Advances in Social Sciences Research Journal – Vol.4, No.3
Publication Date: Feb. 25, 2017
DoI:10.14738/assrj.43.2720.
Yoon, J. & Oh, S. (2017). Global Risk Management in SARS (Severe Acute Respiratory Syndrome): A Comparative Study on Risk Communications between Singapore and Hong Kong. A*dvances in Social Sciences Research Journal,* 4*(3)* 134-148.

Global Risk Management in SARS (Severe Acute Respiratory Syndrome): A Comparative Study on Risk Communications between Singapore anxd Hong Kong

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ABSTRACT

Humans in the twenty-first century are frequently experiencing transnational disasters. The Severe Acute Respiratory Syndrome(SARS), a classic case of global pandemic in 2003, resulting in 774 deaths among 8,096 infected people globally. Through the case of SARS in 2003, this article critically examine the explanations based on the existing national level of response capacity in regard to management of transnational pandemic, and then propose the interpretation of the supranational risk communication as an alternative framework. Although Singapore and Hong Kong were seriously affected by SARS in similar conditions, the former was able to surmount the crisis more successfully than Hong Kong. This will show that the active attempts of supranational risk communication have acted as an important variable. Furthermore, it could be that the differences in supranational risk communication between the two countries have stemmed from the differences in diplomatic autonomy and political leadership.

INTRODUCTION

As the world is becoming increasingly interdependent, a pandemic, in particular, has emerged as not only the issue of health system in a country but also the supranational issues of the major human security that have economic and political impact. Since an outbreak of infectious diseases in one country immediately gives rise to other countries' measures of restrictions on trade and immigration, and it may bring economic damages and conflicts that trigger the global security issues between nations. Thus, the major purpose of politicizing a pandemic as regional and international security issue is for relevant actors to remain vigilant and establish response processes to threats, which may be caused by the pandemics. Compared to Europe, in case of East Asian countries, the need of establishing multinational health regime has been highlighted since the governments in each country have institutional and cultural differences in terms of cooperation in health.

This research sheds light on one of the health issues that occurred in 2003, the crisis of Severe Acute Respiratory Syndrome (SARS). The SARS has been caused by the coronavirus that had been modified from host cell in live animals and it has been assumed that the first infection occurred at wildlife markets and restaurants in Guangdong Province in China. The SARS epidemic, which is the typical transnational epidemic, appeared to have started in Guangdong and Fujian Province, China, in November 2002, resulting in 774 deaths among 8,096 infected people globally until July 2003 (WHO, 2006).

It can be considered as one of the important human security issues that needed reactions at the global and regional level beyond the domestic issue of health, since it showed tremendous

influences on the society and economy as well as the responses of governments revealed a damning indictment of communities during the epidemic outbreak. Wen Jiabao, former premier of the People's Republic of China, clarified that SARS was the issue urgently needed international cooperation such as early-warning system between nations, a quarantine system, and emergency medical care systems at ASEAN Ministerial conference on SARS held on 29th of April in 2003 after the declaration of the dangerousness of SARS was officially made by World Health Organization (WHO) (Lee, 2008).

This study will focus on the cases of Singapore and Hong Kong among the SARS affected countries since two countries had similar social scale, population density, environment, and industrial economic level. Despite the other similar conditions, Singapore, which had accommodated the recommendations of WHO promptly and shared the crucial information and techniques with international society, was able to become normal faster than Hong Kong. This will show that the active attempts of supranational risk communication have acted as an important variable. Furthermore, it could be that the differences in supranational risk communication between the two countries have stemmed from the differences in diplomatic autonomy and political leadership.

LITERATURE REVIEW

The mainstream research on SARS, including the WHO's official report, has concluded that a major cause of overcoming SARS successfully in some East Asian countries could be sporadic domestic variables that vary from country to country such as medical systems, political leaderships and legal systems (WHO, 2006; Peiris and Guan, 2004; Yoshikawa, 2011). However, when we examine the main indicators by WHO (the number of people infected and deaths, official dates for travel warning region, the dates of SARS eradication etc.), it does not always correspond with the fact that high-income countries with advanced healthcare systems could manage the risk of SARS successfully.

Even though Hong Kong had equipped world-class health care facilities and systems, for example, it had the largest number of infected people in a short period through general hospitals and residence areas as a center, and even become 'the hub of SARS virus' that spread the disease from Asia to the whole world. Moreover, it could not be substantiated a contention that power-centralized states, which have a relatively higher level of autonomy on decision-making, have excellent ability to manage SARS. In case of Chinese authorities, as an only control tower, they tried to control all the preventive measures against SARS yet eventually failed, resulting in the situation that has to be monitored by WHO and international society. These consequences show that national responsiveness to SARS, thee transnational pandemic, cannot be explained with sporadic variables such as simple characteristics of politics and advanced health infrastructures.

On the other hand, studies conducted in the field of public administration or disaster management have focused on national crisis response manuals on how SARS differs from the types of risk as a new pandemic and why the existing effective responses in Ease Asian countries have lost their relevance with SARS case. These researches insist that the each country's governance on crisis management should be delicate as well in order to control SARS in the modern and complicated society. However they only emphasizes on the elaboration of the chaos and the path of the spread without any unique explanation that had a transnational ripple effect (Casti 2012: 195~140; Peiris and Guan 2004: 1075~1079).

In this respect, the study conducted by Bryan A. Liang may have implications for the importance of global governance in supranational health issue (Liang, eds, 2011: 1~4)[1]. He focused on the international network variable that enables countries to access to key information through the relationship of Taiwan-China-WHO, and pointed out that the response power was decided according to how high each country has international status and negotiation power. While Liang's study also added the important external variable such foreign relations, due to the emphasis on the context of health diplomacy, it can be criticized as being underestimating the effects of different institutions and infrastructure environment in each country.

Even though major disasters at a supranational level occur frequently since postmodern age, the attempt to examine with the view of international politics is still insufficient. Especially the studies on infectious diseases are still limited to focus on the response at a national level. Thus, the capacity of the state to manage and overcome the pandemic crisis also has been limited to the nation's health system, governmental leadership, and the maturity of the national consciousness to cope with the emergency at the national level.

PURPOSE OF RESEARCH

However, in the reality of these days that interdependency is intensified and networks are closely linked, it is practically impossible to expect a capability of states by themselves to fully respond to a transnational crisis situation. In addition, in order to respond promptly to the emergence of new pathogenic bacterium like variant viruses, it seems also essential to have information sharing and coordination among states as well as the role of international organizations that make efforts from development of cure to dissemination.

In this respect, when it comes to SARS crisis in East Asia, this paper starts by approaching common security issue at a global level – between states, regions, and WHO – beyond national level. Thus, this study will shed light on international political implications on three aspects that previous researches have not dealt with carefully.

First, by illuminating the gap of uncertainty between existing risk management system and the 21st century's non-traditional security issues, this study will examine the new crisis that traditional state actors face. Ulrich Beck, who proposed the advent of 'World Risk Society', contended that the age that threats spread to all human being, not in only one nation, due to the increased global mutual dependence has become. The traditional roles of government and military are now restricted since the cause and effect of crisis are ambiguous and the influences transcend space and time. Therefore, human being should seek for solution of new security as a citizen in not only a national but regional and international level (Beck, 1992). At this point, we can demonstrate the supranational risk communication as the role of international cooperation and global governance for safer and more efficient respond.

Second, this study will focus on the postmodern reaction method based on risk communication, which is different with the traditional reaction method, thereby showing how international cooperation network worked on transnational epidemic issue. Since the different initiative between Hong Kong and Singapore in multi-layer relationship linked to inter-governmental, regional cooperation (ASEAN), and international organization (WHO) can be

[1] Governance and the Case of Taiwan, WHO, and SARS", In: Ellen Rosskam & Ilona, Kickbusch, eds.(2011), Negotiating and Navigating Global Health: Case Studies in Global Health Diplomacy, Londaon: Imperial College World Scientific Press.

interpreted as different type of network such as a restricted foreign network and a complex centralized network, it would be helpful to understand the interest among various actors and the international political dynamics.

Third, it will cast light on the implication that the response power of states in risky circumstance, which uncertainty is high such as the spread of SARS, can act as a new power element in postmodern period. This is because the power of execution for risk communication that can share the threats in security aspects with regional and international society and implement the right risk management model is needed as the core competency for unit of state in the twenty-first century. Especially this study will pay attention to the process that Singapore leaded the regional and global cooperation through supranational risk communication. Since this process shows the possibility to change the international relation composition that a nation can conduct itself as a major actor in international society to tackle down the supranational issues beyond passive measures, this suggests another implication to us who need to build a shrewd diplomatic strategy as a middle power country.

RESEARCH DESIGN

(1) Selection of Case

The subject of this study is the cases of Hong Kong and Singapore. These countries were most directly affected by SARS that emerged from China, resulting in 1,755 and 238 infected people respectively as second and fourth scale of damage in Asia. During the first half year in 2003 when SARS spread out rapidly, GDP growth rates of these countries decreased respectively 1.5 percent and 2.3 percent compared with the previous year and it recorded the highest drop-off rate among East Asian countries including China, Taiwan and ASEAN (Breckon, 2010).

By selecting these countries as comparative objects this study have an advantage that could control a large number of other variables besides the supranational risk communication that this study would like to focus on. First of all, they have a similar type of social system and the size of residential area. Both of them feature a form of densely populated city-state. The population density of Hong Kong and Singapore was 6,206 people per km^2 and 6,158 people per km^2 respectively, which is very similar, and the scale of population was 6,724,900 and 4,209,452 respectively (NSO DB, 2002).

Second, GDP per capita of Hong Kong and Singapore, which is an objective indicator that shows the standard of living, also was not dissimilar, recording respectively 24,690 US dollars and 21,158 dollars (OECD Statistics, 2002).

Third, both Hong Kong and Singapore had an international airport that ranked in 5^{th} and 6^{th} for floating population as a key position of international trade. On the brink of outbreak of SARS in 2002, the number of visitors was 28,979,322 for Hong Kong Changi Airport and 33,882,463 for Singapore Check Lap Kok Airport, implying that both in common were encountering vulnerable situation for the inflow of SARS pathogenic bacterium.

Lastly, the first infected person of SARS came out on 15^{th} February in Hong Kong and 25^{th} February in Singapore, which had just 10 days difference (WHO, 2006: 43~44), and both incidents occurred at the initial stage when they could not perceive the SARS. In particular, the government of Hong Kong reported an atypical pneumonia symptom to WHO on 7^{th} March and before that day it was reported as just a simple endemic disease to care for the patient with the same symptom without awareness (Peiris and Guan, 2004). WHO initiated 'Global Alert'

worldwide on 12th March after identifying the epidemic SARS. In this context, it was impossible for both countries to take a systematic measurement through learning cases and therefore it was hardly able to have a meaningful interaction between them.

Despite the fact that the both countries were in a similar situation, both countries showed significantly different results to overcome the spread of SARS, and this is why this case is apposite to verify the new conditional variable of risk communication. Although the initial patient in Singapore was found after 10 days of the SARS outbreak when it occurred on 15th February 2003 in Hong Kong, in the last of March the number of infected people reached 100 in a day and recorded 1,755 of the infected people, which was seven times more than the number of the infected people, 238 people, in Singapore. Even though Hong Kong was designated as 'limited travelling country' from 2nd April to 23rd May, Singapore was free from 'black list' while the SARS was running rampant. Above all, Singapore was become 'SARS Free Region' as a third country in Asia, but Hong Kong was becoming 'SARS Free Region' about a month later.

Table 1. Comparison of Response against SARS (2003)

	Hong Kong	**Singapore**
The infected/The death	1,755/299	238/33
The date of the outbreak of SARS	February 15	February 25
The date of isolating the first suspected SARS case	March 11	March 6
The date for enforcing mandatory reporting SARS	March 27	March 17
The date of making all household contacts under home confinement	April 10	March 24
The date taking effect of recommendation for limited travel by WHO	April 2 – May 23	N/A
SARS infected area release date	June 23	May 31
The infected people of total population (%)	0.025%	0.0056%
2003/2004 GDP growth rate (%)	3.2/8.1%	1.1/9.9%

Source
Restructured by Author, based on Caballo-Anthony (2005: 238), "Highlights of Actions, Events, and Outcome in Hong Kong and Singapore"

(2) Analytical Method

Application of the Concept 'Risk Communication'

Risk Communication can be defined as a process of conveying information or communicating between interested parties, such as government and organizations, regarding extensive risk factors including natural disaster and human's activity in an effective manner. When any hazard occurs to community, members would desire to determine the cause and jointly cope with the pressure due to the uncertainty and fear from the hazard. Risk communication is the process dealing with 'what the risk factor is, whether we can tolerate, and what will be a result' with community (Seeger & Padgett, 2010).

Thus, risk communication assumes that the public have a right to know regarding hazards and disasters since it exchanges the information and opinions mutually. In this regard, Risk Communication would be a means for helping the decision-making process and enabling people to realize hazards in community. Through Risk Communication, government prevents confusion and maintain social trust in crisis situations, seeking for an effective resolution (Reynolds & Schieber, 2006).

The problem of risk in modern society requires more consensus and the process of publicizing through communication, and particularly when the hazard is not unprecedented or uncertain, the problem of risk must be socially expanded and reproduced. Therefore, the case of the SARS, which is the new epidemic case that had high uncertainty and influences, has a significant meaning of risk communication.

This study is focusing on the effort of the Hong Kong and Singapore government on WHO, regional cooperation organizations, and other nations at supranational level. In other words, in order to prove a hypothesis that the supranational risk communication was influential as an important variable for overcoming the SARS crisis, the study will examine the characteristics and the number of attempts for risk communication of both governments during the outbreak period. For the qualitative analysis, the risk communication is classified as three types, 'active', 'passive' and 'poor' as Table 2 shows below.

'Active risk communication' means when they show vigorous bilateral communications with WHO, regional cooperation organizations, and foreign nations in terms of responses against the SARS. In other words, they not only receive the information regarding the SARS but also take active participation in supranational eradication of the SARS, providing helpful information and technical contributions and initiating cooperation. 'Passive risk communication' represents limited communication, such as when they report the situation regarding the SARS regularly or accept recommendations of WHO. 'Poor risk communication' signifies a situation when the government does not institutionalize the WHO recommendations within national policies nor report regularly, resulting in transmitting the SARS to other nations, and furthermore when the government distorts and conceals the SARS information to WHO or the other countries.

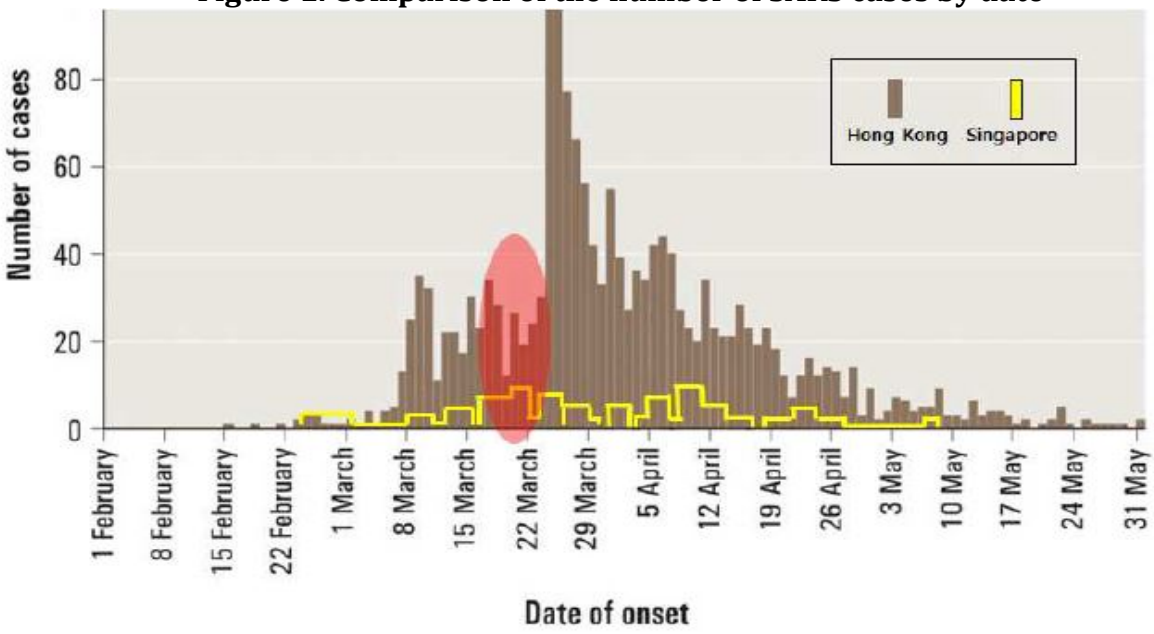
Table 2. Types of supranational risk communication

Type of Risk Communication	Details
Active Risk Communication	1. Dissemination of important information regarding the SARS in international society 2. Setting agenda for prevention the SARS from transmitting to other nations, establishing and implementing international institutions and system 3. Convening a meeting for international cooperation and leading an agreement 4. Leading and participating in collaborative research for responses to the SARS 5. Scientific technical contribution (Vaccine, equipment for screening patients etc.) 6. Trying to share international information by using international media and establishing website
Passive Risk Communication	1. Reporting the national SARS infections and the situation 2. Cooperation with international society or WHO inspectorates (allows visits) 3. Implementation of the WHO recommendation (institutionalizing it into national policies)
Poor Risk Communication	1. Omitting or concealing the fact of the SARS (infected people and the spread) 2. Triggering the global spread of the SARS 3. Hindering field survey of international society and WHO inspectorates

This study analyzes the characteristics and frequency of supranational risk communication in Hong Kong and Singapore during the period from the occurrence of the first case of infection to the declaration of 'SARS Free Region' under the above classification. The duration is from March to May in 2003, and we will pay special attention to the period from March 12 to March 26, which showed the gap of the number of new infected patients between two countries was narrowing but then rapidly widening (Figure 1, the shaded area). As this period was before the

virus was determined as the SARS, an atypical virus, even though the government was aware of the prevalence of the atypical pneumonia symptom and WHO issued a 'Global Alert', it was a phase that the risk communication was more crucial than ever because of high uncertainty and anxiety about the hazard. Especially as shown by the example of that the laboratory network among 9 countries for identifying an uninformed mutant virus was established, it was the period that cooperation at international level was needed as well as at national level (The Straits Times, 2013; 中國人民共和國香港特別行政區政府, 2003).

Figure 1. Comparison of the number of SARS cases by date



Source: Reconstructed by the Author on the basis of Hong Kong epidemic curve(WHO, 2006: 87); Singapore epidemic curve(WHO,2006: 103)

(3) Data Analysis

To compare and analyze the supranational risk communication process of two countries, Hong Kong and Singapore, this study is restructuring the response process by utilizing not only each country's official document but also newspapers covering the SARS risk situation at regional level and WHO official report at international level.

First of all, the official documentation at the governmental level is *Chronology of the SARS Epidemic in Hong Kong* (中國人民共和國香港特別行政區政府, 2003), issued by Department of Health in Hong Kong, and Chronology of the SARS Events in Singapore (Ministry of Health, 2003), issued by Ministry of Health in Singapore. These documents provide the number of the SARS suspected cases, the deaths and the cumulated cases as well as demonstrates the damage in each industry sector, the system established during the crisis and the details of the responses at national level in detail.

Straits Times is a newspaper that was covering the SARS present conditions as a main security issue that urged the cooperation of ASEAN and Southeast Asia region, although the headquarter is located in Singapore. *SARS in Singapore: Timeline*, in particular, is useful for examining the Singapore's major roles that led the supranational risk communication, providing information of Singapore towards neighboring country and WHO and describing the record of providing technical expertise, the effect of the airport security check system and so forth.

Lastly, the study will look through the WHO report, *SARS: How a global epidemic was stopped (WHO, 2006)*, which highlighted the occurrence of the SARS and the official responses of international society at global level. As the final report published by WHO regional office for Asia and Pacific, the report elaborates the real-time responses of the affected countries during the period of the SARS outbreak through 'Chronology of the spread of the SARS in each country'. This document is invaluable to scrutinize organic cooperation occurring among WHO staff and governments of damaged countries by sharing the information of the present condition of the SARS.

FINDINGS AND IMPLICATION

As Table 3 shows below, it will be possible to calculate the number of times how they communicate as the active, passive, and poor communication on the basis of the Table 2 which classifies the types of transnational risk communication. Compared with Hong Kong's response, Singapore continued to share information with WHO and neighbors. In particular, during the early stage of the epidemic control(from March 7th to March 29th), Singapore maintained active and passive risk communications more than 4 times while Hong Kong did those communications only 2 and 3 times each. Besides, Hong Kong government even missed a number of infectious disease patients and omitted vital information about the suspected cases of SARS in the city. In other words, Hong Kong had poor risk communication at that time.

Table 3. WHO, Hong Kong and Singapore: Responses to SARS by date

Date	WHO	Hong Kong	Singapore
March 7		Reported the case of atypical pneumonia symptom to WHO	
March 12	Issued 'Global Alert' about the atypical pneumonia		
March 13			(Ministry of Health) Reported cases of acute respiratory syndrome to WHO (Passive)
March 15			Informed the German authorities immediately that a spacious SARS case is on a plane to Germany (Active)
	Defined the case of atypical pneumonia symptom as the Sever Acute Respiratory Syndrome (SARS) and made a request for attention to international travelers	One SARS case took a plane from Beijing to Hong Kong and infected at least 22 people up to 119 passengers (Poor)	Formed a SARS task force
March 16			Announced a guideline for coping with patients in hospitals (Passive)

March 17	An international network of 11 leading laboratories in 9 countries was established	The University of Hong Kong and the Chinese University of Hong Kong participated in the international network (Active)	Designated the SARS as a disease that needs to be declared under Infectious Disease Act (Passive)
March 19		Announced a guideline for coping with patients (Passive)	
March 20			A research team involved in WHO lab network found coronavirus from a Singaporean case (Active)
March 21	Provided the information of the type of SARS pathogen through clinical study of infected cases from 7 countries		The first WHO research group arrived in Singapore
March 22		The University of Hong Kong announced the identification of coronavirus as the causative agent responsible for SARS American CDC also presented same result but WHO website only posted the information from USA	Than Tock Seng hospital was designated for isolating, caring and treating for suspected SARS cases Set up a hot line for the SARS (Active)
March 23		The government made students who have been contacted with atypical pneumonia should not go to school for a week (Passive)	
March 24			More than 300 people who were exposed to SARS were kept in quarantine for 10 days at home, being monitored and traced and no access to hospital Implemented Infectious Disease Act and 740 and isolated 740 of suspicious patients for 10 days (Passive)

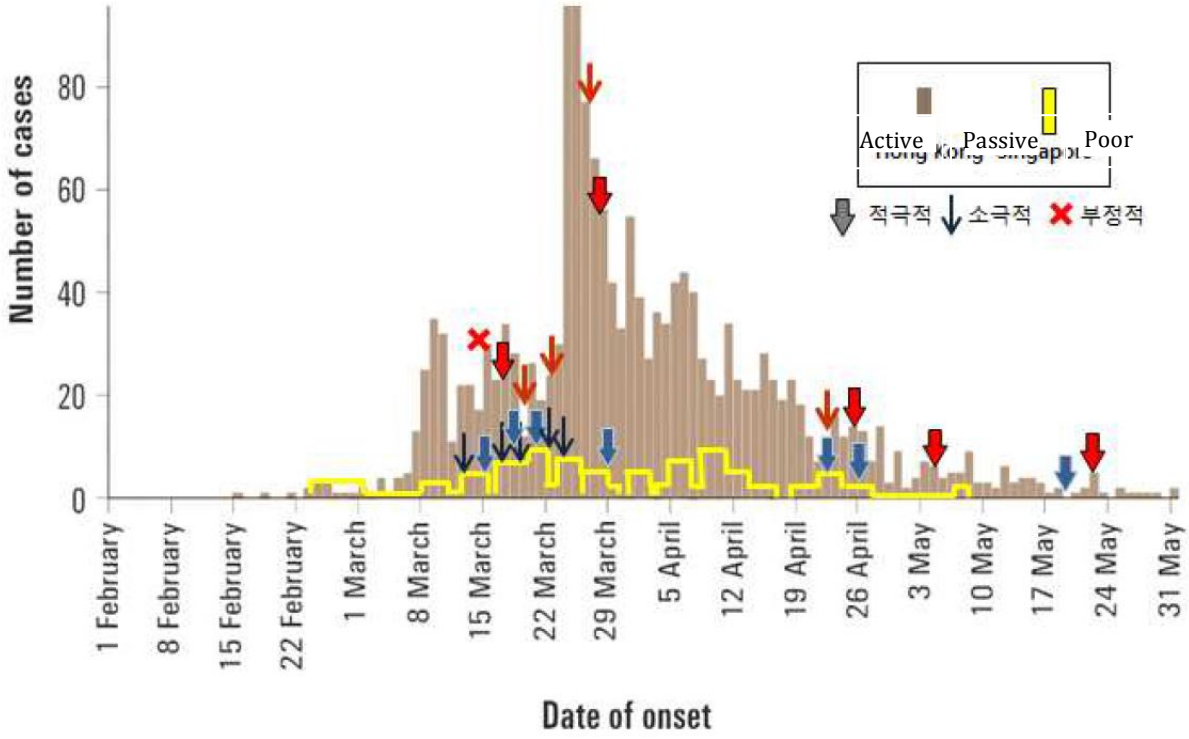
March 26	80 doctors from 13 countries around the world involved in WHO Clinical Network had a meeting, analyzed the current situation but did not find any effective treatments/ China Guangdong province has been designated as the origin of SARS		All primary schools, secondary schools, college, and major institutions were to be shut from March 27 to April 6
March 27	Presented new travel recommendations that international passengers would have an interview to report their SARS symptoms and contact with suspicious patient	Classified SARS as a disease that must be reported by law SARS patients were required to report their conditions to designated medical center everyday (Passive)	
March 28		All incoming visitors to Hong Kong were asked to complete a form of health declaration to examine SARS patients (Active)	
March 29			Nurses at Changi Airport started screening passengers who entered from the SARS affected area through visual equipment (Active)
April 2	Designated Hong Kong as a core traveling warning zone with Guangdong Province		
April 3		Requested schools hold suspicious patients that class suspension period would be extended for additional 3 weeks	
April 6			Ministerial Committee for responses to SARS under the Prime Minister's Office established

April 14	SARS virus genome map was published in Canada and the United States		
April 16	WHO named SARS coronavirus as a new pathogen that has never existed		
April 23			The Singapore authorities set up a temperature scanner at the airport to prevent passengers who show signs of fever from entering and leaving the country (Active)
April 24		Requested WHO to help them investigate an environment and spread of SARS in Amoi Garden (large apartment complex) (Passive)	
April 26		Attend the ministerial meeting of ASEAN + 3 for Health Ministers (Active)	Led the ASEAN + 3 ministerial meeting for Health Ministers on the agenda of SARS response (Active)
May 2	WHO Environmental Health Team arrived in Hong Kong		
May 6		Had a video conference between government officials (Ministry of Health) and WHO in Hong Kong (Active)	
May 21			Made a special international broadcast channel for SARS and started to operate the broadcast (Active)
May 31	Announced officially that Singapore become SARS Free Region		
Jun 23	Announced officially that Hong Kong become SARS Free Region		

Source: Reconstructed by the Author on the basis of 中國人民共和國香港特別行政區政府(2003), Chronology of the SARS Epidemic in Hong Kong; Ministry of Health(2003), Chronology of SARS Events in Singapore. Retrieved 3 April 2012; Straits Times(2013), SARS in Singapore: timeline Published on March 16

If the number of times of risk communication is evaluated by analyzing the above list of WHO, Hong Kong and Singapore SARS responses, it is expected to derive the result like Figure 2. This study pays attention to the gap between the two authorities in the middle of March under the assumption that Singapore has done more active and passive risk communication than Hong Kong. That is because Hong Kong and Singapore would enter the opposite situation of the spread and the lull after this period.

Figure 2 Comparison of the number of SARS cases and risk communication



It would be expected that there will be a wide range of discussion on the political implications of why there was a significant difference in transnational risk communication, despite the considerable similarities in social size, economy, environment and industrial structure. In other words, the sharing of information on the premise of risk communication and the action will can be linked to how much diplomatic autonomy and political leadership can be enjoyed from a supranational perspective. Additionally, not only what type of risk is being raised but also any type of governance from and characteristics of the society facing the risk can be an important variable, and it can be developed to establish a link between sociopolitical environments and suitable responses in order to manage various supranational risks as well as epidemics.

CONCLUSION

This result gives us a significant implication that in a risk of trans-boundary uncertainty such as SARS, a high level of risk communication is a vital element of government in the post-modern age. Furthermore, the competence of governance, which is based on knowledge to grasp the type of imminent risks and corresponding management models, might be the very basis of network nations in the 21st century. As I analysed above, the data firmly explained the effect of risk communications. As Singapore was reborn as an leading agent of cooperation in regional and global scales by adopting to active risk communication, it showed the possibility

of restructuring the relational structure of international society not only for response to risks to a certain country but also for mutual assistance. In this regard, resilience as response competence is of great significance in that it presents a new approach of middle power diplomatic strategies.

Yet, there are two major parts to be improved. First, the criteria of distinguishing the types of risk communications, such as active, passive and negative risk communication, and how much objectivity can be achieved regarding a weighting on delay of time, elaboration of the situation and decision making process will be expected to focus for further study. Second, it would be expected to control the Chinese variable, which is closest to Hong Kong and has the most human interchange. In fact, from the end of 2002 to the April in 2003, which was the beginning of the SARS outbreak, China politically determined this issue because of its negative impact on the economy and its reputation as an Olympic host country so that it concealed and even gainsaid the issue (Kim, 2003). At that time, since Chinese government did not take any foreign policies it caused the spread of SARS to Hong Kong, and after April 17 eventually the government opened the information regarding the outbreak in a transparent manner to WHO and started to cooperate as a responsible member of the international society. It is necessary to carefully examine whether China intends to exert its influence on supranational risk communication not only in the mainland of China but also in Hong Kong.

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