Post-SARS Psychological Morbidity and Stigma Among General Practitioners and Traditional Chinese Medicine Practitioners in Singapore

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Abstract

Introduction: The severe acute respiratory syndrome (SARS) outbreak has been unique in recent history in its rapidity of transmission, its concentration in healthcare settings, and the large number of healthcare workers who have been infected. This study aims to examine the psychological impact of SARS on general practitioners (GPs) and traditional Chinese medicine (TCM) practitioners in Singapore. Materials and Methods: Two months after the SARS outbreak, all the GPs and TCM practitioners in Singapore were mailed a set of self-reported questionnaires, which included the General Health Questionnaire (GHQ), the Impact of Event Scale-R (IES-R), and a questionnaire to measure the perception of stigma. Results: A total of 721 (29%) GPs and 329 (22%) TCM practitioners responded to the survey. Significantly more GPs had worked in SARS affected facilities and had been directly involved in the care of patients with SARS than the TCM practitioners (P <0.001). Those GPs who were directly involved in the care of patients with SARS were significantly more likely to be GHQ case as compared to those not involved in the care of patients with SARS (P = 0.02; OR = 2.9; 95% CI, 1.3-6.3). The mean score of the GHQ somatic, anxiety and social dysfunction subscales were significantly higher in GPs as compared to TCM Practitioners (P <0.001). The GHQ total score as well as the subscales was significantly correlated with the IES-R and stigma subscales (P <0.05). Conclusion: The fear, uncertainty and stigma caused by SARS are associated with psychological distress among some of the primary healthcare providers in Singapore.

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Key words: Healthcare workers, Psychological morbidity, SARS

Introduction

Severe acute respiratory syndrome (SARS) is the first severe and readily transmissible new disease to emerge in the 21st century (WHO). The countries most severely affected by this epidemic were Hong Kong, China, Taiwan, Canada and Singapore. The SARS outbreak has been unique in recent history in its rapidity of transmission, its concentration in healthcare settings, and the large number of healthcare workers who were infected.[1] There are approximately 6000 medical practitioners in Singapore, of whom about 2500 are general practitioners (GPs). Most of these GPs see patients in their clinics while a smaller number work in hospitals. Another important group of primary healthcare workers in Singapore are the traditional Chinese medicine (TCM) practitioners. Seventy-seven per cent of Singapore's population is of Chinese descent, and people often seek the help of these practitioners for their medical ailments.

The first case of SARS arrived in Singapore in February 2003, and by the end of May, a total of 206 people had been infected, and there had been 32 fatalities, of whom 4 were healthcare workers (HCWs). The Singapore Government took some of the strictest measures in the world to contain this outbreak. These measures were widespread and all encompassing and included mandatory quarantine for contact cases with drastic penalties for those who broke

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their quarantine orders, and vigorous contact tracing. The latter also took the form of publicly naming those infected and the clinics they had visited. In the initial months, fear of SARS caused people to avoid places and situations where infection was perceived to be more easily transmissible. Patients who had recovered from SARS, those who were quarantined, as well as HCWs were shunned and stigmatised by this association.[2] To date, we have found only 2 published studies that have examined the psychological impact of SARS. The first was an observational study in a teaching hospital in Toronto. The authors reported that HCWs were adversely affected by fear of contagion and of infecting loved ones. Uncertainty and stigma were prominent themes for both patients and staff.[1] The second study from Hong Kong measured the level of stress in 34 HCWs, 32 psychiatric outpatients and 40 healthy individuals.[3] The authors found that HCWs scored lowest for "negative psychological effects" of SARS compared to psychiatric patients and healthy individuals.

Although Singapore has been declared SARS-free since 31 May 2003, and the epidemic seems to be on a decline worldwide, there is a lingering sense of uncertainty and fear. This fear is compounded by the lack of an effective cure and the prediction that the virus will rear its ugly head again.[4,5] The initial symptoms of SARS are fever and respiratory complaints such as cough, which are very non-specific and commonly seen in other benign viral and bacterial infections.[6] Patients with these symptoms are most likely to go to their GP or TCM practitioner, hence these primary HCWs are at the front line and play a crucial role in the containment of SARS in the community. But in doing so, they are constantly at risk of exposure to the SARS virus and this can cause considerable stress.

This study aims to assess the psychological morbidity in the community healthcare workers during the outbreak of SARS as well as examine whether the HCWs who had treated SARS patients would experience greater psychological distress. We hypothesised that those GPs and TCM practitioners on whom SARS had a greater impact and who experienced more stigmatisation would have increased psychiatric morbidity.

Materials and Methods

There are about 2500 GPs and 1700 TCM practitioners registered with the Ministry of Health, Singapore, and the lists of their names and addresses were obtained from their respective Councils. A set of self-report questionnaires was mailed to each of them in May 2003 (about 2 months after the first case of SARS was reported in Singapore). To ensure a higher response rate, we re-sent the questionnaires 3 weeks later. They were requested to fill the questionnaires and return them in a prepaid envelope. We included a covering letter, which explained the nature and intent of the study along with 3 questionnaires:

a) The GHQ-28[7] which assessed psychological distress. This scale gives a total score with 4 subscales: social dysfunction, somatisation, anxiety and insomnia, and depression. Each item has four answering categories. Likert Score (item score 0–1–2–3) and Case score (item score 0–0–1–1) were calculated. Clinically important psychological distress (psychiatric caseness) was defined as a score of 7 or more on the total case score.[8]

b) The Impact of Events Revised Scale (IES-R)[9] assesses the symptomatic status with respect to the 3 domains of Post Traumatic Stress Disorder (PTSD) stemming from exposure to a traumatic stressor. The 22- item scale is divided into 3 domains: Intrusion, Avoidance and Hyperarousal. The item response anchors range from 0 ('not at all') to 4 ('extremely') and these anchor points are also used as references for interpreting total scores.

c) The perception of stigma as experienced by the subjects was assessed with a questionnaire adopted from the HIV Stigma Scale.[10] It focuses on experiences, feelings, and opinions as to how healthcare workers feel and how they were treated during the SARS outbreak. Factor analysis has further identified 4 subscales i.e. personalised stigma, disclosure concerns, negative self-image, and concern with public attitudes towards healthcare workers.

Two open-ended questions were also included: "What were your major concerns during the SARS epidemic?" and "What measures do you think would have helped you the most during this epidemic?"

Approval for the study was obtained from the Institute's Ethics Committee. Data collected from the returned questionnaires were entered into a database and analysed using SPSS v.10 software (Statistical Package for Social Sciences, Chicago, Illinois).

Statistical Analysis

Frequency distributions for descriptive data as well as symptoms and case were determined. Associations with "GHQ case" were done for a range of possible predictive variables including gender, ethnicity, marital status, living arrangements and direct involvement with SARS-affected patients using Chi square or Fisher's Exact test with odds ratios and the 95% CI presented where applicable. Adjusted odds ratios were then obtained by logistic regression. Mann-Whitney U test was used for all continuous data to determine significant differences, if any, between "case" and "non-case". Relationships between psychological variables were determined using Spearman's correlation. Statistical significance was set at $P < 0.05$.

Results

General Practitioners

Seven hundred and twenty-one (29.0%) GPs responded to the survey, of whom 437 (60.6%) were males and 280 (38.8%) were females. There were 4 (0.6%) respondents who did not wish to reveal their personal details. Seventy-seven (10.7%) respondents had worked in either a SARS-affected hospital or clinic and 32 (4.4%) had been directly involved in the care of SARS patients (Table 1).

Using a total score of 7 or more on the GHQ 28, 102 respondents (14.1%) were classified as a "GHQ case". The outbreak of SARS had caused heightened levels of fear and anxiety in the entire community, especially among the HCWs. Hence, in order to ensure superior specificity, we used a higher cut-off score of 7 to distinguish between psychiatric case and non-case. We found that the cases were significantly younger ($P = 0.01$) and had higher IES-R scores and stigma subscales ($P < 0.001$). Those GPs who were directly involved in the care of patients with SARS were significantly more likely to be a case as compared to those not involved in the care of patients with SARS ($P = 0.02$; OR = 2.9; 95% CI, 1.3-6.3) (Table 2).

On comparing the group that was involved directly in the care of SARS patients to those not directly involved, we found significant differences in the Impact of Event subscales for intrusion ($P = 0.02$), avoidance ($P = 0.01$) and hyperarousal scales ($P = 0.01$). The stigma subscale measuring the concerns of public attitude ($P = 0.02$) was also significantly higher in this group (Table 3).

Table 1. Sociodemographic Characteristics of Primary Health Care Workers

Variable	General Practitioner (n = 721) n (%)	Traditional Chinese Medicine Practitioner (n = 329) n (%)
Gender		
Male	437 (60.6)	194 (59.0)
Female	280 (38.8)	135 (41.0)
Ethnicity		
Chinese	653 (90.6)	
Malay	11 (1.5)	
Indian	36 (5.0)	
Others	17 (2.4)	
Marital status		
Never married	87 (12.1)	55 (16.7)
Ever married	629 (87.2)	272 (82.6)
Living arrangement		
Living alone	27 (3.7)	19 (5.8)
Living with family	640 (88.8)	271 (82.3)
Others	32 (4.4)	31 (9.4)
Works in SARS-affected hospital		
Yes	77 (10.7)	4 (1.2)
No	639 (88.6)	324 (98.5)
Directly involved in the care of SARS patient		
Yes	32 (4.4)	1 (0.3)
No	682 (94.6)	326 (99.1)
Received any psychological support/counselling		
Yes	12 (1.7)	8 (2.4)
No	699 (96.9)	319 (97.0)
Major source of information regarding SARS		
Television	44 (6.1)	
Radio	3 (0.4)	
Newspaper	44 (6.1)	
Brochures	4 (0.6)	
Information disseminated by hospital	74 (10.3)	
Others	128 (17.8)	

SARS: severe acute respiratory syndrome

Traditional Chinese Medicine Practitioners

Of the 1500 TCM practitioners, 329 (22%) responded to our survey, of whom 194 (59%) were males and 135 (41%) were females. Only 4 (1.2%) practitioners reported that they had worked in a SARS-affected hospital or clinic, and only 1 had had direct contact with a patient with SARS (Table 1).

Twenty (6%) of the TCM practitioners were identified as GHQ cases and these respondents also scored significantly higher on the IES-R scales and stigma subscales ($P < 0.001$).

Significantly more GPs were diagnosed to be cases as compared to TCM practitioners ($P < 0.001$), and more worked in SARS-affected facilities, with more being directly involved in the care of patients with SARS ($P < 0.001$). The mean score of the GHQ somatic, anxiety and social dysfunction subscales were significantly higher in GPs as compared to TCM practitioners ($P < 0.001$) (Table 4).

The GHQ total score as well as the subscales were significantly correlated with the IES-R and stigma subscales ($P < 0.05$). The only significant predictor obtained from a logistic regression modelling (after checking for multicollinearity) was the mean hyperarousal subscore of the IES-R ($P < 0.005$; AOR = 6.1; 95% CI, 2.5-14.9).

Responses to free listing were categorised according to frequency and the most commonly expressed responses to the query on the nature of their major concerns were:

a. Fear of infecting self, family and other loved ones (37.5%)
b. Uncontrolled spread in the community (27.5%)
c. Financial problems due to drop in patient attendance (16%)

Most frequent responses to the question on what would have helped them the most were:

Table 2. Sociodemographic Factors and Ratings on Psychological Scales in Case Versus Non-case for Primary Healthcare Workers

Variable	GP		TCM Practitioner	
	GHQ case and non-case (cut-off 7)		GHQ case and non-case (cut-off 7)	
	Non-case n (%)	Case n (%)	Non-case n (%)	Case n (%)
Gender				
Male	379 (62.5)	56 (54.4)	183 (59.2)	11 (55.0)
Female	227 (37.5)	47 (45.6)	126 (40.8)	9 (45.0)
Marital status				
Never married	69 (11.3)	15 (14.6)	52 (16.9)	3 (15.0)
Ever married	540 (88.7)	88 (85.4)	255 (82.8)	17 (85.0)
Living arrangements				
Living alone	22 (3.7)	4 (4.0)	18 (5.9)	1 (5.0)
Living with family	551 (92.0)	90 (90.0)	253 (82.9)	18 (90.0)
Other arrangement	26 (4.3)	6 (6.0)	31 (10.2)	
Works in SARS-affected hospital				
Yes	61 (10.1)	15 (10.1)	4 (1.3)	
No	544 (89.9)	88 (85.4)	304 (98.7)	20(100.0)
Directly involved in the care of SARS patient*				
Yes	22 (3.6)	10 (9.8)	1 (0.3)	
No	582 (96.4)	92 (90.2)	306 (99.7)	20(100.0)
Variable	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Age	45.4 ± 11.4*	42.1 ± 18.2*	50.1 ± 9.1	50.2 ± 7.0
Impact of Event Intrusion Subscale	0.2 ± 0.3**	0.9 ± 0.8**	0.2 ± 0.3**	1.0 ± 0.6**
Impact of Event Avoidance Subscale	0.2 ± 0.4**	0.81 ± 0.7**	0.2 ± 0.3**	0.9 ± 0.6**
Impact of Event Hyperarousal Subscale	0.2 ± 0.3**	0.9 ± 0.8**	0.2 ± 0.3**	1.0 ± 0.6**
Stigma Personalised Subscale	21.7 ± 5.6**	25.9 ± 6.8**	21.9 ± 6.0**	26.5 ± 5.7**
Stigma Disclosure Subscale	8.1 ± 2.2**	9.8 ± 2.4**	8.1 ± 1.8*	9.2 ± 2.0*
Stigma Negative Self-image Subscale	5.7 ± 1.5**	6.9 ± 2.0**	5.8 ± 1.6**	7.0 ± 1.4**
Stigma Concern of Public Attitude Subscale	20.2 ± 5.1**	24.2 ± 5.9**	19.9 ± 5.1**	23.7 ± 4.8**

GP: general practitioner; SD: standard deviation; TCM: traditional Chinese medicine
*P <0.05; **P <0.005

a. Availability of prompt, accurate and transparent information, updates and guidelines (32.6%)
b. Setting up of screening stations and directing patients to the hospital predetermined for SARS treatment (15.8%)
c. Provision of protective gear (15.4%).

Discussion

Our study found that the psychological distress experienced by GPs was significantly higher than that of the TCM practitioners. After the outbreak of SARS in Singapore, an aggressive public education campaign was launched to educate the public about the symptoms, cause and prevention of the illness. Another aspect of the containment strategy to combat SARS involved the re-organisation of doctors in the various hospitals and GPs to pick up cases quickly.[11] In doing so, the cause and treatment of SARS was medicalised in such a way that removed the disease from the realm of traditional Chinese medicine and its alternative explanations and treatment for fever and other respiratory complaints. Indeed, we found that the number of GPs who worked in SARS-affected facilities and who had had direct contact with patients with SARS was significantly larger than that of TCM practitioners. Hence the fear or threat of SARS may have been more immediate for these GPs, resulting in a greater level of psychological distress. We also found that those GPs who had direct contact with patients with SARS had significantly more psychological distress than those who did not have direct contact. They were more likely to be classified as "cases" on GHQ, felt more stigmatised by negative public attitudes and experienced more post-traumatic stress symptoms (intrusion, avoidance and hyperarousal).

Due to the paucity of studies on the psychological impact on SARS, we had to draw on the studies on the other scourge of the last century – AIDS. HCWs treating those with AIDS have similarly expressed fear of infection and have experienced social stigmatisation by others.[12] A study found that 40.2% of physicians voiced their fears of losing or attracting other patients if it became known that they were treating patients with AIDS in their clinics.[13] One of

Table 3. Sociodemographic and Clinical Features of GPs Directly Involved in the Care of SARS Patients versus Those Not Directly Involved in the Care of SARS Patients

Variable	Directly involved	Not directly involved
	n (%)	n (%)
Gender		
Male	18 (56.3)	419 (61.4)
Female	14 (43.8)	263 (38.6)
Received any psychological support/counselling		
Yes	–	11 (1.6)
No	31 (100)	667 (98.4)
	Mean ± SD	Mean ± SD
Age**	39.6 ± 7.5	45.3 ± 11.2
GHQ Total*	5.9 ± 8.0	2.7 ± 4.4
GHQ Somatic Subscale	6.2 ± 4.3	5.2 ± 3.3
GHQ Anxiety Subscale	6.8 ± 6.1	5.0 ± 4.2
GHQ Social Dysfunction Subscale	8.16 ± 4.1	7.2 ± 2.0
GHQ Depression Subscale	3.7 ± 5.5	1.8 ± 2.8
Impact of Event Intrusion Subscale*	0.6 ± 0.8	0.3 ± 0.5
Impact of Event Avoidance Subscale*	0.6 ± 0.7	0.3 ± 0.5
Impact of Event Hyperarousal Subscale*	0.6 ± 0.8	0.3 ± 0.5
Stigma Personalised Subscale	23.8 ± 8.2	22.2 ± 5.9
Stigma Disclosure Subscale	9.2±2.8	8.3 ± 2.3
Stigma Negative Self Image Subscale	6.3 ± 2.2	5.7 ± 1.5
Stigma Concern of Public Attitude Subscale*	22.4 ± 7.2	20.7 ± 5.3

SARS: severe acute respiratory syndrome
* P <0.05; * P <0.005

Table 4. Sociodemographic and Ratings on Psychological Scale of GPs versus TCM Practitioners

Variable	GP	TCM
	n (%)	n (%)
GHQ case and non-case (cut-off 7)*		
Non-case	609 (85.5)	309 (93.9)
Case	103 (14.5)	20 (6.1)
Work in a SARS-affected hospital*		
Yes	77 (10.8)	4 (1.2)
No	639 (89.2)	324 (98.8)
Directly involved in the care of SARS patient*		
Yes	32 (4.5)	1 (0.3)
No	682 (95.5)	326 (99.7)
	Mean ± SD	Mean ± SD
Age*	45.0 ± 11.2	50.1 ± 9.0
GHQ Total*	2.8 ± 4.6	1.2 ± 3.0
GHQ Somatic Subscale*	5.2 ± 3.4	3.2 ± 2.9
GHQ Anxiety Subscale*	5.0 ± 4.3	2.5 ± 3.2
GHQ Social Subscale*	7.2 ± 2.1	5.8 ± 1.6
GHQ Depression Subscale	1.8 ± 3.0	1.4 ± 2.3

GP: general practitioner; SARS: severe acute respiratory syndrome;
SD: standard deviation;
TCM: traditional Chinese medicine; *P <0.001

the measures taken by the Singapore government in tracing contact cases was publicly naming the clinic from where the index patient with SARS had sought initial treatment. The fear of economic fallout from such "adverse publicity" was one of the main concerns voiced by the GPs. In fact, 15.8% of the GPs suggested that screening stations be set up away from their clinics from where patients suspected of SARS could be directly sent to the hospital predetermined for SARS treatment.

Our study has some limitations. Firstly, the response rate to our survey was low, and that could have led to a non-response bias. Historically, mail surveys of physicians have been characterised by lower response rates than the general population.[14] It is possible that the frequent requests the primary care physicians receive to complete mail surveys often results in physicians who are unwilling or unable to complete each survey they receive. Our survey was also quite lengthy, and asked questions that were rather sensitive and personal, this may have also contributed to the low response rate. Secondly, the lack of a validated scale that specifically assesses the stigma associated with SARS. We instead resorted to modifying a scale (which possesses face validity) that assesses the stigma of AIDS. The third limitation is the cross-sectional design of the study which makes it impossible to establish a clear "cause and effect" between psychological morbidity and SARS, although we did find a significant association between "cases" and high scores on the IES-R and the stigma scale, leading us to believe that the psychological distress was very likely to be associated with SARS.

Conclusion

The outbreak of SARS has emotionally affected the lives of HCWs. It is not just the physical threat of SARS, but also the secondary effects, such as potential loss of a loved one, fear of stigmatisation and worry about losing patients should their clinics be named publicly in contact tracing.

Although there is a rapidly accumulating body of studies on the medical aspects of SARS, there is a dearth of research examining the psychological impact of this highly communicable infection for which there is no effective cure as yet. We found that a proportion of primary HCWs were psychologically distressed by the experience. What we do not know at this point is whether this distress will have an enduring effect, or whether it will be ameliorated after an extended time. Emotional distress can result in lowered functioning and difficulty in interpersonal relationships, and hence it is important that the psychological needs of these HCWs be explored and treated.

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