War with SARS: An Empirical Study of Knowledge of SARS Transmission and Effects of SARS on Work and the Organisations

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ABSTRACT

Aim of Study: This study examined the level of knowledge of SARS transmission among Singaporeans and their willingness to disclose their health condition to others. We also examined respondents' perceived effects of SARS on work and organisations and their attitudes toward issues of privacy and disclosure of medical information.

Method: Respondents comprised MBAs (Master of Business Administration students) and human resource managers who attended classes in a local tertiary institution. Data were collected via an email survey. A total of 101 completed surveys were received and included in data analyses.

Results: Results suggest that despite rather intensive efforts to generate awareness about SARS transmission, a certain level of uncertainty about how SARS can be transmitted still prevails. This is not surprising, given that SARS is a relatively new medical problem. Our findings also suggest that while respondents unanimously agreed that they would inform their parents, spouse, siblings and employers if they were tested positive for SARS, they were more ambivalent about disclosing such information to their neighbours and colleagues.

Findings also suggest that having a SARS or probable SARS case in the company would disrupt the flow of work and affect employees' morale.

Conclusion: Results of this study have significant implications for efforts to educate Singaporeans about the disease and the management of SARS at the workplace.

Keywords: Severe Acute Respiratory Syndrome (SARS), Singapore, work, organisations, knowledge of transmission

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In the past several months, the Severe Acute Respiratory Syndrome (SARS) has attracted a significant amount of attention in the daily news and remains an issue of concern among government leaders, health authorities and the general populace in SARS-affected countries. This is hardly surprising given the alarming rate that the disease has spread and its detrimental effect not only on the health scene but also its impact on the Asian economies. As it continues to take its toll, SARS has emerged to be not only a medical issue, but also a political, social and more significantly an economic one.

At the time of this writing, statistics provided by Reuters News revealed that 8,374 cases of SARS infections have been reported around the world. Majority of these cases are concentrated in Asia. In Singapore alone, 206 cases have been detected, with 31 deaths recorded to date (Reuters News, 2 June 2003). An additional 111 Singaporeans are under home quarantine.

When it was first diagnosed around November 2002, little was known about SARS, other than that it originated from the province of Guangdong, China. Since then, intensive efforts had uncovered more information about the disease and this had helped led to more informed and concerted efforts to prevent the spread of the disease.

Since the first case of SARS in Singapore was first diagnosed in March 2003, a range of reactions from the public – from fear of infection to intense discrimination against groups of people who pose as high risk individuals, since they are at the frontline battling the disease as well as service providers such as taxi-drivers since they are the ones who are potentially at risk – were encountered.

However, arising from swift and intensive efforts undertaken by the local health authority to provide more information about the disease and to allay fear, public reactions against healthcare workers have since then, taken a significantly positive turn from one of intense discrimination to spirited public accolades being effusively directed at healthcare workers, nurses and doctors for their heroic efforts in the fight against SARS. The positive attitude of healthcare workers in Singapore in battling SARS is significantly

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noteworthy given anecdotal and media reports on the less than positive responses (e.g. mass resignations) among healthcare workers in other parts of the Asian region.

Media reports and anecdotal evidence have also relentlessly documented the impact of SARS on the economy, retail industries, and Singaporeans' lives, with the Prime Minister encouraging the public to "move on" and "go back to life as usual".

While much attention has been devoted to government's efforts and programmes to inform and educate the public about how the disease can be spread, not much is known about Singaporeans' perceived knowledge about how SARS can be transmitted and their attitude toward issues of privacy and disclosure of medical testing on SARS. An understanding of Singaporeans' level of knowledge about SARS transmission can help to shed light on how organisations, educational institutions and the public health agency can design intervention programmes.

The present research, therefore, aims to examine Singaporeans' knowledge of SARS transmission and their attitudes toward issues of privacy and disclosure of medical health records at the workplace. We also examined the effects of SARS on work and organisations.

METHOD AND RESPONDENTS

Data for this study were collected from questionnaire surveys. Due to precautionary measures taken to minimise physical contact with respondents, surveys were disseminated via emails to a group of 80 MBA (Master of Business Administration) students and human resource managers who had attended management classes in a local tertiary institution. These respondents helped to disseminate the survey to their colleagues and friends. We left instructions with the MBAs and HR managers to distribute the surveys only to people who are currently working and holding full-time employment. All the respondents were working adults. A total of 101 completed surveys were completed and returned to the researcher via email. The data were collected over a period of approximately one month.

Majority of respondents were female (58%). The average age of respondents is 36 years old. Majority of respondents are Chinese (88%). The other 12% comprised Indians, Eurasians and Caucasians. The average age of respondents is about 33 years (SD=8.8). The average job tenure is 8 years (SD= 7.2). In terms of industrial background, majority (79%) came from the service sector while the remaining 21% came from the manufacturing sector.

FINDINGS

Knowledge of SARS transmission

Table I summarises the list of items pertaining to how the coronavirus, a potential cause of SARS is transmitted. Respondents were certain about some of the main routes through which SARS can be transmitted with 97% agreeing that one can be infected with SARS if one is being sneezed or coughed upon by a SARS infected person (Item 1); 93% agreeing that SARS can spread by sharing food with a SARS-infected person (Item 2); and 91% reporting that one can be infected with SARS by sharing utensils with a SARS-infected person (Item 3). It is instructive to note that while majority of respondents were certain about whether SARS can spread through sharing utensils, about 9% still remained unsure if this is true.

Notably interesting is that our findings suggest that respondents were less clear about whether SARS can spread through other means of casual contact. While 75% of respondents reported that it is true that SARS can spread through touching or being touched by a SARS-infected person, 6% indicated that they were not sure while another 18% indicated that this statement is false (Item 4).

Another noteworthy feature of our findings is that despite efforts by the media and health authorities in advising the public to avoid physical contact or being in close proximity with SARS infected persons, 15% of respondents disagreed that SARS can be spread through shaking hands with a SARS infected person and another 6% indicated that they don't really know if this is possible (item 10).

Additionally, 57% agreed that SARS can spread by using the same toilet seat as a SARS infected person while another 15% disagreed. Another 21% indicated that they do not really know whether SARS can spread in this manner (Item 6).

Respondents were also considerably mixed in their responses to the statement whether SARS can spread through ordinary office contact. While 45% indicated that it is possible to get SARS through ordinary office contact, 42% reported that this statement is false (Item 11). Another 12% indicated they do not really know whether it is possible to be infected with SARS in this manner.

Additionally, our findings also revealed rather equivocal responses to the statement "SARS can spread by swimming in the same pool as a SARS infected person" (Item 7). While approximately 51% of respondents agreed that this is possible, 21% stated that this statement is false. Another 21% indicated that they did not really know whether this is possible. This finding reflects the high level of uncertainty surrounding this possible mode of transmission.

Similarly, respondents were also mixed in their responses when asked if "SARS can spread through mosquito bites and other insects" (Item 15). About 36% indicated that they were not sure if this is possible while another 45% indicated that this statement is false. Another 19% reported that this statement is true.

Turning now to items pertaining to being in the same travel craft as a SARS infected person, majority of respondents indicated that SARS can spread by travelling in the same ***aircraft*** as a SARS-infected person (60%) (Item 12); travelling in the same ***taxi*** (76%) (Item 13); and travelling in the same ***public transportation such as MRT, bus*** (67%) (Item 14). About 15% reported that they did not really know whether SARS can spread through travelling via these transportation modes.

Our findings are instructive in that unlike HIV, the virus that causes AIDS, which has specific modes of transmission, less is known about how the coronavirus – identified as a SARS causative agent – can specifically be transmitted. This is inevitable given that SARS is a relatively new disease. Thus, it is hardly surprising that much uncertainty surrounding its mode of transmission may still prevail.

Indeed, about 51% of our respondents indicated agreement with the statement that "Scientists who say that SARS cannot spread by SARS-infected pets (e.g. dogs and cats) don't really know as much as they claim." About 36% reported neutral while another 12% disagreed. It is also interesting to note that these sentiments were articulated by respondents prior to scientific evidence suggesting that the coronavirus may be transmittable by civet cats. While not conclusive, this latest scientific discovery has led to official government orders – taken as a precautionary measure – to cull stray cats.

In part, this finding further suggests that while reports of medical evidence and findings are extensively made available to Singaporeans via print and broadcast media as well as the Internet, SARS is a relatively new disease and people do have certain misgivings about medical findings. As scientists continue to unravel new discoveries about the coronavirus, it is inevitable that a sense of uncertainty, scepticism and misgiving prevail.

Fig. 1 Willingness to disclose SARS to others.

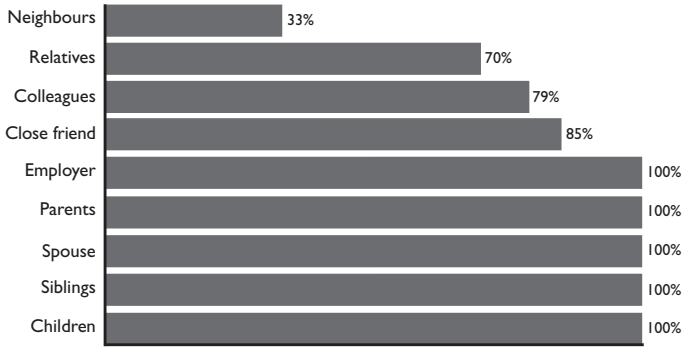

Table 1. Knowledge about SARS transmission[+].

Items	True (%)	Don't Know (%)	False (%)
SARS can spread by:			
1. Being sneezed or coughed upon by a SARS infected person	97	0	3
2. Sharing food with a SARS infected person	93	0	7
3. Sharing spoons, forks, plates, drinking glasses with a SARS infected person	91	9	0
4. Touching or being touched by a SARS infected person	75	6	18
5. Using same telephone as a SARS infected person	72	12	15
6. Using same toilet seat as a SARS infected person	57	21	22
7. Swimming in the same pool as a SARS infected person	51	21	27
8. Consuming food/drinks prepared by a SARS infected person	73	21	6
9. Consuming food/drinks handled by a SARS infected person	76	15	9
10. Shaking hands with a SARS infected person	79	6	15
11. Ordinary office contact	45	12	42
12. Travelling in the same aircraft as a SARS infected person	60	15	21
13. Travelling in a taxi with a SARS infected person	76	12	12
14. Travelling in public transportation (bus, MRT) with a SARS infected person	67	15	18
15. Bitten by mosquitoes or other insects that had bitten a SARS infected person	18	36	45

[+]N = 101

Our findings highlight the need to step up efforts to educate the public about SARS transmission and to make medical findings and evidence accessible and available so that the shroud surrounding how SARS can be transmitted can be unveiled more thoroughly. Indeed, results of this study suggest that there is still uncertainty about whether SARS can spread through ordinary office contact, swimming in a public pool with a SARS-infected person and being bitten by mosquitoes or insects, lending further testimony to the need for more information and education about the disease.

Willingness to disclose information about SARS condition to others

Fig. 1 summarises the list of parties/individuals whom respondents would inform if the latter were tested positive for SARS. While all respondents reported that they would inform their parents, spouse, children, siblings, they were rather divided when asked whether they would disclose this information to their relatives and neighbours.

While 70% reported that they would share this information with their relatives, respondents were even less hesitant to disclose this information to their neighbours. Only about 33% indicated that they were willing to divulge this information to their neighbours. A plausible explanation for this finding is that majority of respondents fear being shunned or ostracised by their neighbours. Several respondents also shared that they would operate on a "need to know basis" when it concerns people who are not in their close kin network such as their neighbours.

About 60% responded in the affirmative to the question "If your neighbours were issued a quarantine order, should this information be made known to others in the neighbourhood?". The remaining 40% disagreed that information about home quarantine order should be disclosed. In a similar vein, about 42% of respondents disagreed when asked the question "If you or anyone in your family has been issued a quarantine order, should this information be made known to others in the neighbourhood?".

These findings suggest that a certain level of fear still prevail around the issue of disclosing information about home quarantine orders to others in the neighbourhood. In part, this fear stems from the possibility of draconian measures being taken by others in the neighbourhood against the "quarantined individual" as well as his/her family. Indeed, the media has documented cases of healthcare workers working with SARS patients being evicted by their landlords. Disclosure of such information may also lead to a decline in the value of houses in the neighbourhood. Thus, to some extent, respondents still prefer to remain cautious on the issue of revealing information about quarantine order to their neighbours.

Turning now to the work front (Fig. 1), all respondents agreed that they would inform their employers if they were tested positive for SARS;

Table II. Effects of SARS on work and organisations[+].

Items	Disagree (%)	Neutral (%)	Agree (%)
I believe that if an employee is diagnosed with SARS at the workplace, the following will happen:			
1. Some employees may refuse job assignments that require him/her to work with a SARS-infected person.	0	0	100
2. Result in lost sales.	9	12	79
3. Cause the company to lose customers.	15	12	72
4. Disrupt the flow of work.	9	3	88
5. Incur extra expenditure in hiring additional labour to buffer against any work disruption.	9	18	72
6. Diminish the ability of other employees to concentrate on their work.	15	18	67
7. Increase medical insurance costs.	12	27	61
8. Increase the number of grievances and complaints.	21	19	60
9. Undermine company's morale.	27	15	58
10. Increase labour costs.	21	21	58
11. Hurt the company's image.	33	27	39
12. Cause some employees to quit.	49	15	36
13. Undermine the company's ability to provide its services to clients.	36	15	49
14. Result in acts of violence.	72	24	3

[+]N = 101

Table III. Attitudes toward access to SARS health records at the workplace[+].

Items	Disagree (%)	Neutral (%)	Agree (%)
1. Public good should come before individuals' right to privacy with regard to SARS testing.	9	12	79
2. Access to information about SARS testing violates individuals' right to privacy.	39	24	36
3. If I were tested for SARS, I believe that the information would **remain confidential**.	42	6	52
4. I would feel that my privacy had been invaded if I were asked if I had been tested for SARS.	61	24	15
5. I would feel that my privacy had been invaded if I were asked if any of my family members/relatives had been tested positive for SARS.	57	21	22
6. I believe that the media/press **should not publicise** the names of individuals who had been infected with SARS.	15	21	64
7. Employers **should not disclose** to other employees the identities of employees whose family members contracted SARS.	30	30	40
8. If an employee had been infected with SARS, the employer **should not disclose** the identities of other employees who may have been exposed to the SARS infected employee.	61	21	18
9. SARS will be around for the **next 6 months**.	9	9	82
10. SARS will be around for the **next 1-2 years**.	27	27	46
11. A vaccine will be found for SARS in the **next 6 months**.	45	39	15
12. If SARS persists, I am worried that I will lose my job.	42	33	23

[+]N = 101

they were more ambivalent however, when it involved their colleagues. Only 79% indicated that they would inform their colleagues while the other 21% reported that they would not do so. It is possible that fear of being avoided and discriminated against may lead to this ambivalent finding.

Effects of SARS on company and work

Table II summarises items pertaining to effects of SARS on work and the organisation. All respondents surveyed agreed with item (1): that employees may refuse job assignments that require him/her to work with a probable SARS-infected person. This is hardly surprising given that SARS can be transmitted through close contact with such person.

Another 79% agreed that having a case of SARS-infected person in the company may result in lost sales (Item 2), and 72% indicated that the company may lose customers (Item 3). Majority (88%) of respondents agreed that having a probable SARS-infected person in the company's midst may disrupt the flow of work (Item 5) and another 72% agreed that extra expenses may be incurred in hiring additional labour to buffer against any possible work disruptions (Item 6).

These findings are understandable as any detection of a probable SARS-case may lead to quarantine orders to be issued to employees who come into contact with the SARS-infected person, and this may be disruptive to work arrangements in most instances.

Another 67% believed that if an employee is diagnosed with SARS at the workplace, this will diminish the ability of other employees to concentrate on their work (Item 6) and 58% agreed that this may undermine the company's morale (Item 9). In view of this finding, it is instructive that employers handle any possible cases of SARS detection with sensitivity and care as the occurrence of any single SARS case may possibly affect the morale of the employees. As with the occurrence of other infectious diseases at the workplace, the possibility of infection makes SARS a relatively stressful phenomenon at the workplace. Part of the fear stems from the probability and possibility of being infected by a probable SARS victim and part of it stems from the possible disruption in work arrangements if a case of SARS is detected in the organisation.

More important is the issue of how information dissemination is handled in instances that SARS is detected at the workplace. Mismanagement of such information may lead to hysteria as well as heighten fear that may ensue in negative consequences at the workplace. Indeed, the SARS outbreak does bring to light, among many other challenges, the issue of how information is disseminated in the event that a SARS or probable SARS case is detected in the organisations.

Attitudes toward access to SARS health records at the workplace and disclosure of identity of SARS-infected person

A summary of respondents' attitudes towards the disclosure of SARS test results is presented in Table III. It is heartening to note that an overwhelming majority (79%) of respondents felt that "public good should come before individuals' right to privacy with regard to SARS testing" (Item 1). Respondents, however, were more ambivalent in their responses to the next item "access to information about SARS testing violates individuals' right to privacy" (Item 2). While 39% disagree with this item, 36% agreed with it and other 24% replied in the neutral. About 52% also felt that if they were tested for SARS, they believe that the information would remain confidential (Item 3).

Notably interesting is that 64% agreed with the statement that "the media/press should not publicise the names of individuals who have been infected with SARS". This finding could be explained by the fact that the disclosure of a SARS-victim identity may lead to possible discrimination and stigmatisation of the affected individual and his/her family members. As research on stigmatisation suggests, this could possibly have a considerable negative impact on the stigmatised individual's life chances in the areas of employment, earnings and housing (Link and Phelan, 2001).

On the issue of disclosure at the workplace, majority of respondents (61%) ***disagreed*** with the statement that "if an employee had been infected with SARS, the employer **should not disclose** the identities of other employees who may have been exposed to the SARS infected employee" (Item 8). Only 18% agreed with this statement. A plausible explanation for this finding is that most people would want to have access to this information, believing that this will help them take extra precaution when they come into close contact with these individuals.

Turning now to the issue of whether SARS would persist for the next six months, majority of respondents (82%) indicated agreement. On a more heartening note, only 46% believed that SARS will be around for the next one to two years.

Despite efforts made by medical officials and health organisations to work round the clock to find a cure for SARS, only 15% believed that a vaccine will be found for SARS in the next six months.

About 23% of respondents felt that if SARS persists, they are worried that they will lose their jobs (Item 12). This finding is hardly surprising given that SARS had taken a drastic toll on businesses and the economy as a whole and some SARS vulnerable sectors have actually downsize a their workforces considerably.

Implications and Conclusion

Findings of this study suggest that SARS had a significant impact on people's lives. Not only will their physical well-being be at risk, but their livelihood may also be at stake as SARS had economic repercussions, fuelling economic, and relatedly, job losses.

Pertaining to the issue of SARS transmission, our findings are instructive in that they suggest the importance and utility of SARS education programmes. Several practical implications concerning SARS education may be derived from the results of our study.

First, getting organisations involved is critical. Being more aware of SARS and the ways in which it can be transmitted may mitigate the fear that individuals have regarding the possibility of coming into contact with probable SARS victims. While efforts to disseminate information about how SARS is spread have been rather extensive, much uncertainty and ambiguity about the disease still prevail. This is hardly surprising given that SARS is a relatively new medical problem and scientists around the world are working assiduously to unravel new discoveries about the disease and the virus causing it.

Unlike the AIDS virus which cannot be transmitted through the casual contact that most likely typifies the form of interactions at the workplace, scientific evidence suggests that the coronavirus that causes SARS, is more hardy and can survive on surfaces for hours/days. While scientists worldwide are stepping up their efforts to understand and unravel the mystery surrounding the coronavirus, it makes much sense for the general public as well as employees in organisations to exercise precautions.

Findings of our study reflect the ambivalence surrounding the issue of disclosure of outcomes of SARS testing and identities of SARS victims. While generally agreeing that employers should be informed of results of medical testing and identities of employees infected with SARS, respondents were more mixed about whether such information should be made available to co-workers of SARS victims. This is to prevent co-workers from reacting negatively to SARS victims should they know the latter's identities.

SARS is a disease that is here to stay, at least for the next year or so and organisations must realise that as a disease, SARS arouses great fear and anxiety in individuals which will result in counterproductive behaviour.

Individuals, business leaders and organisations need to understand that SARS is highly preventable. The battle against SARS can only be made more effective if everyone plays a part. While efforts by the Singapore government have been very commendable

in the battle against SARS, much more needs to be done in terms of educating the public to play a more concerted role.

Efforts to educate Singaporeans can be made more effective with businesses and educational institutions playing a more coordinated role in generating employees' and young people's awareness about the disease. Indeed, it makes good business sense for schools and organisations to work in tandem with the relevant authorities to spearhead SARS education and prevention.

In the final analysis, findings of this survey suggest that majority of Singaporeans believed that SARS will be around for at least the next six months. While the current SARS situation in Singapore seems to be well under control, with Singapore being recently declared SARS-free according to World Health Organization's standards, it does make good sense for all Singaporeans to be reminded that the battle against SARS can only be won if everyone plays a concerted role in preventing its spread. To the extent that SARS not only represents a medical problem, but an economic, political and social one as well, the fight to prevent and contain its spread calls for coordinated efforts from all levels of society.

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