Health in the headlines

– How two Indian newspapers treat antibiotic resistance

By: Susanna Ahnlund & Rebecka Ramstedt
Supervisor: Karin Stigbrand
Examinator: Jöran Hök
Abstract

In India, there is no regulation of antibiotics and allegedly the use has doubled since 2006. Indiscriminate use of antibiotics gives rise to development of resistant bacteria. The media has, according to the theories used in this study, a responsibility to educate and empower the people to make personal judgments about health risks.

This study focuses on the extent to which two of the largest English-language newspapers in India, the Hindu and Times of India, report on antibiotic resistance; and also, how the journalists and editors on these newspapers look upon their profession and responsibilities when it comes to reporting on health issues.

In addition to the quantitative content analysis, which comprises 162 articles about antibiotic resistance published between 2006 and 2012, six in-depth interviews were conducted.

The results show that the amount of coverage on antibiotic resistance increased 2010 when the Lancet published a report on new findings of multi-resistant bacteria in India. This indicates that an event was needed to qualify antibiotic resistance for the news pages. Our study also shows that preventive measures which can be taken to reduce the emerge of resistant bacteria are often included in the articles and that they are addressed to doctors as well as to the general public. On the other hand, information on the magnitude of the problem is rarely presented. Scientists are often quoted or referred to, and the journalists of the investigated newspapers state that they have a great confidence in them. Furthermore, the respondents express that they have a responsibility to report on health issues. They believe that their newspapers have a major influence on its readership, and that their reporting can make a difference in the health situation in India. Some of them mention, however, that their overall impact is limited since their newspapers only reach the literate middle-class.

Keywords: Antibiotics, Antibiotic resistance, Health, India, Journalism, Newspapers, Media.
Acknowledgements

Swedish International Development Cooperation Agency (SIDA) for funding this MFS-study which was performed in New Delhi, India, from November 2012 to January 2013.

Karin Stigbrand, our supervisor at Södertörn University in Sweden.
Satya Sivaraman, our supervisor in Delhi who not only deepened our understanding about India but also cooked us lovely masala dosa.

William Jonsson, for his statistical expertise.

Kounteya Sinha, Times of India
Durgesh Nandan Jha, Times of India
Vikas Singh, Times of India
Aarti Dhar, the Hindu
Bindu Shajan, the Hindu
Ashok Kalkur, the Hindu

Also, a very warm thank you to all the people in Delhi who have contributed to our thesis in one way or the other.

Shukriyah!
Rebecka Ramstedt and Susanna Ahnlund
# TABLE OF CONTENTS

1. **Introduction**........................................................................................................... 6
   1.2 Purpose of study........................................................................................................ 7
   1.3 Research questions................................................................................................... 7
   1.4 About India.............................................................................................................. 8

2. **Antibiotic resistance**.............................................................................................. 9
   2.1 In a historical context............................................................................................. 10
   2.2 In an Indian context............................................................................................... 10
   2.3 A glimpse of the health situation in India.............................................................. 11
   2.4 Poverty.................................................................................................................. 12
   2.5 Infectious diseases................................................................................................. 12

3. **The press in India**.................................................................................................. 13
   3.1 Today...................................................................................................................... 13
   3.2 Freedom of the press............................................................................................. 14

4. **Previous research**.................................................................................................. 16
   4.1 Antibiotic resistance in print media....................................................................... 16

5. **Theoretical framework**.......................................................................................... 17
   5.1 Development journalism....................................................................................... 17
   5.2 The normative theory........................................................................................... 18
   5.3 Medical journalism............................................................................................... 20

6. **Methodology**......................................................................................................... 21
   6.1 Limitations............................................................................................................. 21
   6.2 Quantitative content analysis................................................................................ 22
   6.2.1 The investigated newspapers........................................................................... 15
   6.3 Qualitative interview study.................................................................................... 23
   6.3.1 The respondents............................................................................................... 23
   6.4 Validity and reliability......................................................................................... 24
7. **Results and analysis** ........................................................................................................... 25
   7.1 Amount of coverage............................................................................................................... 25
   7.2 Content............................................................................................................................... 27
   7.3 Prevalence............................................................................................................................ 28
   7.4 Actors.................................................................................................................................. 28
   8.1.1 Antibiotic resistance....................................................................................................... 31
   8.1.3 Influence on audience..................................................................................................... 33
   8.1.4 Responsibility.................................................................................................................. 34
   8.1.5 Health in the newsroom.................................................................................................. 35

9. **Discussion and conclusions** ................................................................................................. 38
   9.1 How is the issue of antibiotic resistance treated by the Times of India and the Hindu.......................................................................................................................... 38
   9.2 How do the reporters regard their role when it comes to reporting on health issues.......................................................... 39

10. **Suggestions on further research** .......................................................................................... 43

**References** .................................................................................................................................. 44

**Appendix**

Codebook
Code instructions
Interview guide – journalists
Interview guide – editors
1. Introduction

The chemist shops are situated one after the other on Sri Aurobindo Marg in New Delhi. On this sunny December morning people are queuing outside to buy whatever medicine they are in need of. The pharmacist behind the counter opens a plastic box containing pills that are sold piece by piece. Penicillin, moxifloxacin, carbapenems - a doctor’s prescription is not needed to get hold of these types of antibiotics; they can be purchased over-the-counter for a couple of rupees.

In India, there is no regulation of the use of antibiotics and, allegedly, the use has doubled since 2006.\(^1\) Infectious diseases are flourishing, especially among the poor since they don’t have access to basic sanitation facilities. Many of them also suffer from malnutrition due to scarce availability of food, making them more prone to acquire infections. Access to life-saving medicine is therefore crucial. However, misuse and overuse of antibiotics gives rise to antibiotic resistance.

Without effective antibiotics, common bacterial infections will be difficult to treat. WHO has thus proclaimed antibiotic resistance one of the major threats to public health today.\(^3\) Indiscriminate use of antibiotics is, to some extent, caused by lack of knowledge about how to use the medicine appropriately. This regards doctors as well as the users themselves - not to mention actors in the agricultural industry.\(^4\)

The media has an important role to play when it comes to informing the public about health issues and risks. It is considered the public’s primary source of medical information. Media researchers claim that “Health stories in the media may persuade individuals to change their lifestyle and contribute to changes in healthcare practices and policies.”\(^5\)

In this bachelor thesis we are looking at how two Indian newspapers, Times of India (TOI) and the Hindu, report on the issue of antibiotic resistance. We are also looking at how the

---

health reporters working on these newspapers look upon their profession and the role of the press when it comes to reporting about health issues, and antibiotic resistance in particular.

1.2 Purpose of study

The purpose of this bachelor thesis is to find out how and to what extent two of India’s largest English-language newspapers report on the issue of antibiotic resistance. People often turn to newspapers for advice when it comes to evaluating risks and forming opinions on topics related to health. Reporting on health risks can create awareness and empower people to steer away from such risks. TOI and the Hindu are among the world’s biggest newspapers, so it is therefore relevant to study the extent to which they perform this task.

1.3 Research questions

1. How and to what extent does the Indian press cover antibiotic resistance?

2. How do the journalists of the examined newspapers look upon their role and the role of the press when it comes to reporting on health issues, and antibiotic resistance in particular.

1.4 About India

India is the world’s largest democracy with an estimated population of 1.2 billion. The papers we have studied are released in the Indian capital, New Delhi, and have been around for longer than India has been an independent country. After a long struggle for freedom, led by the peace activist Mahatma Gandhi, India became independent 1947. The British, who

---

had colonized the country since 1856, left without plans on how India henceforth would be organized or develop.\(^8\) The Indian National Congress party, INC, ruled the first period after Independence Day and was also the party that received most votes in the latest election 2009. But over the years the Bharatiya Janata Party, BJP, has governed the country for short periods and is still making a strong opposition.\(^9\)

Although India is a secular state, religion plays an important role in the country and the political life. Both INC and BJP are linked to Hinduism which is the biggest religion in India.\(^10\) Together with Jainism, Buddhism and Sikhism, it is one of the religions that has developed in the country. Other religions that have been brought to India are Islam, Christianity, Judaism and Parsism.\(^11\)

During the period while this study was conducted, the economy was a common topic in the parliament building. The economic growth has increased by at least 6 percent annually since the nineties. At the same period of time, the gap between the rich and the poor people has increased.\(^12\)

The government executes comprehensive plans every five years which describes how the economy of India should be regulated. The health care system has a special section in these five-year plans. In the latest one, private healthcare companies were given a greater role.\(^13\) In total 4 percent of India’s GDP is spent on health care which is a low amount in comparison to other countries in the world with similar economies.\(^14\)\(^15\)

---


\(^11\) Nationalencyklopedin, Indien, [http://www.ne.se.till.biblextern.sh.se/indien/religion](http://www.ne.se.till.biblextern.sh.se/indien/religion) (retrieved 2012-12-26)

\(^12\) Nationalencyklopedin, Indien, näringsliv: 2012 [http://www.ne.se.till.biblextern.sh.se/lang/indien/näringsliv](http://www.ne.se.till.biblextern.sh.se/lang/indien/näringsliv) (Retrieved 2012-12-26)


2. Antibiotic resistance

2.1 In a historical context

Antibiotic is one of the world’s greatest pharmaceutical discoveries. It consists of natural or synthetic compounds that kill bacteria. Its ability to cure infections has saved millions of lives worldwide. Only 100 years ago, the mortality rate for meningitis and appendix infections was 100 percent. Alexander Fleming’s discovery of the penicillin in 1920 changed that. He was, however, well aware of the fact that bacteria would develop resistance against this new miraculous medicine. The emergence of resistance is part of evolution and can be explained with the Darwinian idea about the survival of the fittest. Each time a person takes antibiotics, a few bacteria will survive and learn how to defend themselves against the drug. After many, or sometimes only a few, antibiotic treatments, the genes that encodes for protective mechanism will be activated and the bacteria becomes resistant. In short, resistance development is basically a natural effect of bacteria trying to protect themselves from harmful substances.

In the beginning, the development of antibiotic resistance was not considered a great a threat as it is today. New kinds of antibiotics were found when bacteria developed resistance against the old ones. However, in the 1970’s, the scientists did not succeed in finding new antibiotics and the process stopped. Today, many strains of pathogenic bacteria have developed resistance against one or more antibiotic compounds, leaving us with just a few antibiotics that are still effective. Scientists therefore fear a regression to the so called pre-antibiotic era, in which people died from common bacterial infections. Already today people die from diseases caused by untreatable multi resistant bacteria.
The emergence and development of antibiotic resistance is a direct reflection of its usage. The situation could be described as a vicious circle: the more we use antibiotics in order to kill bacteria, the more resistant the bacteria become.\textsuperscript{22}

\subsection*{2.2 In an Indian context}

In India the prescribing of antibiotics is high and, accordingly, the development of resistance. There are, however, no available data describing the magnitude of resistance prevalence.\textsuperscript{23}

In 2010, the prestigious medical journal the Lancet published an American study saying that a new gene carrying resistance to several antibiotics had been discovered in bacteria derived from India. The gene, called NDM-1 (New Delhi metallo-beta-lactamase), was named after the capital since that was the place from where it originated. The research showed that this multi-resistant gene was present in different strains of bacteria, thus constituting a big health threat in India as well as the rest of the world.\textsuperscript{24} The occurrence of the NDM-1 gene is likely to be caused by the misuse of antibiotics.

The fact that antibiotics can be bought over-the-counter in India, i.e. without a doctor’s prescription, contributes to a high usage that hence generates resistance. This is however a complex situation since many Indians cannot afford medical visits, or have a long way to the nearest hospital. In this aspect, the ability to purchase medicine over-the-counter is essential. It is however impossible to tell whether more people would die from infectious diseases “if access to antibiotics without prescriptions were cut off by legislative regulations”\textsuperscript{25}

But resistance development is not only generated by the direct usage. A lot of the world’s pharmaceutical production is situated in India and waste water from factories consequently

\textsuperscript{22} Nationalencyklopedin, \textit{resistensutveckling}, http://www.ne.se.till.biblextern.sh.se/lang/resistensutveckling (Retrieved: 2012-12-10)


\textsuperscript{24} K Kumarasamy, Karthikeyan. \textit{Emergence of a new antibiotic resistance mechanism in India, Pakistan, and the UK: a molecular, biological, and epidemiological study}. P 598. The lancet infection diseases. Published Online August 11, 2010. (Retrieved 2012-04-17)

ends up in rivers, lakes and streams. According to a Swedish study 44 kg of antibiotics are let out every day from a treatment plant situated in the vicinity of pharmaceutical factories in Patancheru in India, creating a reservoir in which resistance can emerge and spread.\textsuperscript{26}

The fact that resistant bacteria exist in water bodies enables them to spread and end up in the food cycle and furthermore, in our kitchen taps. No matter where resistant bacteria are found, it is a problem that concerns the whole world.\textsuperscript{27} As opposed to humans, bacteria don’t need a passport to cross borders. WHO have declared that “the growth of global trade and travel allows resistant microorganisms to be spread rapidly to distant countries and continents”.\textsuperscript{28}

2.3 A glimpse of the Health situation in India

A young man swept in thick blankets lies on a gurney outside the emergency entrance of AIIMS hospital. An almost full catheter hangs on the metal rack and a middle-aged woman, perhaps his mother, adjusts his cap to keep his ears warm. Children with broken limbs are resting on blankets together with their parents and other patients in pain. They are all waiting to be taken care of.

AIIMS in New Delhi is the biggest hospital in Asia, and considered the best one in India. It is a governmental hospital, meaning that they provide health care services free of charge, or at a low cost, for anyone.\textsuperscript{29} The quality of care in India differs a lot between the public and private hospitals. One of the reasons is shortage of staff in the public health facilities. In addition, more than half of the primary care centers have inadequate infrastructure and lack basic medical equipment. The private hospitals, on the other hand, have a well functioning infrastructure, but allegedly, 70 percent of the practitioners are not qualified doctors. And

\textsuperscript{26} Larsson Joakim, \textit{Utsläpp från läkemedelsindustri påverkar miljön – antibiotikautsläpp riskerar också vår egen hälsa}, Läkartidningen , nr 14: 2012.

\textsuperscript{27} Lupo, Agnese.\textit{Origin and evolution of antibiotic resistance: the common mechanisms of emergence and spread in water bodies}, Frontiers in microbiology: 2012 (Retrieved 2012-12-13)


not many people can afford a visit to the private facilities. The problem of over-prescribing antibiotics, however, applies to doctors in the private as well as the public sector.  

2.4 Poverty

Many people who need medical treatment never reach the hospitals because they can't afford it. Even though India is the world's largest democracy, with a fast growing economy, one third of its population lives below the poverty line. And although patients belonging to this group should be offered free health services, in practice, they need to pay for them. Poor people are also subjected to infectious diseases to a larger extent since they don’t have access to basic sanitation facilities.

2.5 Infectious diseases

A lot of people who comes to the hospital suffer from infectious diseases. In fact, nowhere else in the world is the infectious disease burden as high as in India. Every year, more than 5 million children get pneumonia or sepsis, and 215,000 children die from infections caused by Streptococcus pneumoniae and Haemophilus influenzae type b bacteria. Tuberculosis and diarrheal diseases are also major contributors to death in the country. They are all diseases which could be cured with antibiotics. Access to antibiotics is both a problem of overuse and underuse. For example, antibiotics are used indiscriminately by those who can afford it, in attempts to cure common colds. This treatment is ineffective since cold is caused by a virus. On the other hand, antibiotics are underused by poor people suffering from tuberculosis or pneumonia, because they don’t have enough money to visit a doctor, or live isolated in villages.
3. Mass media in India

The media industry in India is flourishing and will most probably continue to do so in the next few years. Due to rising incomes, people spend more money on media and entertainment, particularly on television subscriptions, newspapers, magazines and film. In accordance, the advertising market is growing and makes up 35 percent of the total media revenues.\(^\text{35}\)

The largest contributors to the industry’s revenues are television and print media. Today, over half the households owns a television and the industry is considered one of the fastest growing in the world. India has almost 700 satellite television channels, of which 80 are news channels, and international actors such as BBC and CNN are established on the market.\(^\text{36}\)

All India Radio is the national radio broadcaster and is very popular among the Indian population. Since one third of the population is illiterate, the radio constitutes an important source of information. Lately, more and more private stations have been established and internet radio is gaining popularity.\(^\text{37}\)

The Indian media industry faces new challenges as the digital platforms are increasing. There is a growing demand for computers, tablets and smart phones and many television channels, radio stations and newspapers offer their material online. This opens up a new platform for the advertisement business as well. Even though the number of internet subscribers is increasing, today only 10 percent of the population have access to internet.

Last, India has the biggest newspaper market in the world and we therefore we found it relevant to focus on this medium.

---


3.1 The press today

As opposed to antibiotics, newspapers in India are not primarily sold over-the-counter; the publishers offer their subscribers free home-delivery. And instead of throwing yesterdays papers in the trash, people pile them up and sell them to the raddiwallas for a small amount. The raddiwallas make a living out of collecting the newspapers and then selling them back to the paper companies to be recycled. With about 8000 individual newspapers and 99 million copies sold every day, India is the second largest market for newspapers in the world. Most of the newspapers are in regional languages, among which Hindi, Tamil and Sanskrit are counted as the biggest ones. The circulation of English-language newspapers in regional languages grows with about one and a half percent each year, and the regional-language press three times as fast.38

"India is one of the few places on earth where newspapers still thrive”
- The New Yorker, 8 October 2012

One of the reasons for this is the increase of literacy in the country. A second reason for the flourishing press is the lack of digital competition. The majority of the Indian people cannot afford digital devices such as computers and smart phones, and less than 10 percent of the population has access to Internet. Moreover, newspapers are still affordable, costing between 4 and 10 rupees a copy. Being so cheap, the newspaper sale alone does not generate significant revenues. The big money comes from advertising.39

3.2 Freedom of the press in India

India is the world’s largest democracy and the press is officially free from censorship and surveillance. However, the extent to which this is assured differs from state to state. In New Delhi, journalists can work freely without fear of encountering problems. In other states, such as Kashmir, Chhattisgarh and Jammu, journalists are exposed to violence as a response

38 Auletta, K. “Citizens Jain - Why India’s newspaper industry is thriving”, The New Yorker, October 8, 2012
39 Ibid.
to their reporting on these conflicted areas. Security forces abuse their powers and “often crack down violently on the media”. Curfews are sometimes enforced by the authorities, hindering the newspapers from going to print. But it is not only the authorities that impose a censorship on the journalists. With attacks, killings and threats being common, self-censorship is encouraged. 40

As a whole, India is ranked by Reporters Sans Frontières as number 131 of 179 on the Press Freedom Index 2011/2012. And according to the Press Barometer, four journalists were killed and three imprisoned 2012. 41 After investigating illegal coal-mining in India, journalist Chandrika Rai was killed along with his family on February 18. 13 days later, the editor of Media Raj, Rajesh Mishra, was murdered, allegedly after reporting on “irregularities” in a boarding school owned by another Hindi newspaper. 42 The third journalist to be killed in India 2012 was Global News Network journalist Pawan Kumar. He was shot to death on August 13 while working on a story about the drug mafia. 43 Last, Nayum Raihanul, reporter on a weekly newspaper was killed on September 8. 44 Also, foreign reporters have experiences difficulties when it comes to getting Indian visas. Two Swedish journalists got their visa requests turned down after having reported on social problems in India. 45

4. Previous research

4.1 Antibiotic resistance in print media

A lot of research has been carried out on medical journalism. However, we could only find one quantitative study that focuses on how the media reports on antibiotic resistance.

41 Ibid.
45 Ibid.
In the study “Print media coverage of Antibiotic Resistance”, De Silva et al. has analyzed articles in the major newspapers in the United States and Canada between 1998 and 2002. The study focuses on three major categories: the magnitude of the problem of antibiotic resistance, the causes of antibiotic resistance, and risk-reduction measures that can reduce antibiotic resistance.46

To begin with, the result shows that 40 percent of the articles present qualitative information about the magnitude of the problem.47 Qualitative information refers to statements that are non-numerical (e.g. mentioning that antibiotic resistance has increased, or saying that there is a high risk of getting infected by resistant bacteria). This way of presenting information of prevalence is rather vague since qualitative statements “mean different things to different people”.48 On the contrary, 9 percent of the articles present simple numerical information (e.g. ten people died from resistant pneumonia).49 This kind of information “provides precision but lacks the context (that) puts the risk in perspective”. The authors of the report stress the importance of putting prevalence in a context. Of the articles analyzed, 25 percent presents risk in such a way; for example, “three out of 10 000 people became ill”. The researchers conclude that if this kind of contextual information is presented people are “given the opportunity to understand a particular risk magnitude”.

They also collected data on which risk-reduction measures that are mentioned in the articles. The result shows that measures addressed to the public, such as completing the full course and taking antibiotics only for bacterial infections, are more frequent than those addressed to doctors. The authors consider this positive since the major aim with the newspaper is to reach the general public.

Last, the results also show that over-prescription and agricultural use is the cause that is mostly reported.

All in all, the authors conclude that “the print media could improve their reporting on issues associated with antibiotic resistance”. They emphasize that experts could be helpful to journalists by telling key take-home messages so that journalists could include those

---

46 DeSilva et al. Print Media Coverage of Antibiotic Resistance, Boston College, Sage Publications 2004, p. 34
47 Ibid., 36
48 Ibid., 32
49 Ibid., 36
messages in their stories. This would, according to them, reduce the growing threat to human health posed by antibiotic-resistant bacteria. 50

Similar to “Print media coverage of Antibiotic resistance”, our study will also look into the extent to which the Indian newspapers inform their readers on preventive methods to reduce resistance from emerging. It is relevant to investigate to whom these preventive measures are addressed. Articles that mention the importance of taking the full course of antibiotics are significant to the public since it is a preventive measure over which individuals themselves have control. On the contrary, articles reporting on the importance of using specific antibiotics for specific infections are more significant to physicians, since it can be regulated by prescription.51

5. Theoretical framework

5.1 Development journalism

The ideas of development journalism rose in Asia in the late sixties.52 It was shortly after the British emperors had left India and the country’s growing hunger for social development caused a change in many sectors, including the media area. Consequently, the model for development journalism started to grow.

The mission of the development journalists’ is to cater to the ordinary people; that is, “farmers, women, children, the elderly, the less fortunate”.53 The journalists’ duty is to educate instead of entertain.54 They should take the needs of groups mentioned above into consideration when they choose what subjects to report on and style of storytelling. Many times, these people need information about health and medicine.

50 Ibid., 33
51 Ibid., 33
53 Ibid., 362
54 Ibid., 364
Infectious diseases, which can be cured with antibiotics, are one of the most common causes of death in India. This prevents the country from developing and is thus a typical topic for the development journalists to inform their audience about. Influenced by the development theory, medical journalism says that reporters should provide the public with knowledge that empowers them to make personal evaluations of health risks. A journalist who writes about antibiotic resistance and includes many aspects, background information and not just short sensations, could contribute to the people’s health movement and thereby contribute to the country’s development process. On the other hand, when medical journalism is conducted poorly “(it) can disempower a public that is increasingly affected by science...”

The journalists who participate in our study have grown up at a time and place where development journalism is practiced. The results of our study will be seen in the light of the development journalism.

5.2 The normative theory

The media has several important roles to play. The normative theory covers aspects of what the media ought to be doing in society. It is divided into different sub-theories, of which social responsibility is one. What is meant by this is that the media has a responsibility to cover essential public matters, such as global health issues. It is its duty to publish accurate and comprehensive information on these matters.

The social responsibility theory says that the media should cater to the public interest and write about the things that concern them. What actually becomes news is ruled by what the public wants to read about. In the end, it is the audience that makes the newspaper go round. A lot of times, the public’s interests coincide with the journalistic aim to report on important

---

59 McQuail, D. Mass Communication Theory, Sage publications 2012, p.184
61 McQuail, D. Mass Communication Theory, Sage publications 2012, p
issues. However, many news stories are probably run because the reporters consider them important for the public.\(^{62}\)

When it comes to health making the headlines, one problem is that reporters often look for events, such as medical break-throughs or epidemic outbreaks. On the contrary, science and research about health and medicine can better be described as slow processes.\(^{63}\) This is especially eminent in the case of antibiotic resistance since it doesn’t pose an acute threat, but is a problem that is constantly evolving.

In addition, the media has not only a responsibility to report on issues of public interest. The reporting itself must also be performed in a responsible manner, meaning that it should seek to minimize harm. It is a question of ethics. While doing a story, journalists are expected to take many things into consideration, such as evaluating the consequences of printing certain facts.\(^{64}\)

In terms of medical journalism, poor reporting and inaccuracy in facts can generate harmful consequences. For this reason it is important that journalists cross-check with different sources and maintain critical towards them.\(^{65}\)

Our study has been performed in the light of the social responsibility theory. According to Ragnar Levi’s book “Medical journalism”, which is written in the light of the same theory, there are a few things that should be mentioned in articles that regard health issues and risks. To serve the audience, substantial questions such as “what is causing the problem?”, “What can I as a patient do about it?”, “How does this problem affect my risk for disease in the future?”, should be answered.\(^{66}\) Accordingly, we have looked for presence of these matters in the analyzed articles.

Moreover, the media’s responsibility in society can be seen on a “micro” level, meaning that the actual responsibility is not laid on the newspaper but on the individual journalists. It is they who create the actual content in the newspapers. Journalists, as professionals “have social power to frame the politic agenda and influence public opinion”.\(^{67}\) It is therefore important that medical journalists have specific knowledge on health issues. Otherwise they

\(^{62}\) Strömbäck et al. Medierna och Demokratin, p.233
\(^{66}\) Ibid., 40
get dependent on their scientific sources when it comes to interpreting material in scientific journals. The relationship between medical reporters and their sources has often been described as “too cozy”, and scientists and experts are often portrayed by the media as neutral sources of authority. This is unfortunate since many actors, scientists included, often have a personal agenda, such as improving their reputation or secure future funding. Therefore, it is important that medical reporters keep a critical approach towards them. In order to find out how the reporters on TOI and the Hindu handle this issue, we conducted in-depth interviews.68

5.3 Medical journalism

”Medical reporters help inform readers how to live longer and healthier lives, how to avoid unnecessary suffering and how to use resources as wisely as possible”

These are the words of Dr Ragnar Levi, author of the book “Medical journalism – exposing Fact, Fiction, Fraud”. His book puts medical journalism in the light of the social responsibility theory.69 Levi claims that the media is the public’s primary source of information on medical issues. In case of an epidemic outbreak people don’t primarily turn to their physician or to science reports for guidance, but rather seek information in the mass media. The role of doctors and medical researchers is thus subordinate when it comes to informing the public on health issues. Levi therefore stresses that medical reporting makes a difference in peoples’ lives. Moreover, when medical journalism is well performed, it may even save lives.70

Antibiotic resistance is considered one of today’s major health threats.71 The commonly acknowledged cause to the problem is the overuse of antibiotics, in health care as well as in the agricultural sector, not to mention the many people who self-medicate. In order to

---

69 Ibid., 15
70 Ibid., 11
prevent resistance from developing, and reduce the risk of getting infected by resistant bacteria, people need to know about the risk reduction measures that can be taken. In accordance with Ragnar Levi’s statement, media reports on antibiotic use and resistance should therefore be of importance to the public. One reason for the over-use of antibiotics is that physicians prescribe this medicine in appropriately. Physicians are not excluded from the category “members of the public” and are thus subjected to the media content as well as anyone else. According to a US survey, 90 per cent of private and university physicians claim that they obtain information about their own discipline from media news channels.

Levi also states that “if good medical journalism reaches a large audience... then perhaps this audience will find itself in a better position to judge what is probably true, what is uncertain, and what is probably junk”.

6. Methodology

6.1 Limitations

"... farmers, women, children, the elderly, the less fortunate. It is these people who development journalists care most about." This is a relevant part in our theory but the majority of Indians who belongs to these groups don't know English. In order to study the media that reach out to these people we should have examined newspapers in regional-languages, such as Hindi or Urdu. Since we do not speak these languages, it was not an option. Yet, the Hindu and TOI are read by most of the policy maker in India and we believe that they indirectly affect the people that are mentioned in our theory.

Both the Times of India and the Hindu publish different editions in different parts of the country and we have only examined the New Delhi-editions. The people in the capital are educated to a larger extent than the people in rural India. They thus have other health-problems than the ones in the countryside. If we had analyzed all the editions we would have

---

74 Ibid., 17
a material which is read by people from different kinds of backgrounds who need information about various kinds of health problem. Such a study would have required time and resources than we did not have.

The interview study was partly based on the results we found in our content analysis. We therefore had to finish the coding in November, so the articles published the last two month of 2012 are not included in the quantitative content analysis.

6.2 Quantitative content analysis

Quantitative content analysis is an appropriate method to use when the aim is to investigate how much space a certain issue is given in the newspaper. It is also preferably used when the purpose is to investigate the content of a written product, for example the mentioning of certain topics. Conclusions can then be drawn in the light of a particular theory.

In order to answer our research question ”how and to what extent is antibiotic resistance covered by the Indian press?” we divided our variables into two levels of analysis: range and content.

The variables in the range section have been chosen to see the extent to which antibiotic resistance is being reported about in the newspapers; and furthermore, if the amount of coverage has changed over time. We therefore looked at variables such as size of article, type of article, signature and year of publication.

Our content variables were designed to give a picture of how the issue of antibiotic resistance is treated by the press. Categories such as “mentioning of preventive measures” and “mentioning of prevalence” were chosen since they are aspects that should be included in articles about health according to our theories. Some of our content categories are subjected to interpretation and hence, we created a sheet of code-instructions (see appendix).

The variables in the range section as well as the content section should give us an accurate picture of how the Indian press covers the issue of antibiotic resistance.

---

Allegedly, the use of antibiotics in India has doubled since 2006. Because of the fact that antibiotic resistance is caused by over use of this medicine, we chose to focus on this time period. The articles in our study were published in Times of India and the Hindu between 1 January 2006 and 1 November 2012.

The quantitative content analysis was conducted prior to the in-depth interviews. Before our codebook was completed, several pilot tests were done and the variables were modified to ensure their manageability. We also test-coded ten articles and compared the figures to see if our results matched. Sometimes our opinions differed and we had to discuss which category would be most suitable.

We also had to discuss some cases when we were unsure if we should include or exclude certain articles from the study. In total we found 108 articles in TOI and 193 in the Hindu but 139 of them were excluded since antibiotic resistance was not the main topic of the articles, or because the articles were duplicates.

Also, during the coding process, we noticed that the variable responsibility was difficult to judge. Different articles were given different definitions for that variable and we therefore decided not to include it in our result- and discussion-part.

6.2.1 The investigated newspapers

The newspapers we have chosen to investigate are among the largest in the world. They are both English-language daily newspapers and have a readership of educated, middle-class Indians.

The Times of India is the largest English language newspaper in the world with a daily circulation of 4.3 million copies and a readership of over 7.6 million people. It was founded in 1838 and is owned today by Bennett, Coleman & Company, Ltd, India’s dominant media conglomerate. It is a family run business, with Samir Jain as vice-chairman. In an article in The New Yorker from 2012, he says that “we are not in the newspaper business, we are in
the advertising business”. 77 TOI doesn’t have a political view but its philosophy can be described as market-oriented.78

**The Hindu** was founded by Indian law students in 1878, as a “protest against the discriminatory policies of the British government in India”.79 It is now the third largest English-language newspaper in India with a circulation of 1.46 million copies and a readership of 4 million people.80 81 The headquarters of the Hindu is situated in Chennai, but the newspaper is printed in 17 additional cities, including New Delhi. It is read by people all over the country but has its greatest circulation base in the south of India. The newspaper was earlier considered to have a left-lean but now regards itself as independent. As of 2012, the editor is called Siddharth Varadarajan.82

### 6.3 Qualitative interview study

"An interview is a conversation that has structure and a purpose”.83 Our purpose was to get a deeper understanding of the things that affect and control health reporters when they write about health issues, and in particular antibiotic resistance. We wanted to investigate the journalists’ perspectives on their profession and therefore chose to do a respondent survey, in contrast to an informant survey which focuses on finding out the truth of a special event or process.84 Four journalists and two editors, in total three from each newspaper, participated in our study. It was conducted after we had compiled the results from the article-study. The aim with the in-depth interviews was to make a comparison between what had been written about antibiotic resistance and how the journalists experienced the coverage of the subject.

---

77 Auletta, K. “Citizens Jain - Why India’s newspaper industry is thriving”, The New Yorker, October 8, 2012
78 Interview with Vikas Singh, editor of TOI’s Delhi section, conducted 17/12/12 in New Delhi
82 Interview with Ashok Kalkur, editor of the Hindu’s Delhi section, conducted 13/12/2012 in New Delhi.
We expected that it would be interesting to compare the medical journalism theory with the journalists’ thoughts about health reporting. To get the perspective of the newspaper and how its leadership we also conducted interviews with the editors of the Delhi editions.

Our interview guide was based on information from the book *Den kvalitativa forskningsintervjun*. Some of the questions were formed with the aim to focus on similar aspects as the variables in the quantitative study (see appendix). For example, “What aspects do you think are the most important to highlight in articles about antibiotic resistance?” Other questions differ from the quantitative questions because they intend to give us the journalists’ descriptions of their experiences and self-concept; not to mention the newspapers’ approach on health reporting. For example, “How much influence do you think your newspaper has on its audience?” All interview-questions are based on our main theories: development journalism, the normative theory and medical journalism.

Before the interviews were conducted, the questions were emailed to the six respondents. One of the interviews took place in our apartment, one at a coffee shop in Delhi and the remaining were carried out at the newspapers’ offices. All the interviews were recorded and took between 30 minutes and one hour. We divided the work so that one of us asked the questions and the other was prepared to ask any follow-up question. With both of us present during the interviews and transcriptions, the risk of missing out on any important bit decreased and also made the interpretations of the interviews easier.

### 6.3.1 The respondents

**Kounteya Sinha**, senior health-reporter at *Times of India*, wrote his first health story for TOI in 2005 and has been covering health since then. Many of the articles analyzed had his byline and he says “*I don’t think any journalist in India has done more articles on antibiotic resistance than I have*”. Today, Kounteya Sinha is the health editor of TOI and he has a lot of influence on the news production.

---

**Durgesh Nandan Jha**, junior health reporter at *Times of India*, began his career as an intern at the Hindu. He says that it was not surprising that he became a health reporter since he was always interested in both health issues and the art of writing. Six years ago, he got a degree in journalism.

**Aarti Dhar**, senior health-reporter at *the Hindu*, explains that she has acquired a deeper knowledge about health issues since she started covering the topic ten years ago: “*After some years of when you deal with the health issue you acquire some kind of expertise, not technical but in-depth understanding of the issue.*” She has been a journalist for 22 years and writes, besides health, about education, women and child development issues.

**Bindu Shajan**, junior health-reporter at *the Hindu*, has always liked to express herself in writing and started her career 14 years ago with an internship at the Financial Express. She didn’t set out to be a health journalist, but realized that she liked writing about health and considers it an important subject for everyone.

**Ashok Kalkur**, editor of the Delhi section at *the Hindu*, started by covering crime and politics at the Hindu 12 years ago. He describes his newspaper’s influence like this: “*Our newspaper is known for its credibility. People always refer to the Hindu. Top politicians, bureaucrats, universities, they all read the Hindu.*”

**Vikas Singh**, editor of the Delhi section at *Times of India*, began his career at TOI as a business reporter but is since five years the editor of the Delhi edition. He explains that the media has a large impact on the decision makers in New Delhi: “*I wouldn’t say that governments change policies based just on what we write but I would say that it is a fairly significant pressure point. If enough of the media gets together it sort of becomes a change.*”
6.4 Validity and reliability

The articles in our quantitative study were retrieved from the e-paper version of TOI and the online archive of the Hindu. In the book *Metodpraktikan*, the authors emphasize the importance presenting results that are "equivalent and comparable".\textsuperscript{86} Because the online search engines of the investigated newspapers did not operate in the same way, we had to use the search word "antibiotic resistance" in the Hindu’s archive, and *antibiotic resistance* (without brackets) in the TOI’s archive.

Since the aim of our study was not to compare the two newspapers, we believe that this limitation would not affect the validity of our study.

Furthermore, to ensure the reliability of our content analysis, we conducted pilot tests before to ensure the manageability of the codebook. The variables were modified several times and when the final version of the codebook was finished we test-coded ten articles before the study started.

The aim with this study is to find out how do the journalist look upon their role and the role of the press when it comes to reporting on health issues, and antibiotic resistance in particular. One may wonder whether we have chosen the right method - are we really studying what we say we are studying? The respondents’ answers are no absolute truths and our interpretation of their statements is just one among many others. During the research process, we have discussed how the respondents might like to idealize their view of journalism, to appear in a good light; and that, together with other aspects, was something we had to take into consideration when we did our interpretation. We didn’t believe the validity of the interviews would be reliable without all the knowledge we collected before we met the respondents. We had studied the subject antibiotic resistance for a long time, made informative interviews and read many articles about antibiotic resistance. We also did the quantitative study that supplied us with vital information on how journalists write and what they choose to take up. The last step in this study was to interview journalists, and at

\textsuperscript{86} Esaiasson, Peter, Gilljam, Mikael, Oscarsson, Henrik and Wängnerud, Lena, *Metodpraktikan – Konsten att studera samhälle, individ och marknad* (Stockholm, 2012, 4nd ed. p. 197
that time we had a thorough overview about the subject. Something that qualified us to ask relevant questions, understand and interpret the responses in a reliable manner. We do not believe that the answer to the research question that we present in this study is the only one, but through the quantitative interviews we believe we come closer to the truth than if we had just done a quantitative study.

Also, sometimes during our interview study, we encountered language-barriers since English is neither ours nor the respondents’ native language. We therefore decided to not include the sentences from the interviews which were difficult to understand and therefore could have been interpreted in an inaccurate way.

7. Results and analysis

In these sub-chapters, we describe the results from our quantitative content study and qualitative interview study and attempt to explain them with the help of the previous research and the theories presented in chapter 6.

7.1 Amount of coverage

In this study we have analyzed articles published in Times of India and the Hindu between 1 January 2006 and 1 November 2012. In total, 162 articles about antibiotic resistance were found. Of these, 88 were published in the Times of India, and 74 in the Hindu.
The amount of coverage has changed over time. On average, only 10 articles about antibiotic resistance were published each year between 2006 and 2009. The reporting increased significantly 2010, the same year as the Lancet published a report stating that a new multi-resistant gene (NDM-1) had been found in bacteria deriving from India. This indicates than an event was needed to qualify antibiotic resistance for the news pages. Our result is further enhanced by the respondents in our interview study.

"To be honest, even I wasn’t aware of the gravity of the situation, it was only after the report came, and we got into working on it, that I realized that it was as serious an issue as TB or anything else.” – Aarti Dhar, the Hindu.

Durgesh Nandan Jha (TOI) mentions the need to find something to lead a story on antibiotic resistance. He claims that the findings of the NDM-1gene brought something new to the table, which made antibiotic resistance fit the news template. The particular gene was named after the capital, New Delhi, but is also referred to as “the superbug” or “bug”. Our study
shows that this term is frequently used by TOI and the Hindu. In total, the word “superbug” or “bug” was present in 67 of the articles analyzed. Kounteya Sinha at the Times of India expresses his affection for the word superbug: “(Naming it superbug) has made a lot of good. It has shaken up the establishment. It has made the topic sexy and people interested, the press is all tango about it. I love it! He continues: It brought action, it brought people to do something. For the first time, antibiotic resistance is a story. You will not find an antibiotic story before the word superbug came up.

Ragnar Levi says that reporters often look for medical break-throughs or epidemic break-outs. The results of our content analysis together with the words of the journalists correspond with Levi’s statement and the general idea of news values, meaning that events become news rather than processes. Another thing that gives support to this idea is the fact that the reporting decreased 2012. The problem of antibiotic resistance has not become less severe or less prevalent, but the absence of alarming scientific reports might be a reason for the newspapers’ decrease in coverage.

Moreover, “News article” was the most frequent type of text, with 126 articles belonging to this category. Opinion texts were less common: 15 debate articles and 3 editorials were found. Even though opinion pieces were not the most common type of article, the fact that they occur indicates that antibiotic resistance is a subject of debate. Both TOI and the Hindu let scientists and doctors express their opinions on the matter in debate articles.
7.2 Content

Of the 162 articles analyzed, 103 mentioned the cause of antibiotic resistance: i.e. indiscriminate use of antibiotics. Also, 89 out of the total amount of articles (e.g. more than half) reported on preventive measures that can be taken to reduce the development of resistant bacteria. The most frequently mentioned measure was the importance of using antibiotics restrictively. This appeared in 71 articles. 18 of them mentioned the importance of taking the full course of antibiotics, while 71 mentioned that antibiotics needs to be taken more restrictively; i.e., to use them only for serious bacterial infections and not to use broad-spectrum antibiotics. The study “Print Media Coverage of Antibiotic Resistance” claims that “taking the full course of antibiotics” is a measure addressed to the public, in contrast to “taking antibiotics only for serious bacterial infections” and “not using broad spectrum antibiotics”, which are measures that the doctors have control over. Our study thus shows that the analyzed articles include measures that are addressed to doctors as well as to the public.
general public. Ragnar Levi also points out in his book “Medical journalism” that many physicians also read newspapers and often acquire information about their own discipline in this way.

![Preventive measures](image)

**Figure 7.2.a:** Number of articles that mention measures that can be taken to reduce the development of resistant bacteria. In total, one or several of these preventive measures were mentioned in 89 of the 162 articles analyzed.

All respondents mention that preventive measures should be mentioned in articles on antibiotic resistance. The Times of India reporters Durgesh Nandan Jha and Kounteya Sinha think that self-prescription is the most important thing to highlight in articles about antibiotic resistance. They also mention the importance of creating awareness among doctors. This can, according to them, be done by informing them about how and when to use antibiotics.

Aarti Dhar (the Hindu) believes that it is equally important to tell the doctor not to prescribe antibiotics when not needed, as telling the public to not self-medicate. Her colleague Bindu Shajan, on the other hand, emphasizes that she doesn’t want to highlight a particular thing when she is writing a story on antibiotics: "I would want to give the audience a whole complete package. Otherwise you’re actually doing them a disservice, and only highlight the aspects that you think is important."
The editors of the newspapers are not as well-informed on the subject of antibiotic resistance as the reporters are. But Vikas Singh (TOI) points out that it is important to highlight the causes of a certain medical condition; for example, why antibiotic resistance is happening. He means that the newspaper in this way provides the reader with tools to question the doctor. “A lot of the times the reader get hypochondria, but even so, it’s better that the reader have too much information than nothing. In this way the reader has an option rather than taking it blindly whatever the doctor says.”

7.3 The magnitude of the problem

Of 162 articles analyzed, only 49 presented numerical information about the magnitude of the problem. Prevalence could be mentioned as the number of instances of antibiotic resistant bacteria, cases of human illness, or incidences of human mortality. The authors of “Print media coverage of antibiotic resistance” mean that such information is important to include since it gives people the opportunity to understand a particular risk magnitude. Also Ragnar Levi emphasize that it is a journalistic responsibility to explain what is causing a certain problem and, moreover, the risk of getting affected by it. Kounteya Sinha (TOI) was the only journalist who mentioned the importance of presenting prevalence in order to make the people understand the magnitude of the problem: “Indians loves numbers. So they look at numbers and they say: ‘80 % of the people today are resistant to this TB drug’”. The editor Ashok Kalkur (the Hindu) also brought this up: “We have to report on the number of cases, where to visit, what precautions to take”.

7.4 Actors, sources or merely Scientists?

Both studies contain parts which examines from where the journalists get their material. In the quantitative study we called it actor 1 and 2, and wanted to find out which persons or organizations that was quoted or referred to most in the article. In the qualitative survey we
called them sources. For example we asked which source the journalists trust when it comes to antibiotic resistance. We were curious to know more about these variables but didn’t expect that we would find a connection between them. But looking at the results, we see that they can bring an interesting addition to one of our theories.

The quantitative survey shows that scientist appeared as main actor or as second actor in 78 of the analyzed articles, and is thus the most frequently used actor in articles about antibiotic resistance. It appears as main actor in 66 of the analyzed articles.

![Number of articles per main actor](image)

**Figure 7.4.a:** Number of articles each actor appears in. Scientist is the most common main actor. The second most common main actor was Doctor/Medical staff, appearing in 30 articles. Authority representatives and International organizations were present as main actors in 12 articles respectively. Politicians were the main actor in 10 articles. 8 articles did not have an actor at all.
In most of the articles in which Scientist was the main actor, a second actor was absent.

![Bar chart](image.jpg)

**Figure 7.4.b:** Actor two when actor one is scientist/expert.

In terms of what sources the journalists trust when it comes to questions about health and medicine, three out of four answered scientist and experts. Kounteya Sinha (TOI) says, “A lot of scientists are very good. And many of them are crocked. A lot of scientist sources tell you a lot of information.” His colleague Durgesh Nandan Jha: “I use experts mostly as sources, people who have been working on these issues for a long time.”

Aarti Dhar at The Hindu: ”Ngo’s are a very good source. But we always have to counter check with them, with ministries of course, and then we always get back to experts, (that is) people in the particular field.”

Ashok Kalkur, the editor of the Hindu’s Delhi section mentions that the newspaper has a great confidence in experts and doctors: “Whatever the experts say we should carry. They are well known surgeons and doctors that appear in all these television channels and newspapers. They are very well known and articulated people”.
The relationship between medical journalists and scientist is discussed in the normative theory. When journalists write about a difficult scientific topic, they need someone who can explain it and in the pursuit of understanding there is a risk that they lose their critical approach. The results of our study indicate that this is the case even for the medical reporters at TOI and the Hindu.

8.1.3 Influence on audience

The prime objective of development journalists is to educate and inform people about development issues, for example health. The aim is to empower the people with tools which can be used to build up a more developed society. It seems like the respondents in our interview study agree with this idea, and believe that their reporting can actually make a difference in India.

“I’m not just interested to write facts, I’m there to influence you also. My article should make you stop popping the pill.” - Kounteya Sinha (TOI)

Bindu Shajan (the Hindu) has a similar point of view: “I write because I want to be read, I write because I want to make a difference. It would be a very sorry state if I go out and get something and nobody reads it, and nobody gives a damn.”

The editors’ opinions correspond with the journalists’. Vikas Singh (TOI) points out that India is far behind the rest of the world when it comes to medical knowledge. “We can make a difference by telling people (the problem) is out there, creating more awareness...Maybe somebody reads about a new therapy and then seeks help.” He continues: “We try to make our readers a little more informed...But do I start my day saying that today I’m gonna make India a healthier country? No, to be very honest, I don’t.”

Ashok Kalkur (the Hindu) also speaks about creating awareness about certain diseases but points out that literacy is very low in India compared to other countries. “So how do you
create awareness of all these issues? The newspaper is one way, then the radio and other media.” Aarti Dhar (the Hindu) points out that the amount of influence is limited since her newspaper does not reach Indians who don't know English. She says: If you’re thinking in terms of making a change in habits, lifestyle, among the people who are not illiterate, then it has to be the language paper or All India Radio. A language paper influences so many people! However, when it comes to policy makers, and policy making, Aarti Dhar believes that the Hindu has a great influence. “The editorial writers of the Hindu are known to be having the most impact on policy makers... the Hindu is known for its credibility. It is taken as the Bible”.

Kounteya Sinha (TOI) is of the same opinion: One story in the TOI could make the government fall, that’s how powerful it is. The most powerful institution in India is the press. He also adds that “The only section in this country that could make a difference to anything that happens in India is the press. Cause the press is extremely powerful in India, very very powerful”. His colleague Durgesh Nandan Jha agrees: Health reporting can really make a difference in government policies. (It) improves the system and it’s really the need of the hour because so many people die of different diseases every year, every day in India. So I really think health reporting can make a difference.

8.1.4 Responsibility to report on health issues

The social responsibility theory says that the media has a responsibility to cover essential public matters, such as global health issues. The media should cater to the public interest and publish accurate information about the things that concern their readers. All the interviewed journalists are of the opinion that antibiotic resistance is a concern for everyone. They agree that the newspapers have a responsibility to inform people about health issues that concern them.

Aarti Dhar (the Hindu) says that their biggest responsibility is to educate and to keep people well informed. “We don’t believe in agenda setting but agenda building. We will not try to
form an opinion that we think is right. Instead, we involve all stakeholders and then make them decide what is right for everybody. Her colleague Bindu Shajan expresses that she has a responsibility to provide her audience with accurate and comprehensible facts about health risks: What I write is taken as an authority. If your father or mother tells you drinking milk is good for you, you presume that they mean well and they want the best for you. And I feel that when I’m telling a person that this particular product is bad for your health. He, I think, takes it in that spirit.

Kounteya Sinha (TOI): “As a journalist you have a huge responsibility, like Spiderman says: With great strength comes great responsibility. I write about health and science in a newspaper read by 10 million people. So imagine the strength I have! And on the other hand I have this great responsibility. My aim as a journalist is to make somebody tell me what is wrong and what is right, is to tell my audience what will help them... And in that process protect them from what they are doing to themselves which could be harmful.”

His colleague Durgesh Nandan Jha agrees: “The main health issues which are being faced by the city should really be dealt with. Informing the public about health issues is really important, I mean, otherwise what kind of purpose can we serve? If we write about it and give people an option of what to do, we are helping the health situation to be better”.

According to both Ashok Kalkur (the Hindu) and Vikas Singh (TOI), health is an important topic that gets prioritized by their newspapers. Ashok Kalkur says that they have a responsibility towards society to keep people informed about health issues and education, and that these issues are therefore taken up on a regular basis. Vikas Singh says that newspapers have a role of creating awareness and spread information that might change people’s life. He also believes that health is something that his audience wants to read about.

8.1.5 Health in the newsroom

None of the papers have any official guidelines about how to cover health, but the journalists mention aspects that are important and have been discussed in the newsroom.
Durgesh Nandan Jha (TOI) says that they try to always present graphics that dictates preventive measures and risk factors. Doing that, people get to know about the problem and become more aware of it. Bindu Shajan (the Hindu) points out that she cannot write advertising articles on any person, product, hospital, nursing home, technique, medicine. “I also cannot write hospital claims, which means that they say ‘we have done this for the first time in India’. I don’t know if it’s the first or the second time, and I don’t have the time to cross check with the authority. This is what I have been told by my supervisor (not to do)”.

Several of the respondents say that they have experienced difficulty in fitting health news into the usual news template. Aarti Dhar at The Hindu mentions the market perspective and describes how other stories often get prioritized: ”The newspaper is also a business. We will try and use what brings people to read the Hindu”. Henceforth she says: “...but sometimes health stories are pulled out because of lack of space when something major happens politically or in crime. And then you feel sad. Also Bindu Shajan (the Hindu) brings up the need to sell copies and that health-topics thus has a low priority. She adds, however, that health stories is something that interests the newspaper’s audience and that articles about certain diseases or treatments will be read to a large extent. Durgesh Nandan Jha’s (TOI) view differs from the other respondents’: There is no problem in fitting health news into the model. Health news are prioritized by the newspaper, it gets a lot of space.

Bindu Shajan (the Hindu) has experienced that antibiotic resistance is a sensitive topic to write about since many pharmaceutical manufacturers are interested to push new drugs into the market when people becomes resistant to the old ones. Kounteya Sinha (TOI) says that he encounters lobbying from all sectors in society: politicians, authorities, pharmaceutical industry, NGO’s etc. Ashok Kalkur (the Hindu) says that health is not a controversial subject: “(Stories are) discussed together but the editor has the last word. But what can be debated about health issues? There’s no debate, no controversy. It’s just about informing the public. We have to report on the number of cases, where to visit, what precautions to take.”
8.1.6 Principles in the newsroom

The Hindu reporters, Bindu Shajan and Arti Dhar, talked about the requirement from the newspaper to double check and the importance of always presenting an opposing side in articles about health issues. Aarti Dhar: “...if you have a controversial story then you have to take the opinion from both sides, you can’t be a one sided story, you have to balance it out.” Her colleague Bindu Shajan: “We have a very stringent filtering mechanism so everything that is written by a reporter goes through at least three people before actually hitting the desk.... Our stories will always give the pros and cons and both sides of the story. You will never find a one per se version in a Hindu story. And there will always be a follow up that gives another side of the story.” This is further confirmed by her editor Ashok Kalkur. Vikas Singh says that TOI has unofficial rules which they follow strictly: “We wouldn’t under no circumstances indorse magical remedies without getting at least one allopath’s point of view. The one guideline would be that we will never never never carry a story based on one person that says so.”

9. Discussion and conclusions

9.1 How the issue of antibiotic resistance is treated by the Times of India and the Hindu?

9.2 How do the journalists regard their role in reporting on health issues?

9.1 Confidence in scientists and their reports.

All the interviewed journalists say that they primarily use scientists or experts as sources. They also say that they trust the scientist and one expresses it like she always gets back to the experts. This also shows in our content study, in which Scientist was the most common actor. Moreover, our study shows that scientist get to express themselves without another voice getting heard. And in more than half of the articles in which Scientist was the
main actor, a second actor was absent. These results can be interpreted based on the discussion about the relationship between medical reporters and their sources. This relationship often lacks a critical journalistic approach according to the medical journalism theory. The subject of antibiotic resistance is a controversial issue and it is possible to find different opinions about the problem. When studying the articles it is clear that the journalists failed to include other voices in the debate. At the same time the journalists explain to us that it is very important to present an opposing side to the main actor and give the readers a story with two perspectives. The journalists are conscious of letting several voices express their opinions in their articles but their trust in scientists are seemingly not affected. It is not sufficient to state that these results show that the journalists lost their critical eye. The medical journalism theory also brings attention to the lack of knowledge when it comes to scientific subjects which create a dependence on the scientist. The journalists we interviewed admitted that antibiotic resistance is a complicated problem. They describe how they needed the NDM1-report to understand how serious the problem was. Ragnar Levi can have a point in his argument that because of the lack of knowledge the journalists and their editors are not in the position of questioning the expert or scientists. “Whatever the experts say we should carry, as the editor of the Hindu say.

We think our results for the subject antibiotic resistance are specific. The number of actors would probably have been higher if we had studied articles about social issues. The journalists have no intention of giving a one-dimensional picture of a subject. When their first obstacle is to understand the problem their first aim will be to acquire knowledge, not to give an overlook over the debate. The researchers possess that knowledge which makes the journalist give them a higher level of trust than usual.

The result which shows that the amount of coverage increased 2010 when the scientist discovered the NDM-1 gene can contribute to this discussion. The respondents say that it made them realize how serious the subject was. Which we believe are duo to the researchers bringing attention to and explaining the issue. The resistance bacteria have existed for long time, but it was not until the report came that it got a place in the news pages.
Our findings and the respondents’ statements correspond with RagnarLevis’s theory, meaning that journalists look for events to write about rather than slow processes. The reporters cannot themselves perform molecular research on antibiotic resistance and are therefore obliged to rely on scientific reports. This could also explain the fact that the reporting on antibiotic resistance increased when the Lancet report was published 2010. This is also further enhanced by the respondents in our interview study. AartiDhar (the Hindu) says that she didn’t understand the severeness of the problem before the Lancet report came, and KounteyaSinha (TOI) says that “it made antibiotic resistance a story”.

9.1.2 The content

According to “Print Media Coverage of Antibiotic Resistance”, it is important to include preventive measures that people can take to decrease the risk of getting hit by a certain disease. In accordance, the respondents emphasize the importance of mentioning such measures in their stories. Our content study also shows that the reporters often do that, and that the preventive measures are addressed to doctors as well as the general public. Two of the respondents even mention that it’s their aim to make people “stop popping the pill”. We interpret this as an example of how the reporters are trying to educate their readers and, in the long run, create a change in their use of antibiotics. This attitude corresponds with the ideas of development journalism and normative theory. However, only a few articles mention the need to improve health in general. The fundamental problem with indiscriminate use of antibiotics is infections, and it doesn’t matter if they are viral or bacterial (even though antibiotic drugs are only effective against the latter) because they are used inappropriately against any kind of infection. So instead of only mentioning how and when to use antibiotics, we believe it is important to highlight precautions that can be taken to avoid infections in the first place. It might be, however that this is done in other articles; after all, we have only studied those about antibiotic resistance. And also, mentioning such measures might be considers superfluous since the readers of the investigated newspapers belong to the educated middle-class, and therefore most probably know the importance of keeping good hygiene.
To sum up, just because preventive measures to reduce the risk of getting infected by resistant bacteria is included in more than half of the article does not mean that the people will act accordingly and follow these advices. However, the authors of “Print Media coverage of Antibiotic Resistance” say that “If particular information is absent from the article, it is clear that readers will not be able to gain that absent information from the article, whereas if the information is present, they have the opportunity to do so”.

According to our theories, it is also important to present information about the magnitude of the problem in order for people to understand the seriousness of a certain risk. The major part of the articles did not present numerical information about how many people have fallen ill or died from resistant infections. We believe that one reason for this might be the fact that India does not have a surveillance system that registers findings of resistant bacteria. It is therefore complicated, if not impossible, for the reporters to find accurate information on the magnitude of the problem, at least regarding the situation in India. And only one of the reporters also expresses an ambition to include numbers or percentages in his stories. What they can do is to report on incidences of death related to resistant bacteria in a certain hospital, or refer to a study that shows an increase of resistant strains in bacteria found in a river in India.

### 9.2 Development journalism, in practice and theory

The theory of development journalism is constantly changing and we will never be able to determine if the journalists practice development journalism. We have chosen to ask how they look upon their role and compared the answers with the theory. All the interviewed journalists and editors believe that their newspapers have a major impact on their readers and that their newspapers have a responsibility to inform people about health issues. In that sense, they follow the same argument as Xu Xiao and other followers of the theory. In the interview we found other answers which speak against the theory. One of the respondents stresses that the newspaper is a business which does what is necessary to attract readers.
Another voice expresses that he needs something to lead a story on before he can write about it. Via coverage between 2006 and 2012 we could see that the issue of antibiotic resistance received attention after the Lancet report was published, even though it had been a problem for a long time. These varied responses indicate that there are different views on the professional role as a journalist which sometimes promotes development journalism, and other times opposes it.

Even though two of the journalists explain that it is their aim to influence people and make a difference they do not express what kind of change they are after.

The target groups of development journalism are the “ordinary people”, the less fortunate. Two of the respondents point out that their newspaper is primarily read by the Indian middle- and upper-class. The medical journalists are well-aware of who it is that are reading their articles: highly educated and wealthy people.

This insight must change how they think when choosing and prioritizing topics to write about. It is very likely that the medical reporters choose not to include problems that discourage development among the poorest in the country.

The journalists are aware of the fact that their articles do not reach out to the poor and illiterate people although many describe how they still think that they can affect these groups indirectly. They state that the Indian politicians are influenced by their newspapers. One of the respondents states that his newspaper can make the government loose the public’s support with just one story. Even if they want to change and contribute to development, there are doubts about their ability to achieve these goals. People who cannot read have other media to retrieve information from. Radio, television and Hindi newspapers fight for the people’s attention.

The development theory seemingly has a strong attachment to the journalists, but the theory is not practiced in real life. The journalists are limited in several ways, for example the limitations considering their target group. We also believe that their search for everyday events can be an obstacle for communication the larger development processes.
9.2 A responsibility to report in these matters

The development journalism theory mentions the importance of informing and educating people. This is also the predominant opinion of the respondents in our study. Aarti Dhar (the Hindu) and Kounteya Sinha (TOI) both say that their role is to give people information that educates.

In addition, the social responsibility theory states that the media should cover essential matters of public interest, such as health issues. The editors of TOI and the Hindu both claim that these issues are prioritized by their newspapers. The journalists are of the same opinion but two of them mention that health stories are sometimes excluded in favor of political or crime news. It is clear that the newspapers’ ambition is to write about health issues but that commercial forces rule them out to some extent. It is also important to mention that the reason for reporting on health issues that concern the audience is not only because they have a responsibility but because health news sell newspapers. This was not mentioned by the respondents but must be taken into account. Over all, it seems like the respondents have a very idealistic view on their profession that corresponds with the normative theory.

9.6 Summary

- Preventive measures that can be taken to reduce the emerge of antibiotic resistance are often included in the articles and are addressed to doctors as well as to the general public.

- The articles about antibiotic resistance rarely present information on the magnitude of the problem, that is, cases of illness or incidences of mortality.

- The respondents believe that they have a responsibility to inform and educate people about health issues. They claim that health issues are prioritized by the newspaper
but some two of them say that these issues are sometimes ruled out when something big is happening on the political arena or in crime.

- The respondents also believe that their newspapers have a huge influence on their readership. Some of them, however, point out that their overall impact is limited since many Indians are illiterate.

- The findings of the NDM-1 gene was an event that made the issue of antibiotic resistance qualify for the news pages. The journalists are often dependent on scientists and their reports in order to understand and report on antibiotic resistance.

- Scientist is the actor who is quoted or referred to the most in articles about antibiotic resistance. When a scientist appear in a text, it is common that no other actor is present. The respondents also say that they mainly use scientists as sources.

10. Suggestions on further research

Many of the respondents in our interview study mentioned that they prefer to use scientists as sources. This also shows in our content study, in which Scientist was the main actor in the majority of the articles. Furthermore, a second actor was not present in most of these articles. Our study has thus left us contemplating about the complex relationship between scientists and journalists. An interesting research question for future scholars would therefore be: how do health reporters investigate and scrutinize their sources? A relevant perspective for that question could be Daniel Berkowitz's research about reporters and their sources.87

Since the theories used in this study focuses on the role of the media and its effect on the public it would be interesting to perform a study focused on the readership of TOI and the Hindu. Many of the respondents mentioned that doctors read their newspapers and that they therefore have a responsibility to inform the doctors on events regarding their domain. It

would therefore be interesting to look at the audience and see how they perceive news about antibiotic resistance and health issues.

Our study focuses on two English-language newspapers. As mentioned previously, many Indians don’t know English and the texts we have examined mainly reach educated middle-class Indians. It would therefore be relevant to conduct a study on how the regional-language press report on antibiotic resistance, and how the reporters on these newspapers look upon their professional role. Another possibility would be to focus on other media, such as the Indian radio or TV.

References

Literature

Auletta, Ken. “Citizens Jain - Why India’s newspaper industry is thriving”, The New Yorker


K Kumarasamy, Karthikeyan. *Emergence of a new antibiotic resistance mechanism in India, Pakistan, and the UK: a molecular, biological, and epidemiological study*, The Lancet Infectious Diseases, August 11, 2010, p. 598


McQuail, Dennis. Mass Communication Theory, Sage publications 2012

**Electronic sources**

CNN-IBN, *India hosts Antibiotic Resistance*, 4 October 2011:  
(Retrieved 2012-12-06)


Nationalencyklopedin, antimitrobiell behandling: 2012.  
http://www.ne.se.till.bibilextern.sh.se/lang/antimitrobiell-behandling (Retrieved: 2012-12-10)


http://www.ne.se.till.biblextern.sh.se/rep/imperiet-faller-från-gandhi-till-patil (Retrieved 2012-12-18)

Nacionalencyklopedin, Indien, Statsskick och politik: 2012
http://www.ne.se.till.biblextern.sh.se/indien/statsskick-och-politik (Retrieved 2012-12-18)

Nacionalencyklopedin, Bharatiya Janata Party:
2012http://www.ne.se.till.biblextern.sh.se/bharatiya-janata-party

Nacionalencyklopedin, Indien, http://www.ne.se.till.biblextern.sh.se/indien/religion (retrieved 2012-12-26)

Nacionalencyklopedin, Indien, näringstilv: 2012
http://www.ne.se.till.biblextern.sh.se/lang/indien/näringsliv (Retrieved 2012-12-26)

Nacionalencyklopedin, resistensutveckling: 2012
http://www.ne.se.till.biblextern.sh.se/lang/resistensutveckling (Retrieved: 2012-12-10)

http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v2/11th_vol2.pdf (Retrieved 2012-12-26)


[http://www.unfpa.org/sowmy/resources/docs/country_info/profile/en_India_SoWMy_Profile.pdf](http://www.unfpa.org/sowmy/resources/docs/country_info/profile/en_India_SoWMy_Profile.pdf) (Retrieved 2012-12-27)


Informant interview

Karin Tegmark, Chief of disease control at Smittskyddsinstitutet, Sweden, conducted in March 2012

Appendix

Codebook

V1: Article ID

X

V2: Newspaper

01. Times of India
02. The Hindu

V3: Date

XX-XX-XX

V4: Year

01. 2006
02. 2007
03. 2008
04. 2009
05. 2010
06. 2011
07. 2012
V5: Signature

01. Staff reporter
02. News agency
03. Staff reporter/News agency
04. Independent writer.
05. Citizen/reader
06. Unspecified

V6: Size

01. Small
02. Medium
03. Large

V7: Type of article

01. News article
02. Feature
03. Editorial
04. Debate
05. Letter to newspaper
06. Other

V8: Actor 1

01. Doctor/medical staff
02. Scientists/Experts
03. Politicians
04. Medical companies
05. Company representatives
06. Authority representatives
07. Farmacies
08. Citizen
09. NGO’s
10. International organisations
11. Activist
12. Newspaper
13. Others
99. None

**V9: Actor 2**

14. Doctor/medical staff
15. Scientists/Experts
16. Politicians
17. Medical companies
18. Company representatives
19. Authority representatives
20. Farmacies
21. Citizen
22. NGO’s
23. International organisations
24. Activist
25. Newspaper
26. Others
99. None

**V10: Arena**

01. Local/Regional
02. National (India)
03. Asien
04. Outside Asia.
05. Global
99. None

**V11: Mention of the word ”superbug”/”bug”**

01. Yes.
02. No.
V12: Mention of cause/s of antibiotic resistance?
   01. Yes
   02. No.

V13: Responsibility
   01. The users
   02. Politicians
   03. Medical companies
   04. Medical staff
   05. Business world
   06. Others
   99. None

V14. Mention of prevalence
   01. Yes
   02. No.

   01. Yes
   02. No

V16. Mention of the need to take the full course of an antibiotic prescription.
   01. Yes.
   02. No.

V17. Mention of the need to use antibiotics restrictively.
   01. Yes.
   02. No.

V18. Mention of the importance of hygiene to prevent infection.
   01. Yes.
   02. No.

V19. Mention of the importance of improving health in general.
01. Yes.
02. No.

**Code instructions**

This study focuses on printed newspaper articles published in the Delhi editions of Times of India and the Hindu. All sections, such as opinion, national and international, are included. The time period ranges from 1 January 2006 – 1 November 2012. The search word is *antibiotic resistance*. Antibiotic resistance has to be the main topic of the article, otherwise the article will be excluded from the study.

**Size**
Small – not more than 160 words.
Medium – between 161 and 450 words.
Large – more than 450 words.

**Signature**
Reporter – the article is written by a reporter of the newspaper

News agency – the article is written by a national or international news agency. An exception is Times News Network (TNN) since it is directly linked to Times of India. Articles with the byline TNN or TNN combined with a reporter’s byline will thus be counted as reporter. Articles with only the byline TNN will be counted as news agency.

Reporter/News agency – Both the byline of a journalist, or the newspaper, and the byline of a news agency is printed.

Independent writer – the article is written by a person or association that is not bound to the newspaper, such as politicians, medical experts, scientists etc.

Citizen – text written by a newspaper reader.

Unspecified – the name of the writer is not printed. This includes unsigned opinion articles as well as news articles without byline.
**Type of article:** Do the newspapers regard the issue as general news or is it also a subject of debate?

News article – text that answers the basic questions who, what, when, where, why and how.

Feature – texts that differentiate from news articles in narrative style; depicting events or phenomenon using scenes and a more illustrative language.

Leader – texts that express the opinion of the newspaper.

Columns – texts that express the opinion of a staff reporter.

Debate – texts that express the opinion of an independent writer.

Letter to newspaper – text sent to the newspaper from a reader.

Others – texts that inform on health.

**Actor 1 and Actor 2:** A person, organization etc, which is quoted or referred to in the article. Actor 1 is the main actor of the article, i.e. it is placed first in the text and is given more space. As opposed to Actor 1, Actor 2 is given less space and is placed further down in the article.

**Arena:** On what geographical level is the issue of antibiotic resistance discussed?

Local – Antibiotic resistance is discussed as a local concern. The focus in the article is on a particular place, such as New Delhi.

National (India) – Antibiotic resistance is discussed as a concern for the nation.

Asia – Antibiotic resistance is discussed as a concern for Asia.

Outside of Asia – Antibiotic resistance is discussed as a concern for countries outside Asia.

Global – Antibiotic resistance is discussed as a global concern.

None – the article does not focus on a particular arena.
Mention of cause/s of antibiotic resistance? The article mentions that resistance is caused by use or misuse of antibiotics.

Responsibility – Who is given the responsibility of the emergence of antibiotic resistance? This could be doctors that are not prescribing antibiotics responsibly, the business sector misusing antibiotics is farming, the users buying drugs over-the-counter, the government for not conducting regulation of antibiotic use.

Prevalence – Do the article provide numerical information on the magnitude of the problem; for example: the number of instances of antibiotic resistant bacteria, cases of human illness, or incidences of human mortality.

Mention of preventive measures? Do the articles inform about actions that people can take to slow the spread of antibiotic resistance? If yes: continue coding. If no: stop coding.

Mention of the need to take the full course of an antibiotic prescription. Information primarily addressed to members of the public.

Mention of the need to use antibiotics restrictively. Information primarily addressed to physicians: i.e to not prescribe broad spectrum antibiotics, and to only prescribe antibiotics for serious bacterial infections.

Mention of the importance of hygiene. Information addressed to medical staff as well as to members of the public concerning the importance of keeping good hygiene to prevent infection.

Mention of the importance of improving health in general. The article focuses on the importance of improving public health in general as a way decreasing drug-resistant infections.

Interview guide – journalists

01 How long have you been a journalist?
02 What is your journalistic background?

03 Why did you become a journalist?

04 How did you become specialized in health issues?

05 How do you see the possibilities for journalists to make a difference in India – when it comes to health? Examples?

06 How would you describe your audience?

07 How much influence do you think your newspaper has on its audience?

08 How do you think your newspaper matches or differs from other Indian newspapers when it comes to reporting on health issues?

09 Does your paper have any guidelines about how to cover health issues? How does it work in reality?

10 Do you think that newspapers have a responsibility to inform people about health issues?

11 When it comes to the issue of antibiotic resistance, has the reporting increased/decreased over the years?

12 Has your attitude toward antibiotic resistance changed over time?

13 For whom is antibiotic resistance issue a concern?

14 What aspects do you think are the most important to highlight in articles about health issues? In articles about antibiotic resistance?

15 What is important for the reader to be informed about?

16 Do you think your newspaper meets the needs of the audience?

17. How would you describe your news value? What is considered as news?

18. Have you experienced any problems when it comes to fitting health issues to the ordinary news template?
19 How do you differ in reporting on health/medicine issues in contrast to other issues?

20. What sources do you trust when it comes to questions about health and medicine?

21. Does lobbyist or other people who have interests in these matters affect you?

22 From which areas in society do they come?

01. Scientists/Experts
02. Doctors/medical staff
03. Politicians
04. Medical companies
05. Company representatives
06. Authority representatives
07. Farmacies
08. Citizen
09. NGO’s
10. International organisations
11. Activist
12. Newspaper
13. Others

23 How much freedom do you have when it comes to deciding what issues to report on?

24. Who has the power to decide if you are going to write about this or not?

25 Do your own opinions influence your reporting?

26 Are there any other things you want to mention, which are specific for the subject antibiotic resistance?

**Interview guide – editors**
01 The owner of the newspaper?

02 Who started it? When?

03 Political view of the newspaper?

04 How do you regard other Indian newspapers in contrast to your own?

05 How do You see the possibilities for newspapers to make a difference in India – when it comes to health? Examples?

06 What do you think of the amount of coverage on health in Indian media?

07 What do you think of the reporting of health in your newspaper?

08 Do you think that newspapers have a responsibility to inform people about health issues?

09 How much influence do you think your newspaper has on its audience?

10 Does your paper have any guidelines about how to cover health issues?

11 Has there been any discussion within the newspaper on how to cover the issue about antibiotic resistance?

12 What aspects do you think are the most important to highlight in articles about health issues? In articles about antibiotic resistance?

13 What is important for the reader to be informed about?

14 How would you describe your news value? What is considered as news?

15 How does health issued fit the ordinary news template?

16 Who decides what issues the paper should reporting on?

17 What do you think of your role of the newspaper when it comes to the reporting of antibiotic resistance?

18 What do you think about the media as an agent of power?
19 What do you think about the journalists’ objective role?

20 Is it possible to still be an objective journalist and at the same time try to create change in important health issues like the problem with antibiotic resistance?

21 Are there any other things you want to mention, which are specific for the subject antibiotic resistance?