with other (perceived) risks in order to explain, clarify and contextualise mobile phone mast risks.

Non-mediated contextual knowledges

As we have seen, personal experiences, social contexts and multiple information sources form some of the key elements in the construction of lay perspectives on health risks. The discussion of mobile phones mast risks provides some evidence of such constructions. For instance, following a general question about use of media, one respondent emphasised his own ‘personal networks’ by suggesting that for him, finding out about ‘what’s going on in the world’ also meant using non-media channels such as friends in other countries; what he described as the ‘grapevine’ (male, group 1: 56-63) and another participant called the ‘jungle drums’ (male, group 2: 51). The discussion of mast risks in particular generated a distinction between masts and handsets, where the latter was considered a more ‘present’ risk (see ‘risk comparisons’ below). In making this distinction, the respondent refers to parental advice:

“My mother will say ‘don’t use it for too long’, or ‘phone back on the landline’, so I think we have been aware for quite a while that you don’t use your phone for ages...” (male, group 1: 299-301).

The respondent's argument here seems to enlist his mother's advice to underline his view that the risk from handsets is (relatively) widely known. In this sense at least then, his understanding (and ranking) of the public awareness of related risks is supported by personal familial sources of contextual information.

One respondent described himself as an 'ex-medical student' (male, group 1: 312) whose daughter survived leukaemia, in order to contextualise his own concerns over phone masts before going on to set out his own understanding of the technological background:

"We know for a fact any radio emissions, and this is a kind radio emission, will produce energy, and any energy produced will cause some change, I'm not saying bad or good, but some change in, particularly, living matter, whether it's the brain or cells. And I'm not sure if that's a good thing." (male, group 1: 314-7)

He went on to make a comparison with drugs such as Thalidomide and Vioxx which have been withdrawn after being found to have unforeseen side effects. At a later point in the discussion which focused on the possibility of objecting to a proposed phone mast, this respondent again mentioned his daughter's earlier illness to underline his concern (male, group 1: 413-4). From the perspective of scientific rationality, the above comment may be seen to be deficient in its understanding of RF radiation (e.g. Burgess 2004). However, this respondent's attitude was generally one of caution rather than fear or panic, and his 'risk biography' (Tulloch and Lupton 2001) provides a valuable context in which to understand both the level of his concerns as well as the way in which he expresses it via concerns over dangerous pharmaceuticals.

Another respondent described asking a relative who was 'a lecturer in Physics at Imperial' about phone mast risks:

"...he suggested that there really wasn't that much to worry about because of the way that radiation falls off very quickly, so that did reassure me." (male, group 2: 257-8)

While this personal source of information was used to contextualise media representations, it can also be understood as a reference to a (non-mediated) 'expert' perspective. Clearly there is likely to be a stronger sense of trust in such sources. This compares for instance with Petts and Niemeyer's research suggesting that while people saw relatives as important (and caring) sources of information, they do not always rate them as trustworthy in the sense of providing accurate or reliable scientific knowledge due to their lack of expertise (2004: 16). In this case however, the relative concerned evidently scored highly in terms of both 'empathy' and 'expertise'⁵.

Of course, friends and acquaintances without relevant expertise still receive a sympathetic hearing. One respondent describes how his friend is not allowed to have

⁵ This response might also be understood as an attempt to support a personal belief by employing a "proactive information-gathering strategy" (Petts and Niemeyer 2004: 19).

his daughter stay at his home because the girl's mother is concerned about the phone mast behind his house.

“... the mother, she doesn't allow, she's [her daughter] not allowed to talk on mobile phone or anything ..(pause).. but then their son did die due to leukaemia.” (male, group 5: 189 - 91)

This respondent continues by explaining the “speculations” surrounding the relationship between the mast and the son's leukaemia, including the headaches that followed the construction of the mast. This perspective is then subjected to a questioning but sympathetic assessment:

“So you know, I can understand where she is coming from, you wouldn't want that around but then it could have been due to something completely different.” (male, group 5: 196-8)

While this respondent is attempting to find a 'reasonable' position on the issue by acknowledging the possibility of other causal factors, she nevertheless empathises with the mother's situation, and accepts at least the *possibility* of a link between the mast and the child's illness.⁶

Following a question about what health issues they remember seeing in the media, one group discussed the different and contradictory information provided, particularly mentioning the 'measles mumps and rubella' (MMR) vaccine and MRSA (methicillin resistant *Staphylococcus aureus*) 'superbug' issues. One participant implied that her GP provided useful reassurance in contextualising the confusing information found in such media 'scares':

“...you don't know if you are coming or going and, I went to talk to my GP and he's just, like, 'if you start getting ideas into your head' ...” (female, group 6: 190-1).

Non-mediated expert knowledge is not (however) necessarily accepted uncritically, particularly when it challenges personal or familial experience of illness. One participant, responding to the comments above, explained how her concerns about the side effects of her baby son's asthma medication led her to ask her GP about what she had seen on TV news:

“So I went to see the doctor about it and he was all 'Oh, it's a load of rubbish, shh, ignore all that', and I thought no, as a parent I've got to ask these questions...because obviously if I don't, then, I feel like I, I've let my child down” (female, group 6: 206-12).

Not only is she unhappy about the way in which the doctor dismissed her fears, she also felt that his advice was incorrect: “As it turns out what he said was uh, was

⁶ Although not the focus of this study, the social construction of childhood as inherently vulnerable has been argued to lead to a discourse of child protection which makes it 'beyond debate' that children should be protected from (any) risk (Jackson and Scott: 1999: 90).

wrong anyway” (female, group 6: 200-1)⁷. She then went on (in response to comments about the media providing information to help form opinions) to suggest that “GPs don’t like you forming an opinion” (female, group 6: 222). This critical view of expert authority as dogmatic and inflexible is arguably a strong theme in many critiques of professional health care providers and of scientific rationality in general (Wynne 1996; Lupton 1999). Indeed, Stilgoe suggests that the official position on mobile phone masts led to a scientific consensus which ‘obscure[d] areas of uncertainty’ (Stilgoe 2005: 61) and enforced an orthodoxy which prevented any non-expert challenge to its framing of the debate. By linking the inflexibility of health care professionals’ responses to this specific family health concern, this respondent begins to construct a platform for a critique of other health risk issues.

Similarly, one respondent explained how she was concerned about the effects of hormone replacement therapy (HRT) which had been recommended to her mother:

“my mum didn’t go on it and was like ‘I’ll try and go through the menopause’ and everything and when my auntie got breast cancer, why the moment she got it they took her off... she couldn’t go on any HRT or anything cause that sometimes triggers breast cancer. Do you know what I mean? Why take her off it? If its not, if it’s harmless why, what the big deal? So I just think, I don’t think anyone really knows. Doctors, you know they get their reports so I just think, you’ve got to make your own mind up.” (female, group 6: 525-32)

The experience of her aunt in being ‘taken off’ HRT highlights, for her, the dubious safety of the treatment, and reinforces her scepticism concerning health professionals.⁸

Personal experience of protests concerning phone masts also provided respondents with contextualising information. When asked about their knowledge of masts, one respondent spontaneously described a local protest over the placing of a mast near a primary school. The protest, she felt, was in part generated by economic/aesthetic as well as health issues:

“It was slap bang in the middle of a field next to a school so yes it did look like a blot on the landscape, and there were the health issues for the children as well.” (female, group 2: 139-41)⁹

⁷ It is unclear why she felt this, but implicit is a belief that the warnings about side effects in asthma inhalers later proved to be legitimate. See for instance, *Concern over asthma inhaler drug*, 31 March 2004, BBC news website.

⁸ Guillaume and Bath’s study of the information sources used by parents with regard to the MMR vaccine (2004) reports the complex relationships that parents have with doctors and other health care professionals. While some parents found them a useful source of information, others felt they were promoting the ‘pro-MMR’ perspective and were dogmatic and unwilling to entertain alternative opinions (2004: 13-14). This was in turn linked to scepticism regarding the possible economic reasons for governmental support for the MMR vaccine (i.e. that it was cheaper than ‘single vaccine’ alternatives) (ibid: 14).

⁹ Burgess’ interviews with campaigners suggested that the appearance of masts near schools provoked general unease which only became a more focused health concern after research generated evidence of specific health risks (Burgess 2004: 84).

Another respondent with a background in health care (working in the library of the European Medicines Agency) suggested that particular stories, such as those about problematic drugs such as Vioxx attract her attention (female, group 3: 108-11). Occupational perspective allowed another respondent to challenge the media presentation of the risks of the MRSA ‘superbug’. As a nurse she felt that while the issue of hospital hygiene was important, the issue was exaggerated:

“But the actual thing about, you’re going to go to hospital, get MRSA and die is totally false, I mean perhaps not totally false but it’s very misleading.”
(female, group 6: 271-3)

Clearly this can in part be understood as a defensive reaction; nevertheless, her occupation effectively provides a context for her understanding of the risks involved, and mitigates what she suggests is a sensationalised media account of the risks involved.

Risk Comparisons

A second recurring theme in the transcript data concerned the extent to which the risks from mobile phone masts can be compared with other health risks, and the understandings that such comparisons offer. Associating one risk with another has been employed as a technique by those wishing to assert the primacy of a technico-scientific rationality. The presentation of quantitative measures of risks for a number of hazards was considered to provide a comparison which would allow a ‘broadening [of] people’s perspectives’ in line with scientific assessments of the risks from technologies such as nuclear power. These were found to be largely ineffective in that public perceptions of risk could not be captured in such unidimensional and quantitative measures (Slovic 2000: 231). Nevertheless, a more qualitative and connotational kind of risk comparison is also made in media representations of risks such as those from mobile phone technology. Stilgoe notes the use in media coverage of three important ‘associations’ made to contextualise these risks. The first, ‘radiation’, carries with it a link to dangerous ‘ionising radiation’ such as gamma and x-rays, while the second – microwave ovens – extends this to include concerns around the “cooking, frying and scrambling” of brains through exposure to mobile phone radiation. The third association is with smoking tobacco. This makes a link not only with an established health risk, but also (via the analogy between the tobacco and mobile phone industries) with the notion of economic interests driving the cover-up of evidence of risk (Stilgoe 2001: 10). While Stilgoe sees these associations as an unsurprising assertion of news values in the face of scientific uncertainty, as well as part of the social construction of risk (ibid: 15), it is also clear that risk comparisons such as these are part of the portfolio of heuristic devices (see Perrow 1999: 316-9) used by lay publics in understanding risks.

As we have already seen, health risks from a number of different medical treatments and drugs (MRSA, MMR, HRT and withdrawn drugs like Thalidomide and Vioxx) provided points of reference and comparison for the participants; further examples are discussed briefly here.

Handsets

One obvious contrast occurred between the presence of phone masts and the use of mobile phones themselves. As we have seen (see ‘non-mediated contextual knowledges’ above), in one instance this comparison was used to emphasise what the participant felt was the general perception of phone mast risks as hidden or ‘background’ (to some extent contradicting other group members); the ‘actual use of phones’ was considered, he thought, to be a more well-known risk (male, group 1: 298-304). This discussion led quite quickly to a fatalistic acceptance of the ‘fait accompli’ of possible phone mast risks as the inevitable consequence of widespread mobile phone use¹⁰.

A second instance of the mast-handset distinction arose in response to a question about what other stories participants had heard about masts. One respondent minimised the risks from masts by suggesting that:

“...personally I do think mobile phones themselves are far more dangerous, for both the radiation they give off, and we have that right to our ear, and the mere culture that mobile phones are bringing along with them, where people are killing and dying over mobile phones.” (male, group 3: 194-7)

This comment highlighted two different kinds of risks linked to mobile phones: the technological risks from radiation emissions and the social risks of phone related crime. Together, these concerns made news stories about handsets more relevant, and more interesting, to this participant. The comment also illustrates a perspective which seems to be at odds with the psychometric paradigm’s argument that voluntary risks are more likely to be acceptable to the public than involuntary risks (Slovic 2000; Burgess 2004: 138). By emphasising the relative dangers of handsets compared to masts, this respondent seems to adopt a more scientifically ‘rational’ perspective. These two examples suggest that, even within the general risk framework of mobile phone technology, important distinctions need to be made between the different elements (handsets and masts) of the technology and the social contexts of their use in order to understand the social rationalities employed in lay discourses.

Food Allergies

In a further comparison, again intended to play down the risks from phone masts, the same respondent suggested that food allergies can kill:

“I’m sure you can give me a few stories where a mobile phone gave you cancer. But I can give you stories where a mango killed a man, he was allergic, he died. Are mangoes evil? Are mangoes dangerous? No. Some people are going to be more susceptible to certain things than others. The unfortunate nature of life.” (male, group 3: 224-7).

This (slightly light-hearted) comment implicitly supports the position that the risks from phone mast radiation are likely to be restricted to a particularly susceptible minority. Further, it seems to imply that this minority must, in the wider interests of society, accept this small risk; the dangers of masts are thus reduced to a potential risk to a small minority which can (again implicitly) be balanced against the wider

¹⁰ This distinction between handsets and masts can in one sense be understood as illustrating a relatively sophisticated assessment of the different applications of the technology.

benefits of the mobile phone network. In this way the (facetious) comparison with unusual food allergies is employed to make light of any phone mast risks.

Electricity power lines

The technological connection between mobile phone masts and electrical power lines (see Burgess 2004: 133) was not made explicit in the discussions, but the similarity of the risks were implied on more than one occasion. This is likely to arise not least due to the physical similarity between pylons and masts as visible manifestations of otherwise invisible (and highly contested) technological risks. One participant spontaneously made the link (“I mean, it can’t be good for you, it’s like pylons isn’t it?” female, group 4: 199) while another in a different group suggested that if a mast was constructed far from their home, most people would say

“...well, no that’s not very good, but if they were actually doing it next to your house, I certainly would be thinking [this isn’t good], same as not living under an electric pylon or a power cable.” (male, group 1: 327-330).

The comparison with electric pylons and cables provides a useful way for the participant to argue that such risks are at least partly about physical proximity, and are judged (by ‘most people’) on this basis. The utility of electricity, like the value of the mobile phone network, outweighs the potential hazards for all but the most locally affected individuals.

MMR vaccine

During an extended discussion on the complexity of scientific information and the difficulty of disseminating it via the media, one participant responded to a comment concerning the tendency for scientists to ‘hedge their bets’ (by avoiding categorical assurances) by sympathising with the problems of scientific explanation of risk:

“It’s like what the government tried to do with MMR, though. They tried to say with every vaccination there’s a risk, which a lot of people took to mean, well, we’re not doing it then. So people can overreact if they’re given that choice. So it’s a difficult one to call, really.” (female, group 1: 467-70)

The specific comparison is problematic in that MMR is primarily an individualised risk issue which can be ‘solved’ via personal choice, whereas phone masts risks are communal (Burgess 2004: 138); nevertheless, the substantive point for this participant seems to be that wider public confidence in governmental assertions of safety is undermined by a scientifically valid avoidance of absolute reassurances. This perspective suggests a relatively sophisticated acknowledgement of scientific knowledge as provisional and subject to refutation. While for this respondent the subtleties of the official position are understandable, for others (she implies) it may be insufficiently categorical in its denial of any possible risks. In comparing a US campaign against a ‘microwave installation’ with more recent mobile phone mast campaigns, Burgess argues that in both cases there was

“...an insistence on the elimination of uncertainty, and on corporate guarantees of zero risk.” (Burgess 2004: 114)

While the respondent in this instance implicitly attributes similar attitudes to others, her own perspective seems to challenge the assumption that lay perspectives demand absolutely safety and are unreceptive to probabilistic arguments.¹¹

Petts and Niemeyer's (2004) study of parental information strategies regarding MMR suggests that parents appreciated the importance of the vaccine in promoting 'herd immunity' for the population as a whole; this perspective clearly provides some counterweight to the individualised concerns over the potential negative consequences of the vaccine (2004: 17). While the risks from mobile handsets can to some extent be mitigated via individual choice (for instance by selecting a handset with a low SAR rating, or minimising exposure more generally), the risk from masts remains a societal one which can only be addressed collectively.

Smoking

The lack of clear unambiguous evidence concerning the risks from phone masts led one participant to make a link to tobacco:

"It's like cigarettes – nobody knew until 80 years ago [sic] that they were dangerous. You need a build up of the evidence to have a definitive answer one way or the other. I think the public's concerns are because you can't tell, it's not knowing, so it's particularly bad in the public's view, and I think rightly so, to place a phone mast next to a school..." (female, group 2: 148-52)

There seem to be two distinct but related issues here. The first emphasises the need for accumulated evidence in order to make clear assessments of risk, an issue raised above in the section on comparisons with the MMR vaccine. Secondly, this participant seems to uphold the precautionary principle (Stewart 2000: 109) in his suggestion that children should be afforded protection from the potential risks of phone mast radiation. The apparent emergence of phone masts as a technological risk were compared to a historical period in which tobacco smoking was not scientifically proven to be harmful. This particular comparison clearly carries implications concerning a future in which phone mast radiation is, like smoking, proven to be harmful – and should therefore be contrasted with other (potential) comparisons with previous apparent risks (e.g. MMR) which later came to be acknowledged as harmless. The adoption of the smoking comparison constructs a discursive position in which scientific knowledge confirms risks rather than affirms safety.

Road safety

The risks associated with various forms of transport can be compared to phone masts risks, often rhetorically in order to emphasise the ubiquity of (implicitly low-level) risk:

¹¹ Such attributions of over-reactions and fearful attitudes to others can arguably also be found in Burgess' own arguments about public expectations of negative outcomes (2004: 119) and the over-reactions during the BSE crisis (ibid: 225) which seem to rely on received wisdom rather than evidence of lay perspectives.

“...at the end of the day I could just walk tomorrow and a big bus is going to come along and kill me.” (female, group 5: 609-11)

“I get the train every day, that might kill me. There are so many things that might be terrible – if you start worrying about things that you don’t really know anything about because you don’t know what the implications are, you’d do nothing.” (male, group 2: 275-7)

In both of these examples road traffic accidents are an unavoidable low-level risk which has been accepted as worthwhile (at least on a societal level). The lack of information on phone masts risks leads here to an (perhaps temporary, conditional) acceptance of the potential risks as simply a minor addition to one’s portfolio of risk. In the second example, this is more explicitly about accepting a level of uncertainty that is pragmatically necessary. It could be argued that such a position represents a narrowly quantitative rationality in that it fails to account for the differences in public perceptions between the two different risks and implicitly takes ‘expected number of fatalities’ as the primary measure of risk assessment (Slovic 2000: 231). In this sense, such comparisons construct a form of (technocratic) scientific rationality in line with traditional understandings of risk. In Stilgoe’s terms this might represent a lay version of the scientific ‘discourse of compliance’ (Stilgoe 2005).

Microwave Ovens

In response to a London Evening Standard newspaper article entitled ‘Phone Mast Plague’ (Prynn 2004) one participant suggested that there was insufficient research available (in the media) with which to make an assessment of the risk. She suggested that the coverage failed to provide evidence of risk:

“...where does it [the article] say how much radiation there is in it [a phone mast]? I bet you get more from standing next to a microwave than that.” (female, group 5: 229-30)

The intention here seemed to be to compare masts with a harmless modern technology that had also been the subject of (baseless) health concerns, in an implicit criticism of media ‘scares’ (Cricher 2003). Following this, a brief discussion of a microwave oven ‘scare’ developed in which other participants were less dismissive of the risks involved, with one responding to a comment about microwave ovens causing damage with the comment “I know, it’s frightening” (female, group 5: 241).

It seems that the same risk comparison was understood differently by different participants within this group. Microwave ovens were used initially to represent an essentially harmless – and therefore unfairly maligned – technology, whereas further comments implied a more uncertain response to the perceived potential health risks.

Conclusion

In this paper I have attempted to set out some of the ways in which lay discourses of risk reflecting ‘social rationalities’ are constructed by focusing on two particular themes found in focus group discussions. Respondents used a wide range of sources including personal networks of information and contextual knowledges to make sense

of the potential and perceived risks of mobile phone technology. These were not however employed uncritically or in order to entirely replace 'scientific rationality', but rather as part of a complex negotiation of understandings within what is perceived as a situation of uncertainty. While some responses found reassurance in the official advice of health professionals, others understood it as part of a rigid orthodoxy which deserved to be challenged and questioned. By making comparisons with other risks scenarios, respondents attempted to clarify discursively their own risk understandings, differentiate between risks (for instance in terms of proximity) and in some cases to emphasise the relatively minor risk represented by mobile phone masts in particular.

Overall, the focus group data provide some evidence of concern around mobile phone mast risks, as well as some acceptance, fatalism, and confusion. Respondents seemed implicitly to accept and value some official scientific discourses, while challenging and rejecting others. Mobile phone risk perceptions should not be characterised as reflecting a public 'scare' or panic, but understood as a complex set of responses to a specific risk involving negotiations between both scientific and social rationalities. The two themes discussed here highlight risks responses with a wide range of perspectives, part of an "expanded vocabulary of risk" (Hornig 1993) of references to personal networks of information and comparative understandings.

While this paper has taken a particular case study of risk response, it nevertheless seems likely that different risks would be understood in different ways. It is clear, for instance, that the comparison between mobile phone masts and electricity pylons can occur due, in part, to the similarities of physical appearance as well as technological risks involved; therefore this particular connection allows a particular discursive construction of phone mast risks. Also, Burgess' general contention that the public application of the precautionary principle is likely to lead to an intensification of public risk concerns (Burgess 2004: 91; Timotijevic and Barnett 2006: 144)¹² is not supported by the diversity of responses presented here.

Therefore, generalised conceptions of social rationality – whether emphasising individualised psychological responses to voluntary risks (e.g. Adams 1995), technological risks (Perrow 1999), or environmental risks (Beck 1992, 1996) – while theoretically useful, cannot be unproblematically generalised to other kinds of risks. Understanding social rationalities requires a context-specific, empirically based analytic approach in order to make sense of the specific mix of negotiations present in particular risk scenarios.

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¹² Siegrist et al (2005: 1262) argue that one explanation of their results could be that regulations surrounding mobile phone masts "may decrease perceived risks" providing people understand them.

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