

A Maritime Disaster: Reactions and Follow-up

Atle Dyregrov and Rolf Gjestad

ABSTRACT: *In 1999, 69 people survived a maritime disaster on the Norwegian coast, during which 16 others died. Besides immediate psychosocial assistance, post-disaster intervention included psychological debriefings after one week, follow-up debriefing a month later, screening of those in need of individual help, and help for those returning to the scene of the disaster. The results of the psychometric tests showed that a considerable number of survivors scored above clinical cut-off points for extreme stress reactions. These results were compared with results from other studies of maritime disasters. Although the life threat and exposure in this disaster were extreme, the scores were lower than for the other studies, with one exception. The authors concluded the lower distress scores compared to other maritime disasters were probably impacted by the structured and caring system that was implemented to care for survivors. Almost all (93%) considered the debriefing meetings as helpful, and they were able to discriminate between different functions served by the meetings.*

KEY WORDS: maritime disaster, survivors, trauma, Impact of Event Scale, General Health Questionnaire

Introduction

The Disaster

On November 26, 1999, the catamaran *Sleipner* struck a reef at high speed north of the coastal city of Haugesund, Norway. It sank within an hour. A number of ships and a helicopter participated in the rescue operation that was undertaken during very difficult weather conditions with strong winds and high waves. Sixteen people died and 69 survived. The boat was constructed in such a way that it was generally believed that it could not sink. The reef penetrated so many of the bottom compartments that when the wind and waves took it off the reef after about 30 minutes, the ship sank quickly. During the waiting period, the crew was so preoccupied communicating with rescue services on shore and trying to get the floating rafts ejected that only a few of them were able to

help the passengers put on their life vests. The life vests turned out to be outdated, difficult to put on safely, and easily slipped off in the water, thus threatening survival. None of the floating rafts functioned as they were supposed to do.

The rapidity of the boat's sinking did not allow for a safe evacuation. Those on board were not able to jump into the water as the front part sank quickly and the rear end stood up as dramatized in the movie, *Titanic*. Passengers tried to climb to the highest point. When the ship sank, most of them were pulled under the water surface. When they reached the surface, they faced high waves and stormy weather individually or in small groups, with life vests that were only marginally functional. The surviving passengers stayed in the cold water (7 to 9° C; 44 to 48° F) for 20 to 55 minutes as they waited to be rescued. Some survivors were unconscious when they were rescued. Many were taken to the hospital and treated for hypothermia. Ultimately, the accident led to a serious investigation of the security at sea for passengers traveling along the Norwegian coastline. The captain was charged with misnavigation.

This paper reports on the reactions of the survivors of this maritime disaster and the psychosocial help they received.

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Previous Research

A significant portion of survivors of disasters experience symptoms of posttraumatic stress disorder (PTSD) (Bolton, O’Ryan, Udwin, Boyle, & Yule, 2000; Briere & Elliot, 2000; Yule, Bolton, Udwin, Boyle, & O’Ryan, 2000). In a meta-analysis of 52 studies examining the mental health consequences of natural and technological disasters, Rubonis and Bickman (1991) found rates of psychopathology increased by 17% compared with predisaster or control-group levels. Given the diversity of disasters, both man made and natural, no unitary PTSD prevalence would be expected. Systematic reports on survivors of shipping disasters are rare, although observations and case reports are abundant. When the Italian ship *Andrea Doria* and the Swedish ship *Stockholm* collided outside of Massachusetts in 1956, two psychiatrists were on board one of the ships that came to the rescue. Friedman and Linn (1957) describe how the passengers behaved as if they were numb from being injected by medication. The psychiatrists viewed their helplessness as an emotional regression. They were in shock and any attempt at conversation was impossible before the shock reaction lifted. They had a need to tell their story again and again, afterwards.

Leopold and Dillon (1963) studied 27 of 35 survivors following a ship collision and explosion and found that 72% suffered from emotional disturbances following the disaster. When they again studied the group four years later, there was a dramatic degree of physical, psychological, and social aftereffects from the disaster.

One of the first maritime disasters to be studied in any detail from a psychological perspective was the capsizing of the ferry *Herald of Free Enterprise* outside of the Belgian city of Zeebrugge in 1987. Joseph, Yule, Williams, and Hodgkinson (1993a) studied 73 adult survivors, two to three years after the disaster and found the mean Impact of Event Scale (IES) score to be 35, while the mean score on the General Health Questionnaire (GHQ-28) was 10. On the GHQ more than 66% scored above the cut-off score of ≥ 4 that indicates a risk of a psychological disturbance. The same research group also documented different forms of guilt feelings among survivors (Joseph, Hodgkinson, Yule, & Williams, 1993), as well as an increase in the use of alcohol, tobacco, sleeping pills, antidepressants, and tranquilizers (Joseph, Yule, Williams, & Hodgkinson, 1993b).

Joseph, Andrews, Williams, and Yule (1992) studied crisis support and psychiatric symptomatology in 23 adult survivors following the sinking of the cruise ship *Jupiter* off the

cost of Athens in October 1988. The survivors’ mean IES score when assessed 3 to 9 months following the disaster was 32.3. After 12 to 14 months, the IES score was 29.9. On the GHQ-28, the respective scores at the two time points were 12.6 and 8.9. The authors also found that perception of greater crisis support was related to less symptomatology. The same research group also studied adolescent survivors of the same disaster. To date, this is one of the few longitudinal studies of a maritime disaster. Yule, Bolton, Udwin, Boyle, O’Ryan, and Nurrish (2000) have shown that approximately 50% of adolescent survivors of the *Jupiter* disaster developed PTSD sometime during the follow-up period compared with an incidence of 3.4% in a control group. Between five and eight years after the disaster, 34% of these still suffered from PTSD.

In another English study, Thompson, Chung, and Rosser (1994) studied the reactions of 27 survivors following the collision and sinking of the riverboat *Marchioness* on the Thames. Fifty-one persons in a birthday party drowned and 40 survived. Of the 27 survivors studied, 22 were men with a mean age of 28. Their mean IES score was 46 and the GHQ-28 mean was 15.5 when they were assessed more than one year following the disaster. The survivors knew those who were killed, and 25 of the 27 had lost close friends.

Elklit and Bjerre Andersen (1994) studied 24 of 31 Danish survivors following the fire on board the ferry *Scandinavian Star* in 1990 where 159 people died. Their mean IES score 1½ years after the disaster was 23.0 and after three years, the score was 21.7. The group generally received much crisis support from Danish Red Cross in the early period following the disaster. It should be mentioned that most survivors escaped safely into the lifeboats without being exposed to either fights for survival or the sight of the people that were killed.

The largest maritime disaster in the Northern hemisphere in modern times was the sinking of the *Estonia* in the Baltic Sea in 1994 where 852 died and 137 survived. Eriksson and Lundin (1996) studied 42 of the 53 Swedish survivors three months following the disaster and found their IES score to be 28.5. The survivors reported fairly high levels of dissociative symptoms in the form of reduction of awareness, derealization, depersonalization, and dissociative amnesia during the disaster. This peritraumatic dissociation was related to more post-traumatic symptoms on the IES.

There is no standardized way of helping survivors in the aftermath of disasters. A range of disaster interventions has been described by authors such as Hodgkinson and Stewart

(1991), Dyregrov (1992), and Raphael (1986). In Norway, psychosocial disaster intervention has been used since the mid-1980s to assist the bereaved and survivors (Dyregrov, 1992). Early intervention is emphasized to try to prevent the development of adverse reactions. Following several Scandinavian disasters, the lack of long-term follow-up to secure good help for those who have survived or lost family members has been identified (Dyregrov, 2002; SOU, 1999). Although early intervention is debated (Shalev, 2000 and *Advances in Mind Body Medicine*, No. 3, 2001), there is no alternative to treating survivors with a caring system. Proactive post-disaster service delivery, including screening those in need of further help, is still at a developmental stage. There is also lack of agreement as to the optimal type of screening instruments, and only rarely (McDermott & Palmer, 1999) have screening inventories been used to secure help for those most in need of further follow-up. Both demographic and event-related factors might influence the choice of screening questionnaires.

The use of psychological debriefing, or group follow-up after critical incident situations, has been highly debated over the last decade (Raphael & Wilson, 2000). Although the term “debriefing” originally referred to Dr. Jeffrey Mitchell’s structured group meetings for emergency personnel responding to critical events, the term debriefing has been used to describe almost any type of intervention initiated after a critical incident event. Though individual and group follow-up has been in use following disasters for several decades, the debate on debriefing is somewhat new. Participants of debriefings usually rate the method as useful and important for them (Carlier, Voerman, & Gersons, 2000; Jenkins, 1996; Robinson & Mitchell, 1993; Turner, Thompson, & Rosser, 1993), but the few randomized studies undertaken have failed to find that “debriefing” makes a difference in the reported symptom level over time. However, these studies and the critics of debriefing (see Rose & Bisson, 1998) have based their criticism mostly upon individual follow-up of patients provided with a one-hour intervention following medical emergencies (burn victims, traffic accidents, and pregnancy loss). There are other flaws in this research as well, as cited by Dyregrov (1998) and Mitchell and Hopkins (1998). More recent documentation using meta-analysis of studies to evaluate group meetings that more rigorously follow the “Mitchell Model” has shown strong and clinically valid effects of this method (Everly & Boyle, 1999). Watchorn (2000 & 2001) has presented data showing that those who take an active part in the debriefing meetings seem to gain most from these meet-

ings and that persons reporting high dissociation (feelings of “standing outside oneself” or “watching oneself from a distance”) and a low level of disclosure are the ones at greater risk to experience later problems.

Intervention for Survivors

The passengers on *Sleipner* came from different communities and cities along the coast. Support services and information centers were initiated in several places. Families of those on board gathered at these places for information and support. The main place for the immediate support was Haugesund, the city closest to the disaster, where the injured and dead passengers were transported. Also in Bergen, the destination for the boat, and Stavanger, the point of origin for the trip, crisis reception centers were set up. Police, clergy, and health personnel did their best to support family members of the passengers in this first extremely stressful period of uncertainty about who had survived and who had died. Surviving passengers who were not taken to hospitals were cared for in the smaller communities close to where they were taken onshore before being transported to Bergen or to other places as they wished.

Family members gathering at the crisis reception centers received emotional first-aid. Despite the inevitable stress involved in a transport disaster and the fact that there always will be much confusion and stress at the outset, immediate help seemed to be well organized and perceived as helpful by those affected by the disaster. Following previous Scandinavian disasters, criticism has been voiced against the lack of follow-up received (Dyregrov, 1992). The company that owned *Sleipner* contacted the Center for Crisis Psychology (CCP) in Bergen to get professional advice on how best to care for the survivors and bereaved over time. CCP had experience in organizing follow-up services in disasters and war situations nationally and internationally and was asked to set up a plan for long-term support for the affected groups. This was done in cooperation with Haugesund Hospital which had the organizational responsibility for the disaster work.

The services for the bereaved are reported elsewhere (Dyregrov & Straume, 2003). For survivors, the following care was provided:

1. Immediate help as described above.
2. Psychological debriefings to all survivors were offered and conducted one week following the disaster.
3. Follow-up debriefing meetings took place approximately six weeks after the disaster.

4. Meetings between survivors and rescuers were carried out during February 2000.
5. A screening of survivors and subsequent referral of those above a clinical cut-off level was organized during late January and early February.
6. In May 2000, survivors were offered a boat trip back to the site of the disaster. Five mental health professionals supported the survivors on this trip. For many, this was their first time on board a ship again. Possible adverse reactions during the trip were anticipated, and after returning to shore, an opportunity to talk about their experiences was offered.
7. Further follow-up was organized locally based upon the needs expressed by the survivors during meetings or through the screening questionnaire. In June 2000, meetings were held at several geographical locations close to where survivors lived. These meetings were mostly informal, although mental health professionals were present to assist, answer questions, and make referrals for those who requested additional services.
8. As the wreck was brought to the surface in late August 2000, some survivors undertook trips to look at (and enter) the wreckage. Support personnel were present at the site, and a short memorial was undertaken before entering the wreck.

The Debriefings

One week following the disaster, approximately 45 of the survivors gathered in Bergen for the psychological debriefing in five subgroups. Four groups were gathered at a hotel, while the surviving crew met in the company headquarters. Two group leaders led each group with a mental health professional as the team leader. The team leaders had previous training and experience in conducting debriefings. Before going to the smaller groups, a short introduction was held by the first author (A.D.) to secure some general informational transfer. Meetings in the small groups lasted from two to three hours.

Parallel with the meetings for the surviving passengers, family members of the survivors met to talk about their experiences and to get information on normal reactions and how they best could support their loved ones.

Following the meetings in the smaller groups, everyone gathered in one room to talk to others not in their debriefing group with whom they had spent time before the boat sank, in the sea, or onboard a rescue boat or helicopter. Thus,

further sharing of experiences during the rescue could be facilitated.

The meetings were held following the debriefing-format described by Dyregrov (1989, 2003). This format is an adaptation of the Mitchell model (Mitchell, 1983) with emphasis on utilizing the group process. It has a focus on adaptive coping (Dyregrov, 2003). The participants related what had happened, their thoughts about what had happened, their sensory impressions, and the reactions that ensued. The focus in these meetings was on reducing helplessness by having them describe how they were able to survive. By eliciting comments and thoughts about their use of mental mobilization mechanisms (see Dyregrov, Solomon, & Bassøe, 2000), it was hoped to stimulate a belief in their own resources and to prevent negative evaluations or interpretations of their own behaviors. At the end of the meeting, they received information about usual reactions and advice on how to deal with them. This was provided verbally and in writing.

Approximately one month following the first meeting, participants were gathered for a follow-up debriefing where they first met in a session to receive information on how to deal with intrusive imagery and be informed about the questionnaire that was handed out at the end of the meeting. Then participants went into the same small groups as in the previous debriefing meeting. This time the crew had their meeting at the hotel with the passengers. At this follow-up debriefing, the focus was on how they had experienced the time since the last meeting, how much their situation had returned to normal, and how they had contributed to this "normalization." In addition, they were given advice directly related to problems they experienced in their daily lives (i.e., difficulties sleeping or bothersome intrusive images). The group also had a chance to exchange coping methods and talk about any possible positive changes they had experienced (i.e., if they experienced that their loved ones had become more important to them or that they did not take things for granted any more).

Method

Participants and Procedure

A questionnaire with a franked, return envelope was delivered in person to those present at the follow-up debriefing 1½ months following the disaster. For those not present at these meetings, a questionnaire was sent to them by mail. Addresses were available for only 62 of the 69 survivors. Based upon this questionnaire, all those reporting high levels of psychic distress were contacted personally. If not

already in contact with a mental health professional, they were helped to establish such contact if they wanted it. Of the 53 survivors who responded, 31 were males (58.5%) and 22 females (41.5%). Their age-span was from 14 to 62 years ($M=27.9$ years, $SD = 12.0$). One respondent was excluded from the analysis because he lost his brother in the accident. Approximately 18 months following the disaster, a new questionnaire was sent to each survivor. It was deemed too intrusive to send a reminder at either of the two data collection points.

Instrument

The first questionnaire consisted of demographic questions, questions relating to the disaster exposure, and questions pertaining to how the participants perceived the helpfulness of the meetings undertaken. In addition, the questionnaire included the Impact of Event Scale (IES) developed by Horowitz, Alvarez, and Wilner (1979) and the General Health Questionnaire (28-item version) developed by Goldberg (1978).

The IES is a 15-item scale with four answer-categories (0 – 1 – 3 – 5) measuring a total-trauma score (IES-Total) and an intrusion (IES-I) and an avoidance (IES-A) symptom subscale. The cut-off score for this instrument varies between 25 to 40 with a score above the cut-off indicating a person at a high risk for psychological problems. For screening purposes, we contacted passengers who scored above 30 on the IES. IES has been shown to be the best of several measures when it comes to diagnostic performance, where an optimum cut-off score of 35 assigned a correct diagnosis of PTSD to 89% (Neal, Busuttill, Rollins, Herepath, Strike, & Turnbull, 1994). Cronbach's alpha was .89 for IES-Total, .86 for IES-I, and .83 for IES-A.

The GHQ-28 was originally developed to detect psychiatric impairment among the general population. Goldberg (1978) suggested a clinical cut-off point of 4 to 5 when using a Likert scoring. Since this scale sometimes is elevated when people have somatic problems, we used a cut-off point of 7 for this scale. Cronbach's alpha was .93.

As service provision was the main aim of the questionnaire and resources were not available to collect the breadth of data usually sought in dedicated research projects, the questionnaire was kept short to secure the highest possible response-rate.

The second questionnaire that respondents filled in 18 months following the disaster contained some questions concerning their perception of functioning before the disaster,

questions concerning peritraumatic reactions (during the event), and questions concerning the perception of the help received. In addition, the IES and the GHQ were included.

Results

Fifty-three of the 62 survivors that received the questionnaire responded at Time I, a response rate of 85%. At Time II, 29 participants (47%) responded to the questionnaire. There were no statistical differences on the psychometric inventories at Time I between those that answered at both times and those who only responded once. However, there was a trend towards higher scores in non-responders (approaching significance for IES-avoidance, non-responders $M = 15.3$, responders $M = 12.1$, $t = 1.21$, $df = 50$, $p = .063$). The mean time survivors reported having spent in the water was 33.7 minutes (ranging from 4 to 60 minutes). Objective data from rescue ships and helicopter show that in reality it took 20 minutes until the first passenger was pulled from the water and 55 minutes until the last passenger was rescued. Two boys, ages 14 and 17, estimated time spent in the water as 8 and 4 minutes, one adult man estimated the time as 12 minutes, all other survivors estimated that more than 20 minutes had elapsed. Twenty (38.5%) reported having been admitted to the hospital where they had spent from 6 to 192 hours ($M = 58.2$ hours, $SD = 54.6$). Forty percent of the sample felt sure they were going to die, 49% was a little afraid of losing their life, while 11% did not think that their life was in danger. Around 40% had witnessed people die or observed dead people.

Disaster Reactions

Table 1 shows to what degree survivors had experienced that the disaster had impacted their work, family life, and leisure-time. From the table it can be seen that work is the most heavily affected area, followed by leisure time and family life. About half the group (49%) reported much or very much impact from the disaster on their work. It should be remembered that nine survivors were below the age of 18 where some of these categories (i.e., work and family life) sound rather irrelevant.

Forty-two percent of the group answered "yes" when asked if they had experienced any special symptoms as a consequence of the disaster. When these were grouped, 43% described these complaints as psychological, 26% as bodily, 26% as both psychological and bodily, while 5% marked an "other" category. Of those describing complaints, 55% had sought contact with a nurse, doctor, psychologist,

Table 1. Extent to Which Reactions Affected Various Areas of Life (%).

	Not At All	A Little	Much	Very Much
Work	14	37	35	14
Family Life	23	46	25	6
Leisure Time	13	52	23	12

Table 2. Means, Maximum and Minimum Scores and Standard Deviations for the Impact of Event Scale.

	N	Mean	Min.	Max.	S.D.
IES-I	52	15.60	1	33	8.65
IES-A	52	13.67	0	34	9.44
IES-Total	52	29.27	4	67	16.28
GHQ	52	8.52	0	24	6.82

or other person as a consequence of the complaints.

In Table 2, the mean scores on the Impact of Event Scale and the GHQ-28 are listed. The table shows the scores both for the IES-intrusion and the IES-avoidance subscales and the total score. The standard deviation and the minimum and maximum score indicate great variations within the sample. Although the mean score on both intrusion, avoidance, and total score was higher in females than in males (Mean IES-I: males = 14.9; females = 16.7; $t = .69$, $df = 49$, $p = .491$; Mean IES-A: males = 11.9; females = 16.8; $t = 1.82$, $df = 49$, $p = .075$; Mean IES total: males = 26.8; females = 33.4; $t = 1.41$, $df = 49$, $p = .164$) the differences did not reach statistical significance. When the recommended cut-off score of 35 was used, 35% was in the high-risk group. The IES-I and IES-A were correlated ($r = .59$, $p < .05$), as were the IES-Total and the GHQ-28 ($r = .60$, $p < .05$). Regarding GHQ-28, 52% scored above the cut-off score of 7. At time point two, 18% scored above the cut-off level of 35 on the IES, while 22% scored above 7 on the GHQ.

Time in the water was correlated with GHQ-28 ($r = .30$, $p < .05$). Perception of life threat was significantly correlated ($p < .05$) with the IES-I ($r = .50$), the IES-A ($r = .32$), the IES-Total ($r = .45$) and GHQ-28 ($r = .32$). Having spent time in the hospital was significantly correlated ($p < .05$) with IES-A ($r = .30$) and IES-Total ($r = .30$), but that was not the case with the duration of the stay. Those who perceived that the disaster had impacted their work had significantly ($p < .05$) higher IES-I ($r = .49$), IES-A ($r = .45$), IES-Total ($r = .52$) and GHQ-28

scores ($r = .54$). Regarding perceived influence on family life, only the relation with GHQ-28 ($r = .40$) was significant, while perceived influence on leisure time was statistically correlated with IES-I ($r = .42$), IES-A ($r = .38$), IES-Total ($r = .44$) and GHQ-28 scores ($r = .57$).

Reactions Over Time

Table 3 summarizes the changes experienced over time by those who answered the questionnaires at both times. There was a significant decline in both IES and GHQ scores.

When survivors at Time I were asked: "How long did you find that it took to return to normal regarding work, family, and social life after the accident?" 8% answered after some days, 6% after about a week, 26% after some weeks, while as many as 60% felt they had not returned to normal yet. After 18 months, 22% answered that they still had not returned to normal, 15% felt it had taken them about a year to return to normal, and 15% about half a year. Approximately 33% answered that the situation was normalized within a week.

Debriefing

At 1½ months, there was no significant difference between the IES subscales, the IES-total, or the GHQ-28 between those who participated in debriefing and those who did not, although the mean levels were higher on both the IES total (participants $M = 30.7$, non-participants $M = 22.9$, $t = 1.39$, $df = 50$, $p = .170$), the IES subscales (IES-I: participants $M = 16.0$, non-participants $M = 13.7$, $t = .76$, $df = 50$, $p = .446$; IES-A: participants $M = 14.7$, non-participants $M = 9.2$, $t = 1.70$, $df = 50$, $p = .095$) and the GHQ (participants $M = 9.3$, non-participants $M = 5.3$, $t = 1.69$, $df = 50$, $p = .096$) in those who participated. However, only six of the respondents did not participate in the debriefings. The mean age level of those who participated was 29.4 compared to 21.3 for those who

Table 3. Descriptive Statistics for Impact of Event Scale and General Health Questionnaire. Difference Between Times 1 and 2 for Respondents (N = 27/28) Who Responded at Both Times.

	1 to 2 Months		18 Months		T-test ¹
	Mean	S.D.	Mean	S.D.	
IES-Total	26.56	13.23	19.11	15.47	2.95*
GHQ	7.00	6.31	4.03	4.60	3.14*

¹T-Test for dependent samples. * $p < .01$

did not. Those who participated in the debriefing reported having spent more time in the water ($M = 36.5$ minutes, $SD = 13.8$) than those who did not participate ($M = 28.0$ minutes, $SD = 15.9$), and having spent more time at the hospital ($M = 58.7$ hours, $SD = 55.9$) than those who were not debriefed ($M = 12.0$ hours, $SD = 0.0$, as only one of the non-debriefed respondents spent time in the hospital). For statistical analysis, those who said that the disaster “much” or “very much” had influenced their work, family, or leisure time were grouped into one category and those who reported “not at all” or “a little” into the other. For the family area, 39% of those who participated in debriefing reported “much” and “very much” influence compared to 0% of those who did not take part in the debriefing ($\chi^2 = 3.59$, $df = 1$, $p = .058$). Regarding reactions affecting leisure time, 41% of those who participated in debriefings experienced this compared to 0% of those not participating ($\chi^2 = 3.91$, $df = 1$, $p = .048$), while for work their respective rating was 49% for those who were debriefed and 33% for those who were not participating ($\chi^2 = .51$, $df = 1$, $p = .473$).

Of the 43 people who took part in the debriefings, 93% reported that the meetings had been of help to them. More specifically, 19% reported that the meetings were of very great help, 44% that they were of great help, 30% that they were of some help, while 7% found the meetings unnecessary. No one reported that the meetings had made things worse.

Table 4 presents a detailed look on how participants perceived different aspects of these meetings. Most participants experienced that the purpose was clearly stated, they found the meetings to be led in a professional way, they had trust in those who led the meetings, they felt safe to talk about their impressions and reactions, and they found the meetings useful. Fewer found that they received useful information and approximately one-fifth found that conflicts in the group made them hold back. It should be mentioned that

in one of the debriefing groups there was a participant who was openly opposed to talking about the event and influenced the climate of the meeting in a negative way. Interestingly, both the mean IES-scores ($M = 31.6$, $SD = 6.2$) and the GHQ-scores ($M = 10.8$, $SD = 8.3$) of the eight persons who felt that conflict in the group to some extent made them hold back were higher than those that felt no restriction on their participation ($M = 29.5$, $SD = 16.3$, $GHQ = 8.6$, $SD = 6.7$).

More than half of the participants (57%) felt that there was no need for more meetings, while 30% wanted at least one more, and 13% wanted several more meetings. There was a significant correlation between those who felt a need for more meetings and the IES-I scale ($r = .33$, $p < .05$) and GHQ scale ($r = .41$, $p < .05$). When asked whether they had lacked some kind of follow-up, 82% answered no, and 18% answered yes.

Discussion

Most survivors of this disaster felt their life to be in danger to some degree, although some did not fear for their life. When using Neal et al.’s (1994) optimum cut-off score of 35, approximately 35% had a score associated with a diagnosis of PTSD at time one, while 18% was at this level at time two. More than half the group (51.9%) scored above a conservative cut-off score of 7 on the GHQ-28 at Time I, compared to 22% at Time II. This illustrates the consequences of the disaster. The disaster had impacted work, family life, and leisure time to varying degrees, and 60 percent did not feel that they had returned to normal when they answered the questionnaire from 1½ month after the disaster. Over time, there was a significant decline in psychological distress, but still one-fifth (22%) felt they had not returned to normal 18 months following the disaster.

Surprisingly, some people (11%) did not fear for their life. Sund (1985) reported the same amount of survivors (10%) experiencing no life threat in the midst of a life-threatening maritime disaster (an oil-rig that tilted and 123 people died).

Table 4. How Participants Perceived Different Aspects of the Debrief Meetings (%). N = 42.

	Not At All	A Little	Much	Very Much
Purpose clearly stated	—	9	43	48
Meeting led in a professional way	—	2	24	74
Trust in those who led the meeting	—	2	22	76
“Safe” to talk about impressions and reactions	2.5	2.5	32	63
Found the meeting useful	—	5	26	69
Conflicts in the group made them hold back	81	5	9	5
Received useful information	2	22	33	43

This appears to be a dissociative reaction, part of a mental mobilization where all resources are used for survival and where emotional reactions are postponed or suppressed to prevent them from interfering with decision making (Dyregrov, Solomon, & Bassøe, 2000). This adaptive survival mechanism where fear is kept at bay, secures energy for survival. Interestingly, high perception of life threat was associated with all symptom measures. Perception of life threat has been found highly related to posttraumatic problems in a variety of studies (i.e., Fontana, Rosenheck, & Brett, 1992; Jeavons, Greenwood, & Horne, 2000; Turner, Thompson, & Rosser, 1995).

The mean IES levels of the survivors are surprisingly low compared to some other maritime disasters (Eriksson & Lundin, 1996). The mean level of IES and GHQ (when used) for this and other studies is listed in Table 5. Levels are lower in this study than in all other studies except for a comparable level to the Danish survivors of the *Scandinavian Star* at 18 months where the levels are comparable. In this, as in the present disaster, a massive outreach effort was instigated. The relatively “low” rate of distress in the *Sleipner* survivors is positive and unexpected, especially since the present data were collected closer in time to the disaster than many of the other studies. Usually, there is a reduction in the level of traumatic distress over the first year following a traumatic event (McFarlane & Yehuda, 1996). Because of the dramatic survival, more so than in many of the other maritime events studied, one would expect the levels to be higher than reported herein. This may be a consequence of the disaster intervention that was initiated, providing an outreach effort consisting of both a collective focus (debriefing) and indi-

vidual follow-up over time for those in need. The intervention with its use of early crisis support, debriefing, and follow-up debriefing, in addition to screening those in need of more help, may have reduced the posttraumatic reaction level of the survivors. However, the methodology used does not allow any firm conclusion. Without the use of a randomized control group it is not possible to say that the reductions in distress levels resulted from the intervention that was mounted to help survivors. The scores at Time II (for both IES and GHQ) are also lower than following other disasters (Elkit & Andersen, 1994; Joseph et al., 1992, Thompson et al., 1994), even though the exposure was more extreme.

The use of psychological debriefing has been intensely debated with proponents and opponents not agreeing on its usability (Dyregrov, 1998, 1999; Rose & Bisson, 1998). What is clearly demonstrated in this study, as in others (Robinson & Mitchell, 1993) is that participants are very positive when asked for their perceptions and evaluation of these meetings. Further, they are able to differentiate between different aspects of the debriefing (i.e., feeling less pleased with the informational content of the sessions than with the leadership and trust they experienced). General questions about the usefulness of a procedure may easily result in inflated positive answers, while more specific questions force the responding person into greater introspection. The general positive evaluation of the different aspects of the debriefing procedure indicates that the “consumer” was pleased with the service they received.

Although not statistically significant, those who did not participate in the debriefing tended to have lower mean scores on the IES and GHQ than those who did. In previous studies,

Table 5. Mean Scores and Time Since Assessment on the Impact of Event Sale and General Health Questionnaire For Different Maritime Disasters

Study	IES-Total (Mean)	GHQ (Mean)	Time of Assessment (Months Since Disaster)
The <i>Sleipner</i> Disaster - Present Study (All participants answering at this point)	26.6	7.0	1½
The <i>Sleipner</i> Disaster - Present Study (All participants answering at this point)	22.6	4.0	18
The Sinking of <i>Jupiter</i> - Joseph, Andrews, Williams, & Yule (1992)	32.3	12.6	3-9
The Sinking of <i>Jupiter</i> - Joseph, Andrews, Williams, & Yule (1992)	29.9	8.9	12-14
The <i>Scandinavian Star</i> Disaster - Elkit & Bjerre Andersen (1994)	23.0	—	18
The <i>Scandinavian Star</i> Disaster Elkit & Bjerre Andersen (1994)	21.7	—	36
The <i>Estonia</i> Disaster - Eriksson & Lundin (1996)	28.5	—	

one interpretation given for similar results has been that debriefing makes people more symptomatic and that it should not be instigated. However, there are several other, more plausible, explanations for such findings. Those who sought out the debriefing were somewhat older, they had reported more time in the water, and they had reported more time at the hospital (although not at a statistically significant level). More importantly, those who participated in debriefing had experienced that the disaster influenced more life spheres than those who did not participate. Most of the above-mentioned factors were significantly related to higher scores on the Impact of Event Scale and the General Health Questionnaire. Although the data on the influence on different life spheres were gathered after the follow-up debriefing, it is not reasonable to think that the influence on these life spheres came as a result of having participated in the debriefings. Rather, it is logical that having problems in these areas made them more prone to take part in the debriefings. Our findings are consistent with Fullerton, Ursano, Vance, and Wang (2000). They found that, in addition to being female, medical care personnel who chose to participate in debriefings following a German air show disaster (where three jets collided and 70 people were killed and more than 500 were injured) were more likely to be in the high exposure group and to have treated more victims than non-participants. This may reflect debriefing participants' initially high symptomatic level, although it might also be that those who participate in debriefings do so to get advice on where they can get further help. Meeting non-threatening health professionals in connection with the debriefings may make it easier to initiate further contact with helpers later.

Non-participants may also have engaged in various self-help exercises that may have helped them deal with the event, i.e., relaxation, physical exercise, expressive writing, and use of their social support systems. No measurement that could have illuminated the use of such procedures was undertaken in this study.

Watchorn (2000 & 2001) reported that those who did not actively disclose during the debriefing (especially those who were high on peritraumatic dissociation) had more psychological symptoms over time than those who disclosed. When we looked at those who held themselves back during the debriefing due to conflict in the debriefing group, we found a similar trend where "non-disclosers" scored about two points higher on the IES and GHQ means on both scales. When analyzing the IES scores more closely, it was evident that this was due to the elevated avoidance rates among non-disclos-

ers (about three points). Although the differences were not statistically significant in this study, they showed up more strongly in Watchorn's more thorough study and may well help us understand what one can call the "underparticipants" in such meetings.

With strong dissociative mechanisms and lack of active participation in a debriefing, people may run the risk of more problems over time. The challenge for clinicians is to time interventions properly, to engage these persons, and even more importantly, to make sure that they actively engage in the group.

Many people are hesitant to take an active part if the group is too large or if they are unsure how their contributions will be valued. This demands group leaders who can create a climate that feels safe for participants and where there is trust in the leaders and the other participants (Dyregrov, 2003). Without this facilitative climate, there may be little chance to get more guarded or avoidant people to engage.

None of the debriefing participants reported that the intervention made them worse, and almost all felt that it was of help. The critics of debriefing have warned that it can harm, resulting in processes where participants commence an internal search for symptoms forming an emotional contagion or vicarious traumatization within the group. This may, of course, be a concern, but with a homogeneous group, good leadership that focuses the process on coping and normalization, it is of little practical concern. Recently, Woodward et al. (2000) tested this concern when they assessed heart rate data (physiological arousal) during group sessions where Vietnam veterans recounted their traumas. The heart rate responses in participants who were not relating their own traumatic incidents did not increase; suggesting that vicarious traumatization among fellow group members may not be a major problem. However, debriefing is not therapy, and this research finding awaits replication in a debriefing or "non-pathologic" group.

Those who chose not to participate in debriefing seem to be less exposed and affected (i.e., time spent in water, influence of family sphere) than those who participate. There may be many reasons why people do not participate: they may not feel the need, they may want to manage by themselves, they may have little belief in such meetings, they think that talking with or listening to others may make matters worse, there may be practical matters that preclude them from participation, the timing is inappropriate to their needs, or they lack trust in the offered services. It may also be that

those who do not participate have friends and family that are more ready to help them and thus their need for meeting others are reduced. Although not necessarily comparable, in a recent report on refugees who did not seek out clinical services, Weine et al. (2000) showed them to have substantial clinical symptom levels. However, their self-concepts did not appear to be oriented to illness and help seeking. As the authors state, "The self-concept of not being distressed and not needing help, weighs more strongly than the presence or severity of symptoms" (p. 419). They nonetheless rated their health status as better on all possible parameters. Similar processes may be at work in our sample. The follow-up provided in this study included a telephone call to all respondents whose scores indicated high symptomatic distress. Nevertheless, several of the persons with high symptomatic levels of distress declined the offer of individual support.

Conclusion

Although the exposure was rather extreme during this maritime disaster, leading to consequences that impacted survivors in various spheres of their life, the great majority were doing well over time. Hopefully, lower distress scores compared to other maritime disasters reflect on a structured and caring system that was implemented to care for survivors.

Participants who take part in debriefings greatly appreciate these meetings. As "consumers," they are able to differentiate among the functions served by the meetings. Those that seek out the debriefing meetings have had longer disaster-exposure time and seem to be more distressed than non-participants. Screening may provide the basis for a sensitive outreach to those in need who want more professional follow-up. However, non-participants should be respected for their decision not to take part in debriefing or other mental health follow-up. Some people will, regardless of their symptom levels, not be oriented to illness or help-seeking behavior. An aggressive outreach focus toward this group may be viewed as disrespectful and may make them more resistant to later help.

Regardless of the debate on early intervention, it is important from a psychosocial perspective to provide survivors with the sense of a caring system that reaches out to assist them. Ursano, Fullerton, Vance, and Wang (2000) state that: "Debriefing, like sleep medication or pain medication, may have little or no impact on standard health measures but still be an important intervention to limit pain, discomfort, and disability" (p. 40).

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