Severe acute respiratory syndrome (SARS) is an atypical pneumonia that has widespread transmission among health-care workers. SARS was believed to have originated from Guangdong Province, China, in November 2002. The outbreak in Singapore started with an index case, who returned from Hong Kong in early March. She eventually spread the infection to at least 20 other people, of whom half were health-care workers (Hsu et al, 2003).

SARS is spread through close contact with an infected person via airborne droplets (World Health Organization, 2003). Symptoms include high fever, dry cough, breathing difficulties, aches and pains, lethargy and loss of appetite. Eventually, pneumonia will develop (Ministry of Health, 2003a). This infection is highly transmissible from person to person and health-care workers inevitably face a higher risk of exposure to the disease.

The Ministry of Health (MOH) released information about SARS to the public and hospitals following confirmation of the first three SARS patients in Singapore. On 22 March, all suspect and probable cases of SARS were centralized in the only SARS-designated hospital in Singapore, with added infection control for the staff. Other hospitals were also alerted to step up their infection control procedures. By end of March, all hospitals had to screen all patients and staff to identify those who had fever (>38°C). Public visitations to hospitals were also banned (MOH, 2003b). Strict infection control and the use of personal protection equipment were enforced and contact tracing was done whenever there was any suspected case.

In early April, a therapist from a community rehabilitation facility contracted SARS. The cause of transmission was unknown (MOH, 2003b). This brought about anxiety among staff in rehabilitation departments of various hospitals, as they realized they were also at risk – their work required close contact with patients. Hence, infection control became more stringent within the rehabilitative services.

With such strict infection control procedures — compulsory personal protection equipment, extended time for hand washing, changes in work procedures and temperature taking — along with the occasional false alarm of possible infection, the staff in the rehabilitative services faced emotional and physical stress. Many therapists reported difficulties in communicating and encouraging their colleagues, as they were also faced with numerous training sessions and disease information dissemination. Health-care facilities need to look into infection control, good information dissemination and emotional support structures for staff to help their employees cope with the psychological impact of the epidemic.

Key words: SARS, Singapore, psychological impact, support, infection control

Severe acute respiratory syndrome (SARS) developed in Singapore in March 2003. It started from three index cases and rapidly multiplied in the hospitals. The total number of probable SARS cases was 238, of which 42% was health-care workers. This article describes the psychological impact of the SARS outbreak on the staff of a rehabilitative services department in a general hospital in Singapore 2 months after the outbreak.

In total, 55 rehabilitation staff were asked to participate in this voluntary survey, consisting of self-reported measures on demographics, the General Health Questionnaire (GHQ) and the Impact of Events Scale (IES). A questionnaire measuring changes in life priorities as a result of SARS and ways that people coped with SARS was also administered. A total of 23.4% of subjects had GHQ scores higher than 5, indicating presence of psychiatric symptoms, while 12.8% of them scored more than 30 for IES, indicating presence of post-traumatic stress symptoms. Support from colleagues, taking precautionary measures and getting clear directives and disease information had helped participants to cope with the psychological impact of the epidemic.

Health-care facilities need to look into infection control, good information dissemination and emotional support structures for staff to help their employees cope with the psychological impact of epidemic outbreaks.


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support, infection control

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patients when they were behind a mask. Therapy was less effective when patients could not read therapists’ facial expressions. Thus, patients felt that the quality of therapy was being compromised and this reduced work satisfaction.

In addition, therapists who were involved in more physically strenuous procedures suffered in the heat with their full personal protection equipment, especially for those working in the non-air-conditioned wards. Some suffered hypoxia, giddiness and breathlessness. Work became exhausting.

Earlier studies have described the different aspects of SARS (Hsu et al, 2003; Masur et al, 2003; Mauder et al, 2003; Lau et al, 2004; Tsang et al, 2004), but none have specifically described the psychological impact of SARS on staff involved in rehabilitation. The risk of close contact with any unidentified SARS patient may affect this group psychologically.

An survey done by Chan and Chan (2004a) looked into the emotional health of doctors and nurses. After the outbreak of SARS, a study was carried out by the same authors to describe the psychological impact on doctors and nurses (Chan and Chan, 2004b). This study compared doctors and nurses before and after the SARS outbreak. However, no pre-SARS survey was carried out for the staff from rehabilitative services.

Hence, this particular study was done, as part of the larger hospital study, to describe the psychological impact of SARS in a rehabilitation department consisting of therapists and other support staff, in a non-SARS-designated medium-size regional general hospital. It was conducted 2 months after the first case of SARS was reported in Singapore.

METHODOLOGY

Self-administered questionnaires were given to all 55 staff in the rehabilitation department. A total of 47 staff responded: 18 physiotherapists, 13 occupational therapists, 3 speech therapists and 13 support staff. Participation was voluntary and the forms were collected via a box placed in the department.

The General Health Questionnaire (GHQ), Impact of Events Scale (IES) and a set of questions to find out the changes in individuals’ life priorities and the things that had helped them cope, were given out to staff to self-administer. These scales had been used in a local study conducted by Chan and Chan (2004b).

General Health Questionnaire

The GHQ is a screening tool designed to assess the presence of psychiatric distress related to general medical illness. It is a 28-item self-administered questionnaire, indicating a total score with four subscales:

- Anxious/insomnia
- Social dysfunction
- Severe depression
- Somatic symptoms

It demonstrates good test–re-test reliability with a coefficient of $r=0.90$. It has also acceptable sensitivity and specificity. A cut-off of ≥5 indicates a case (Goldberg, 1978).

Impact of Events Scale

The IES is used to measure psychological response to traumatic stressors. It is a self-reported 15-item questionnaire. Scores <8.5 are low; 8.6–19.0 are medium and >19 are high. The IES subscale shows high consistency. Test–re-test for the total score was $r=0.93$ over a 1-week interval. Correlations were fair to moderate, but statistically significant with measures such as the Mississippi scale (MS) and the Minnesota Multiphasic Personality Inventory Post-Traumatic Stress Disorder scale (Horowitz et al, 1979). The IES has 92.3% sensitivity and 64.2% specificity. In this study, an IES score ≥30 indicates the presence of post-traumatic stress symptoms (Neal et al, 1994).

Questionnaire on changes in life priorities and ways of coping

This self-reported questionnaire, which had not gone through a reliability or validity check, was developed because there were none available to specifically measure changes in life priorities and coping. It has 15 items on a 6-point scale, ranging from strongly disagree to strongly agree. It consists of two subscales: one looking at the changes in life priorities resulting from SARS and the other finding out what coping methods are used to handle the emotional stress caused by SARS (Figure 1). The Cronbach’s alpha for both subscales was 0.926 and 0.864 respectively, indicating good reliability for the questionnaire.

Statistical analysis

All analyses were performed using SPSS 11.0 (SPSS Inc, Illinois). Descriptives of the GHQ and IES scores were presented using mean (standard deviation) range and median. A factor analysis was performed to cluster the coping strategies and life’s priorities during the SARS situation. Finally, logistic regression analysis was performed to determine predictors (the reduced factors for the coping strategies and changes in priorities determined from the factor analysis) indicative of severe psychiatric symptoms or post-traumatic stress disorder. Statistical significance was set at $P<0.05$.

RESULTS

The demographic data for the five groups are given in Table 1. Table 2 gives the descriptive statistics for the total GHQ and subscale scores and total IES.
and subscale scores by work discipline. These participants were not directly involved in the care of SARS or probable SARS cases.

In total, 23.4% of the participants had experienced severe psychiatric symptoms (GHQ total ≥5) and 12.8% had symptoms of post-traumatic stress disorder (IES total ≥30) (Table 3). There was no association between severe psychiatric symptoms and post-traumatic stress disorder symptoms (P=1.0). There was also no statistical difference between discipline, marital status and age group in risk of having severe psychiatric symptoms.

Tables 4 and 5 show the responses of the participants to the changes in life priorities and coping questionnaires. Health was rated as most important to the participants. The factors that helped them cope were mainly having support from colleagues and taking precautionary measures, as well as getting clear directives and SARS disease information.

By performing factor analyses on the two questionnaires separately, the following components were obtained:

- For changes in life’s priorities: health, relationship with family/friends/colleagues, work and spiritual beliefs were clustered (explaining 94.1% of the variance)
- For coping strategies: information about SARS and precautionary measures, support from family and being able to talk to someone, feedback to hospital management or support from administration/supervisor, support from colleagues and religious convictions were clustered (explaining 88.6% of the variance).

Two separate logistic regressions with the above clustered factors on GHQ ≥5 revealed that only staff who found work becoming more important (P=0.036, odds ratio=0.124, 95% confidence interval=0.018–0.879) were less likely to demonstrate severe psychiatric symptoms. None of the coping strategies significantly predicted severe psychiatric symptoms.

There was no significant difference among type of personnel, marital status and age group in suffering from post-traumatic stress disorder (given by IES total ≥30). None of the ‘prioritized things’ or coping strategies significantly predicted post-traumatic stress disorder.

Table 1. Demographics of participants

<table>
<thead>
<tr>
<th>Age group</th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25 years</td>
<td>6 (33.3%)</td>
<td>2 (15.4%)</td>
<td>0 (0.0%)</td>
<td>1 (12.5%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>25–30 years</td>
<td>9 (50.0%)</td>
<td>7 (53.8%)</td>
<td>2 (66.7%)</td>
<td>3 (37.5%)</td>
<td>1 (20.0%)</td>
</tr>
<tr>
<td>31–40 years</td>
<td>2 (11.1%)</td>
<td>4 (30.8%)</td>
<td>1 (33.3%)</td>
<td>2 (25.0%)</td>
<td>4 (80.0%)</td>
</tr>
<tr>
<td>41–50 years</td>
<td>1 (5.6%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (25.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>&gt;51 years</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Racial origin</th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>14 (77.8%)</td>
<td>11 (84.6%)</td>
<td>3 (100.0%)</td>
<td>3 (37.5%)</td>
<td>2 (40.0%)</td>
</tr>
<tr>
<td>Malay</td>
<td>3 (16.7%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>3 (37.5%)</td>
<td>2 (40.0%)</td>
</tr>
<tr>
<td>Indian</td>
<td>1 (5.6%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (12.5%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.0%)</td>
<td>2 (15.4%)</td>
<td>0 (0.0%)</td>
<td>1 (12.5%)</td>
<td>1 (20.0%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>8 (44.4%)</td>
<td>6 (46.2%)</td>
<td>2 (66.7%)</td>
<td>3 (37.5%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Married</td>
<td>10 (55.6%)</td>
<td>7 (53.8%)</td>
<td>1 (33.3%)</td>
<td>5 (62.5%)</td>
<td>5 (100.0%)</td>
</tr>
</tbody>
</table>

Figure 1. Questionnaire on changes in life priorities and coping.

Because of the SARS situation, the following have become more important to me:

1. My health
2. My relationship with my family
3. My relationship with my friends
4. My relationship with my colleagues
5. My work
6. My spiritual beliefs

Things that helped me to cope with the SARS situation:

7. Clear communication of directives and disease information about SARS
8. Precautionary measures taken at work
9. Being able to give feedback to hospital management
10. Support from hospital administration
11. Support from my supervisor/manager/head of department
12. Support from my colleagues
13. Support from my family
14. Being able to talk to someone about my concerns
15. My religious convictions
16. Other comments: .................................................................
Clinical

DISCUSSION

The SARS outbreak had certainly affected the emotional health of staff. Studies conducted on burnout syndromes, stress symptoms and secondary traumatic stress among physicians and nurses have pointed out the importance of caring for health-care workers because of their constant exposure to death and injuries, emotional draining situations and unpredictable situations (Raphael et al, 1995; Horowitz, 1997; Robbins, 1999; Badger, 2001; Edwards and Burnard, 2003).

This study showed that staff from the rehabilitative services were affected by the SARS outbreak despite differences in the nature of their job. Some of them exhibited somatic symptoms or social dysfunction according to the GHQ and some had post-traumatic stress symptoms. Chest physiotherapy sessions, occupational therapy showering assessments and speech therapy treatment sessions (which required close proximity with the mouth and throat of patients) were all examples of procedures that put therapists at risk of exposure. Therapy assistants might also face possible exposure while assisting therapists in transfers or wound dressing. The reception staff, who have daily face-to-face contact with the high turnover of outpatients, also face possible exposure to SARS from the public.

Judging from the amount of close contact required in rehabilitation therapy sessions, the actual risk of being exposed to SARS was considerably high. Thus, health naturally became something more important to most of the participants during the SARS period as reflected in Table 4.

The study done by Chan and Chan (2004b) in the same hospital showed that 35% of doctors and 25% of nurses scored ≥ 5 on the GHQ. On the IES, 20% of doctors and 20% of nurses scored ≥ 30 on the IES. These health-care workers were not directly involved in caring for the SARS patients. Although doctors and nurses were often thought to be more prone to exposure than other health-care workers, 23.4% of the rehabilitation staff had >5 GHQ score (which is only a 1.6% difference to the nurses’ score and a 11.6% difference to the doctors’ score). This similarity could imply that the ‘perceived level of

<table>
<thead>
<tr>
<th>GHQ – somatic:</th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (sd)</td>
<td>1.39 (1.94)</td>
<td>1.08 (1.55)</td>
<td>1.67 (2.08)</td>
<td>0.00 (0.00)</td>
<td>0.40 (0.55)</td>
</tr>
<tr>
<td>Range</td>
<td>0–6</td>
<td>0–5</td>
<td>0–4</td>
<td>0–0</td>
<td>0–1</td>
</tr>
<tr>
<td>Median</td>
<td>0.0</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>GHQ – anxiety:</td>
<td>Mean (sd)</td>
<td>0.83 (1.38)</td>
<td>0.54 (1.33)</td>
<td>0.33 (0.58)</td>
<td>0.13 (0.35)</td>
</tr>
<tr>
<td>Range</td>
<td>0–4</td>
<td>0–4</td>
<td>0–1</td>
<td>0–1</td>
<td>0–1</td>
</tr>
<tr>
<td>Median</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>GHQ – social:</td>
<td>Mean (sd)</td>
<td>1.61 (2.09)</td>
<td>1.38 (1.85)</td>
<td>1.33 (1.53)</td>
<td>0.00 (0.00)</td>
</tr>
<tr>
<td>Range</td>
<td>0–6</td>
<td>0–5</td>
<td>0–3</td>
<td>0–0</td>
<td>0–1</td>
</tr>
<tr>
<td>Median</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>GHQ – depression:</td>
<td>Mean (sd)</td>
<td>0.50 (0.99)</td>
<td>0.62 (0.96)</td>
<td>0.33 (0.58)</td>
<td>0.00 (0.00)</td>
</tr>
<tr>
<td>Range</td>
<td>0–4</td>
<td>0–3</td>
<td>0–1</td>
<td>0–0</td>
<td>0–1</td>
</tr>
<tr>
<td>Median</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>GHQ – total:</td>
<td>Mean (sd)</td>
<td>4.33 (5.26)</td>
<td>3.62 (4.99)</td>
<td>3.67 (1.53)</td>
<td>0.13 (0.35)</td>
</tr>
<tr>
<td>Range</td>
<td>0–16</td>
<td>0–15</td>
<td>2–5</td>
<td>0–1</td>
<td>0–2</td>
</tr>
<tr>
<td>Median</td>
<td>1.5</td>
<td>1.0</td>
<td>4.0</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>IES – intrusive:</td>
<td>Mean (sd)</td>
<td>6.39 (4.98)</td>
<td>6.54 (5.14)</td>
<td>3.33 (2.52)</td>
<td>3.63 (3.89)</td>
</tr>
<tr>
<td>Range</td>
<td>0–15</td>
<td>1–16</td>
<td>1–6</td>
<td>0–10</td>
<td>2–10</td>
</tr>
<tr>
<td>Median</td>
<td>5.5</td>
<td>8.0</td>
<td>3.0</td>
<td>2.0</td>
<td>8.0</td>
</tr>
<tr>
<td>IES – avoidance:</td>
<td>Mean (sd)</td>
<td>7.78 (6.46)</td>
<td>9.08 (7.72)</td>
<td>2.33 (1.53)</td>
<td>5.50 (6.46)</td>
</tr>
<tr>
<td>Range</td>
<td>0–20</td>
<td>0–26</td>
<td>1–4</td>
<td>0–18</td>
<td>0–26</td>
</tr>
<tr>
<td>Median</td>
<td>5.5</td>
<td>9.0</td>
<td>2.0</td>
<td>3.5</td>
<td>14.0</td>
</tr>
<tr>
<td>IES – total:</td>
<td>Mean (sd)</td>
<td>14.17 (10.57)</td>
<td>15.62 (11.27)</td>
<td>5.67 (3.21)</td>
<td>9.13 (10.12)</td>
</tr>
<tr>
<td>Range</td>
<td>0–33</td>
<td>0–34</td>
<td>2–8</td>
<td>0–28</td>
<td>3–34</td>
</tr>
<tr>
<td>Median</td>
<td>12.5</td>
<td>19.0</td>
<td>7.0</td>
<td>7.0</td>
<td>24.0</td>
</tr>
</tbody>
</table>

GHQ–somatic=symptoms of somatization; GHQ–anxiety=symptoms of anxiety/insomnia; GHQ–social=symptoms of social dysfunction; GHQ–depression=symptoms of severe depression; IES–intrusive=intrusive symptoms caused by traumatic stress; IES–avoidance=avoidant symptoms caused by traumatic stress; sd=standard deviation
risk’ of getting infected may be the factor that contributed to the psychiatric symptoms, despite the difference in the nature of job.

To further support the above statement, Chan and Chan (2004b) also mentioned that there was no significant difference in GHQ and IES scores for the group who were exposed to SARS or probable SARS patients vs the group who were first generation contact. This further highlights that regardless of exposure to SARS, significant emotional impact still occurs.

Applying the same argument in this study, it could be the perception of risk that had contributed to most of the emotional stress of staff at the rehabilitative service than the actual job scope. This view could also explain the absence of statistical difference between discipline, marital status and age group in developing psychiatric or post-traumatic stress symptoms.

Precautionary measures taken at work
Precautionary measures were viewed by participants as being most helpful. At the beginning, the sudden epidemic caught the hospitals by surprise. Most were not ready to deal with the crisis. There were inconsistencies in the providence and implementation of the personal protection equipment in the hospital where the study was conducted. Thus, some staff felt more secure when precautionary measures were in place.

Precautionary measures taken at work
Precautionary measures included clear communication of directives and disease information about SARS, precautionary measures taken at work, being able to give feedback to hospital management, support from hospital administration, support from my supervisor, manager or head, support from my colleagues, support from my family, being able to talk to someone about my concerns, and my religious convictions.

TABLE 4.  Responses to: ‘Because of the SARS situation, the following have become more important to me’

<table>
<thead>
<tr>
<th></th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
<th>Total no. of participants (n=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My health:</td>
<td>Disagree 1 (5.6%)</td>
<td>Agree 17 (94.4%)</td>
<td>2 (15.4%)</td>
<td>0 (0%)</td>
<td>2 (25.0%)</td>
<td>5 (10.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 (84.6%)</td>
<td>3 (100.0%)</td>
<td>6 (75.0%)</td>
<td>5 (100.0%)</td>
</tr>
<tr>
<td>My relationship with family:</td>
<td>Disagree 10 (5.6%)</td>
<td>Agree 17 (94.4%)</td>
<td>9 (69.2%)</td>
<td>2 (66.7%)</td>
<td>5 (62.5%)</td>
<td>22 (46.8%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 (30.8%)</td>
<td>1 (37.5%)</td>
<td>3 (37.5%)</td>
<td>25 (53.2%)</td>
</tr>
<tr>
<td>My relationship with friends:</td>
<td>Disagree 4 (22.2%)</td>
<td>Agree 14 (77.8%)</td>
<td>6 (46.2%)</td>
<td>1 (33.3%)</td>
<td>4 (50.0%)</td>
<td>15 (31.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 (53.8%)</td>
<td>2 (66.7%)</td>
<td>4 (50.0%)</td>
<td>16 (34.0%)</td>
</tr>
<tr>
<td>My relationship with colleagues:</td>
<td>Disagree 4 (22.2%)</td>
<td>Agree 14 (77.8%)</td>
<td>7 (53.8%)</td>
<td>1 (33.3%)</td>
<td>4 (50.0%)</td>
<td>16 (34.0%)</td>
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<td></td>
<td></td>
<td></td>
<td>6 (46.2%)</td>
<td>2 (66.7%)</td>
<td>4 (50.0%)</td>
<td>16 (34.0%)</td>
</tr>
<tr>
<td>Work:</td>
<td>Disagree 5 (29.4%)</td>
<td>Agree 12 (70.6%)</td>
<td>9 (69.2%)</td>
<td>1 (33.3%)</td>
<td>4 (50.0%)</td>
<td>19 (40.4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 (30.8%)</td>
<td>2 (66.7%)</td>
<td>4 (50.0%)</td>
<td>27 (57.4%)</td>
</tr>
<tr>
<td>Spiritual beliefs:</td>
<td>Disagree 8 (44.4%)</td>
<td>Agree 10 (55.6%)</td>
<td>6 (46.2%)</td>
<td>0 (0%)</td>
<td>4 (50.0%)</td>
<td>18 (38.3%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 (53.8%)</td>
<td>3 (100.0%)</td>
<td>4 (50.0%)</td>
<td>26 (55.3%)</td>
</tr>
</tbody>
</table>

TABLE 5.  Responses to: ‘Things that helped me to cope with the SARS situation’

<table>
<thead>
<tr>
<th></th>
<th>Physiotherapists (n=18)</th>
<th>Occupational therapists (n=13)</th>
<th>Speech therapists (n=3)</th>
<th>Therapy assistants (n=8)</th>
<th>Other (n=5)</th>
<th>Total no. of participants (n=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear communication of directives and disease information about SARS:</td>
<td>Disagree 1 (5.6%)</td>
<td>Agree 17 (94.4%)</td>
<td>2 (15.4%)</td>
<td>0 (0%)</td>
<td>2 (25.0%)</td>
<td>5 (10.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 (84.6%)</td>
<td>3 (100.0%)</td>
<td>6 (75.0%)</td>
<td>5 (100.0%)</td>
</tr>
<tr>
<td>Precautionary measures taken at work:</td>
<td>Disagree 1 (5.6%)</td>
<td>Agree 17 (94.4%)</td>
<td>1 (7.7%)</td>
<td>0 (0%)</td>
<td>1 (12.5%)</td>
<td>3 (6.4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17 (92.3%)</td>
<td>3 (100.0%)</td>
<td>7 (87.5%)</td>
<td>44 (93.6%)</td>
</tr>
<tr>
<td>Being able to give feedback to hospital management:</td>
<td>Disagree 11 (61.1%)</td>
<td>Agree 7 (38.9%)</td>
<td>3 (23.1%)</td>
<td>1 (33.3%)</td>
<td>2 (25.0%)</td>
<td>17 (36.2%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 (76.9%)</td>
<td>2 (66.7%)</td>
<td>6 (75.0%)</td>
<td>30 (63.8%)</td>
</tr>
<tr>
<td>Support from hospital administration:</td>
<td>Disagree 9 (50.0%)</td>
<td>Agree 9 (50.0%)</td>
<td>2 (15.4%)</td>
<td>1 (33.3%)</td>
<td>3 (37.5%)</td>
<td>15 (31.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 (84.6%)</td>
<td>2 (66.7%)</td>
<td>5 (62.5%)</td>
<td>32 (68.1%)</td>
</tr>
<tr>
<td>Support from my supervisor, manager or head:</td>
<td>Disagree 4 (22.2%)</td>
<td>Agree 14 (77.8%)</td>
<td>1 (7.7%)</td>
<td>1 (33.3%)</td>
<td>1 (12.5%)</td>
<td>7 (14.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 (92.3%)</td>
<td>2 (66.7%)</td>
<td>7 (87.5%)</td>
<td>40 (85.1%)</td>
</tr>
<tr>
<td>Support from my colleagues:</td>
<td>Disagree 3 (17.6%)</td>
<td>Agree 14 (82.4%)</td>
<td>1 (7.7%)</td>
<td>0 (0%)</td>
<td>2 (25.0%)</td>
<td>7 (14.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 (92.3%)</td>
<td>3 (100.0%)</td>
<td>6 (75.0%)</td>
<td>39 (83.0%)</td>
</tr>
<tr>
<td>Support from my family:</td>
<td>Disagree 3 (17.6%)</td>
<td>Agree 14 (82.4%)</td>
<td>2 (15.4%)</td>
<td>0 (0%)</td>
<td>2 (25.0%)</td>
<td>8 (17.0%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 (84.6%)</td>
<td>3 (100.0%)</td>
<td>6 (75.0%)</td>
<td>39 (83.0%)</td>
</tr>
<tr>
<td>Being able to talk to someone about my concerns:</td>
<td>Disagree 6 (33.3%)</td>
<td>Agree 12 (66.7%)</td>
<td>4 (30.8%)</td>
<td>0 (0%)</td>
<td>2 (25.0%)</td>
<td>13 (27.7%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 (69.2%)</td>
<td>3 (100.0%)</td>
<td>6 (75.0%)</td>
<td>39 (83.0%)</td>
</tr>
</tbody>
</table>
staff felt confused, worried and unhappy with the unclear directives.

Shortly after, when the ministry led the hospitals, information became clearer and infection control was greatly stepped up. Masks and respirators, gowns and gloves were mandatory. Strict hand-washing techniques were strongly advised. The hospital organized training sessions and mask-fitting sessions to ensure that all staff were well trained in infection control. There were audits and surveillance teams to check on the staff to make sure they were practicing strict infection control. Hair nets and goggles were also made available.

With strict infection control in place, therapists and other support staff felt more protected and less stressed and worried during their duty. This observation was consistent with the findings in the coping questionnaire of this study. Taking ample precautionary measures not just helped to reduce the actual risk of exposure, but also the staff’s perceived risk of exposure. This ‘perceived security’ helped to reduce emotional stress, fear and anxiety at work.

**Availability of social support**

Availability of someone to talk to, whether a family member, supervisor or colleague, was viewed by more than 80% of the participants as a strategy that helped them cope with the SARS situation (Table 5). These findings show that social support and ventilation about concerns had a big part to play in managing psychological stressors generated by the SARS outbreak. Maunder et al (2003) commented that it is important to overcome interpersonal isolation, especially in times of intense strain and stress, which complements the result of this study.

More participants found talking to colleagues more helpful than talking to family (Table 5). This perception could be owing to the familiarity and identification with fellow colleagues compared with family members. During the SARS outbreak, support groups were held at the rehabilitative services about three times a week with an average attendance of five staff per session. Staff freely voiced their concerns through the group, which included discomfort from personal protection equipment, less work satisfaction and discrimination by the public. The positive effect of giving staff opportunities to vent to support this study’s findings that talking to colleagues was rated as the one the most useful coping strategies for most staff.

Talking to family and having someone to talk to were also viewed as important by 83% of participants, although a higher percentage rated talking to colleagues more useful. This small difference in percentage might suggest that fellow hospital workers were more able to empathize with the participants, whereas not all family members were able to understand the emotional stress that the participants were going through. Some had perhaps been pressured by their family members to resign from the ‘risky’ job.

The above explanation might mean that during a workplace crisis, colleagues may be better emotional supporters than family members. In addition, factor analysis showed that colleagues were viewed as a different group from the family. Support from families and from colleagues were viewed separately by the participants. Moreover, relationships with colleagues were becoming more important to the participants during SARS, which emphasized that colleagues were indeed preferable emotional supporters, as they were going through the crisis together.

Support from the supervisor or manager was also rated highly important. This might be because of the authority they had in making positive changes to work process and procedures pertinent to participants’ welfare at work. This explanation could be further supported by the factor analysis, whereby feedback to the hospital administration and feedback to the supervisor were clustered together, whereas support from colleagues was viewed as a separate category.

**Sense of control**

In total, 89.4% of the participants felt that SARS information and communication of directives were important in helping them cope with the situation. A perceived sense of control has been known to enhance empowerment of staff and allow them to better cope with stress (Spence et al, 2001; Spickard et al, 2002). Studies have highlight that sense of control has positive impact on health and wellbeing (Langer and Rodin, 1976; Bandura, 1997).

When the hospital became more organized, there were daily briefings in the department. Staff felt more updated, for example on which wards were to close and which wards had suspected SARS patients. The understanding of what direction the hospital was taking enabled staff to feel more secure in their environment. The availability of the personal protection equipment also gave the staff responsibility and choice over their own protection. These steps taken by the hospital gave them a greater sense of control over the situation. Hence, during an unknown epidemic like SARS, it is important to provide clear and necessary information and instructions.

It was interesting to note that those who viewed work as becoming more important to them over the SARS period predicted higher GHQ scores. It could be that these staff felt an increasing sense of responsibility as health-care workers during this hospital crisis. In addition, there was great credit and respect given to health-care workers during that time by the public as well as the government. These obligations
to fulfil societal expectation and personal expectation might make one feel very responsible for one’s patients, resulting in more stress and anxiety.

Another explanation could be that those who valued their work more were facing a dilemma. Do they fight on in the job that they value, or live in fear of infecting their loved ones? Those who had less passion for their jobs would have been able to leave their jobs more easily. During the SARS outbreak, there were some staff who self-quarantined to avoid possible spread of SARS to their families. The pain of separation, in addition to the work stress, could have possibly contributed to the higher GHQ scores for those who rated their work as important.

CONCLUSION

Although the rehabilitative department in this study was not directly hit by SARS, the epidemic did affect staff emotionally.

Having a perceived sense of control, a reduced perceived risk and available social support were important in the health and wellbeing of the staff during the SARS crisis. Hence, clear directives and disease information, as well as being able to ventilate and voice their concerns, are important in empowering staff and in turn, improving their ability to cope.

Making all protective equipment available to all staff did not just protect them physically – it made them feel safer. The sense of control and the perceived risk level appear to be the actual determinants of emotional impact, despite the actual risk level.

In conclusion, rehabilitation departments within the hospitals and rehabilitation community facilities need to be more proactive in managing an epidemic situation like SARS because staff face similar emotional risks as other professionals. These conclusions could also be generalized to different levels of staff within the health-care setting. The study also highlighted the need for hospital and other health-care facilities to be prepared with a crisis structure: good communication channels, efficient information dissemination, availability of trained emotional supporters among peers and good infection control practices. All these measures will improve staff morale and coping abilities.

Health workers are the pillars of the health-care industry, which was especially reflected during this SARS outbreak. Therefore, health-care staff must be protected both physically and emotionally, and have continual work satisfaction and efficiency.

This study has its limitations owing to a small sample size (n=47) for exploratory factor analysis. However, there is consistency in the general findings with articles studying other groups of health-care workers (Chan and Chan, 2004b; Lau et al, 2004; Tsang et al, 2004).

KEY POINTS

- SARS has caused some staff in the Singaporean rehabilitative services to develop psychiatric and post-traumatic stress symptoms.
- Good infection control and getting support from colleagues have helped staff to cope with SARS.
- Hospitals and health facilities should look into specific strategies to support staff emotionally and practically during an epidemic like SARS.

This study was supported by Singhealth Research Fund (SL002/2001). The authors would like to thank Dr Angelina Chan, consultant psychiatrist, Changi General Hospital for her patient guidance; the staff of Changi General Hospital rehabilitative services for taking time to complete the survey; and all health-care workers for their courage and sacrifice in the fight against SARS.


The SARS crisis was the first epidemic caused by a novel virus in the 21st century. While its biological aspects were swiftly elucidated, the psychosocial impact of the infection was only briefly investigated.

In summary, the studies have demonstrated that health-care workers and patients experienced feelings of isolation, boredom, anger and fear. The factors that appeared to predict psychological distress could be summarized as:

- Perceived vulnerability of both the patient and health-care worker, as shown by increased distress in those who perceived greater risk of death, those who reported little personal control and those who felt stigmatized.
- Perceived vulnerability in the patients’ and health workers’ families, as shown by increased distress in those who stayed with children or those who were more concerned about their family’s health.
- Impact on the patient’s and health worker’s lifestyle.
- Conflict between the health professional’s perceived occupational role and the difficulty in performing that role because of protective measures.

In some of the studies, the health care worker was found to be just as vulnerable as patients. Sim and Chan’s article demonstrated that those reporting work as becoming more important were more distressed. This is possibly because of heightened conflict of their ideals and the possibilities in a crisis situation. Coping strategies that were found to be useful were timely information and opportunities to communicate with various members in the hospital’s hierarchy, including the hospital’s management.

Fortunately, the SARS virus has not attacked with the same ferocity as it did one-and-a-half years ago. It will, however, be unfortunate if we do not apply the lessons that we have learnt.

I was surprised by the dearth of studies concerning psychological stress among physiotherapists and occupational therapists after a casual search in the MEDLINE and CINAHL databases. Many of the studies have focused on nurses and doctors. Sim and Chan point out that therapists are just as vulnerable as their health-care colleagues in epidemics.

In our daily work, therapists are no less exposed to the dying, to the disabled young and to patients who commit suicide in the midst of treatment. Should we not, too, attempt to understand the psychological and spiritual stress that working with these patients bring on therapists? This knowledge may mean that supervision of junior therapists should include some psychological aspects. It may also mean that occupational therapy and physiotherapy fraternities may have to communicate these vulnerabilities to hospital leaderships.

Further research into the psychosocial impact of SARS in new cohorts would hopefully not be possible. However, little is known of the longitudinal effects of exposure to such unique stressors. It would be interesting for Sim and Chan to explore these effects in their sample.

Work stress and vulnerable therapists are facts of life. Perhaps it is timely for us to begin our exploration into these areas.

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Singapore 308433

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