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**To be Paranoid is the Standard?
Panic Responses to SARS Outbreak
in the Hong Kong Special
Administrative Region**

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TO BE PARANOID IS THE STANDARD? PANIC RESPONSES TO SARS OUTBREAK IN THE HONG KONG SPECIAL ADMINISTRATIVE REGION

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Severe acute respiratory syndrome (SARS) was first reported in Guangdong, China in November 2002, followed by an outbreak in the Hong Kong Special Administrative Region (HKSAR) in early March 2003. Public anxiety has been widespread in both SARS-affected and SARS-unaffected regions. Population surveys have shown that about 70 percent of Hong Kong respondents expressed considerable fear about the SARS outbreak. The fear of SARS seems to be stronger and more widespread than the fear of any comparable life-threatening illness. The public reactions of Hong Kong people may be categorized into four distinct patterns: the individual-difference, the public-anxiety, the irrational-panic, and the-fear-of-infection periods. Each of these periods was marked by one or more critical events believed to create mass anxiety among Hong Kong people. The role of the government, mass media, and people in maintaining an "optimal" level of public anxiety—which alerts people to the danger of the disease while preventing irrational, paranoiac behaviors—is discussed.

Key words: Severe Acute Respiratory Syndrome, SARS, psychological responses

Introduction

"To be obsessive is the minimum . . . To be paranoid, the standard."
—Anonymous, from an email

According to the World Health Organization (WHO), SARS is the first severe and readily transmissible new disease to emerge in the twenty-first century.¹ Severe Acute Respiratory Syndrome (SARS) is a viral infection caused by a new strain of coronavirus, a membrane-enclosed RNA virus. Coronaviruses are the largest of any of the RNA viruses, generally associated in human beings with mild upper-respiratory infections (common colds), which may cause pneumonia in patients with poor immune systems.² Those affected by SARS develop a fever (higher than 100.4 degrees Fahrenheit or 38 degrees Centigrade). Chest symptoms such as cough, shortness of breath or difficulty breathing often develop within a few days. Other symptoms include muscle aches, weakness, headaches, diarrhea, and sore throat.³

The spread of SARS is deemed to be by "droplet" infection. That is, a person may get infected if directly exposed to "the cough" of somebody with SARS. Further, the virus is also existent in other body fluids, such as saliva, urine, and feces. The virus can survive in fecal matter for one and a half to two days. Hence contact with infected objects just before touching the mouth, nose, or eyes may lead to an infection. Every viral disease has a certain incubation period, the period between the exposure to the virus and the development of symptoms. For SARS, the incubation period is between two and ten days, a relatively long period that allows infected persons to travel, and infect others, without knowing that they themselves are infected, hence participating in the global spread of the disease.⁴ Other viruses, such

as the Ebola, are much more deadly, but infected patients tend to progress in their disease extremely rapidly, thus making it difficult to transmit the virus to others.⁵

A Global Disease: Brief Epidemiology

Between November 1, 2002 and July 31, 2003, a total of 8,422 SARS cases were reported to the World Health Organization from twenty-nine countries.⁶ The outbreak was identified to have begun in Guangdong Province, China, in November 2002.⁷ The recent global chronology of SARS can be traced to March 12, 2003, when WHO issued a global alert warning of severe atypical pneumonia in a number of cases in Asia. Despite the continuing spread, there was no apparent treatment for those who contracted the disease. WHO then increased the level of its global alert, issuing a rare emergency travel advisory. Within two weeks of the alert, the suspected cause was determined to be a virulent strain of the coronavirus. On April 16, it was scientifically confirmed that coronavirus was the cause of SARS after monkeys infected with the virus produced the associated symptoms.⁸

It is a unique outbreak in recent history in terms of the rapidity of its transmission, its concentration in health care settings, and in the number of health care workers who became infected.⁹ From a global perspective, the SARS epidemic has demonstrated the importance of a worldwide surveillance and response capacity to address threats through timely reporting, rapid communication, and evidence-based action.¹⁰ In this case

1. World Health Organization, "Severe Acute Respiratory Syndrome (SARS): Status of the Outbreak and Lessons for the Immediate Future" (Geneva, Switzerland: WHO, May 20, 2003).
2. J. Kay, "The Science and Sociology of SARS," World Socialist Website, The International Committee of the Fourth International (ICFI), Part 1: Viruses and the Nature of Present Outbreak, May 12, 2003, online at www.wsws.org/articles/2003/may2003/sars-m13.shtml.
3. Brad Evenson, "SARS Shuts Hospital and School, Quarantines 200," *National Post News*, March 26, 2003, Canadian edition.
4. WHO, SARS.

5. Kay, "The Science and Sociology of SARS."

6. WHO, SARS.

7. R. A. Chotani et al., "Just-in-time lectures: SARS," *Lancet*, vol. 361, No. 9373 (June, 2003), pp. 361-1996.

8. Kay, "The Science and Sociology of SARS."

9. Robert Maunder et al., "The Immediate Psychological and Occupational Impact of the 2003 SARS Outbreak in a Teaching Hospital," *Canadian Medical Association Journal*, vol. 10 (May, 2003).

10. WHO Global Conference on Severe Acute Respiratory Syndrome (SARS), "Where Do We Go from Here?" World Health Organization, Summary Report, Kuala Lumpur, Malaysia, June 2003, online at www.who.int/csr/SARS/conference/june_2003/materials/report/.

different countries reacted to the situation in different ways—politically, socially, and psychologically. They differed in how they informed the public, in what protection measures were employed, and in citizen reactions to the incident. The emphasis in this section is to briefly illustrate the differences between reactions in some of the countries, with a particular focus on the HKSAR and China.

SARS in HKSAR and China

The HKSAR

The epidemic in the HKSAR is recognized to have gone through three distinct phases. The first was an outbreak in March 2003 in the Prince of Wales Hospital in Hong Kong that affected a large number of staff and medical students. It started when a doctor from Guangzhou, who had been treating patients with atypical pneumonia in a Guangzhou hospital in China, visited the HKSAR in February 2003. The second phase was an outbreak in the community due to the spread of infection from the hospital. This phase reached its peak in April 2003 with the mass infection at Amoy Gardens. The third phase was the declining rate of occurrence of the disease. A brief chronology of the respective phases is outlined below.

On February 21, 2003, a medical doctor from the Guangdong Province (the index case) arrived in the HKSAR, checking into the ninth floor of the Metropole Hotel. By the next day, he was seeking urgent care at the Prince of Wales Hospital. Health authorities determined that his symptoms developed on February 15, at which point he would have still been in the People's Republic of China (PRC). WHO then issued a global alert warning of cases of atypical pneumonia rapidly spreading among hospital staff on March 12, shortly after which the first emergency travel advisory was issued.¹¹ This coincided with a majority of cases coming from

the medical sector, including the chief executive of the Prince of Wales Hospital. During the next month, the virus started to spread internationally, and by March 22, thirteen countries had reported over 300 cases.

The community infection began at the end of March with a large cluster of almost simultaneous cases, linked to the Amoy Gardens housing estate in the HKSAR, providing strong evidence that SARS had moved out of the hospital setting and into the community at large.¹² Health authorities announced that over 200 residents of the Amoy Gardens were hospitalized with SARS since reporting on the disease had begun. More than half of those cases were residents of a single wing of the Block E building.¹³ On April 6, the HKSAR government announced the closure of schools, and more than a thousand people were placed under quarantine. The health authorities later announced that all household contacts of confirmed SARS patients were required to confine themselves for up to ten days. They were allowed to choose between confinement in their homes or confinement at holiday camps. During the quarantine period, no visitors were allowed in the quarantine areas; the Hong Kong Department of Health conducted medical checks to monitor health; and the police force conducted compliance checks.¹⁴

That the HKSAR government did not respond quickly enough to the outbreak is now widely confirmed. The health chief agreed with this opinion, but stated that not enough was known about the disease to risk the possibility of a panic. It was also noted that other places with outbreaks, including Singapore and Canada, were quicker to quarantine people who might have been exposed.¹⁵ Local academics believed that the city's international image was damaged by the government's late response to

11. "Severe Acute Respiratory Syndrome (SARS)—multi-country outbreak—Update 27, One month into the global SARS outbreak: Status of the outbreak and lessons for the immediate future," at www.who.int/csr/don/2003_04_11/en/.

12. "Update 92—Chronology of Travel Recommendations—Areas with Local Transmission World Health Organization—Communicable Disease Surveillance and Response (CDSR)," at www.who.int/csr/don/2003_07_01/en/.

13. "The World Health Organization—Update 95—SARS: Chronology of a Serial Killer," online at www.who.int/csr/don/2003_07_04/en/.

14. "SARS Update 27."

15. M. Lee, "Health Chief Acknowledges Hong Kong Didn't Respond Quickly Enough to SARS Outbreak," Associated Press Worldstream, May 3, 2003.

the outbreak. Political analysts felt that the city's response to this crisis had cast severe doubts on the government's competence in crisis management. International media compared the HKSAR and Singapore responses to the crisis.¹⁶ According to WHO, the HKSAR had a complicated health system, making it difficult to control the outbreak. The structure of the health system made it difficult for the Department of Health to impose infection control in hospitals. In the HKSAR, the Hospital Authority manages the city's hospitals; but it is the Secretary for Health, Welfare, and Food who is responsible for health policy. The hospitals and the Public Health Administration in the HKSAR are independent and have poor communications with each other. To make matters worse, there are also independent private hospitals that are not under the control of the Public Health Organization.¹⁷ Dr. Oshitani, who was the WHO team leader for this crisis, told the HKSAR officials about the outbreak in Hanoi, but was not told of a similar outbreak at the Prince of Wales Hospital that had begun a day earlier. He was finally informed late the next day, which resulted in a global SARS alert.

China

The first known case of atypical pneumonia occurred in Foshan City, Guangdong province, on November 16, 2002. This was not reported until February 10, 2003, when the WHO Beijing office received an email describing a "strange contagious disease" that had "already left more than 100 people dead" in the province in one week. The following day the WHO office received reports from the Chinese Ministry of Health of an outbreak of acute respiratory syndrome.¹⁸ It is now widely accepted that Beijing authorities knew about the SARS outbreak before they officially acknowledged the fact.

A retired medical doctor, Jiang Yangong, of the People's Liberation Army General Hospital (Hospital 301) reflected the

shock and anger felt by other medical professionals upon learning that China's minister of health was not reporting the SARS cases accurately.¹⁹ He claimed that at one Beijing hospital alone, more than sixty SARS patients had been admitted. Jiang "went public" because he feared that there would otherwise be more deaths. He felt a responsibility to aid the international and local efforts in the prevention of the spread of SARS.²⁰ Jiang added later that he believed the incident was a controlled coverup. The Ministry of Health had called a meeting to report that the SARS virus had arrived in Beijing, but that as a matter of discipline, disclosure would be delayed to avoid disrupting government meetings.²¹ When these events were ultimately disclosed, the minister of health and the mayor of Beijing both stepped down from their government positions.²²

It was not until April 17, twenty-two weeks after the first outbreak of a then unknown type of atypical pneumonia in Guangdong province, that the Politburo Standing Committee of the Chinese Communist Party finally agreed to handle the spreading illness in a more open manner, and the HKSAR was given the order for full disclosure. This announcement was made a day after WHO had criticized China for not reporting the outbreak more accurately.²³ WHO related early on that officials investigating the origin of the outbreak in China failed to cooperate as they had promised. David Heymann from WHO stated that in his opinion the international epidemic may have been controlled had the Chinese asked for help earlier.²⁴ Official

16. Klaudia Lee, "City's Image Needs Intensive Care, Say Experts," *South China Morning Post* (Hong Kong), March 29, 2003.

17. M. A. Benitez, "Red Tape Seen Hurting SARS Fight," *South China Morning Post*, August 15, 2003.

18. "SARS: Chronology of a Serial Killer."

19. "Army Doctor Testifies Beijing's Cover-up of SARS," Association for Asia Research (September 4, 2003), at asianresearch.org/articles/1277.html.

20. M. A. Benitez, "Beijing Doctor Alleges SARS Cases Cover-up in China," *The Lancet*, vol. 361, No. 9366 (April 19, 2003), p. 1357.

21. "Army Doctor Testifies."

22. X. Lei, "China: SARS and the Politics of Silence," *World Press Review*, vol. 50, No. 7 (July, 2003) at www.worldpress.org/article_model.cfm?article_id=1261.

23. H. Stockwin, "SARS Crisis: Hong Kong Suffers From China's Coverup," *China Brief*, vol. 3, No. 8 (April 22, 2003), online at www.jamestown.org/pubs/view/cwe_003_008_003.htm.

24. E. Rosenthal, "A Beijing Doctor Questions Data on Illness," *New York Times*, online at www.clearwisdom.net/emh/articles/2003/4/13/34466.html.

data were not released to WHO in a timely manner, and there were further delays while representatives awaited permission to travel to Guangdong where the virus was believed to have originated. Even after WHO officials had received critical information about the outbreak, this information could not be made public until Chinese authorities had given approval.²⁵ There were Chinese officials who blamed the HKSAR for underestimating the severity of the illness. The Chinese position was that the situation had been well handled in mainland China through such measures as disinfecting hotels and buses and isolating patients. The public reacted with skepticism. One citizen contended, "If you look at the local media here you would think there was no problem, but when you start surfing the Net you start to find out the truth." Others claimed that the state media's policy was to "largely ignore the story and keep panic at bay."²⁶

The Psychology Behind the Masks

In addition to the actual physical health dangers posed by SARS, a new mental health condition seems to have appeared, termed "SARS phobia." Indeed, many have confirmed the damaging psychological impact of SARS.²⁷ The phobia springs from the fact that there is still no treatment to cure SARS. This leaves people scared, nervous, or depressed. This conceptualization was visible all over the world in various forms. Varied reasons have been postulated for the cause of anxiety and panic over the outbreak. In the next section, the general nature of anxiety and panic are explored.

Anxiety

Anxiety is inevitable in life. It is a general feeling of appre-

25. Siew L. Ying, "WHO Says Mainland Officials Continue to Hinder Investigation," *South China Morning Post*, April 1, 2003.

26. Ibid.

27. B. Jinkinson, "SARS: The Gnawing Anxiety," BBC News Online (May 22, 2003), online at news.bbc.co.uk/go/pr/fr/-/1/hi/world/asia-pacific/3049657.stm.

hension about possible danger. Anxiety can be seen as both a cause and an effect of illness. Individuals with high levels of anxiety are predisposed to a number of ailments known as "somatization." For example anxiety may produce symptoms such as tension headaches, peptic ulcers, and hypertension. Further, anxiety is also considered to be a mediator between stressful life events and ill health. Psychological interventions or social support are sometimes needed to buffer the effects of anxiety and restabilize the person.²⁸ For most people occasional uneasiness is not intense and persistent. If it becomes worse, it can lead to an anxiety disorder characterized by distress, persistent anxiety, or maladaptive behaviors that reduce anxiety. A generalized anxiety disorder is when a person is unexplainably and continually tense and uneasy.²⁹

A distinction between state and trait anxiety has also become widely known.³⁰ State anxiety is defined as an unpleasant emotional arousal in the face of threatening demands or dangers. A cognitive appraisal of threat is a prerequisite for the experience of this emotion.³¹ Trait anxiety, on the other hand, reflects the existence of stable individual differences in the tendency to respond with state anxiety in the anticipation of threatening situations.³² Instruments to measure anxiety have been developed, prominent among which is the *State-Trait Anxiety Inventory* (STAI).³³ At the level of both state and trait anxiety, the concept of worry is applied. Worry is the cognitive component of the anxiety experience. According to Spielberger's theory, individuals respond to threat with worries about the imminent danger accompanied by a perceived lack of competence to counteract the threat.

28. D. John and C.T. MacArthur, "Research Network on Socioeconomic Status and Health," at www.macses.ucsf.edu/Research/Psychosocial/notebook/anxiety.html.

29. D.C. Meyers, *Exploring Psychology* (New York: Worth Publishers, 1999).

30. C.D. Spielberger, "Anxiety as an Emotional State," in C.D. Spielberger, ed., *Anxiety: Current Trends in Theory and Research*, vol. 1 (New York: Academic Press, 1972), pp. 23-49.

31. R.S. Lazarus, *Emotion and Adaptation* (New York: Oxford University Press, 1991).

32. John and MacArthur, "Research Network."

33. C.D. Spielberger, *Manual for the State-Trait Anger Expression Inventory-2* (Lutz, Fla.: Psychological Assessment Resources, 1988).

Fear and Panic

The difference between fear and anxiety has always been difficult to define, with no broad agreement as to whether the two emotions are even distinct from each other. Historically, the most common way of distinguishing between fear and anxiety has been whether there is a clear and obvious source of danger that would be regarded as real by most people. When the source of danger is obvious, the experienced emotion has been called fear. With anxiety however, the danger frequently cannot be specified. Intuitively, it is experienced as an unpleasant inner state in which someone anticipates something dreadful that is not entirely predictable from the actual circumstances. In recent years a more fundamental distinction between anxiety and fear or panic has been proposed.³⁴ According to these theories, fear or panic is a basic emotion that involves the activation of the "fight-or-flight" response of the sympathetic nervous system, allowing us to respond quickly when faced with an imminent threat.

Fear has been seen to have three components:³⁵ cognitive/subjective components ("I feel afraid"), physiological components ("increased heart rate and heavy breathing"), and behavioral components ("a strong urge to escape"). The cognitive theory of panic proposes that simply thinking about panic-related sensations and their feared consequences is sufficient to induce panic. This theory postulates that changing cognitions about bodily symptoms should reduce or prevent panic. While the model does not deny the role of biological and genetic factors in producing a vulnerability to panic, it asserts that such factors cannot account for why simple cognitive manipulations can block panic. It hence asserts that cognitive variables play a much more immediate and prominent causal role in initiating panic attacks.³⁶

34. D.H. Barlow, "Disorders of Emotion," *Psychological Inquiry*, vol. 2 (1991), pp. 58-71; J.A. Gray, "Three Fundamental Emotion Systems," in P. Ekman and R.J. Davidson, eds., *The Nature of Emotion: Fundamental Questions* (New York: Oxford University, 1994), pp. 243-47.

35. P.J. Lang, "The Cognitive Psychophysiology of Emotion: Fear and Anxiety," in A.H. Tuma and J.D. Maser, eds., *Anxiety and the Anxiety Disorders* (Hillsdale, N.J.: Lawrence Erlbaum Associates, 1985), pp. 131-70.

SARS Phobia: Two Complement Viruses

Having delineated theories about anxiety, fear, and panic, it is now appropriate to examine how these concepts worked during the SARS epidemic, and how they affected the actual physical disease. According to Canadian psychologists, although fewer than fifty Canadians had died of SARS since March, countless more experienced the psychological effects of the disease.³⁷ To a certain extent it can be theorized that this psychological anxiety led people to compare SARS in HKSAR to the September 11, 2001 attacks in New York—an unexpected event causing death and economic paralysis. While the death rate was much lower than on September 11, the economic impact was quite similar.³⁸ Other experts have claimed that the SARS episode could have a similar impact to the 1918 flu epidemic that killed 50 million people. Some have compared it to the current world HIV crisis. Other experts like Peter Harvey from the University of Birmingham do not believe there will be a global pandemic of SARS, and that comparisons with HIV were misjudged.³⁹

Here is a comparison between SARS and HIV/AIDS from Dr. John Hubley who compared the two diseases, illustrating their respective similarities and differences.⁴⁰ First, HIV/AIDS is also carried through a virus. The mode of transmission for HIV/AIDS is through the blood, while for SARS, it is through the liquid in the nasal passages and saliva. Neither can be spread through casual physical contact. HIV poses a higher risk in that it can be transmitted by persons who do not show symptoms. The extent to which this can happen with SARS is limited. HIV inserts itself

36. Robert C. Carson, James Neal Butcher, and Susan Mineka, *Abnormal Psychology and Modern Life* (Boston: Allyn and Bacon, 2000).

37. C. Carr, "Psychological Toll of SARS Greater than Physical Toll," *Psychologist Says*, *Canadian Press*, August 7, 2003, online at mediresource.sympatico.ca/health.

38. B. Einhorn, "Where SARS Stands on the Disaster Scale," *Online Asia*, April 21, 2003, online at www.businessweek.com/bwdaily/dnflash/apr2003/nf20030421_5795_db010.htm.

39. "SARS: Is Global Panic Justified?" BBC News, April 24, 2003, online at news.bbc.co.uk/go/pr/fr/-/1/hi/health/2972927.stm.

40. "Comparing SARS and AIDS," online at www.hubley.co.uk/sars-aids.htm.

into the host genome and a person can be infective for life, but for SARS the virus is believed to be no longer present when a person has recovered. In terms of the case fatality, HIV has a high rate, while SARS actually poses a low but significant rate. More importantly, the present difference between numbers affected is stark: 42 million people were living with HIV at the end of 2002, and 3.1 million died that year, as reported by WHO. On the other hand, there were 8,422 cases with SARS, and less than 300 deaths had occurred as of July 31, 2003. Further, the eradication of the HIV virus is not an achievable goal, with the spread so widely dispersed, and the prospect for effective vaccines is still distant. AIDS can be treated but the virus cannot be eliminated. For SARS, immediate action to contain the threat did contain the virus.

Epidemiologically, then, the attributable risk for the two diseases is vastly different. Hubley maintained, however, that comparing the two diseases is not to underscore the importance of one at the expense of the other, but to understand how they both represent urgent priorities. The fact that SARS and HIV are being compared to each other means we must understand other mechanisms of risk perception in order to understand the psychological effects of SARS. SARS is similar to HIV in that there remains controversy over the treatment of both diseases. Except for that similarity, which does not account for the widespread fear of SARS, the main reasons would be purely psychosocial. First, there is stigma attached to both diseases, although the extents cannot be compared. In HIV, the stigma of its association with sexual behaviors created a severe problem because both individuals and nations had difficulty admitting that they had a problem. The same can be concluded for SARS, with particular reference to the coverup and denial in China. Other reasons would be those already explained for SARS, in that fear of the unknown often triggers the anxiety and panic reaction, which distorts the risk perception. Given the actual facts about SARS at this time, there appears to be a higher degree of distortion in the case of SARS.

The cognitive dimension explained above is useful in its application to SARS. According to Shijin, panic follows the same definite progress as the infectious disease itself. During the early stages of a disease, when information about a sudden incident is

unclear and insufficient, panic grows quickly and soon reaches a peak. Gradually, as more information is revealed, the panic (and the disease) tapers off, eventually disappearing. It has been proposed that SARS is prototypical of anxiety because it is threatening but cannot yet be defined. It has been widely reported that the real danger of SARS is not only the threat of the infection, but also the fear of it.⁴¹ The truth of this statement was manifested in a short period of "panic-buying" of such items as instant noodles, biscuits, and disinfectants, among other necessities. This kind of behavior is typical of what is termed "following the crowd" or "going with the flow."⁴² Others suggest that watching too much SARS news coverage, thinking a lot about the outbreak, having trouble sleeping, and having feelings of anxiety or panic are among the warning signs of SARS-related anxiety.

Some are more sympathetic in their view of SARS as a normal stress-anxiety reaction. Horowitz proposed a stress-adaptation model, which postulates that the experience of stress is understandable as a universally experienced response to extraordinary life circumstances.⁴³ Nevertheless, these stressors need to be identified, articulated, and normalized as much as possible. That is, they must have a logical reasoning behind them. Further, anxiety, as well as preoccupation can be viewed as normal reactions, and not pathological, but only to the extent that they exist in order to facilitate adaptation.⁴⁴

Further, the Gestalt school of psychology is useful in analyzing the form of excessive "fear" displayed. According to this, the problem is that the human mind tends to collapse all distinctive parts into general patterns. For example, when a series of dots are displayed, it is inevitably "perceived" that they form a line,

41. J. McCarten, "SARS Poses Unique Set of Challenges for Treatment of Mentally Ill: Experts," *Canadian Press*, April 14, 2003, online at medire-source.sympatico.ca/health_news_detail.asp?channel_id=60&news_id=1096.

42. Robert Maunder, Jonathan Hunter, Leslie Vincent, Jocelyn Bennett, Nathalie Peladeau, Molyn Leszcz, Joel Sadavoy, Lieve M. Verhaeghe, Rosalie Steinberg, and Tony Mazzulli, "The Immediate Psychological and Occupational Impact of the 2003 SARS Outbreak in a Teaching Hospital," *Canadian Medical Association Journal*, vol. 10 (May 13, 2003).

43. Ibid.

44. P.K. Beng, "SARS and The Mob Mentality."

although that is incorrect. Simply put, the human mind is better at perceiving patterns than at analyzing fragments in isolation. Related to SARS, when aware of SARS cases, the instant reaction is to perceive a broad trend. This property of the human mind was reflected by Scottish philosopher David Hume as well, explaining that what the mind "sees" it therefore correlates—it is an associative act.⁴⁵ With the displays of daily casualties, the instinctive reaction was to "see" numerous deaths in isolation, compared to its actual risk of affecting any one individual. From one psycho-sociological perspective, panic is seen as inherent within personal anxieties. That is, when people feel tense about their own life circumstances, they tend to be particularly sensitive to contributing worries within wider social patterns. Related to the HKSAR, this perspective sees the weak economy, increasing unemployment, and doubts about the government as indicators of anxiety. Then, what people make out of an economic slump, or a health risk, is "coloured by their own particular psychological baggage and their culture's shared baggage."⁴⁶ This reinforces the concept of Gestalt psychology, in that meaning is constantly constructed around events, synthesizing our behavior consistent with the assumptions of those around us. In that sense, the reaction to SARS is no different. Health psychologists have reiterated that the increased anxiety displayed is not based on actual statistics, but driven by our personal experiences, or "gut instinct," and our fear of the unknown. They have compared it to the odds of death associated with driving a car on a highway, and confirmed that the odds associated with driving would be much higher than those of contracting SARS.⁴⁷

Related to the concept of fear and anxiety is that of risk assessment. Public reactions to SARS have demonstrated widely that risk assessment was something that individuals and govern-

45. J. Nicol, "The Inner Eye," *South China Morning Post*, July 18, 2003.

46. "Fear and Anxiety About SARS-Commentary," University of Western Ontario, Media Newsroom, The Department of Communications and Public Affairs (April 25, 2003) at communications.uwo.ca/media_newsroom/story.html?listing_id=7172.

47. M. Trebilock and G. Hinds, "SARS and Risk Perception," online at www.law.utoronto.ca/content, first published in *The National Post*, May 1, 2003 in conjunction with the conference Anatomy of a Crisis: Law & Policy Responses to SARS.

ments performed poorly. In terms of public policy, such ignorance has negative implications leading to a misallocation of resources. Behavioral psychologists have shown that cognitive biases often affect the way people respond to known risks. The "availability heuristic" is one major source of error: Individuals tend to overestimate the probability of an event if a similar event comes easily to mind. It is this bias that then makes people much more afraid of highly publicized disasters such as SARS, plane crashes, and terrorist attacks, than of more subtle, but deadlier risks, such as cardiovascular disease and cancer.⁴⁸ Others who specifically study risk perception point out that some of the main reasons for such irrational fear are that SARS is a new disease, so it poses an uncertain risk. In that sense it has been compared to the September 11 incident. There still remain unanswered questions about that incident, such as what the actual risk is of another terrorist attack, who the attackers were, and where they would strike next. Such may be the case for SARS as well.⁴⁹

It can then be understood that there were two diseases looming during the outbreak. The application of the concepts of anxiety and fear fit well into how people perceived the disease, and how the actual risks of the disease had changed, largely due to the feeling of anxiety and fear.

Panic Reactions to SARS

Incidents illustrating the panic ranged widely. Some examples help explain the problem. A woman in Beijing reportedly withdrew about RMB3,000 (about \$363) from a bank, and became worried that the cash was contaminated with the SARS virus. She therefore decided to put the money into a microwave oven, in order to sterilize the banknotes. Quite naturally, most of the paper was destroyed.⁵⁰ Yet another grim fact is the killing of pets in China, in fear that these animals could carry SARS. This

48. D. Ropeik, "Harvard Expert Tempers Risk," *The World Paper* (2003), online at www.worldpaper.com/2003/april04/sars2.html.

49. Z. Jun, *Shanghai Star*, May 8, 2003, online at www.chinadaily.com.cn/star/2003/0508/fo4-1.html.

50. G.A. Epstein, "China Pets Fast Becoming Victims of SARS Panic," *Baltimore Sun*, online at www.rense.com/general37/pets.htm.

was due to local authorities and state media accounts, which gave the impression that domestic animals were a local SARS threat. Apparently, local government officials claimed that abandoned dogs as well as household pets of owners suspected to have SARS would be killed. This is an example of the severe effects of irresponsible broadcasting. In the HKSAR, alternatively, when people first started to abandon their pets, the health minister clarified the issue, and explained that the pets had nothing to do with the virus.⁵¹ Less drastically, others used to wash their hands nearly a dozen times a day, and are still compulsive about eating with clean hands.⁵²

Exacerbating the problem, such panic and health anxiety turned into attempts at irrational behavior in terms of various false remedies proposed. For example, in Beijing, health authorities expressed concern over the growing number of SARS treatments recommended by drug researchers and traditional medicine practitioners. The treatments advocated include turnips, vinegar, kimchee, spicy food, smoking, and new mixtures of herbal medicines. Health experts attest, however, that nothing cures SARS, and that the only workable treatments were cortical steroids for respiratory system inflammation, Ribavirin for flu symptoms, and antibiotics for secondary infections. It has been repeatedly confirmed that Chinese medicine did not cure SARS.⁵³

Another prominent international panic reaction was that of the University of California at Berkeley, which refused to admit students from the Far East to return from their summer classes. Students from Canada, which was also battling SARS, were welcome. This was considered reactionary at best, and, at worst even xenophobic and racist by some. Critics contended that the real risk of contagion from either Asian or Canadian students was exceedingly low, and that this denial of admission was not based on valid public health principles. There were suggestions that, instead, each individual student could have been evaluated as to the real likelihood that he or she might have been a SARS

51. Z. Jun, *Shanghai Star*.

52. Jen-siu Michael, "Medics Caution Against Bogus Remedies," *South China Morning Post*, May 4, 2003.

53. G. Ross, "SARS—Fear Over Reason," *San Francisco Chronicle*, May 12, 2003.

carrier. The university's irrationality was further highlighted by the fact that none of the other University of California campuses followed this rule, and neither the California Department of Health, nor the Centers for Disease Control recommended such exclusion.⁵⁴

Overall, anxiety over SARS was so intense that it forced lawmakers in the Senate to improve worldwide public health reporting. It was also noted that any legislation that stemmed from the SARS crisis would also reflect the underlying anxiety about bioterrorism. Heymann even said that while SARS was a naturally occurring disease, had it been bioterrorism, the public health response would have been the same.⁵⁵

The Situation in Hong Kong—the Public Hype

With fear smouldering all over the world, what was the situation like in the HKSAR? The SARS epidemic lasted for three and a half months in the HKSAR, and aroused considerable anxiety and panic among Hong Kong people. Public response to the SARS outbreak in the HKSAR can be roughly categorized into four phases, each of which was marked by a particular pattern of panic response among Hong Kong people in each period. The first phase can be referred to as the individual-difference period, in which individual difference in anxiety responses among Hong Kong people was significant. At the outset of the outbreak in early March, a Chinese patient (the index case) died of an unknown disease in a hospital in the HKSAR. Several travellers staying on the same floor of a hotel as the index case were also infected, and these patients further spread the mysterious virus to family members and hospital staff upon return to their home countries. In this stage, little information about the source, causal agents, and treatment methods was available. Hong Kong people, including government officials and health professionals, had no idea about the cause of the disease and how to cope with it. Such ambiguities gave rise to considerable individual differences in feelings toward the disease and ways of preventing it. Some

54. K. Schuler, "Anxiety Over SARS Outbreak Has Lawmakers Ready to Spend," *CQ Weekly*, vol. 61, No. 15 (December 4, 2003), p. 856.

55. M. McCord, "SARS Hysteria Becoming an Epidemic," *April* 4, 2003.

people in the HKSAR tended to regard the unknown virus as something similar to the chicken influenza or a typical type of pneumonia, and thus did nothing about it. These "blunters" experienced lower levels of anxiety in this initial phase. Other people tended to be highly sensitive and alert to this unusual situation, and paid more attention to information (e.g., news features and advice from health professionals) about the unknown virus. These "monitors" experienced higher levels of anxiety in this period.

Although the nature (i.e., an atypical type of pneumonia known as SARS) and causal agents (i.e., coronavirus and paramyxovirus) of this unknown but life-threatening virus were gradually unveiled, easing the anxiety, a mass infection broke out in a housing estate in mid-March. This phase can be referred to as the public-anxiety period, in which most Hong Kong people realized that SARS was a life-threatening virus and became worried about it. In this phase, a Chinese man known as the "super-carrier" who had caught SARS earlier, had spread the disease to hundreds of residents in a building block. The nature of the ambiguous stressful situation quickly turned into an obvious imminent threat. Alarmed by the mass infection in the HKSAR community, people were almost unanimous in actively adopting preventive measures to avoid a SARS infection. There were long queues of people buying facemasks, disinfectants, and vitamin pills almost everywhere. As a result, these items were out of stock soon after the mass infection incident had been reported on the headline news.

The third phase can be referred to as the *bogus news* period. As the number of people being infected and the number of deaths due to SARS continued to increase, the gravity of the situation was magnified when thousands of people rushed to stores in panic after a hoax article was launched on the Internet.⁵⁶ On April 1, 2003, a 14-year-old Chinese boy uploaded a fake web page as an April Fool's prank. The hoaxer aroused public panic by hijacking the design of a major newspaper website and announcing that the HKSAR would soon be declared an infected region and be sealed off from the rest of the world, that the stock market had

56. Neil Taylor, "Net-spread Panic Proves Catchier than a Killer Virus," *South China Morning Post*, April 8, 2003.

collapsed, and that the Chief Executive of the HKSAR, Tung Chee-hwa, had resigned. The rumor spread quickly around the city, causing panic-stricken people to mob stores and supermarkets. The panic died down when government officials quickly issued public assurances.

There are many contentions that despite the severity of SARS, technology was actually the "super-carrier of misinformation"⁵⁷ that turned a health scare into a crisis. There was an e-mail hoax, related to Gucci and Louis Vuitton facemasks, that was seen as one of the most destructive pranks. This was, in actual fact, a blending of fear of the virus and the HKSAR's fixation with brands. Then came the fake Hello Kitty and Louis Vuitton masks, fuelling more panic. There were then emails offering snake oil solutions, or contending that SARS could be cured with a dose of Yakult or certain types of Chinese soup.⁵⁸ Also, when news came that white vinegar was a cure for airborne germs, one supermarket chain reported sales of about 16,000 bottles.⁵⁹

On another dimension, there are those who contend that it may be the "overactive imaginations" of the Hong Kong people that compounded the problems. From a sociological perspective, this can be inferred from the previous "Snoopy epidemic," for example, when tons of people gathered outside McDonald's in a rush to buy limited editions of Snoopy collector toys from McDonald's.⁶⁰ Some believed that international reactions were almost as severe, arguing for example, that the Swiss watch and clock trade show banned Hong Kong exhibitors from attending. Psychologists see this response as an extension of the local hysteria. On a more serious level, the fact that all schools had to suspend classes was also due partly to parents' anxiety over the issue, according to the Secretary for Education and Manpower, Arthur Li. Li also reiterated that a blanket suspension of classes would not reduce the chances of contracting the virus, contending that infected students had contracted the disease outside

57. Ibid.

58. "Officials Need to Stay on Top of Rumour Mill," *South China Morning Post* (editorial), February 12, 2003.

59. M. McCord, "SARS Hysteria."

60. "Atypical Pneumonia—Schools Close Due to Pneumonia Spread," March 27, 2003, online at www3.news.gov.hk/ISD/ebulletin/en/category/healthandcommunity/030327/html.

their schools.⁶¹

While the influence of the anxiety-arousing rumor diminished, it was not long before another fear grew as the number of new death cases grew rapidly beginning in the second week of April. Since then, new death cases were reported every day, the highest total being five for a day during that week. Further adding to the mystery of SARS, the death cases were no longer confined to the elderly and people with serious illnesses, but extended to healthy young adults. The new death cases soon soared from single-digit numbers to double-digit numbers in subsequent weeks, making even more Hong Kong people worried about themselves or their family members and friends/colleagues being infected by SARS. To avoid contracting the unseen but highly infective disease, many of them isolated themselves by staying at home and stopped visits to family members, relatives, and friends. Some parents did not allow their children to go to school. Hong Kong people actively avoided any person, known or unknown, who sneezed or coughed. They stopped mingling in crowded areas, resulting in a sharp reduction in frequency of going shopping and dining out. Busy areas in the HKSAR, such as Mongkok and Causeway Bay, were like "ghost towns" in the evening and during weekends. This phase can be referred to as the fear-of-infection period. It was not until May 24 when the WHO lifted the travel advisory that the Hong Kong people regained enough courage to go to public areas and stop wearing facemasks.

According to Fanny Cheung, the chairperson of the Psychology Department at the Chinese University, SARS created a state of crisis in the HKSAR, disrupting normal functioning.⁶² Indeed, it was contended early on that the fear of the SARS virus became a more dangerous epidemic in the HKSAR than the disease itself. She explained that the outbreak of atypical pneumonia could have claimed fewer lives than typical pneumonia itself, but that SARS was having an actual devastating effect on the psyche of Hong Kong people. Local commentators echoed that the disease response may have been "out of proportion" to the actual threat.⁶³

61. M. McCord, "SARS Hysteria."

62. C.S. Tang and J.C. Wong, "Survey Results on Public Responses to Atypical Pneumonia in Hong Kong," March 20, 2003.

Malik Peiris, a microbiologist at the University of Hong Kong, who had been studying the spread of the typical pneumonia, also reiterated that while there was a need for concern, there was no need for any panic among Hong Kong people.

Population-based Survey Findings

Two population-based surveys were conducted by the Chinese University of Hong Kong and the University of Hong Kong, respectively. The Department of Psychology at the Chinese University of Hong Kong conducted a study on public responses to the virus, in March 2003.⁶⁴ This was prior to the mass infection at Amoy Gardens. The University of Hong Kong conducted another survey, in April, after the mass infection had occurred. One of the main aims of the first survey was to explore public understanding and psychological reactions to atypical pneumonia. The survey found that nearly 80 percent of the respondents worried about the spread of the disease to the community, and almost half of the respondents were concerned about contracting the disease. One fifth also claimed that they would avoid visiting clinics and hospitals even if they were sick. Those in the middle-to-high age group, between the ages of thirty and fifty-nine, were the ones who felt the most helpless, and had the most concerns about contracting the disease, especially after learning that health care professionals were being infected with atypical pneumonia. That age group had the most concerns about contracting the disease themselves, and were the most frightened about its spread to the community.

The researchers concluded that the preventive health measures against the virus were related to their self-efficacy in performing the health measures, concerns about the spread of the disease, and adequate knowledge of the disease. Recommendations based on the results concluded that the relevant health

63. "Clinical Syndromes of Pneumonia," online at www.kcom.edu/faculty/chamberlain/Website/lectures/lecture/dxpneumo.htm; M. McCord, "SARS Hysteria."

64. T.H. Lam et al., "Public Perceptions and Preventive Measures of Hong Kong Citizens Concerning Atypical (Coronavirus) Pneumonia," April 4, 2003, online at www.hku.hk/cmd/pressconferences/2003/SARS/index.html.

departments should continue their information dissemination, and should reduce negative psychological reactions to the outbreak of the disease. Counseling services were also recommended to help those who experienced an unusually high level of anxiety.

The survey by the University of Hong Kong was a large-scale population-based survey that focused on public perceptions and preventive measures among Hong Kong citizens with regards to the virus.⁶⁵ When asked about their anxiety levels, about one third of the respondents were neither rested, nor relaxed. Nearly a fifth rated themselves as being anxious, and another fifth were quite or very nervous. Interestingly, a third claimed their perceived likelihood of contracting SARS to be somewhat likely. Yet, only about half the respondents had decreased their frequency of dining out due to SARS. Epidemiologically flawed, but nearly two-thirds of the respondents actually felt very or quite anxious, and thought that it was very likely that they might contract the disease. This study also reiterated that substantial information and communication was imperative to improve public understanding of the risks of contracting the disease, as well as to ensure that the most preventive measures were being taken.

It is useful to then compare the local concerns to those in America, for example. One study revealed that about one-third of Americans were worried about the global SARS epidemic, but less than 20 percent claimed that it was having an effect on their daily lives. Nevertheless, 16 percent of Americans were avoiding people whom they thought had recently traveled to Asia, while one-tenth were staying away from all public events. Political analysts at Harvard University claimed that despite the few cases of SARS in the United States, the global concern was having an impact on the American public. Concerns about being infected were then prompting other changes in behavior, in terms of cleanliness, and urge for public health measures to fight the disease. Interestingly, one in four Americans thought that it was

likely that they, or someone in their family, would contract the disease in the next year.⁶⁶ Also, while most in America had sufficient knowledge about the disease, there was a grave misconception about the severity of the disease. Forty percent of the population believed that one fourth or more of the population would be contracting SARS. The death rate (at the time of the survey) was estimated to be between 6 and 10 percent.

Of more psychological significance in the HKSAR, a research study conducted in early May contended that one in five people suffered from mood problems, and nearly 20 percent of the respondents reported washing their hands more than fifteen times each day to relieve their anxiety. The mood problems included headaches, insomnia, fatigue, depression, anxiety, and inability to concentrate. Further, those who had seen friends or relatives infected, and those who worked or lived in places where SARS had been reported had a 50 percent higher rate of developing the problems. Women were found to be twice as likely to be affected compared to men. Local researchers understood the need for anxiety about SARS, since its threat had a direct health impact. People were worried whether they or their families would be infected; workers worried about job security and business losses; and homemakers worried because they played the major role in ensuring hygiene in the homes. Excessive washing of hands may be considered a symptom of anxiety, but some contended that to a certain degree it can be viewed as people simply following government advice on avoiding infection.⁶⁷

Remedy: the Lessons Learned and the Way Forward

The Government

Toward the end of the SARS outbreak, stocktaking was done on how well the public health systems handled the situation. As this article was in preparation (January 2004), case inquiries

65. R. Stein, "One in Three Americans Worry About SARS; Fewer Adopt Protective Measures," *Washington Post*, May 2, 2003, online at www.southerndigest.com/vnews/display.v/ART/2003/05/02/3eb1723b93435.

66. P. Moy, "SARS Fuels Surge in Anxieties," *South China Morning Post*, May 19, 2003.

67. "Don't Let Red Tape Foul up Frontline SARS Fight," Editorial, *South China Morning Post*, August 15, 2003.

were being made at the Legislative Council. The treatment of SARS still had not been standardized. There were reports of some independent cases in Guangzhou, suggesting that SARS may come back as the weather gets cooler. The key question to be tackled, therefore, is whether Hong Kong people will be prepared if the disease does return.⁶⁸ There are arguments that public hygiene by itself is not adequate to handle the situation well unless more fundamental issues focused on public health and the hospital system at large are resolved. The link between hospitals and public health officials is a crucial one, and cannot be neglected. On a larger scale, it was pointed out that the overlapping mandates of the Department of Health, Hospital Authority, and the Food and Environmental Hygiene Department might have contributed to the initial confusion on how to handle the outbreak, in the absence of clear lines of authority.

China's health care system is flawed in a similar vein. Hospitals were affiliated with different power blocs that did not report directly to the ministry of health, thus making it difficult to direct a coordinated response to the disease. The health minister and the mayor of Beijing were both removed from their positions, making very clear the urgency and seriousness of the problem. Some believed that it may have been too late, and that the initially slow and piecemeal response allowed SARS to spread in the community. This translated into both a national and an international loss⁶⁹ in terms of the human lives that could have been saved and the additional economic costs. The importance of the political bodies is also key to controlling panic. Panic is fueled when information is concealed or only partially disclosed.⁷⁰ This reinforces the importance of clear and reassuring messages to be issued by trusted authorities.

Looking forward, the Chief Executive of the HKSAR, Tung Chee-hwa, has announced that Hong Kong may need to create a center modeled on the American Center for Disease Control (CDC) and Prevention in Atlanta.⁷¹ Others believe that such a center may

68. "To Battle Emergencies, First Tell the Truth," Editorial, *South China Morning Post*, May 13, 2003.

69. WHO, SARS.

70. D. Normile, "SARS Outbreak: Hong Kong to Beef Up Monitoring," *Science*, vol. 300, No. 5622 (May, 2003), p. 1062.

only exacerbate the bureaucratic confusion unless the underlying system is sorted out first.⁷²

The central government of China is also considering creation of a national emergency response bureau to handle public health and natural disasters.⁷³ Recent arguments by top university professors and consultants at the Department of Health believe that if an infectious disease surveillance center is to be set up, it should not be local but regional. This is argued despite the "one country, two systems" political framework as it is seen as the only way to build a better defense system against disease in the future. Finally, given the proximity between the HKSAR and south China's Guangdong province, the cooperation of the provincial capital of Guangzhou is also seen as essential to the eventual success of the proposed CDC. The Hong Kong Jockey Club charity foundation has pledged \$500 million to support the Government's effort to establish a CDC-type organization and to support medical research, training of professional staff and civic education.⁷⁴ Overall, there were not only fears of SARS, but also other infectious diseases including influenza A (H5N1), enterovirus 71, nipah virus, and dengue fever. There was also a consensus that the HKSAR was well equipped in its public health infrastructure, with its advanced labs, quality researchers, international expert networks, as well as sufficient resources.⁷⁵

Psychological Interventions for Citizens

SARS may be over, but caution should still prevail. Even when the HKSAR was close to being taken off the list of SARS because no new infections had been reported for almost a week,

71. "Don't Let Red Tape Foul up Frontline SARS Fight."

72. "To Battle Emergencies."

73. "News in Focus—Beat SARS, Plan to Set up Disease Centre Studied," May 5, 2003, online at www3.news.gov.hk/ISD/ebulletin/en/category/issues/030505/html.

74. S. Chen, "A Regional Disease Control Centre: Prospects"; M. Kwang, "War on SARS—Politics in the Way of HK Disease Centre," *Straits Times*, June 12, 2003, online at straitstimes.asia1.com.sg/SARS/story/0,4395,194197,00.html.

75. Patsy Moy, "Expert Urges Counselling to Cope with Future Outbreaks," *South China Morning Post*, June 18, 2003.

some may still need psychological guidance. Mei-ying Lee of the University of Hong Kong cautioned that more psychological counseling needed to be provided for the public in anticipation of another SARS outbreak. Further, the Center on Behavioral Health of the University of Hong Kong organized a series of three-hour workshops in April and May, for a total of 270 people, to help them cope with their anxieties due to the protracted outbreak. Analyses revealed that there was an improvement in people's mental state, and that they were more positive after taking part in the counseling sessions.⁷⁶

Lee believed that there was an urgent need to carry out counseling for chronic patients, elderly people, and pregnant women who were more susceptible to infections. This minimized anxiety in preparation for another possible SARS outbreak, as the government had warned. This view was generalized to Hong Kong people at large—to organize more counseling services and workshops. They had to think positively and prepare themselves for other challenges ahead.⁷⁷ Seminars and activities are being organized to help members of the public overcome anxiety and mental health problems related to the outbreak. For example, the Social Welfare Department is planning on organizing activities on such topics as how to deal with disasters, community effects, and crisis intervention. Also, the Hospital Authority's clinical psychologists provide screening for all recovered patients, and will offer treatment if they see the need.⁷⁸ There was also a "Nursing Health Ambassador Program" in response to the healthcare needs of primary schools at the time of school resumption, in May 2003.⁷⁹

More importantly, the staff and students at the eight Uni-

76. Ibid.

77. "Recovery—August Seminar Aims to Overcome SARS Anxiety," online at news.gov.hk/en/category/issues/030628/html/030628en05004.htm.

78. D.M.K. Chow, K.H. Yip, and A.K.P. Wong, "HKU Nursing Health Ambassador Program in Primary Schools," *SARS Bulletin*, The University of Hong Kong, July 2, 2003, online at www.hku.hk/cgi-bin/SARS/message_bulletin.pl.

79. "Higher Education Sector Extends Anti-SARS Efforts to the Wider Community," Higher Education External Relations Association of Hong Kong, online at www.hkbu.edu.hk/bu_announce/HEERA_100403a.htm.

versity Grants Committee-funded institutions took their anti-SARS efforts to the local community. With regard to counseling and social service, the institutions established hotlines, and separate services were set up particularly for children to provide them with counseling and education support.⁸⁰ For additional psychological support many government departments and non-governmental organizations set up hotline services. Information on these hotlines should be centralized and widely publicized. In addition to health care and screening, the government should provide outreach psychological services.⁸¹

The fact that misconceptions and stigma attached to SARS was prevalent during the outbreak is also reinforced by the lingering prejudice against former patients who have recovered from the illness. In a recent survey⁸² on attitudes toward former SARS patients conducted by the Chinese University of Hong Kong and the Equal Opportunities Commission, it was found that more than half of those interviewed kept their distance from colleagues who had fevers (a SARS symptom) during the epidemic, but that more than 15 percent still avoided dining with colleagues who had once caught SARS. More importantly, SARS discrimination complaints were being received, including cases from workers who were reportedly fired because they or their family members had had SARS, or had lived in SARS-infected buildings. The conclusions were that such public misconceptions be dispelled, and that "rational behavior" be followed with scientific facts. The director of health at the time of the outbreak, Margaret Chan, was also warned that discrimination could discourage possible future SARS sufferers from seeking medical attention in time. Overall, the post-SARS stigma or discrimination was not only a local problem; SARS-related discrimination was also a problem in Singapore, Taiwan, Vietnam, and China.⁸³

80. "Call for Attention to Psychological Reactions to SARS," Press Release, April 4, 2003, online at www.cuhk.edu.hk/ipro/pressrelease/030404e.htm.

81. "SARS Stigma Lingers in Hong Kong," *The Age*, July 29, 2003, online at www.theage.com.au/articles/2003/07/29/1059244583155.html.

82. K. Bradsher, "Surviving SARS: Minds May Be Slowest to Heal," *International Herald Tribune*, June 4, 2003, online ed., online at www.ihf.com/articles/98524.html.

Lastly, the anxiety and fears caused by SARS are now revolutionizing the sociology of work ethics. In Singapore, for example, renowned for hard work and diligence, the SARS epidemic has raised sensitivity to other important issues, such as the quality of life and health, and sensible work habits. Singaporeans have started putting more concern on health and a less stressful lifestyle—a “silver lining for SARS.” This phenomenon is even forcing some companies to try telecommuting or having rotational work arrangements for the first time.⁸⁴

The Media

Apart from disseminating the required information about the status of the outbreak, the media clearly played a large role in this rise of public anxiety, and in exacerbating the risk misperceptions. Some have suggested that they framed the risk of contracting SARS by focusing only on the cumulative rate, as opposed to the new infection rate, which was declining, and is a more accurate account of current levels of risk.⁸⁵ Also, most newspapers used the term “killer virus” to describe the disease, including, for example, the *South China Morning Post*,⁸⁶ *Time*,⁸⁷ *CNN*,⁸⁸ *BBC*,⁸⁹ the *Straits Times*,⁹⁰ and *The Hindu*.⁹¹ The media

83. E. Teo, “How SARS is Shaping a Whole New East Asia,” *Business Times*, June 3, 2003, online at www.sars.gov.sg/archive.

84. Trebilcock and Hinds, “SARS and Risk Perception.”

85. *Ibid.*

86. “New Weapon to Stare Down Killer Virus is Tested,” *South China Morning Post*, May 15, 2003, extra specials, online at special.scmp.com/reports/pneumonia/psnews.html.

87. B. Walsh, “Hong Kong’s Bug Hunters—Tackling a Deadly Virus, Cell by Cell,” *Time*, April 7, 2003, online at www.time.com/time/asia/covers/501030407/bug_hunters.html.

88. “Living in the Midst of a Killer Virus,” *CNN.com/Health*, March 28, 2003, online at www.cnn.com/2003/HEALTH/03/28/hk.virus/.

89. “Scientists Identify Killer Virus,” *BBC News (UK edition)*, online at news.bbc.co.uk/1/hi/health/2891467.stm.

90. “In the Grip of a Killer Virus,” *Straits Times (Interactive)*, July 22, 2003, online at straitstimes.asia1.com.sg/sars/story/0,4395,201461,00.html.

91. “Unprecedented Teamwork to Tame a New Killer Virus,” *The Hindu*, April 17, 2003, online at www.hindu.com/thehindu/seta/2003/04/17/stories/2003041700050200.htm.

were efficient in that it was the sensationalist coverage of the events that sold their newspapers and kept all eyes on the television sets instead of labeling the disease as “a form of pneumonia which experts are striving to treat.”⁹²

Apart from the sensationalization, the sad story is that on nearly half a million websites advertisers offered protection against the disease, ranging from respiratory masks and disinfectants to nutrient supplements, which purportedly strengthened the immune system.⁹³ Federal health officials warned that consumers should be wary of claims made for protection against SARS, and should be aware that companies may be “playing on fear.”⁹⁴ The official media is a problem in China because unless the media is allowed to report bad news as it happens, the public can be expected to continue to have more faith in rumors.⁹⁵ The HKSAR government departments’ websites were effective and popular, according to government sources. For example, the Department of Health website received a peak of 7.2 million page views in early April, compared to just half a million in February. It kept its news sites updated, and provided live webcasts of announcements.⁹⁶

Communication of information to the general public and the media was singled out as another component of an effective response. Information should be communicated in a transparent, accurate, and timely manner. SARS had demonstrated the need for better risk communication as a component of outbreak control and a strategy for reducing the health, economic, and psychosocial impact of major infectious disease events.⁹⁷

92. “It’s the Media That’s Diseased, Not China,” *Shanghai Star*, October 4, 2003, online at www.chinadaily.com.cn/star/2003/0410/vo2-2.html.

93. F. Charatan, “Explosion of Internet Advertisements for Protection Against SARS,” *British Medical Journal*, vol. 326 (April 26, 2003), p. 900.

94. *Ibid.*

95. “To Battle Emergencies.”

96. Neil Taylor, “Net-spread Panic Proves Catchier Than a Killer Virus,” *South China Morning Post*, April 8, 2003.

97. “WHO Global Conference on Severe Acute Respiratory Syndrome (SARS): Where Do We Go From Here?” *Summary Report*, June 17–18, 2003, online at www.who.int/csr/sars/conference/june_2003/materials/report/en/.

Conclusion

This review has highlighted that psychological mechanisms played a very important role in the SARS outbreak, and may have even had a greater impact than the virus itself. The analysis has identified the particular mechanisms at play in the relationship between fear and the actual virus. As reiterated by professionals, SARS created a state of crisis in the HKSAR, and the crisis disrupted normal functioning. Psychological reactions to this crisis included anxiety, fears, panic, hopelessness, distress, and external blame, similar to other post-traumatic stress reactions.⁹⁸

Overall, the SARS event in the HKSAR was a top priority on the public policy agenda as it affected other sectors such as education, transport, building management, social services, catering, tourism, and so forth.⁹⁹ On the road to handling the situation better, a complete understanding of the virus is deemed essential. It is hoped that lessons have been learned and that in a future crisis public fears are included in the management of the crisis so that there is increased awareness to counteract widespread fear and panic.

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