Community Reactions
to the SARS Crisis in Hong Kong:
Analysis of a Time-Limited
Counseling Hotline

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ABSTRACT. This paper is based on an analysis of the calls to a time-limited hotline specifically set up in response to the SARS crisis in Hong Kong in 2003. The findings of the study indicate that the arena and level of concern raised by the hotline callers are associated with the situation of the callers and the developmental phase of the disaster. The authors call for welfare service organizations to adopt a differential service focus for different phases of disaster development, when they are confronted with similar public health hazards in the future. The study also identifies the special role played by women in containing the epidemic, and suggests more gender sensitive intervention planning in addressing the needs of women in their gate-keeping and care-giving roles during an epidemic. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> ©2005 by The Haworth Press, Inc. All rights reserved.]*

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INTRODUCTION

Hong Kong, a territory frequently hit by typhoons and rainstorms, has, in the course of its history, encountered a number of disasters arising from the natural agents of landslides and flooding. But hardly ever has the society of Hong Kong been so devastated and demoralized as when the SARS (Severe Acute Respiratory Syndrome) epidemic struck the territory in the misty spring of 2003. Faced with the novelty and speedy spread of the virus that hit 1,755 individuals and claimed the lives of nearly 300, the Government's emergency response system has proved to be inadequate in managing the disaster.

In dealing with the sudden outbreak of the epidemic, the civil society in Hong Kong played an important role, supplementing the Government's efforts in handling the community crisis. Among the earliest civil reactions to this collective crisis was the launching of a counseling hotline by the Department of Social Work of the Chinese University of Hong Kong (CUHK) and the Evangelical Lutheran Church Social Service-Hong Kong (ELCSS-HK), a non-governmental welfare organization. The time-limited hotline was meant to render emotional support to the anxious public as well as to the medical workers combating the epidemic. Within two days of its launch, over 80 University students, the majority from the Department of Social Work, were mobilized to serve on the hotline as volunteers. The hotline was started on 24 March 2003, capturing the first wave of community concern at the outbreak of the crisis. It lasted till 26 April 2003, when a drop in calls was observed, accompanying an increased number of similar hotline services. The study on which this paper is based is a content analysis of the calls received by this time-limited hotline. It is an attempt to capture the psychological response and identify the arena of concern among hotline users when the society of Hong Kong received the first wave of shock at the onset of the SARS crisis.

The existing literature on time-limited hotlines have multiple foci, including the practical skills used in providing counseling in crisis intervention (Lester, 2002; Roberts, 1995), supervision and training of volunteers (Kinzel & Nanson, 2000; Seeley, 1997), assessment of effectiveness of hotline counseling (Morrow-Howell, 1998), and identification of problems raised by hotline users (Boehm, 1998; Mrsevic &

Hughes, 1997; Teare, Garrett, Coughlin, Shanahan, & Daly, 1995). The social context in which the hotline is introduced, however, has a significant impact on how services should be arranged and operated for the benefit of those in need. This study of a time-limited hotline, established as an emergency response to the SARS crisis in Hong Kong, is an analysis of the concerns and problems raised by the hotline users in a crisis situation; it seeks to locate the response of the community to this unprecedented public health hazard; and it aims at contributing to the development of more coherent and effective services in response to similar disasters in the future. The value of this exploratory study consists not in its generalizability, but in the systematic organization of observations from the time-limited hotline in a public crisis, from which further research agenda can be developed. Its findings should also provide insights into the kinds of service responses which welfare organizations will need to make, in the event of any recurrence of the epidemic.

The paper will begin with an identification of the phases of the development of the SARS crisis in Hong Kong. To enable more precise analysis of the social processes involved in the crisis, the general phases in disasters identified by Barton (1970) are adopted in the discussion that follows. These general phases are: (1) the period of detection and communication of warnings of a specific threat; (2) the period of immediate, relatively unorganized response; and (3) the period of organized social response (Barton, 1970).

THE CONTEXT: DIFFERENT PHASES OF THE SARS CRISIS IN HONG KONG

The SARS crisis started with an outburst of the epidemic in the Prince of Wales Hospital (PWH) in early March 2003, when many doctors, nurses, and medical students were infected by a then virtually unknown virus. Worries and anxieties built up in the Hong Kong community as the number of infected cases grew. The absence of knowledge about the virus, coupled with its speedy spread, created a crisis atmosphere that was unprecedented in Hong Kong. Knowledge about the new epidemic was so imperfect that the nature of the virus, the symptoms of infection, the route of transmission, and the appropriate treatment were all subject to recurrent controversy and continual discovery. Whether facemasks should be worn in public places was also a subject

of controversy when the threat was initially detected. But the controversy was short-lived. The threat was clearly recognized and this was reflected in the citizens' hunt for facemasks shortly after the onset of the epidemic.

Following the detection of the threat and a series of public warnings, the community of Hong Kong reluctantly acknowledged that the customary ways of coping with public health problems did not work any more. For the first time since World War II, emergency medical services were temporarily suspended in PWH on 19 March 2003 and subsequently in other infected hospitals as well. The communal hazard also threatened normal daily routines in Hong Kong. Witnessing the steep rise in infected cases, the Hong Kong Government announced on 27 March, 2003 the suspension of classes in all schools below tertiary level. University authorities followed suit, and activity in all educational institutions was virtually put to a halt. From early March to the suspension of classes on 28 March 2003, warnings about the specific threat from this unknown virus were communicated to the community. We label this, after Barton (1970), the "threat detection phase."

The Government's decision to suspend classes in all schools was related to the outbreak of a large-scale community infection in the residential area of Amoy Gardens, in which coincidental environmental factors caused the infection of hundreds of residents in a small residential community. Residents in the major infected block of Amoy Gardens were quarantined in their own flats on 31 March 2003, and were later quarantined in holiday camps in an effort to control the infection. The Amoy Gardens infection, which eventually accounted for more than 40 deaths, prompted the introduction of quarantine measures for the family members of infected patients.

At the same time, the number of contracted cases went into a steep rise. The highest number of new infections in a single day during the period was 81. With such a high number of new cases, a sense of risk built up quickly in the community of Hong Kong. This sense of risk was manifested among consumers in a rush to the supermarkets to stock up when, on 1 April, April Fools' Day, a 14-year-old lad spread a rumor over the Internet to the effect that the border would be closed.

In the face of an invisible and unknown virus hiding in the community, the customary values of trust and courtesy came under challenge. Government promotional clips on television urged the citizens of Hong Kong not to trust their hands to touch their own eyes, nose, and mouth, and to wash their hands always before touching any part of their face.

As carriers of the virus might not present symptoms, people were advised to keep others at a distance. Shaking hands, a normal expression of courtesy in social life, was discouraged. In the shadow of SARS, social life in Hong Kong was virtually brought to a temporary halt, when people were asked to avoid public places and close encounters with other people. Ostensibly, SARS had emerged as more than a public health hazard. It was a challenge to the customary life of the people in the metropolitan city of Hong Kong.

The public health hazard arising from the SARS epidemic was beyond the experience of the Hong Kong Government, and was not included in any pre-conceived contingency plan. Amidst the uncertainties accompanying the new virus and in the absence of any precedent, complaints and arguments were not wanting during the period. A prominent argument at that time was whether sufficient protective facilities were provided to hospital staff and whether they were distributed in an efficient manner. This period, from late March to mid April, was when the impact of the disaster was most intensely felt, and the government response to the disaster still largely disorganized. Following Barton (1970s) classification, we label it the "disaster impact phase."

It was not until 12 April that infection figures began to display a steady downward trend. As the Hong Kong community began to absorb the reality of the epidemic, various sectors began to take measures to resume operations in the shadow of the threat from SARS. Educational institutions issued policy statements about wearing facemasks when classes resumed. The facilities management sector upgraded their cleaning standards and enhanced their cleaning procedures to regain the confidence of users. The operators of public transport provided free masks to passengers and advised them to wear them during their journey. The civil society also started to contribute their own resources, when the government, on its own, was seen as inadequate in responding to the disaster. The media initiated a fund raising campaign to provide protective clothing and masks for medical workers. Some young professionals established a Web site to announce the residential and work addresses of infected SARS cases, when the government refused to do so. We identify the period after mid April as the "more organized reaction phase." During this period, non-governmental social service organizations initiated a number of contingent services for vulnerable groups to supplement the government's efforts (see Chart 1).

ESTABLISHMENT OF THE SARS
EMOTIONAL SUPPORT HOTLINE

The importance of social welfare services is always highlighted at a time of community crisis. Given the profession's overarching values of human worth and social justice (Miley et al., 2001), social work has been expected to play a significant role in emergency services (Zakour, 1996). Social welfare organizations have an expressed concern for the welfare of disadvantaged and vulnerable populations, who are particularly prone to being affected by disasters. After the SARS outbreak, social welfare organizations in Hong Kong were active in providing supportive services to the community. The counseling hotline analyzed in this study is such a civil response, being a joint endeavor between a non-governmental welfare organization and a social work training institute.

The SARS Emotional Support Hotline was intentionally set up to provide emotional support and information as well as tangible services for those directly or indirectly affected by the SARS epidemic. In the period from 24 March 2003 to 26 April 2003, the hotline operated seven days a week from 2:00 p.m. to 10:00 p.m. Volunteers serving at the hotline included undergraduate and postgraduate social work students and students from the medical school. Whilst the social work students were mainly responsible for rendering emotional support, the medical students provided medical knowledge and information for perplexed callers. Experienced social workers from ELCSS-HK assisted by providing supervision and support to the college students serving at the hotline, at the same time answered incoming calls in the morning 'non-official' hotline sessions.

All volunteers serving at the hotline were requested to attend a pre-service training session, in which they were given information about SARS, and introduced to basic telephone counseling skills and to the various tangible services available in the community. At the start of each service session, the volunteers were also given a briefing by the on-duty social workers, to bring them up to date with information and know-how in relation to the epidemic. At the end of each service session, a debriefing meeting was also convened by the social workers of ELCSS-HK or the faculty staff of the Department of Social Work, CUHK, to facilitate reflection on their experience among the volunteers. Many of the initial research ideas were generated from the observations shared in these reflective sessions. For example, the hypothesis of a relationship between the arena of concern and the disaster phase was generated from the volunteers' observation of differential concerns

raised by the hotline callers in different service periods. Various stories about the ordeals of female callers also stimulated us to explore the gender issue in disaster mitigation and relief.

Admittedly, the pressure for promptness and expediency in launching the hotline did not allow the thoroughness usually expected in regular intervention planning. The choice of a counseling hotline as an intervention modality was itself influenced by resource considerations at a time when an elaborative planning process could not yet be undertaken. The availability of a pool of eager college students equipped with basic counseling skills and medical knowledge, and the technical expertise of the ELCSS-HK in operating telephone hotlines, exerted a significant influence on the choice of a hotline service as a modality of intervention. Without denouncing the validity of such a pragmatic approach, which is often required at times of crisis and contingency, post hoc reflection and analysis is necessary if this experience is to be useful in future crisis situations of a similar kind.

METHOD OF STUDY

This study is a retrospective analysis of the caller records of the SARS Emotional Support Hotline. After receiving an incoming call, the social workers and the volunteers on-duty were required to record, on a hotline caller record sheet, the caller's personal background, residential area, issues raised, and the service rendered. The caller record sheet was designed primarily as an administrative tool to record all the incoming calls and to allow necessary follow up contacts with the callers. Excluding enquiry calls by the media, the hotline received 644 calls by individual users. Our study is a content analysis of all caller record sheets, on which the background, residential area, and issues raised by each caller were recoded according to a categorization scheme developed by the researchers. We also carry out qualitative analysis on the content of the concerns raised by the callers, which supplements the aggregate quantitative data.

Adopting the framework of Leung et al. (1993), the callers to the hotline are categorized by reference to their role as "direct victims," "victims' kin," "proxy victims" and "peripheral victims" in the disaster. The "direct victims" are those who have demonstrated symptoms of the disease or are confirmed SARS cases. Those with family members, relatives, or friends who have contracted the disease are classified as "victims' kin." "Proxy victims" are the medical staff, who have a high

risk of infection and are susceptible to high stress in the performance of their duty of care to the SARS victims. "Peripheral victims" are those callers who have not been directly affected by the epidemic, but are considerably troubled by the signals of threat and the rising incidents of cases in the community. This categorization serves to highlight the contextual background of the hotline callers, from which their concerns can be better understood.

We divide the concerns of the callers into three arenas: "emotional/affective," "informational/cognitive," and "tangible service." If a caller expresses anxiety, worry, and stress, the content is classified as emotional concern. An informational/cognitive concern is characterized by a focus on the cognitive domain manifested in informational inquiries and/or expression of opinions and views in relation to the SARS crisis. If a caller calls for practical assistance like home-help, childcare, and/or liaison with medical social workers/doctors, the concern is classified as "tangible service."

With respect to the level of concern, we divide the issues raised by callers into four levels: "societal," "neighborhood," "family" and "individual." Concerns about the whole society and the action and inaction of the government are classified as societal concerns. Stories about infected and suspected cases in the neighborhood and the community, isolation and social exclusion by others, and other environmental and public health issues in the community are classified as neighborhood/community concerns. Calls expressing concern about family members and other household members such as domestic helpers are classified as family concern. Calls bringing up issues about personal health, risks, and emotional upheaval suffered by the callers themselves are classified at the individual level.

This time-limited hotline can also be demarcated by reference to the phases in the development of the SARS disaster. When the hotline was started in 24 March 2003, the outbreak of infection at the Prince of Wales Hospital (PWH) had given out a signal of threat to the community. The initial operating days of the hotline, from 24 March to 27 March, fall into the "threat detection phase." The period from 28 March to 11 April was when the impact of the disaster was most intensely felt. This period witnessed a steep rise in numbers of infected cases, the suspension of classes in all educational institutions, large-scale community infection in Amoy Gardens, and the introduction of quarantine measures. It was also a period in which the government's response to the disaster was still largely disorganized. We call it a "disaster impact phase." It was not until 12 April that the figure began to present a steady

downward trend. Apart from government action, the civil society started to contribute their own resources to supplement governmental effort. In our analysis, we group the dates from 12 April to 26 April (the termination date of the hotline service) into the same period, calling it the "more organized reaction phase." Admittedly, the division between phases is a little arbitrary. However, the time dimension is included in our analysis as the periods identified are clearly marked by distinctive developments in the crisis situation (as shown in Chart 1), and by expectations of different patterns of social response.

A research assistant was employed to recode all the record sheets of the hotline. 10% of the recoded data, about 64 cases, were randomly selected for cross-checking by the two researchers individually, so as to increase the validity and reliability of the recoding. Using "phases" of

CHART 1. Different Stages of Development of SARS and Numbers of Affected Patients and Callers
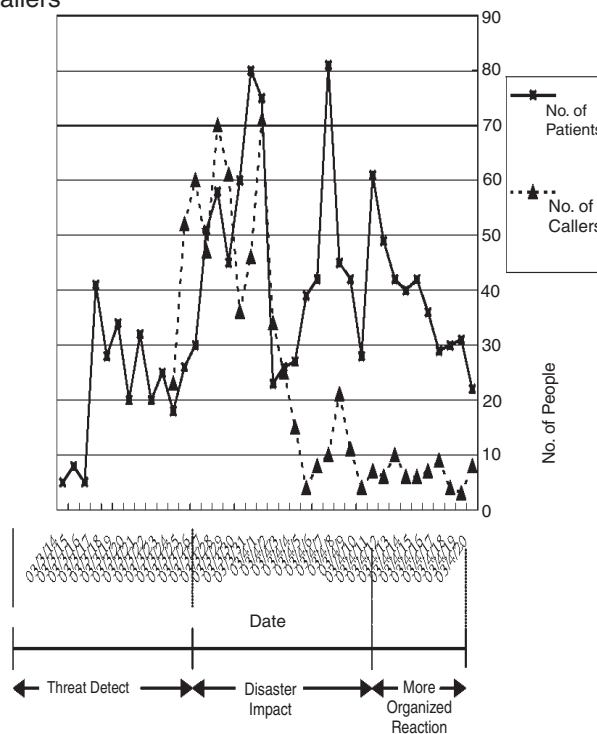
the crisis and "categories" of the callers as independent variables, and "arena" and "level" of concern as dependent variables, we aimed to explore how different stages of the disaster development and different categories of service users are related to different arenas and levels of concern raised.

FINDINGS

Characteristics of the Hotline Users

As indicated in Table 1, females outnumbered males quite substantially among the 664 callers to the hotline. Sixty-nine point five percent of the callers were female, while only 30.5% were male. The "direct victims," i.e., suspected and confirmed SARS patients, constitute one-tenth (10.7%) of the callers. About one-fourth (23%) of the callers to the hotline were the victims' kin, who had infected family members, relatives, or friends. "Proxy victims," i.e., the medical staff, constitute only 1.3% of the callers. Over six in ten callers (65.1%) were "peripheral victims," who were not directly affected by the epidemic, but were troubled by its outbreak.

TABLE 1. Distribution of the Characteristics and Concerns of Hotline Users

Sex	Female	69.5%
	Male	30.5%
Category	direct victims	10.7%
	victim's kin	23.0%
	proxy victims	1.3%
	peripheral victims	65.1%
*Area of concern	emotional/affective	53.6%
	informational/cognitive	49.4%
	tangible service	11.9%
*Level of concern	societal	10.5%
	neighborhood	3.9%
	family/work setting	35.7%
	individual	55.7%
Stage	threat detection phase	27.4%
	disaster impact phase	62.7%
	more organized reaction phase	9.9%

*These figures are the case percentages. Since multiple responses are allowed for the arena and level of concern, the total percentage is greater than 100.

Arena and Level of Concern Raised by the Hotline Users

The emotional and informational/cognitive arenas were raised more frequently than demands for tangible services. The majority (53.6%) of calls to the hotline are classified as emotional concerns. Ninety-three percent of these emotional expressions were not, however, accompanied by demands for tangible services or concrete support.

Qualitative analysis of the stories classified under emotional concern shows that some patients with chronic illness called to express their worries about the possibility of infection, when the government informed the community of the high death rate among those infected patients who already had chronic illnesses. Some pregnant women called to share their anxiety when medical practitioners announced that the drug for treating the new virus is potentially harmful to the fetus. Some residents of Amoy Gardens, the area with large-scale community infection, called to tell of their ordeal in an isolated community. Some callers who lived alone called to express their sense of helplessness in dealing with the situation by themselves. Those who had family members or friends who had contracted the disease articulated their intense worry about the condition of their loved ones and the possibility of themselves falling victim to the epidemic.

Forty-nine-point-four percent of the callers raised concerns in the informational/cognitive area. Informational inquiries constitute 70% of the concerns raised in the cognitive domain. A significant number of callers inquired about the symptoms of the disease and sought advice on mitigation measures. A few asked where facemasks could be bought, when stocks in the market were temporarily running low. A portion of callers expressed their views and opinions on government responses to the crisis. But these constitute less than 10% of those who shared in the cognitive area.

With respect to the level of concern, the greatest proportion of issues raised by hotline users is related to the individual (55.7%) or family/work setting (35.7%) level. They include the affective expression of worry and anxiety, as well as informational inquiries on how to ensure their own protection.

Calls Received in Various Phases of Disaster Development

About one-fourth (27.4%) of the calls were received in the first phase, the phase of "threat detection." The majority (62.7%) of the calls were received in the second phase, "disaster impact." About one-tenth

(9.9%) of the hotline calls were received in the last phase, "more organized reaction." Turning to the differential duration of the phases, the "threat detection phase" has an average call rate of 45.5 per day, compared with 27.7 calls per day in the "disaster impact phase" and 7.3 calls per day in the "more organized reaction phase."

Arena of Concerns in Different Phases

Further analysis of the relationship between the arena of concerns and phases of the crisis indicates that concern in the informational/cognitive arena was more likely to be raised in the "threat detection phase" ($p < 0.01$) (see Table 2). While 52.7% of the hotline users in the "threat detection phase" articulated concerns in the informational/cognitive area, only 31.8% raised the same concern in the "more organized response phase." Seventy-six percent of these cognitive concerns in the "threat detection phase" were informational inquiries. A greater proportion of requests for referral to tangible services was witnessed in the "more organized response phase" than in the other phases ($p < 0.01$). Whereas information is what is needed most to cope with the imminent sense of uncertainty and risk in the "threat detection phase," tangible assistance is demanded when the impact of the disaster on individuals is more profoundly felt as the crisis develops.

Another significant pattern emerging from the phase analysis is the higher proportion (18.2%) of hotline users who raised personal troubles unrelated to the SARS epidemic in the "more organized response phase." Only 4.5% of the callers in the disaster impact phase, and none in the threat detection phase raised personal troubles unrelated to the SARS epidemic through the hotline ($p < 0.01$).

TABLE 2. Arena of Concerns of Callers by Phases

Phase	Arena			
	Emotion	Information	Service	Others (unrelated to SARS)
Threat detection	57.0%	52.7%	6.0%	0%
Disaster impact	51.6%	50.7%	12.3%	4.5%
Organized reaction	60.6%	31.8%	25.8%	18.2%
	$\chi^2 = 2.67$ d.f. = 2 $p > 0.05$	$\chi^2 = 9.27$ d.f. = 2 $p < 0.01$	$\chi^2 = 18.1$ d.f. = 2 $p < 0.01$	$\chi^2 = 31.6$ d.f. = 2 $p < 0.01$

Arenas of Concern of Different Categories of Callers

Peripheral victims and direct victims were inclined to raise concern in the informational/cognitive arena. As indicated in Table 3, over half of peripheral victims (53.0%) and direct victims (52.9%) raised concerns in the informational/cognitive arena, while 39.5% of victims' kin, and 22.2% of proxy victims raised this area of concern (p < 0.01). The cognitive concerns raised by peripheral victims are mostly informational inquiries.

The direct victims, proxy victims, and the victims' kin, among all of whom disaster-related stress would be expected to be most prominent, tended to raise concerns in the emotional/affective area. About nine out of ten (88.9%) proxy victims, six out of ten direct victims (62.9%) and victims' kin (64.5%) raised concerns in the emotional/affective area. Less than half of the peripheral victims (47.9%) raised emotional concern (p < 0.01).

With respect to the level of concern, whilst direct victims and peripheral victims were concerned more at the individual level, the victims' kin were more concerned for their families. The proxy victims, i.e., the medical workers, were also more concerned for their families. Nine out of ten (90.0%) direct victims raised concerns at the individual level; six out of ten (60.9%) peripheral victims also raised concerns at the individual level, while only one out of ten (11.1%) proxy victims had individual concerns (p < 0.01). About nine out of ten (88.9%) proxy victims and two-thirds (65.1%) of victims' kin were concerned about their family, while a little more than one-fourth (28.6%) of the peripheral victims and less than one-tenth (8.6%) of the direct victims raised concerns about their families (p < 0.01) (see Table 4).

TABLE 3. Arenas of Concern of Callers by Category

	Arena	
Category	Emotion	Information
Direct victims	62.9%	52.9%
Victims' kin	64.5%	39.5%
Peripheral victims	47.9%	53.0%
Proxy victims	88.9%	22.2%
	χ^2 = 19.75, d.f. = 3, p < 0.01	χ^2 = 11.24, d.f. = 3, p < 0.01

Arena and Level of Concern by Gender

Female callers more frequently raised concern for family, while more male callers expressed concern at individual level. As indicated in Table 5, about four out of ten (41.0%) women raised concerns about family, while less than one-fourth (23.7%) of the men raised this level of concern ($p < 0.01$) (see Table 4). About seven out of ten men (65.7%) raised concern at individual level. However, only five out of ten women (51.1%) raised concern at this level ($p < 0.01$).

Women also tended to raise concern in the emotional arena among the hotline users. Fifty-six-point-eight percent of women callers raised emotional concern, while only 48% of male callers had emotional concerns ($p < 0.05$) (see Table 6). Though a greater percentage of men raised concern in the information and service arena than women, the gender difference in these two areas are not statistically significant ($p > 0.05$).

Intense feelings of stress were articulated in these expressions of concern in the emotional arena. The qualitative analysis of concern shows that many mothers of young children expressed worry about the possibility of infection in schools before the government decided on class

TABLE 4. Level of Concerns of Callers by Category

	Level	
Category	**Family**	**Individual**
Direct victims	8.6%	90.0%
Victims' kin	65.1%	28.3%
Peripheral victims	28.6%	60.9%
Proxy victims	88.9%	11.1%
	$\chi^2 = 100.3$, d.f. = 3, $p < 0.01$	$\chi^2 = 91.73$, d.f. = 3, $p < 0.01$

TABLE 5. Level of Concerns of Callers by Sex

	Level	
Sex	**Family/Work**	**Individual**
Male	23.7%	65.7%
Female	41.0%	51.1%
	$\chi^2 = 17.83$, d.f. = 1, $p < 0.01$	$\chi^2 = 11.83$, d.f. = 1, $p < 0.01$

TABLE 6. Arena of Concerns of Callers by Sex

Sex	Arena		
	Emotion	Information	Service
Male	48.0%	51.5%	14.1%
Female	56.8%	47.8%	11.2%
	χ^2 = 4.35, d.f. = 1, p < 0.05	χ^2 = 0.76, d.f. = 1, p > 0.05	χ^2 = 1.10, d.f. = 1, p > 0.05

suspension. A woman whose daughter was a medical student aired her feelings of anxiety about the exposure of her daughter to the danger of infection. Caregivers of elders in the family also had intense anxiety, and some expressed misgivings about taking their family members with chronic illness to hospitals for scheduled medical appointments.

DISCUSSION

Women Callers and Their Specific Roles in the SARS Crisis

About seven out of ten callers to this hotline were females. Gender difference in the utilization of counseling hotlines is a rather consistent finding across research (Waters & Finn, 1995). Earlier research on a mental health counseling hotline in Hong Kong also reveals a greater utilization rate among females (Wong & Leung, 1996). The gender difference in the utilization of this SARS counseling hotline can also be related to the specific role assumed by women in mitigating the SARS epidemic.

The maintenance of both personal and environmental hygiene as part of the effort to contain the SARS epidemic requires never-ending cleansing duties within the family and the community. In combating the public health crisis created by the SARS epidemic, the public was asked to perform regular cleaning of their home with disinfectant cleanser, and to pay greater attention to personal hygiene by frequent hand washing. Bearing their customary role of house-making and care-giving in the family, women became the anonymous heroines of the SARS epidemic, performing the endless job of cleaning and protecting the young and the old.

In traditional Chinese culture, the role of a female is to manage household affairs and to be a good bride, wife, and mother, whose primary obligation and duty is to satisfy her husband's needs. In China to-

day, a woman who gets married is still expected to be a dutiful wife, and being dutiful is still the key element in society's evaluation of whether a wife is properly fulfilling her role (Lin, 2000). Given this cultural expectation, particular stress is imposed on women by the increased household responsibilities and care-giving demands associated with disaster situations (Edwards, 1998). This view of the cultural role of women is supported by our findings; female callers more frequently raised concern for family, while male callers raised concerns more at the individual level. Recognition and support should be accorded in service consideration to the reserve pool of women caregivers, who are important gatekeepers of public health. While gender sensitivity needs to be maintained in future intervention planning, the social construction of gender role that is having a latent impact on the lived experience of women is a more fundamental issue awaiting attention.

Another issue deserving attention is the passive help-seeking behavior of men. Only 30% of the hotline callers are male. No simple explanation can be given to this finding before complementary data on the emotional stability and coping ability of males can be obtained. Nonetheless, how to reach the males in need in such a public health crisis is a challenge for social service practitioners.

Attending to the Needs of Peripheral Victims

Over six in ten callers (65.1%) of this hotline were "peripheral victims." Conventionally, the direct victims and the victims' kin are conceived as the major target of relief and recovery work in disaster management. In its original design, the hotline we studied also targeted those directly affected by the disaster. The findings of the study, however, remind us that the community at large is susceptible to considerable stress in disaster situations, particularly when information and knowledge about the crisis is insufficient. The erosion of the sense of personal invulnerability in the face of a disaster is anxiety-provoking to many (Leung et al., 1993).

Being systematically denied equal access to service resources, members of economically-vulnerable and socially-marginalized groups can be more susceptible to disaster-related stress (Edwards, 1998). A number of individuals living alone called the SARS hotline as peripheral victims, in the absence of social support at the moment of threat. Pre-existing stressors unrelated to the SARS crisis were also mentioned by hotline users, giving a help seeking signal paradoxically encouraged by the less stigmatizing impact of help seeking in a disaster period. Given

the potential aggravation of pre-existing stress by a prolonged disaster situation, the question of how timely social support can be rendered to the vulnerable at times of community threat is one that the welfare service organizations cannot afford to ignore.

Without pathologizing those peripheral victims who share their ordeal during a disaster, it has to be recognized that citizens can be active agents in assessing the extent of the threat and deciding on the appropriate protective action (Lindell & Perry, 1992). The substantial number of calls to the SARS hotline from those who have not been directly affected by the epidemic is indicative of their active striving for resources at the signal of threat. The question is whether there are sufficient channels in such times of emergency for community members to obtain the needed disaster-related information. Increasing the channels for transmitting information to the public, especially to economically vulnerable and socially marginalized groups, is a necessary supplement to governmental efforts that welfare service organizations can actively consider.

Service Demand in Different Phases of the Crisis

Service Demanded at the Initial Signal of Threat

The hotline received a higher number of calls (45.5) per day in the "threat detection period" and a lower number (7.3) of calls per day in the "more organized reaction period." The supply of a greater number of supportive services by other agencies in the "more organized reaction phase" may help to explain the reduction in the number of calls to the hotline during this period. Media coverage of the hotline service within the first two weeks of launching also boosted its use in the initial phase. Nevertheless, as the act of calling the hotline was invariably an articulation of felt needs, the frequency of calls in the "threat detection phase" still deserves our attention, because it indicates increased levels of service demand at the initial signal of a threat. A quick and spontaneous response in detecting threat and setting up contingency services is needed, so that social service agencies will be able to deal with the sudden surge in service demand in the face of a public health crisis.

Different Services Required in Different Phases

The association between the arenas of concern raised by the hotline users and the phase development of the disaster identified in this study is indicative of the interplay between the external environment and the

coping needs of individuals. Human responses can differ in the different phases of development of a crisis situation. While information is most commonly demanded in the initial presentation of threat, the need for practical assistance is more commonly felt when an organized response to the disaster begins to emerge. Emotional support, however, is a consistent requirement particularly felt by the direct victims and the victims' kin.

The psychological disequilibrium experienced in disaster is not necessarily determined by the extent and strength of the danger. Knowledge or information vacuum, when the signal of threat first emerges, is likely to produce a sense of risk greater than the danger presented. Informational need and emotional support needs to be the principal focus, particularly in the crisis onset stage. Edwards (1998) has speculated that the disaster event can be an opportunity for individuals to present already existing problems, because help seeking is less stigmatizing in disaster periods than in non-disaster periods. The fact that those with preexisting stressors were inclined to raise their personal problems in a later phase of the disaster may be related to aggravation of the preexisting stress by the prolonged disaster-related environment. Further empirical investigation is, however, necessary to confirm this hypothesized relationship between the length of exposure to the disaster situation and the intensity of preexisting stress.

Recruitment and Training of Volunteers

There is always a trade off between the quality of service and efficiency in service delivery. If we need to start a hotline in just a few days, how can we have enough time to train the hotline counselors, the majority of whom are volunteers? The different demands of the hotline users in different phases may provide hints on how best we can plan for the recruitment and training of volunteers for similar services. According to our findings, the need for ventilation and emotional support appears to be more prominent than the demand for tangible help in the first two phases of the crisis. Concerns in the informational arena are more likely to be raised in the "threat detection phase." A greater proportion of requests for referral to tangible services were witnessed in the "more organized response phase" than in the other phases. These findings hint that at the start of a public health crisis, health professionals like doctors, nurses, and medical students, are the most helpful volunteers. They can provide informational advice in the usually brief threat detection phase. With training in listening and basic counseling skills, these vol-

unteers from the medical profession can provide needy information and affirmative guidance for the callers in the initial threat detection phase. Furthermore, they can also serve as trainers to other volunteers of non-medical background to provide necessary medical information and advice in the latter phases.

Social workers and other human service professionals who possess basic counseling skills have their specific roles in providing emotional support and assistance throughout the three phases of the public health crisis. Social workers, counselors, as well as students of social work and psychology can be targeted as potential helpers or volunteers for hotline services in the first two phases. These volunteers with basic counseling skills can also act as trainers and group leaders of other volunteers without counseling backgrounds for the work of briefing and debriefing.

In the "more organized response phase," more volunteers can be recruited from the general public, as the civil society mobilizes to cope with the crisis. Volunteers with professional training, who have been involved in the first two phases, can also provide support and training at this stage. Since the need for referral to tangible services is greater in the "more organized response phase," the hotline service providers can recruit experienced frontline workers of relevant services to provide more efficient dispatch of information in relation to referral to different tangible services in the community.

The Need for Multi-Level Intervention

Given the mission of social work in bolstering resources to help people cope with crisis situations, a multi-faceted intervention that addresses the different domains of need experienced by the affected population is required from welfare service organizations. Taking the ecological perspective that social workers commonly adopt, individual coping is necessarily a dynamic interplay of numerous complex forces that take place within larger natural processes (Edward, 1998). This ecological metaphor helps social work enact its social purpose of helping people by promoting responsive environments that support growth and satisfaction in social functioning (Germain & Gitterman, 1996). Bolstering resources to help people cope with crisis situations is, hence, a major role of social work in confronting disaster and improving services for the suffering population (Zakour, 1996). In planning for social services at the time of disaster, Norris et al. (2002) suggest that societal and community level interventions can be arranged for the population at large, while scarce clinical resources are reserved for those individuals

most in need. Irrespective of the strategy of resource allocation, the findings of this study support the need for extending the scope of intervention beyond immediate psychological relief to the direct victims.

Limitation of This Study

As with other disaster studies, this study suffers from a lack of research preparedness prior to the implementation of the hotline. For example, the operational period of the hotline, which is the time variable in the study, was determined by a service consideration rather than a research consideration. This limitation of the study, however, does not necessarily restrict its usefulness. As noted by Loring and Wimberley (1993), a time-limited, issue-oriented hotline is an ideal vehicle for identifying public response to a specific problem.

CONCLUSION

Reluctantly, we have to accept that the SARS epidemic may recur, before medical and pharmaceutical development can catch up with the transformation of the virus. As an important partner to the government in the provision of welfare services, non-governmental welfare organizations should consider their role in disaster preparedness and mitigation, without confining themselves to acting as relief agents. There are multifarious channels to advance the social work goal in disaster social services, including the provision of relief resources, linking the disadvantaged to resource systems, humanizing relief services, enhancing service coordination and change in macro systems, as well as preventive intervention (Zakour, 1996). Insights from the present study can be further developed in the following directions, so that welfare service organizations can better prepare to play their roles in the event of a recurrence of the epidemic.

Firstly, in future intervention planning to confront a public health disaster, welfare service organizations should be more gender sensitive in addressing the needs of women in their gate-keeping and care-giving roles. At the same time, further research can be considered with a view to understanding the social construction of the gender role of women and its possible transformation.

Secondly, the welfare service providers should give attention to the needs of the peripheral victims in public health disasters, where the community at large, and the vulnerable population in particular, is sus-

ceptible to considerable stress. The findings of this study support the need for extending the scope of intervention beyond immediate psychological relief to the direct victims in public health disasters. Meanwhile, the extent to which pre-existing stress is aggravated by the prolonged disaster situation for different vulnerable groups is a subject for further research.

Thirdly, we suggest that the service providers and their strategic allies should provide multi-level intervention during the different phases of a public health disaster. The promotion of responsive environments that can bolster resources to help people cope with the crisis situation is as important as psychological relief for individuals. Nonetheless, as our data set is small and confined to a specific time-limited hotline, further study can be conducted to further validate our preliminary findings on the association between the arenas of concern raised by the hotline users in different phases of a disaster.

REFERENCES

Barton, A. H. (1970). *Communities in disaster: A sociological analysis of collective stress situations*. New York: Doubleday.

Boehm, K. E., Schondel, C. K., Ivoska, W. J., Marlowe, A. L., & Manke-Mitchell, L. Calls to teen line: Representative concerns of adolescents. *Adolescence* 33: 797-803.

Edwards, M. L. K. (1998). An interdisciplinary perspective on disasters and stress: The promise of an ecological framework. *Sociological Forum* 13: 115-132.

Germain, C. B., & Gitterman, A. (1996). *The life model of social work practice–Advances in theory and practice*. 2nd ed. New York: Columbia University Press.

Kinzel, A., & Nanson, J. O. (2000). Education and debriefing: Strategies for preventing crises in crisis-line volunteers. *Crisis* 21: 126-134.

Lester, D. (2000). *Crisis intervention and counseling by telephone*. (2nd ed.). Springfield, IL: Charles C. Thomas.

Leung E. Y., Wong, C., Li, E. K.W., Lau-Yu, P., & Wu, K. K. (1993). What can clinical psychologists contribute after a disaster? Post disaster intervention model in the local context. *Bulletin of the Hong Kong Psychological Society* 30/3: 93-103.

Lin, D. "Chinese women's culture from tradition to modernization." *Chinese Education & Society*, 33 (2000): 24-37.

Lindell, M. K., & Perry, R. W. (1992). *Behavioral foundations of community emergency planning*. Washington: Hemisphere Publishing Corporation.

Loring, M. T., & Wimberley, E. T. (1993). The time-limited hot line. *Social Work* 38: 344-346

Miley, K. K., O'Melia, M., & DuBois, B. (2001). *Generalist social work practice–An empowering approach*. 3rd ed. Boston: Allyn & Bacon.

Morrow-Howell, N., Becker-Kemppainen, S., & Judy, L. (1998). Evaluating an intervention for the elderly at increased risk of suicide. *Research on Social Work Practice* 8: 28-46.

Mrsevic, Z., & Hughes, D. M. (1997). Violence against women in Belgrade, Serbia: SOS Hotline 1990-1993. *Violence Against Women*, 3: 101-128.

Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 disaster victims speak: Summary and implications of the disaster mental health research. *Psychiatry* 65: 240-260.

Roberts, A. R. (1995). *Crisis intervention and time-limited cognitive treatment*. Thousand Oaks: Sage Publications.

Security Bureau. (2003). *The Government of the Hong Kong Special Administrative Region emergency response system*. Hong Kong: Hong Kong Government, [cited 1 September 2003]. Available from World Wide Web: http://www.info.gov.hk/sb/eng/emergency/index.html

Seeley, M. F. (1997). The role of hotlines in the prevention of suicide. In *Review of Suicidology*, *1997* (Eds.) R. W. Maris, M. M. Silverman, & S. S. Canetto, New York: Guilford Press, 251-270.

Teare, J. F., Garrett, C. R., Coughlin, D. D., Shanahan, D. L., & Daly, D. L. (1995). "America's children in crisis: Adolescents' requests for support from a national telephone hotline." *Journal of Applied Developmental Psychology* 16: 21-33.

Waters, J., & Finn, E. (1995). Handling client crises effectively on the telephone. In *Crisis intervention and time-limited cognitive treatment* (Ed.) A. R. Roberts, Thousand Oaks: SAGE Publications.

Wong, D., & Leung, A. (1996). An evaluation of mental health telephone counseling services in Hong Kong. *Asia Pacific Journal of Social Work* 6: 46-57.

Zakour, M. J. (1996). Disaster research in social work. In *Research on social work and disasters*, (Eds.) C. L. Streeter, & S. A. Murty, New York: The Haworth Press, Inc.