Risk Perceptions

Work package 5 of the Specific Targeted Research Project

Effective and Acceptable Strategies for the Control of SARS and new emerging infections in China and Europe

SARSControl

Survey Study Protocol

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1. Background

Effective management of new infectious disease risks in the phase that no treatment or vaccination is yet possible is largely dependent on precautionary behaviour of the population. Implementation of effective precautionary behaviour is largely dependent on effective risk communication, i.e. communication that induces realistic risk perceptions, correct knowledge and skills to enable precautionary practices. Such risk perceptions are especially relevant for inducing precautionary behaviours in the early stages of behaviour change. Effective risk communication should be based on a careful inventory and analysis of risk perceptions and misconceptions in populations, variation in these perceptions within and between population groups, and of the socio-demographic and psychosocial determinants of such variations in risk perceptions and misconceptions. This enables that risk communication can be tailored to existing risk perceptions and the determinants. Such risk communication may not only induce effective precautionary practices but also help to avoid unnecessary population scares or stigmatisation of certain risk groups.

Risk perception, precautionary behaviour and infectious diseases

Risk perceptions are an important determinant of protection motivation, especially in the early stages of behaviour change. Risk perception may especially influence behaviour when the risk is perceived to be acute, severe and when personal susceptibility is perceived as high. Risk perceptions are often biased and people may be unrealistically optimistic as well as unrealistically pessimistic about certain risks. Optimism often occurs related to familiar risks that are perceived to be largely under volitional control. Pessimism, sometimes leading to mass scares, is more likely to occur related to new risks that are perceived as largely uncontrollable. Since unrealistic optimism may lead to a false feeling of security and unrealistic pessimism may result in unwarranted non-rational actions as well as stigmatisation, it is important to promote realistic risk perceptions in order to make a first step toward inducing effective precautionary behaviours among the populations. For SARS there is some preliminary evidence that three different phases occur in reaction to a SARS outbreak:

- **Early stage**: neglecting protection;
- **Middle stage**: over-fear: over protection, shopping rush, obsession, compulsivity, hypochondria, discrimination towards SARS patients / suspected patients, avoiding healthcare settings; and
- **Late stage**: off guard, discrimination towards recovered patients.

To promote realistic risk perceptions, effective communication is essential. People may use different information sources to learn about new health risks, such as government agencies, health officials, different popular media, the internet, as well as information from friends and acquaintances. In order for future procedures to be successful, the acceptability of the information and advice provided, and trust in the provider needs to be present. Successful implementation of future procedures depends on the public’s willingness to support public health interventions, and for that information to be clear and timely.

Unfortunately hardly any research has been done into risk perception and communication of infectious diseases (in contrast to research done on risk perception related to environmental risks, food scares and other potential adverse events). For an effective European public health policy, especially related to SARS and other expected possible future outbreaks of infectious diseases, it is crucial to have insight in risk perception, misconceptions and precautionary practices, as well as determinants of variance in these perceptions in order to be able to develop targeted communication strategies that induce effective precautionary behaviour of communities and thus can help limiting the effects of an outbreak of SARS or another infectious diseases.

SARS in Europe

SARS had a low impact on Europe in terms of the numbers of probable cases of infection, for example in the UK, four probable cases of SARS were reported, all of whom have recovered. However, SARS has implications in Europe for the general public and more so for Chinese communities. The epidemics of SARS in other countries and the international spread of the disease indicated the very real possibility of outbreaks or an epidemic of SARS in the in European countries Preliminary analyses of a pilot study conducted by members of the present research consortium in two EU-regions indeed show that although a large majority of citizens know about SARS, misconceptions about contamination sources and precautionary practices do exist. Further, optimistic biases were present...
related to SARS as well as to other infectious diseases. Further, research commissioned by the Dutch government in May 2003 showed the Dutch population considered SARS one of the five most important problems at that moment.\textsuperscript{11}

2. Objectives

1. To analyse SARS-related risk perceptions and precautionary actions and compare these to risk perceptions and actions related to other infectious diseases and non infectious disease health risks in Europe and East Asia.
2. To identify determinants of risk perceptions and precautionary actions related to SARS, other infectious diseases and important health risks.
3. To explore which sources of information about SARS were used, and to assess the credibility and appreciation of these sources, in Europe and Eastern Asia.

3. Study design

3.1 Design
A cross-sectional survey will be conducted in countries in Europe and East Asia through interviews by telephone.

3.2 Inclusion and exclusion criteria
The interviewer will introduce him/herself at the beginning of each telephone call and explains the purpose of the phonecall. The interviewer then asks to speak to the person in the household aged 18 or older who had the most recent birthday and is not older than 75. If that person is not at home the person speaking will be asked to participate. Males and females between 18 and 75 years of age who are willing to participate are being included in the study.

3.3 Sampling frame
The survey will be held in 5 countries in Europe representing regions in North, West, South and East Europe, namely Denmark, the Netherlands, the UK, Spain, and Poland. Two countries in East Asia have been selected, Singapore and China. For China, the survey will be conducted in the province of Guangdong as this was the province most affected by the SARS outbreak in 2003. If the budget is sufficient Hong Kong will also be included.

\begin{tabular}{|l|l|}
\hline
\textbf{Number of inhabitants per country:} & \\
Denmark & 5.4 million  (5,397,600) \\
Netherlands & 16.3 million  (16,258,032) \\
UK & 59.7 million  (59,673,084) \\
Poland & 38.2 million  (38,190,600) \\
Spain & 42.2 million  (42,197,865) \\
Singapore & 4.2 million \\
Guangdong & 86.4 million \\
Hong Kong & 6.8 million \\
\hline
\end{tabular}

Source for Singapore: Singapore Department of Statistics (mid 2004)

A random sample from a list with household telephone numbers created through random digit dialling (RDD) will be used. This list from which the sample is drawn is created by a specialised company; first numbers are randomly generated by a computer, then a computer phones each number in order to delete non existing telephone numbers (when a number is working the computer automatically disconnects). After that the remaining numbers are phoned to exclude non-household numbers.

3.4 Sample size
400 respondents per country
3.5 Non response
Statistics on the number of phone calls made will be recorded, i.e. number unanswered, refused, not meeting inclusion criteria.
From persons who do not wish to participate the interviewer records the sex and if possible the age group. As a last question the reason for non participation will be asked.

3.6 Ethical approval
Based on the discussions at the kick-off meeting the protocol will be revised in order to be applicable and conform ethical standards in all survey populations. Ethical approval will be obtained from the co-ordinating research center’s ethical committee (METC ErasmusMC).

4. Questionnaire

4.1 Theoretical framework
The Protection Motivation Theory offers a theoretical framework for the survey on risk perception and (emerging) infectious diseases. The PMT is best suited since it includes four concepts which are of great importance to the control of infectious diseases:
- Severity: the severity of the diseases. This perceived severity can be measured
- Vulnerability: the vulnerability to the diseases (changes of getting the diseases) can be measured both on an individual level as well as compared to others
- Response efficacy: this is important as one can imagine different measures to be taken / suggested in the case of (emerging) infectious diseases. The effectiveness of these responses can differ both on a 'medical' level as well as in the perception of people (with may be more technological responses being more trusted – this is something which would warrant a more detailed study on perceived effectiveness e.g. of influenza vaccination, influenza prophylaxis and different behaviours (hygiene, avoiding large crowds, isolation etc).
- Self efficacy: both for more technological as behavioural interventions it is important to see what the influence of self efficacy is and what this does mean for risk communication.

Protection Motivation Theory (Ronald Rogers, 1975)

<table>
<thead>
<tr>
<th>Components of fear appeal:</th>
<th>Cognitive mediating processes:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Magnitude of noxiousness</td>
<td>- Appraised severity</td>
<td>Severity</td>
</tr>
<tr>
<td>- Probability of occurrence</td>
<td>- Expectancy of exposure</td>
<td>Susceptibility</td>
</tr>
<tr>
<td>- Efficacy of recommended response</td>
<td>- Belief in efficacy of coping response</td>
<td>Response efficacy</td>
</tr>
</tbody>
</table>

Addition in 1983: Self-efficacy

4.2 Components of the questionnaire

The questionnaire contains mainly closed ended questions.
The duration of interview measured from the point where the respondent agrees to participate should be maximum 15 minutes.

- To measure internal health locus of control, a validated 6 item instrument is used (a subscale of the Multidimensional Health Locus of Control (MHLC) Scale).
- Severity of the disease is measured by asking how the respondent would feel about getting a certain disease in the next year.
- Vulnerability to a disease is measured both individually (absolute risk) as compared to others (comparative risk). For several diseases it is first asked how likely the respondent thinks it is he or she will get the disease in the next year. Secondly it is asked how likely the respondent thinks it is that he or she will get the disease in the next year compared to other women or men of the same age in the country.
- Several question to measure the level of knowledge about SARS and other infectious diseases are included.
- Response- and self efficacy. As it is not well known what preventive measures can be taken to prevent getting SARS or avian flu, response efficacy is measured by asking: “In general, do you think that people can take actions to prevent getting [disease]?” Self efficacy is measured by asking: “How confident are you that you can prevent getting [disease]?"
- First it is asked how much information on health related issues the respondent gets from different sources of information and how much confidence he/she has in the different sources of information. Secondly it is asked how much the respondent heard about SARS at the time of the outbreak, from which source of information he/she got most information and how much confidence he/she had in that source. For the situation of an outbreak it is asked for several subjects how important the respondent would find it to receive information on this subject and from what source he/she would most prefer to get information from.
- To measure general health status of the participant, the first question of the SF-8 instrument will be used.
- General information (sex, country of birth (self and parents), number of people/children under 12 in household, education, number of inhabitants in place of residence, religion).

4.3 Translation
The questionnaire is developed in English and checked by a native speaker involved in work package 5. The English questionnaire is subsequently translated in the languages of the survey populations (Danish, Dutch, Spanish, Polish, Cantonese, Mandarin). The translations will be checked by a professional in the field of risk perception for each language and revised if necessary.

<table>
<thead>
<tr>
<th>Country</th>
<th>Language 1</th>
<th>Language 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Danish</td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Spanish</td>
<td></td>
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<tr>
<td>Poland</td>
<td>Polish</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>English</td>
<td>Mandarin</td>
</tr>
<tr>
<td>China (Guangdong)</td>
<td>Cantonese</td>
<td>Mandarin</td>
</tr>
<tr>
<td>China (Hong Kong)</td>
<td>Cantonese</td>
<td></td>
</tr>
</tbody>
</table>

4.4 Pre-testing
The questionnaire will be pre-tested in the countries involved (or in less countries), and a test-retest reliability study (N=40) will be conducted in two countries in Europe and one in East Asia.

5. Data collection
5.1. Information to survey participants
The interviewer will give the following information to possible participants:

Good morning / afternoon / evening,
My name is ............, I am calling for [Name Institution]. We are conducting an important international study of people’s opinions about several health problems, specifically about infectious diseases. Your telephone number has been selected at random.
We are interested in learning more about the feelings of people about some health problems and we would like to talk to one person in the household. I would like to speak to the person aged 18 to 75 who had the most recent birthday. Is that you?
[ -if answer is ‘no’, ask if you can speak to the person who is. If this person is not at home tell the person speaking to that in that case you can also talk to him/her.
  -If this other person is at home ask if you can speak to that person.
Continue when talking to eligible person, if this is a new person introduce again]
This interview will take approximately 15 minutes. Your answers will help to develop public health policy. This interview is anonymous and confidential. Answers to all questions are voluntary, and we will treat your answers with strict confidence.
Would you like to participate?
If it is not suitable at this moment, can we make another appointment?
Institution for which interviewer is calling in the different countries:

<table>
<thead>
<tr>
<th>Country</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>National Public Health Institute</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Erasmus University Rotterdam and Municipal Health Service Rotterdam</td>
</tr>
<tr>
<td>UK</td>
<td>Health Protection Agency</td>
</tr>
<tr>
<td>Poland</td>
<td>International scientific research group</td>
</tr>
<tr>
<td>Spain</td>
<td>International scientific research group</td>
</tr>
<tr>
<td>Singapore</td>
<td>National University of Singapore</td>
</tr>
<tr>
<td>Guangdong</td>
<td>International scientific research group</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Hong Kong University</td>
</tr>
</tbody>
</table>

5.2 Data collection
The data collection is sub-contracted to GDCC. GDCC offers international CATI (Computer-Assisted Telephone Interviewing) services and will collect the data from all 7 countries.

5.3 Data management
As the data are collected using CATI, the respondents answers are entered directly in a computer database by the interviewer. In the set-up of the CATI system skips and answer categories can be programmed, reducing data entry errors. At completion of the data collection, the data will be exported in a format that can be imported into SPSS. The data will be checked and cleaned at the co-ordinating research centre. Each country will receive a SPSS data file with cleaned data of the specific country.

5.4 Data analysis
Data will be analysed using SPSS statistical software. Country-specific and international comparative analyses will be conducted on the data of the surveys. As the respondents are nested within countries the international comparative will be analysed using a multilevel model. Analyses will focus on existing risk perceptions, on past and present precautionary actions, differences in risk perceptions related to SARS and other emerging health threats, correlates of risk perceptions, and information sources.

5.5 Quality assurance procedures
GDCC is a member of ESOMAR, The World Association of Opinion and Marketing Research Professionals and complies with the International Chamber of Commerce (ICC)/ESOMAR International Code of Marketing and Social Research Practice. GDCC also has its own Quality Control Unit where around 10% of all the interviews are monitored.

6. Reporting
Results will be described in country-specific reports and in an international report. Country reports for the UK, Denmark, Singapore and China will be made by the research partners for the specific countries. Country reports for The Netherlands, Spain and Poland and the international report will be made by the co-ordinating centre at the Municipal Health Service Rotterdam.

References

11. VWS. SARS. Publieksenmonitor 2003(May 23).
Appendix 1

Short description of the diseases

These can be read to the respondent if he or she does not know a disease when the questions about seriousness are asked (question 7-15). The description for ‘SARS’ and ‘flu from a new flu virus’ is always given. If the respondent still does not know the disease after the description is given, further questions on the disease are skipped.

**Diabetes**

Diabetes is a chronic disorder which leads to high levels of glucose, sugar, in the blood.

**A common cold**

A common cold is an infection of the nose and throat area, with symptoms like a running nose and coughing.

**HIV**

HIV is the virus which causes AIDS, it affects the immune system.

**High blood pressure**

High blood pressure, or hypertension, usually has no symptoms but can increase the risk for heart and blood vessel diseases.

**SARS**

SARS is a severe acute breathing related illness caused by a previously unkown virus.

**Tuberculosis**

Tuberculosis, or TB, is an infection with a bacteria that mainly affects the lungs.

**Heart attack**

A heart attack is a sudden and severe episode of heart disease.

**Flu from a new flu virus**

A new type of flu virus can arise from avian flu, it causes serious illness and spreads easily in the population.

**Food poisoning**

Food poisoning is an acute stomach and gut disorder caused by bacteria or virusses with symptoms like vomiting and diarrhoea.